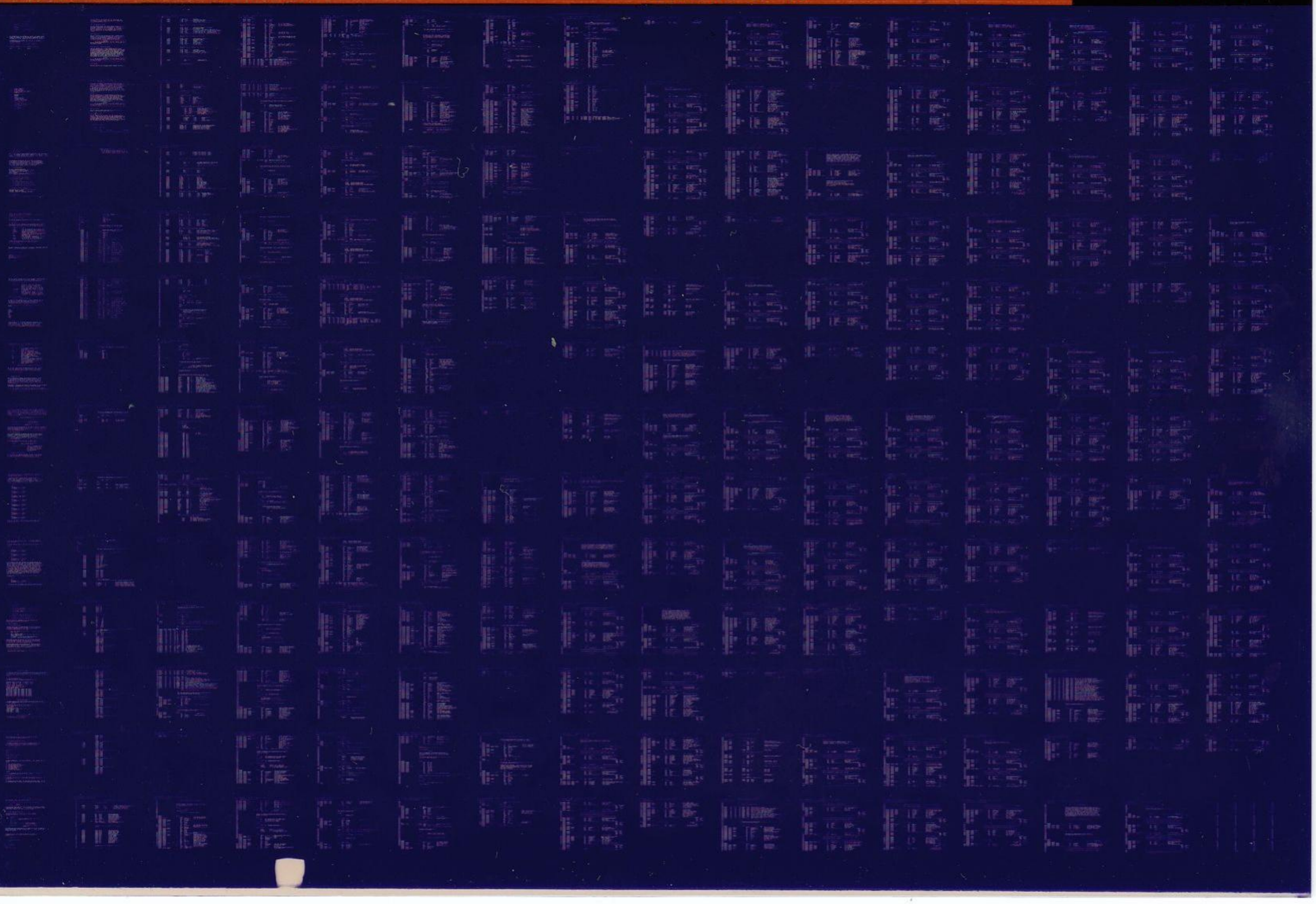
11/Z1+ TSV05 CTRL LT3
TSV05 CNTSCR0

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IDENTIFICATION

PRODUCT ID: AC T818A MC

PRODUCT TITLE: CNTSCAO TSV05 CTRL LIB

DECO/DEPO: 1.0

DEPARTMENT: ISS/DIAGNOSTIC SERVICES

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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS IS A SBC 11/21+ RESIDENT DIAGNOSTIC WHICH CHECKS THE FUNCTIONALITY OF A TSV05 MAGTAPE SUBSYSTEM WHILE CONNECTED TO A SBC 11/21+ SYSTEM (Q BUS). THE PROGRAM PROVIDES ERROR MESSAGES WHICH IDENTIFY FAILING FUNCTIONS THAT AID IN THE REPAIR OF THE DEVICE. THIS DIAGNOSTIC CONSIST OF EIGHT TEST WHICH ARE EXECUTED IN SEQUENCE.

THIS DIAGNOSTIC HAS BEEN WRITTEN FOR USE WITH THE DIAGNOSTIC RUNTIME SERVICES SOFTWARE (SUPERVISOR). THESE SERVICES PROVIDE THE INTERFACE TO THE OPERATOR AND TO THE SOFTWARE ENVIRONMENT. THIS PROGRAM CAN BE USED WITH XXDP+, ACT, APT, SLIDE AND PAPER TAPE. FOR A COMPLETE DESCRIPTION OF THE RUNTIME SERVICES, REFER TO THE XXDP+ USER'S MANUAL. THERE IS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES IN SECTION 2 OF THIS DOCUMENT.

1.2 SYSTEM REQUIREMENTS

SBC 11/21+ PROCESSOR AND MEMORY
CAUTION:DIAGNOSTIC REQUIRES 32K WORDS OF MEMORY
(28K USEABLE I.E. 4K FOR I/O PAGE)
TSV05 MAGTAPE SUBSYSTEM (DRIVE AND CONTROLLER)
CONSOLE TERMINAL
PDP-11 DIAGNOSTIC SUPERVISOR (HSAAA.SYS VERSION 34 OR LATER)
PDP 11 DIAGNOSTIC LOADER/MONITOR (XXDP+)

1.3 RELATED DOCUMENTS AND STANDARDS

DIGITAL EQUIPMENT CORPORATION DOCUMENTS:

1. XXDP+ USERS MANUAL
2. TSV05 TRANSPORT SUBSYSTEM USER'S GUIDE
3. TSV05 TRANSPORT SUBSYSTEM TECHNICAL MANUAL
4. TSV05 TRANSPORT SUBSYSTEM INSTALLATION MANUAL

1.4 DIAGNOSTIC HIERARCY PPEREQUISITES

FUNCTIONAL SBC-11/21+ CENTRAL PROCESSOR AND MEMORY
FUNCTIONAL CONSOLE TERMINAL
FUNCTIONAL STANDALONE DIAGNOSTIC SUPERVISOR
FUNCTIONAL DIAGNOSTIC LOADER/MONITOR (XXDP+)

1.5 ASSUMPTIONS

ALL HARDWARE EXCEPT THE HARDWARE UNDER TEST IS ASSUMED TO WORK

PROPERLY OR FALSE ERRORS CAN BE REPORTED.
THE TAPE BEING USED ON THE TSO5 TRANSPORT IS A KNOWN GOOD REEL
OF TAPE.
CNTSAA AND CNTSBA HAVE SUCESSFULLY RUN.

2.0 OPERATING INSTRUCTIONS

THIS SECTION CONTAINS A BRIEF DESCRIPTION OF THE RUNTIME SERVICES.
FOR DETAILED INFORMATION, REFER TO THE XXDP+ USER S MANUAL.

2.1 COMMANDS

THERE ARE ELEVEN LEGAL COMMANDS FOR THE DIAGNOSTIC RUNTIME SERVICES
(SUPERVISOR). THIS SECTION LISTS THE COMMANDS AND GIVES A VERY
BRIEF DESCRIPTION OF THEM. THE XXDP+ USER'S MANUAL HAS MORE DETAILS.

COMMAND	EFFECT
START	START THE DIAGNOSTIC FROM AN INITIAL STATE
RESTART	START THE DIAGNOSTIC WITHOUT INITIALIZING
CONTINUE	CONTINUE AT TEST THAT WAS INTERRUPTED (AFTER ↑C)
PROCEED	CONTINUE FROM AN ERROR HALT
EXIT	RETURN TO XXDP+ MONITOR (XXDP+ OPERATION ONLY!)
ADD	ACTIVATE A UNIT FOR TESTING (ALL UNITS ARE CONSIDERED TO BE ACTIVE AT START TIME
DROP	DEACTIVATE A UNIT
PRINT	PRINT STATISTICAL INFORMATION (IF IMPLEMENTED BY THE DIAGNOSTIC - SECTION 4.0)
DISPLAY	TYPE A LIST OF ALL DEVICE INFORMATION
FLAGS	TYPE THE STATE OF ALL FLAGS (SEE SECTION 2.3)
ZFLAGS	CLEAR ALL FLAGS (SEE SECTION 2.3)

A COMMAND CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. SO
YOU MAY, FOR EXAMPLE, TYPE "STA" INSTEAD OF 'START".

2.1.1 OPERATOR COMMANDS

THE TSV05 DIAGNOSTIC IS A SBC-11/21+ DIAGNOSTIC SUPERVISOR COMPATIBLE
PROGRAM. ALL LOADING AND RUNTIME INSTRUCTIONS CAN BE REFERENCED IN THE
XXDP+ USERS MANUAL. THE USER ENTRY IS IN QUOTES.

BOOT THE DIAGNOSTIC MEDIA

```
.R NTSC??
DIAG. RUN-TIME SERVICES REV D. APR 79
CNTSC-A-0
****TSV05 LOGIC DIAGNOSTIC****
UNIT IS TSV05
>DR
```

2.2 SWITCHES

THERE ARE SEVERAL SWITCHES WHICH ARE USED TO MODIFY SUPERVISOR OPERATION.
THESE SWITCHES ARE APPENDED TO THE LEGAL COMMANDS. ALL OF THE LEGAL
SWITCHES ARE TABULATED BELOW WITH A BRIEF DESCRIPTION OF EACH.
IN THE DESCRIPTIONS BELOW, A DECIMAL NUMBER IS DESIGNATED BY 'DDDDD'.

SWITCH	EFFECT
/TESTS:LIST	EXECUTE ONLY THOSE TESTS SPECIFIED IN THE LIST. LIST IS A STRING OF TEST NUMBERS, FOR EXAMPLE - /TESTS:1:5:7-10. THIS LIST WILL CAUSE TESTS 1,5,7,8,9,10 TO BE RUN. ALL OTHER TESTS WILL NOT BE RUN.
/PASS:DDDDD	EXECUTE DDDDD PASSES (DDDDD = 1 TO 64000)
/FLAGS:FLGS	SET SPECIFIED FLAGS. FLAGS ARE DESCRIBED IN SECTION 2.3.
/EOP:DDDDD	REPORT END OF PASS MESSAGE AFTER EVERY DDDDD PASSES ONLY. (DDDDD = 1 TO 64000)
/UNITS:LIST	TEST/ADD/DROP ONLY THOSE UNITS SPECIFIED IN THE LIST. LIST EXAMPLE - /UNITS:0:5:10 12 USE UNITS 0,5,10,11,12 (UNIT NUMBERS = 0-63)

EXAMPLE OF SWITCH USAGE:

```
START/TESTS:1-5/PASS:1000/EOP:100
```

THE EFFECT OF THIS COMMAND WILL BE: 1) TESTS 1 THROUGH 5 WILL BE
EXECUTED, 2) ALL UNITS WILL TESTED 1000 TIMES AND 3) THE END OF
PASS MESSAGES WILL BE PRINTED AFTER EACH 100 PASSES ONLY. A
SWITCH CAN BE RECOGNIZED BY THE FIRST THREE CHARACTERS. YOU MAY,
FOR EXAMPLE, TYPE "/TES:1-5" INSTEAD OF "/TESTS:1 5".

BELOW IS A TABLE THAT SPECIFIES WHICH SWITCHES CAN BE USED BY EACH
COMMAND.

	TESTS	PASS	FLAGS	EOP	UNITS
START	X	X	X	X	X
RESTART	X	X	X	X	X
CONTINUE		X	X	X	
PROCEED			X		
DROP					X
ADD					X
PRINT					
DISPLAY					X
FLAGS					
ZFLAGS					
EXIT					

2.3 FLAGS

FLAGS ARE USED TO SET UP CERTAIN OPERATIONAL PARAMETERS SUCH AS
LOOPING ON ERROR. ALL FLAGS ARE CLEARED AT STARTUP AND REMAIN
CLEARED UNTIL EXPLICITLY SET USING THE FLAGS SWITCH. FLAGS
ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE
FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR
ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS,

NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

FLAG	EFFECT
HOE	HALT ON ERROR - CONTROL IS RETURNED TO RUNTIME SERVICES COMMAND MODE
LOE	LOOP ON ERROR
IER*	INHIBIT ALL ERROR REPORTS
IBR*	INHIBIT ALL ERROR REPORTS EXCEPT FIRST LEVEL (FIRST LEVEL CONTAINS ERROR TYPE, NUMBER, PC, TEST AND UNIT)
IXE*	INHIBIT EXTENDED ERROR REPORTS (THOSE CALLED BY PRINTX MACRO'S)
PRI	DIRECT MESSAGES TO LINE PRINTER
PNT	PRINT TEST NUMBER AS TEST EXECUTES
BOE	"BELL" ON ERROR
UAM	UNATTENDED MODE (NO MANUAL INTERVENTION)
ISR	INHIBIT STATISTICAL REPORTS (DOES NOT APPLY TO DIAGNOSTICS WHICH DO NOT SUPPORT STATISTICAL REPORTING)
IDR	INHIBIT PROGRAM DROPPING OF UNITS
ADR	EXECUTE AUTODROP CODE
LOT	LOOP ON TEST

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

SEE THE XXDP+ USER'S MANUAL FOR MORE DETAILS ON FLAGS. YOU MAY SPECIFY MORE THAN ONE FLAG WITH THE FLAG SWITCH. FOR EXAMPLE, TO CAUSE THE PROGRAM TO LOOP ON ERROR, INHIBIT ERROR REPORTS AND TYPE A "BELL" ON ERROR, YOU MAY USE THE FOLLOWING STRING:

```
/FLAGS:LOE:IER:BOE
```

2.4 HARDWARE QUESTIONS

WHEN A DIAGNOSTIC IS STARTED, THE RUNTIME SERVICES WILL PROMPT THE USER FOR HARDWARE INFORMATION BY TYPING "CHANGE HW (L) ?" YOU MUST ANSWER "Y" AFTER A START COMMAND UNLESS THE HARDWARE INFORMATION HAS BEEN "PRELOADED" USING THE SETUP UTILITY (SEE CHAPTER 6 OF THE XXDP+ USER'S MANUAL). WHEN YOU ANSWER THIS QUESTION WITH A "Y", THE RUNTIME SERVICES WILL ASK FOR THE NUMBER OF UNITS (IN DECIMAL).

AFTER INITIAL STARTING OF THE PROGRAM (START COMMAND TO THE DIAGNOSTIC SUPERVISOR), THE PROGRAM WILL ISSUE THE "CHANGE HW?" QUESTION TO ASK IF THE HARDWARE PARAMETERS ARE TO BE CHANGED (BY THE OPERATOR).

ON A "N" (NO) RESPONSE TO THE "CHANGE HW?" QUESTION, THE DIAGNOSTIC WILL RUN USING THE DEFAULT VALUES FOR ALL QUESTIONS. THE DEFAULT ADDRESS AND VECTOR ARE:

```
TSBA/TSDB = 176000, VECTOR = 224
```

ON A 'Y' (YES) RESPONSE TO THE QUESTION, THE FOLLOWING QUESTIONS WILL THEN BE ASKED TO ALLOW THE OPERATOR TO SELECT THE UNITS TO BE TESTED. A VALUE, IF PRESENT, LOCATED TO THE LEFT OF THE QUESTION MARK IS THE DEFAULT VALUE THAT WILL BE TAKEN IF ONLY A CARRIAGE RETURN IS TYPED AS A RESPONSE. A "(D)" IN A QUESTION INDICATES THAT A DECIMAL NUMBER IS REQUIRED AS A RESPONSE. AN "(O)" INDICATES AN OCTAL NUMBER IS BEING SOLICITED. AN "(L)" INDICATES THAT A LOGICAL RESPONSE IS TO BE MADE: 'Y" FOR YES, "N" FOR NO.

```
# UNITS (D) ?  <ENTER THE NUMBER OF M7196 CONTROLLERS
                PRESENT TO BE TESTED>

UNIT 0

DEVICE ADDRESS  (O) 176000 ? <ENTER THE ADDRESS OF THE
                              TSBA/TSDB REGISTER>

VECTOR (O) 224 ?          <ENTER ADDRESS OF INTERRUPT
                          VECTOR>
```

THE ADDRESS AND VECTOR QUESTIONS WILL BE ASKED FOR EACH OF THE NUMBER OF UNITS (CONTROLLERS) SPECIFIED IN THE "# UNITS?' QUESTION. LOGICAL UNIT NUMBERS ARE ASSIGNED IN ORDER, BEGINNING AT 0. UP TO FOUR UNITS CAN BE SELECTED FOR TESTING AS FOLLOWS:
UP TO 4 TSV05 CONTROLLERS PER 11/21, AND UP TO 2 DRIVES PER CONTROLLER

2.5 SOFTWARE QUESTIONS

AFTER YOU HAVE ANSWERED THE HARDWARE QUESTIONS OR AFTER A RESTART OR CONTINUE COMMAND, THE RUNTIME SERVICES WILL ASK FOR SOFTWARE PARAMETERS. THESE PARAMETERS WILL GOVERN SOME DIAGNOSTIC SPECIFIC OPERATION MODES. YOU WILL BE PROMPTED BY "CHANGE SW (L) ?'
IF YOU WISH TO CHANGE ANY PARAMETERS, ANSWER BY TYPING "Y'. THE SOFTWARE QUESTIONS AND THE DEFAULT VALUES ARE DESCRIBED IN THE NEXT PARAGRAPH(S).

THE FOLLOWING QUESTIONS ARE ASKED ON A START, RESTART, OR CONTINUE. THEY ALLOW FLEXIBILITY IN THE WAY THE PROGRAM BEHAVES.

```
CHANGE SW (L) ? <TYPE Y TO CAUSE THE FOLLOWING
                 QUESTIONS TO BE ASKED>

INHIBIT ITERATIONS (L) N ?  <TYPE "Y" TO PREVENT MULTIPLE
                            ITERATIONS OF CERTAIN TESTS.
                            THIS CAUSES EACH TEST PASS TO
                            RUN AS QUICKLY AS POSSIBLE.
                            ONLY QUICK-RUNNING LOGIC
                            TESTS USE MULTIPLE
                            ITERATIONS.>
```

2.6 EXTENDED P TABLE DIALOGUE

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH UNIT TO BE TESTED. IF YOU HAVE A MULTIPLEXED DEVICE SUCH AS

A MASS STORAGE CONTROLLER WITH SEVERAL DRIVES OR A COMMUNICATION
DEVICE WITH SEVERAL LINES. THIS BECOMES TEDIOUS SINCE MOST OF
THE ANSWERS ARE REPETITIOUS.

TO ILLUSTRATE A MORE EFFICIENT METHOD, SUPPOSE YOU ARE TESTING
A DEVICE, THE XY11. SUPPOSE THIS DEVICE CONSISTS OF
A CONTROL MODULE WITH EIGHT UNITS (SUB-DEVICES) ATTACHED TO IT.
THESE UNITS ARE DESCRIBED BY THE OCTAL NUMBERS 0 THROUGH 7. THERE
IS ONE HARDWARE PARAMETER THAT CAN VARY AMONG UNITS CALLED THE
Q-FACTOR. THIS Q-FACTOR MAY BE 0 OR 1. BELOW IS A SIMPLE WAY
TO BUILD A TABLE FOR ONE XY11 WITH EIGHT UNITS.

```
@ UNITS (D) ?  8<CR>

UNIT 1
CSR ADDRESS (O) ?  160000<CR>
SUB DEVICE @ (O) ?  0<CR>
Q FACTOR (O) O ?  1<CR>

UNIT 2
CSR ADDRESS (O) ?  160000<CR>
SUB DEVICE @ (O) ?  1<CR>
Q-FACTOR (O) 1 ?  0<CR>

UNIT 3
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE @ (O) ?  2<CR>
Q-FACTOR (O) O ?  <CR>

UNIT 4
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE @ (O) ?  3<CR>
Q-FACTOR (O) O ?  <CR>

UNIT 5
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE @ (O) ?  4<CR>
Q-FACTOR (O) O ?  <CR>

UNIT 6
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE @ (O) ?  5<CR>
Q-FACTOR (O) O ?  <CR>

UNIT 7
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE @ (O) ?  6<CR>
Q-FACTOR (O) O ?  1<CR>

UNIT 8
CSR ADDRESS (O)  160000<CR>
SUB DEVICE @ (O) ?  7<CR>
Q-FACTOR (O) 1 ?  <CR>
```

NOTICE THAT THE DEFAULT VALUE FOR THE Q-FACTOR CHANGES WHEN A
NON DEFAULT RESPONSE IS GIVEN. BE CAREFUL WHEN SPECIFYING
MULTIPLE UNITS!

AS YOU CAN SEE FROM THE ABOVE EXAMPLE, THE HARDWARE PARAMETERS DO NOT VARY SIGNIFICANTLY FROM UNIT TO UNIT. THE PROCEDURE SHOWN IS NOT VERY EFFICIENT.

THE RUNTIME SERVICES CAN TAKE MULTIPLE UNIT SPECIFICATIONS HOWEVER. LET'S BUILD THE SAME TABLE USING THE MULTIPLE SPECIFICATION FEATURE.

```
# UNITS (D) ?  8<CR>

UNIT 1
CSR ADDRESS (O) ?  160000<CR>
SUB DEVICE # (O) ?  0,1<CR>
Q-FACTOR (O) O ?  1,0<CR>

UNIT 3
CSR ADDRESS (O) ?  160000<CR>
SUB DEVICE # (O) ?  2 5<CR>
Q FACTOR (O) O ?  0<CR>

UNIT 7
CSR ADDRESS (O) ?  160000<CR>
SUB DEVICE # (O) ?  6,7<CR>
Q-FACTOR (O) O ?  1<CR>
```

AS YOU CAN SEE IN THE ABOVE DIALOGUE, THE RUNTIME SERVICES WILL BUILD AS MANY ENTRIES AS IT CAN WITH THE INFORMATION GIVEN IN ANY ONE PASS THROUGH THE QUESTIONS. IN THE FIRST PASS, TWO ENTRIES ARE BUILT SINCE TWO SUB-DEVICES AND Q-FACTORS WERE SPECIFIED. THE SERVICES ASSUME THAT THE CSR ADDRESS IS 160000 FOR BOTH SINCE IT WAS SPECIFIED ONLY ONCE. IN THE SECOND PASS, FOUR ENTRIES WERE BUILT. THIS IS BECAUSE FOUR SUB-DEVICES WERE SPECIFIED. THE "-" CONSTRUCT TELLS THE RUNTIME SERVICES TO INCREMENT THE DATA FROM THE FIRST NUMBER TO THE SECOND. IN THIS CASE, SUB-DEVICES 2, 3, 4 AND 5 WERE SPECIFIED. (IF THE SUB-DEVICE WERE SPECIFIED BY ADDRESSES, THE INCREMENT WOULD BE BY 2 SINCE ADDRESSES MUST BE ON AN EVEN BOUNDARY.) THE CSR ADDRESSES AND Q-FACTORS FOR THE FOUR ENTRIES ARE ASSUMED TO BE 160000 AND 0 RESPECTIVELY SINCE THEY WERE ONLY SPECIFIED ONCE. THE LAST TWO UNITS ARE SPECIFIED IN THE THIRD PASS.

THE WHOLE PROCESS COULD HAVE BEEN ACCOMPLISHED IN ONE PASS AS SHOWN BELOW.

```
# UNITS (D) ?  8<CR>

UNIT 1
CSR ADDRESS (O) ?  160000<CR>
SUB-DEVICE # (O) ?  0-7<CR>
Q-FACTOR (O) O ?  0,1,0,...,1,1<CR>
```

AS YOU CAN SEE FROM THIS EXAMPLE, NULL REPLIES (COMMAS ENCLOSING A NULL FIELD) TELL THE RUNTIME SERVICES TO REPEAT THE LAST REPLY.

2.7 QUICK START-UP PROCEDURE (XXDP+)

TO START UP THIS PROGRAM:

1. BOOT XXDP+
2. GIVE THE DATE AND ANSWER THE LSI AND 50HZ (IF THERE IS A CLOCK) QUESTIONS
3. TYPE "R NAME", WHERE NAME IS THE NAME OF THE BIN OR BIC FILE FOR THIS PROGRAM
4. TYPE 'START"
5. ANSWER THE 'CHANGE HW" QUESTION WITH 'Y"
6. ANSWER ALL THE HARDWARE QUESTIONS
7. ANSWER THE "CHANGE SW" QUESTION WITH "N"

WHEN YOU FOLLOW THIS PROCEDURE YOU WILL BE USING ONLY THE DEFAULTS FOR FLAGS AND SOFTWARE PARAMETERS. THESE DEFAULTS ARE DESCRIBED IN SECTIONS 2.3 AND 2.5.

3.0 ERROR INFORMATION

3.1 TYPES OF ERROR MESSAGES

THERE ARE THREE LEVELS OF ERROR MESSAGES THAT MAY BE ISSUED BY A DIAGNOSTIC: GENERAL, BASIC AND EXTENDED. GENERAL ERROR MESSAGES ARE ALWAYS PRINTED UNLESS THE "IER" FLAG IS SET (SECTION 2.3). THE GENERAL ERROR MESSAGE IS OF THE FORM:

```
NAME  TYPE  NUMBER  ON UNIT NUMBER  TST NUMBER PC:XXXXXX
ERROR MESSAGE
```

```
.WHERE; NAME = DIAGNOSTIC NAME
        TYPE = ERROR TYPE (SYS FATAL, DEV FATAL, HARD OR SOFT)
        NUMBER = ERROR NUMBER
        UNIT NUMBER = 0 - N (N IS LAST UNIT IN PTABLE)
        TST NUMBER = TEST AND SUBTEST WHERE ERROR OCCURRED
        PC:XXXXXX = ADDRESS OF ERROR MESSAGE CALL
```

BASIC ERROR MESSAGES ARE MESSAGES THAT CONTAIN SOME ADDITIONAL INFORMATION ABOUT THE ERROR. THESE ARE ALWAYS PRINTED UNLESS THE "IER" OR "IBR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL MESSAGE.

EXTENDED ERROR MESSAGES CONTAIN SUPPLEMENTARY ERROR INFORMATION SUCH AS REGISTER CONTENTS OR GOOD/BAD DATA. THESE ARE ALWAYS PRINTED UNLESS THE "IER", "IBR" OR "IXR" FLAGS ARE SET (SECTION 2.3). THESE MESSAGES ARE PRINTED AFTER THE ASSOCIATED GENERAL ERROR MESSAGE AND ANY ASSOCIATED BASIC ERROR MESSAGES.

3.2 SPECIFIC ERROR MESSAGES

BELOW ARE SAMPLE ERROR MESSAGES. EACH ERROR MESSAGE REPRESENTS DIFFERENT TYPES OF ERRORS DETECTED BY THIS DIAGNOSTIC.

ERROR MESSAGE EXAMPLE 1

THIS ERROR IS INDICATIVE OF AN INCORRECT REGISTER OR STATUS WORD RETURNED TO THE DIAGNOSTIC. THE FIRST PART DEFINES THE TEST FUNCTION AND UNIT THAT FAILED. THE SECOND PART PRIOVIDES THE REGISTER BITS AND THEIR MNEMONICS FOR THE INCORRECT REGISTER OR STATUS WORDS. THE THIRD PART IS THE EXPECTED AND RECEIVED DATA.

```
TST: 016 FIFO EXERCISER TEST
CNTSC HRD ERR 01610 ON UNIT 00 TST 016 SUB 002 PC: 040624
FIFO STATUS (IN WORD  9) INCORRECT AFTER WRITE FIFO

 TAPE BUS SIGNALS IN WORD #8: - DESIGNATOR <BIT #>
PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>
IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>
IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>
 TAPE BUS SIGINALS IN WORD #9:
DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>
 MESSAGE BUFFER ADDRESS = 047352
 MESSAGE BUFFER CONTENTS:
WORD #0 EXPD: 100020  RECV: 100020  XOR: 000000
WORD #1 EXPD: 000012  RECV: 000012  XOR: 000000
WORD #2 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #3 EXPD: 000010  RECV: 000010  XOR: 000000
WORD #4 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #5 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #6 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #7 EXPD: 000000  RECV: 000000  XOR: 000000
WORD #8 EXPD: 070217  RECV: 070217  XOR: 000000
WORD #9 EXPD: 000074  RECV: 000034  XOR: 000040
```

ERROR MESSAGE EXAMPLE 2

THIS ERROR SHOWS A FATAL FUNCTION ERROR FROM THE TAPE DRIVE.IN THIS INSTANCE A UNRECOVERABLE ERROR OCCURED WHICH INDICATES THAT THE CONTROLLER MAY BE DEFECTIVE.

```
CNTSC HRD ERR 00159 ON UNIT 00 TST 001 SUB 005 PC: 026202
TSSR NOT CORRECT AFTER SPACE RECORDS COMMAND
 TSSR = 100214
 TSSR BITS SET: SC,SSR
 TERMINATION CLASS CODE = UNRECOVERABLE ERROR
 PACKET ADDRESS = 026420
 PACKET WORD #  = 140010
 PACKET WORD #  = 000010
 PACKET WORD #  = 000000
 PACKET WORD #  = 000024
```

ERROR MESSAGE EXAMPLE 3

THIS ERROR SHOWS THAT THE MOTION BIT DID NOT GET SET WHILE DOING A REWING WITH EXTENDED FEATURES MODE ENABLED.

```
CNTSC HRD ERR 00121 ON UNIT 00 TST 001 SUB 002 PC: 023306
MOT BIT (XSTO) NOT SET DURING REWIND (EXTENDED FEATURES MODE)
 EXPD: 000312 RECV: 000112 XOR: 000200
```

4.0 PERFORMANCE AND PROGRESS REPORTS

AT THE END OF EACH PASS, THE PASS COUNT IS GIVEN ALONG WITH THE TOTAL NUMBER OF ERRORS REPORTED SINCE THE DIAGNOSTIC WAS STARTED. THE "EOP" SWITCH CAN BE USED TO CONTROL HOW OFTEN THE END OF PASS MESSAGE IS PRINTED. SECTION 2.2 DESCRIBES SWITCHES.

SUCCESSFUL RUN EXAMPLE (SBC 11/21+)

```
DR>STA/FLA:PNT:HCE

UNITS (D) ?  1

UNIT 0

DEVICE ADDRESS  (O) 176000 ? <CR>

VECTOR (O) 224 ? <CR>

CHANGE SW (L) ? N<CR>
```

THE ABOVE COMMAND WILL START THE DIAGNOSTIC. THE COMMAND HAS TWO SWITCHES ON WHICH ARE "PRINT EACH TEST NBR AS EXECUTED' AND "HALT ON ERROR".

```
TST: 001 INITIALIZE 04 TEST
TST: 002 OFF-LINE REJECT AND REWIND TEST
TST: 003 BASIC WRITE DATA TEST
TST: 004 BASIC READ DATA TEST
TST: 005 SPACE RECORDS TEST
TST: 006 REREADS TEST
TST: 007 WRITE DATA RETRY TEST
TST: 008 WRITE TAPE MARK TEST

0 ERRORS
```

NOTE: THE DIAGNOSTIC WILL RUN CONTINUOUSLY UNLESS A PASS NUMBER LIMIT HAS BEEN SPECIFIED WITH THE "/PASS:" SWITCH.

PROGRAM RUN TIMES

THE AVERAGE RUN TIMES OF THE PROGRAM ARE LISTED BELOW.THESE FIGURES ARE TO BE USED AS A GUIDE. THE TIMING WAS DONE ON A FALCON PROCESSOR.

THE PROGRAM RUNS IN TWO MODES; NO ITERATIONS AND DEFAULT MODE. IN THE NO ITERATIONS MODE, EACH TEST IS RUN ONCE, WITH NO ITERATIONS. IN THE DEFAULT MODE EACH TEST IS REPEATED BY THE NUMBER OF TIMES INDICATED BY

THE ITERATION COUNT. NO ITERATIONS MODE IS SELECTED BY ANSWERING THE INHIBIT ITERATIONS QUESTION WITH A 'Y" (YES).

THE TIMES REQUIRED TO RUN TESTS 1 THROUGH 8 IN ONE COMMAND:

Q.V. 7 MINUTES
DEFAULT 34 MINUTES

MORE EXHAUSTIVE CHECKS ARE AVAILABLE BY ALLOWING THE DIAGNOSTIC PROGRAMS TO RUN FOR MORE THAN ONE PASS. THE SECOND PASS OF THE PROGRAM IS MORE COMPREHENSIVE THAN THE FIRST PASS. ALL ITERATIONS AFTER THE FIRST PASS ARE THE SAME, HOWEVER, THEY ARE SUBSTANTIALLY LONGER.

5.0 DEVICE INFORMATION TABLES

WHENEVER THE PROGRAM IS STARTED, VIA THE STA(RT) COMMAND, THE SUPERVISOR REQUESTS THE FOLLOWING P TABLES PARAMETER CHANGES:

```
CHANGE HW (L) ?

# UNITS (D) ?  <ENTER THE NUMBER OF M7196 CONTROLLERS
                PRESENT TO BE TESTED>

UNIT 0

DEVICE ADDRESS  (O) 176000 ? <ENTER THE ADDRESS OF THE
                               TSBA/TSDB REGISTER>
VECTOR (O) 224 ?             <ENTER ADDRESS OF INTERRUPT
                              VECTOR>
```

THE ADDRESS AND VECTOR QUESTIONS WILL BE ASKED FOR EACH OF THE NUMBER OF UNITS (CONTROLLERS) SPECIFIED IN THE "# UNITS?" QUESTION. LOGICAL UNIT NUMBERS ARE ASSIGNED IN ORDER, BEGINNING AT 0. UP TO FOUR UNITS CAN BE SELECTED FOR TESTING.

IN ADDITION, ON A START, RESTART OR CONTINUE THE SUPERVISOR REQUESTS CHANGES TO THE SOFTWARE OPERATING PARAMETERS, AS FOLLOWS:

```
CHANGE SW (L) ?

INHIBIT ITERATIONS (L) N ?
```

6.0 TEST SUMMARIES

TEST 1: INITIALIZE #4 TEST

THIS TEST VERIFIES THAT WRITING INTO THE TSSR RETURNS THE CONTROLLER TO ITS INITIALIZED STATE FROM VARIOUS CONDITIONS (I.E. LOOPBACK ENABLED, FORCING WRONG PARITY, INVERTING SENSE OF EXTENDED FEATURES SWITCH, ETC.)

TEST 2: OFF-LINE AND REJECT REWIND

THIS TEST VERIFIES BASIC TAPE MOTION COMMAND DECODING AND BASIC OPERATION OF THE REWIND POSITIONING COMMAND. IT DOES NOT NECESSARILY DEMONSTRATE THAT THE TRANSPORT CAN BE REWOUND FROM AN ARBITRARY POSITION ON THE TAPE. SUBSEQUENT TESTS IMPLICITLY CHECK THE OPERATION OF THE REWIND COMMAND SINCE THEY MUST TYPICALLY REWIND THE TAPE IN THE NORMAL COURSE OF THEIR TEST SEQUENCES.

TEST 3: BASIC WRITE DATA

THIS TEST VERIFIES THAT THE WRITE DATA (NEXT) COMMAND OPERATES PROPERLY, UP TO THE POINT OF CHECKING THAT THE DATA WAS ACTUALLY WRITTEN ONTO THE TAPE CORRECTLY. CHECKING IN THIS TEST IS LIMITED TO VERIFYING THAT THE COMMAND TERMINATED CORRECTLY WITH THE CORRECT REGISTER, MESSAGE BUFFER AND RAM CONTENTS.

****

CAUTION

THE LSI BUS DRIVERS FOR ALL AVAILABLE ADDRESS LINES(16-21) ARE ONLY CHECKED WHEN RUNNING ON A 11/21+ SYSTEM WITH MORE THAN 128K WORDS OF MEMORY!

****

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

THIS TEST VERIFIES THAT THE READ FORWARD AND READ REVERSE COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN DATA BUFFER BOUNDARIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY SPACE IS AVAILIABLE), AND BYTE-SWAP CONTROL ARE USED. THIS TEST OF COURSE, FURTHER VERIFIES THE WRITE DATA COMMAND BY ACTUALLY READING AND VERIFYING WRITTEN DATA. ALSO TESTED ARE PROPER TERMINATIONS ON EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES, ILLEGAL CODES IN THE MODE FIELD OF THE BASIC READ COMMAND, AND DATA BUFFERS IN NON-EXISTANT MEMORY.

****

CAUTION

THE LSI BUS DRIVERS FOR ALL AVAILABLE ADDRESS LINES(16-21) ARE ONLY CHECKED WHEN RUNNING ON A 11/21+ SYSTEM WITH MORE THAN 128K WORDS OF MEMORY!

****

TEST 5: SPACE RECORDS

THIS TEST VERIFIES THAT THE SPACE RECORDS FORWARD AND SPACE RECORDS REVERSE POSITION COMMANDS OPERATE PROPERLY WHEN SPACING

OVER NORMAL DATA RECORDS. OPERATION WHEN SPACING OVER TAPE MARKS
IS VERIFIED IN A SUBSEQUENT TEST. THE BASIC WRITE DATA TEST
SHOULD HAVE BEEN RUN SUCCESSFULLY FOR THIS TEST TO PRODUCE MEANINGFUL
RESULTS. THIS TEST CONSISTS OF A SERIES OF SUBTESTS. IN EACH
OF THE SUBTESTS, THE TAPE IS ENTIRELY WRITTEN WITH RECORDS
OF VARYING SIZES AND DATA CONTENT; THE FIRST 4 BYTES OF EACH
RECORD INDICATE THAT RECORD'S RELATIVE POSITION ON TAPE. AFTER
EACH SPACING OPERATION, THE TAPE POSITION IS VERIFIED BY READING
THE NEXT OR PREVIOUS RECORD AND COMPARING THE POSITION DATA WITH
THE EXPECTED RESULT.

TEST 6: REREADS

THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT
COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
SPACE IS AVAILIABLE), AND BYTE-SWAP (SWP) AND OPPOSITE (OPP)
CONRTOL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON
EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD
LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES,
AND DATA BUFFERS IN NONEXISTENT MEMORY.

****

CAUTION

THE LSI BUS DRIVERS FOR ALL AVAILABLE ADDRESS LINES(16-21)
ARE ONLY CHECKED WHEN RUNNING ON A 11/21+ SYSTEM WITH MORE THAN
128K WORDS OF MEMORY!

****

TEST 7: WRITE DATA RETRY

THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY
COMMAND (SPACE REVERSE, ERASE, WRITE DATA)

TEST 8: WRITE/READ TAPE MARK

THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES
PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE
BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE
TAPE MARK. IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST
SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED
THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT
FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.

7.0 MAINTENANCE HISTORY

REVISION A - MARCH 1982

CVTSCAO => CNTSCAO JAKI BERG 9 APR-1984

CHANGES WERE MADE TO CVTSCAO TO PRODUCE CNTSCAO FOR THE

```
;FALCON-PLUS PROJECT (SBC-11/21+).  CHANGES, MARKED BY
;JB REV A-0", ARE:
;       SET THE ODT BREAK VECTOR (LOCATION 140) TO THE
;     STARTING ADDRESS OF FALCON'S ODT ROM (170000 OCTAL).
;     - LOWER THE GENERAL INTERRUPT PRIORITY FROM 7 TO 6.
;       CHANGE DEFAULT CSR ADDRESS FROM 172540 TO 176000.
```

```
                                        .TITLE  TSV2  PROGRAM HEADER
                                        .SBTTL  PROGRAM HEADER

                                        .MCALL  SVC
000000                                  SVC                     ; INITIALIZE SUPERVISOR MACROS
                                        .ENABLE LC
                                        .NLIST  BEX,CND
000000                                  .ENABL  ABS,AMA
        002000                          .=2000
002000                                  BGNMOD  TSV2
002000                          TSV2::

                                ;**
                                ; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
                                ; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
                                ; -


002000                                  POINTER BGNSW,BGNSFT,BGNAU,BGNDU,BGNRPT
002000                                  HEADER  CNTSC,A,0,655.,0
002000                          L$NAME::                ;DIAGNOSTIC NAME
002000  103                             .ASCII /C/
002001  116                             .ASCII /N/
002002  124                             .ASCII /T/
002003  123                             .ASCII /S/
002004  103                             .ASCII /C/
002005  000                             .BYTE   0
002006  000                             .BYTE   0
002007  000                             .BYTE   0
002010                          L$REV::                 ;REVISION LEVEL
002010  101                             .ASCII  /A/
002011                          L$DEPO::                ;0
002011  060                             .ASCII  /0/
002012                          L$UNIT::                ;NUMBER OF UNITS
002012  000000                          .WORD   0
002014                          L$TIML::                ;LONGEST TEST TIME
002014  001217                          .WORD   655.
002016                          L$HPCP::                ;POINTER TO H.W. QUES.
002016  112370                          .WORD   L$HARD
002020                          L$SPCP::                ;POINTER TO S.W. QUES.
002020  112522                          .WORD   L$SOFT
002022                          L$HPTP::                ;PTR. TO DEF. H.W. PTABLE
002022  002146                          .WORD   L$HW
002024                          L$SPTP::                ;PTR. TO S.W. PTABLE
002024  002156                          .WORD   L$SW
002026                          L$LADP::                ;DIAG. END ADDRESS
002026  113004                          .WORD   L$LAST
002030                          L$STA::                 ;RESERVED FOR APT STATS
002030  000000                          .WORD   0
002032                          L$CO::
002032  000000                          .WORD   0
002034                          L$DTYP::                ;DIAGNOSTIC TYPE
002034  000000                          .WORD   0
002036                          L$APT::                 ;APT EXPANSION
002036  000000                          .WORD   0
002040                          L$DTP::                 ;PTR. TO DISPATCH TABLE
002040  002124                          .WORD   L$DISPATCH
```

PROGRAM HEADER

```
002042                          L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
002042  000000                          .WORD   0
002044                          L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
002044  000000                          .WORD   0
002046                          L$EXP1::                ;EXPANSION WORD
002046  000000                          .WORD   0
002050                          L$MREV::                ;SVC REV AND EDIT #
002050      003                         .BYTE   C$REVISION
002051      003                         .BYTE   C$EDIT
002052                          L$EF::                  ;DIAG. EVENT FLAGS
002052  000000                          .WORD   0
002054  000000                          .WORD   0
002056                          L$SPC::
002056  000000                          .WORD   0
002060                          L$DEVP::                ; POINTER TO DEVICE TYPE LIST
002060  003372                          .WORD   L$DVTYP
002062                          L$REPP::                ;PTR. TO REPORT CODE
002062  023002                          .WORD   L$RPT
002064                          L$EXP4::
002064  000000                          .WORD   0
002066                          L$EXP5::
002066  000000                          .WORD   0
002070                          L$AUT::                 ;PTR. TO ADD UNIT CODE
002070  022470                          .WORD   L$AU
002072                          L$DUT::                 ;PTR. TO DROP UNIT CODE
002072  022566                          .WORD   L$DU
002074                          L$LUN::                 ;LUN FOR EXERCISERS TO FILL
002074  000000                          .WORD   0
002076                          L$DESP::                ;POINTER TO DIAG. DESCRIPTION
002076  003400                          .WORD   L$DESC
002100                          L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
002100  104035                          EMT     E$LOAD
002102                          L$ETP::                 ;POINTER TO ERRTBL
002102  000000                          .WORD   0
002104                          L$ICP::                 ;PTR. TO INIT CODE
002104  021646                          .WORD   L$INIT
002106                          L$CCP::                 ;PTR. TO CLEAN-UP CODE
002106  022754                          .WORD   L$CLEAN
002110                          L$ACP::                 ;PTR. TO AUTO CODE
002110  022674                          .WORD   L$AUTO
002112                          L$PRT::                 ;PTR. TO PROTECT TABLE
002112  021636                          .WORD   L$PROT
002114                          L$TEST::                ;TEST NUMBER
002114  000000                          .WORD   0
002116                          L$DLY::                 ;DELAY COUNT
002116  000000                          .WORD   0
002120                          L$HIME::                ;PTR. TO HIGH MEM
002120  000000                          .WORD   0
```

DISPATCH TABLE

```
                                        .SBTTL  DISPATCH TABLE

                                ;**
                                ; THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
                                ; IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
                                ;

002122                                  DISPATCH 8
002122  000010                         .WORD   8
002124                          L$DISPATCH::
002124  023564                          .WORD   T1
002126  024702                          .WORD   T2
002130  027362                          .WORD   T3
002132  034352                          .WORD   T4
002134  046466                          .WORD   T5
002136  055404                          .WORD   T6
002140  074726                          .WORD   T7
002142  104744                          .WORD   T8
```

DEFAULT HARDWARE P TABLE

```
                                        .SBTTL  DEFAULT HARDWARE P TABLE

                                ;++
                                ; THE DEFAULT HARDWARE P TABLE CONTAINS DEFAULT VALUES OF
                                ; THE TEST DEVICE PARAMETERS.  THE STRUCTURE OF THIS TABLE
                                ; IS IDENTICAL TO THE STRUCTURE OF THE RUN TIME P-TABLE.
                                ;--
002144                                  BGNHW   DFPTBL          ;DEFAULT HARD P-TABLE
002144  000003                          .WORD   L10000 L$HW/2
002146                          L$HW::
002146                          DFPTBL::

                                        .WORD   176000          ; 1ST (OF 2) REGISTERS.
002150  000224                          .WORD   224             ; INTERRUPT VECTOR
002152  000200                          .WORD   PRI04           ; INTERRUPT PRIORITY.
002154                                  ENDHW
002154                          L10000:
```

SOFTWARE P TABLE

```
                                        .SBTTL  SOFTWARE P TABLE

                                ;++
                                ; THE SOFTWARE P TABLE CONTAINS THE VALUES OF THE PROGRAM
                                ; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
                                ;
002154                                  BGNSW   SFPTBL
002154  000004                          .WORD   L10001 L$SW/2
002156                          L$SW::
002156                          SFPTBL::
                                
002156  000000                  TRANSTST::      .WORD   0       ; ENABLE TEST OF TRANSPORT(S) IF =1
002160  000000                  NOITS::         .WORD   0       ; INHIBIT ITERATION OPTION.
                                                                ; ... 0 = ITERATE.
                                                                ; ...NZ = INHIBIT ITERATE.
002162  000017                  LERRMAX::       .WORD   15.     ; LOCAL (PER TEST) ERROR LIMIT
002164  000310                  GERRMAX::       .WORD   200.    ; GLOBAL (PER UNIT) ERROR LIMIT
002166                                  ENDSW
002166                          L10001:
                                
                                        ENDMOD
```

```
                                .TITLE  TSV3 - GLOBAL AREAS
                                .SBTTL  GLOBAL EQUATES SECTION


002166                          BGNMOD  TSV3
002166                  TSV3::

                                .SBTTL  GLOBAL EQUATES SECTION

                                ;++
                                ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
                                ; ARE USED IN MORE THAN ONE TEST.
                                ;--

002166                          EQUALS          ; GET STANDARD EQUATES.
                                ;
                                ; BIT DIFINITIONS
                                ;
100000                          BIT15== 100000
040000                          BIT14== 40000
020000                          BIT13== 20000
010000                          BIT12== 10000
004000                          BIT11== 4000
002000                          BIT10== 2000
001000                          BIT09== 1000
000400                          BIT08== 400
000200                          BIT07== 200
000100                          BIT06== 100
000040                          BIT05== 40
000020                          BIT04== 20
000010                          BIT03== 10
000004                          BIT02== 4
000002                          BIT01== 2
000001                          BIT00== 1
                                ;
001000                          BIT9==  BIT09
000400                          BIT8==  BIT08
000200                          BIT7==  BIT07
000100                          BIT6==  BIT06
000040                          BIT5==  BIT05
000020                          BIT4==  BIT04
000010                          BIT3==  BIT03
000004                          BIT2==  BIT02
000002                          BIT1==  BIT01
000001                          BIT0==  BIT00
                                ;
                                ; EVENT FLAG DEFINITIONS
                                ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
                                ;
                                ;                                       ;  BIT POSITION IN SECOND STATUS WORD
000040                          EF.START==      32.             ; (100000) START COMMAND WAS ISSUED
000037                          EF.RESTART==    31.             ; (040000) RESTART COMMAND WAS ISSUED
000036                          EF.CONTINUE==   30.             ; (020000) CONTINUE COMMAND WAS ISSUED
000035                          EF.NEW==        29.             ; (010000) A NEW PASS HAS BEEN STARTED
000034                          EF.PWR==        28.             ; (004000) A POWER-FAIL/POWER UP OCCURRED
                                ;
                                ;
```

GLOBAL EQUATES SECTION

```
                        ; PRIORITY LEVEL DEFINITIONS
                        ;
000340                  PRI07== 340
000300                  PRI06== 300
000240                  PRI05== 240
000200                  PRI04== 200
000140                  PRI03== 140
000100                  PRI02== 100
000040                  PRI01== 40
000000                  PRI00== 0
                        ;
                        ;OPERATOR FLAG BITS
                        ;
000004                  EVL==     4
000010                  LOT==    10
000020                  ADR==    20
000040                  IDU==    40
000100                  ISR==   100
000200                  UAM==   200
000400                  BOE==   400
001000                  PNT==  1000
002000                  PRI==  2000
004000                  IXE==  4000
010000                  IBE== 10000
020000                  IER== 20000
040000                  LOE== 40000
100000                  HOE== 100000
33
34 002166                       KT11    ,,                      ;DEFINE MEMORY MANAGEMENT REGISTERS
                        .SBTTL  MEMORY MANAGEMENT DEFINITIONS
                        ;*KT11 VECTOR ADDRESS
000250                  MMVEC=  250
                        ;*KT11 STATUS REGISTER ADDRESSES
177572                  SR0=    177572
177574                  SR1=    177574
177576                  SR2=    177576
172516                  SR3=    172516
                        .IF NB
                        ;*USER "I' PAGE DESCRIPTOR REGISTERS
                        UIPDR0= 177600
                        UIPDR1= 177602
                        UIPDR2= 177604
                        UIPDR3= 177606
                        UIPDR4= 177610
                        UIPDR5= 177612
                        UIPDR6= 177614
                        UIPDR7= 177616
                        .IF NB
                        ;*USER "D" PAGE DESCRIPTOR REGISTORS
                        UDPDR0= 177620
                        UDPDR1= 177622
                        UDPDR2= 177624
                        UDPDR3= 177626
                        UDPDR4= 177630
                        UDPDR5= 177632
                        UDPDR6= 177634
                        UDPDR7= 177636
```

```
.ENDC
;*USER "I" PAGE ADDRESS REGISTERS
UIPAR0= 177640
UIPAR1= 177642
UIPAR2= 177644
UIPAR3= 177646
UIPAR4= 177650
UIPAR5= 177652
UIPAR6= 177654
UIPAR7= 177656
.IF NB
;*USER "D" PAGE ADDRESS REGISTERS
UDPAR0= 177660
UDPAR1= 177662
UDPAR2= 177664
UDPAR3= 177666
UDPAR4= 177670
UDPAR5= 177672
UDPAR6= 177674
UDPAR7= 177676
.ENDC
.ENDC
.IF NB
;*SUPERVISOR "I" PAGE DESCRIPTOR REGISTERS
SIPDR0= 172200
SIPDR1= 172202
SIPDR2= 172204
SIPDR3= 172206
SIPDR4= 172210
SIPDR5= 172212
SIPDR6= 172214
SIPDR7= 172216
.IF NB
;*SUPERVISOR "D" PAGE DESCRIPTOR REGISTERS
SDPDR0= 172220
SDPDR1= 172222
SDPDR2= 172224
SDPDR3= 172226
SDPDR4= 172230
SDPDR5= 172232
SDPDR6= 172234
SDPDR7= 172236
.ENDC
;*SUPERVISOR "I" PAGE ADDRESS REGISTERS
SIPAR0= 172240
SIPAR1= 172242
SIPAR2= 172244
SIPAR3= 172246
SIPAR4= 172250
SIPAR5= 172252
SIPAR6= 172254
SIPAR7= 172256
.IF NB
;*SUPERVISOR "D" PAGE ADDRESS REGISTERS
SDPAR0= 172260
SDPAR1= 172262
SDPAR2= 172264
```

M2

MEMORY MANAGEMENT DEFINITIONS

```
                        SDPAR3= 172266
                        SDPAR4= 172270
                        SDPAR5= 172272
                        SDPAR6= 172274
                        SDPAR7= 172276
                        .ENDC
                        .ENDC
                        ;*KERNEL "I" PAGE DESCRIPTOR REGISTERS
172300                  KIPDR0= 172300
172302                  KIPDR1= 172302
172304                  KIPDR2= 172304
172306                  KIPDR3= 172306
172310                  KIPDR4= 172310
172312                  KIPDR5= 172312
172314                  KIPDR6= 172314
172316                  KIPDR7= 172316
                        .IF NB
                        ;*KERNEL "D" PAGE DESCRIPTOR REGISTERS
                        KDPDR0= 172320
                        KDPDR1= 172322
                        KDPDR2= 172324
                        KDPDR3= 172326
                        KDPDR4= 172330
                        KDPDR5= 172332
                        KDPDR6= 172334
                        KDPDR7= 172336
                        .ENDC
                        ;*KERNEL "I" PAGE ADDRESS REGISTERS
172340                  KIPAR0= 172340
172342                  KIPAR1= 172342
172344                  KIPAR2= 172344
172346                  KIPAR3= 172346
172350                  KIPAR4= 172350
172352                  KIPAR5= 172352
172354                  KIPAR6= 172354
172356                  KIPAR7= 172356
                        .IF NB
                        ;*KERNEL "D" PAGE ADDRESS REGISTERS
                        KDPAR0= 172360
                        KDPAR1= 172362
                        KDPAR2= 172364
                        KDPAR3= 172366
                        KDPAR4= 172370
                        KDPAR5= 172372
                        KDPAR6= 172374
                        KDPAR7= 172376
                        .ENDC
```

```
                                SBTTL  TSV05 REGISTER AND PACKET DEFINITIONS

                        ;
                        ; SOME GENERAL EQUATES.
                        ;

000004                  ERRVEC==        4               ; POINTER TO ERROR VECTOR FOR BUS TIME OUT.
000060                  TTIVEC==        60              ; INTERRUPT VECTOR FOR CONSOLE INPUT
177560                  TTICSR==        177560          ; BUS ADDRESS OF CONSOLE INPUT
177562                  TTIBFR==        177562          ; CONSOLE INPUT DATA BUFFER
177520                  BDVPCR==        177520          ; BDV11 PAGE CONTROL REGISTER

                        ;+
                        ;BIT DEFINITIONS FOR TSSR REGISTER
                        ;-

100000                  SC=     BIT15           ;SPECIAL CONDITION
040000                  BIE=    BIT14           ;BUS INTERFACE ERROR
020000                  SCE=    BIT13           ;SANITY CHECK ERROR
010000                  RMR=    BIT12           ;MODIFICATION REFUSED
004000                  NXM=    BIT11           ;NONEXISTANT MEMORY ERROR
002000                  NBA=    BIT10           ;NEED BUFFER ADDRESS
001400                  HIADDR= BIT9!BIT8       ;EXTENDED ADDRESS BITS
000200                  SSR=    BIT7            ;SUB SYSTEM READY
000100                  OFL=    BIT6            ;OFF LINE BIT
000060                  FATERR= BIT4!BIT5       ;FATAL TERMINATION ERROR CODES
000016                  TERCLS= BIT3!BIT2!BIT1  ;TERMINATION CODES

                        ;+
                        ;
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 0
                        ;(XST0)
                        ;
                        ;-

100000                  XS0TMK= BIT15           ;TAPE MARK DETECTED
040000                  XS0RLS= BIT14           ;RECORD LENGTH SHORT
020000                  XS0LET= BIT13           ;LOGICAL END OF TAPE
010000                  XS0RLL= BIT12           ;RECORD LENGTH LONG
004000                  XS0WLE= BIT11           ;WRITE LOCK ERROR
002000                  XS0NEF= BIT10           ;NON EXECUTABLE FUNCTION
001000                  XS0ILC= BIT9            ;ILLEGAL COMMAND
000400                  XS0ILA= BIT8            ;ILLEGAL ADDRESS
000200                  XS0MOT= BIT7            ;TAPE IN MOTION
000100                  XS0ONL= BIT6            ;TRANSPORT ON LINE
000040                  XS0IE=  BIT5            ;INTERRUPT ENABLE
000020                  XS0VCK= BIT4            ;VOLUME CHECK BIT
000010                  XS0PED= BIT3            ;PHASE ENCODED DRIVE
000004                  XS0WLK= BIT2            ;WRITE LOCKED
000002                  XS0BOT= BIT1            ;BEGINNING OF TAPE
000001                  XS0EOT= BIT0            ;END OF TAPE

                        ;+
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 1
                        ;(XST1)
                        ;-
100000                  X1.DLT  = BIT15         ;DATA LATE
```

TSV05 REGISTER AND PACKET DEFINITIONS

```
                        X1.SPARE= BIT14          ;NOT USED
                        X1.COR  = BIT13          ;CORRECTABLE DATA ERROR
                        X1.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT7+BIT6+BIT5+BIT4+BIT3+BIT2+BIT0 ;ALWAYS 0
                        X1.RBP  = BIT8           ;READ BUS PARITY ERROR
                        X1.UNC  = BIT1           ;UNCORRECTABLE DATA OR HARD ERROR

                        ;+
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 2
                        ;(XST2)
                        ;-
                        X2.OPM  = BIT15          ;OPERATION IN PROGRESS (TAPE MOVING)
                        X2.RCE  = BIT14          ;RAM CHECKSUM ERROR
                        X2.SPARE= BIT13+BIT12+BIT11+BIT9+BIT8    ;NOT USED BY TSV05 (ALWAYS=0)
                        X2.WCF  = BIT10          ;WRITE CLOCK FAILURE (FIFO NOT EMPTIED BY TRANSPORT)
                        X2.EXTF = BIT7           ;IF WRITE CHAR CMD THEN = EXTENDED FEATURES ENABLED
                        X2.BUFE = BIT6           ;IF WRITE CHAR CMD THEN = BUFFERING ENABLED
                        X2.REV  = 000077         ;IF WRITE CHAR CMD THEN = MICROCODE REVISION LEVEL
                        X2.UNIT = BIT2+BIT1+BIT0 ;IF GET STATUS THEN = CURRENTLY SELECTED UNIT NO.

                        ;+
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 3
                        ;(XST3)
                        ;
                        X3.MDE  = 177400         ;MICRO-DIAGNOSTIC ERROR CODE
                        X3.SPARE= BIT7           ;NOT USED BY TSV05
                        X3.OPI  = BIT6           ;OPERATION INCOMPLETE
                        X3.REV  = BIT5           ;REVERSE
                        X3.TRF  = BIT4           ;TRANSPORT RESPONSE FAILURE
                        X3.DCK  = BIT3           ;DENSITY CHECK
                        X3.MBZ  =BIT2+BIT1       ;NOT USED ALWAYS 0
                        X3.RIB  = BIT0           ;REVERSE INTO BOT

                        ;+
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 4
                        ;(XST4)
                        ;-
                        X4.HSP  = BIT15          ;HIGH SPEED
                        X4.RCE  = BIT14          ;RETRY COUNT EXCEEDED
                        X4.TSM  = BIT13          ;TRANSPORT SPECIAL MODE
                        X4.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT8    ;NOT USED ALWAYS 0
                        X4.WRC  = 000377         ;WRITE RETRY COUNT FIELD

                        ;+
                        ;
                        ;TSSR TERMINATION CODES (BIT 0-2)
                        ;
                        ;

                                TSREJ=  3+2              ;COMMAND REJECTED
                                UNREC=  6                ;UNRECOVERABLE ERROR

                        ;+
                        ;
                        ;DEVICE REGISTER OFFSETS
                        ;
                        ;
```

TSV05 REGISTER AND PACKET DEFINITIONS

```
000000                  TSBA==  0
000000                  TSDB==  0               ;TSDB/TSBA REGISTER
000001                  TSBAH== 1
000001                  TSDBH== 1               ;TSDB/TSBA REGISTER HIGH BYTE
000002                  TSSR==  2               ;TSSR REGISTER
000003                  TSSRH== 3               ;TSSR REGISTER HIGH BYTE

                        ;*
                        ; TSDB ADDRESS BIT DEFINITIONS
                        ;-
000003                  A1716   = BIT1+BIT0     ;ADDRESS BITS 17:16 ARE IN 1:0

                        ;*
                        ; COMMAND DEFINITIONS
                        ;-
000017                  P.GETSTAT       = 17    ;GET STATUS
000013                  P.INIT          = 13    ;INITIALIZE
000012                  P.CONTROL       = 12    ;CONTROL COMMANDS
000011                  P.FORMAT        = 11    ;FORMAT
000010                  P.POSITION      = 10    ;POSITION
000006                  P.WRTSUB        = 6     ;SUBSYSTEM WRITE
000005                  P.WRITE         = 5     ;WRITE
000004                  P.WRTCHAR       = 4     ;WRITE CHARACTERISTICS
000001                  P.READ          = 1     ;READ

                        ;*
                        ; COMMAND PACKET HEADER WORD BIT DEFINITIONS
                        ;-
100000                          P.ACK   = BIT15         ;BUFFER AVAIL FOR CONTROLLER
040000                          P.CVC   = BIT14         ;CLEAR VOLUME CHECK
020000                          P.OPP   = BIT13         ;REVERSE SEQUENCE OF DATA BITS
010000                          P.SWB   = BIT12         ;SWAP BYTES IN MEMORY
007400                          P.MODE  = BIT11!BIT10!BIT9!BIT8 ;EXTENDED COMMAND MODE FIELD
000200                          P.IE    = BIT7          ;INTERRUPT ENABLE
000140                          P.FMT= BIT6!BIT5        ;PACKET HEADER TYPE (ALWAYS=0)
000037                          P.CMD   = 37            ;MAJOR COMMAND FIELD

                        ;*
                        ; CONTROL COMMAND MODE CODES
                        ;-
000000                          PC.RELEASE      = 0*256.        ;RELEASE BUFFER
000400                          PC.REWIND       = 1*256.        ;REWIND
001000                          PC.NOOP         = 2*256.        ;NO-OP
002000                          PC.IEREW        = 4*256.        ;REWIND IMMEDIATE INTERRUPT
002400                          PC.ERASE        = 5*256.        ;SECURITY ERASE

                        ;*
                        ; CONTROLLER RAM DEFINITIONS
                        ;-
000167                  RMCHBEG = 167           ;CHARACTERISTICS IO DATA BEGIN RAM ADDRESS
000200                  RMCHEND = 200           ;CHARACTERISTICS IO DATA END RAM ADDRESS
000201                  RMPKTBEG= 201           ;COMMAND PACKET BEGIN RAM ADDRESS
000210                  RMPKTEND= 210           ;COMMAND PACKET END RAM ADDRESS
000215                  RMMSGBEG= 215           ;MESSAGE BUFFER BEGIN RAM ADDRESS
000234                  RMMSGEND= 234           ;MESSAGE BUFFER END RAM ADDRESS
                        ;*
                        ;
                        ;REGISTER DEFINITIONS IN THE MESSAGE BUFFER
```

```
                        ;
                        ;
                        XST0=:  6               ;EXTENDED STATUS REGISTER 0 (WORD 4)
                        XST1=:  8.              ;EXTENDED STATUS REGISTER 1 (WORD 5)
                        XST2=:  10.             ;EXTENDED STATUS REGISTER 2 (WORD 6)
                        XST3=:  12.             ;EXTENDED STATUS REGISTER 3 (WORD 7)
                        XST4=:  14.             ;EXTENDED STATUS REGISTER 4 (WORD 8)

                        ;*
                        ;
                        ;OFFSETS TO WORD LOCATIONS IN PACKET DEFINITIONS
                        ;
                        ;

                                PKLOW   = 2             ;LOW ORDER CHARACTERISTIC DATA POINTER
                                PKHI    = 4             ;HIGH ORDER CHARACTERISTIC DATA POINTER
                                PKBCNT  = 6             ;NUMBER OF BYTES IN DATA PACKET

                                EXBCNT=10               ;NUMBER OF BYTES IN EXTENDED DATA PACKET

                        ;*
                        ;DATA PACKET OFFSETS FOR WRITE SUBSYTEM COMMAND
                        ;-
                                BSEL0   = 0             ;BYTE 0
                                BSEL1   = 1             ;BYTE 1
                                SEL2    = 2             ;WORD 2
                                SELDATA = 4             ;WORD 3

                        ;*
                        ;BSEL0 SELECT CODES FOR WRITE SUBSYSTEM COMMAND
                        ;-
                        PW.NOP          = 0             ;NO-OP
                        PW.RDRAM        = 1             ;READ RAM
                        PW.WTRAM        = 2             ;WRITE RAM
                        PW.RFIFO        = 3             ;READ FIFO
                        PW.WFIFO        = 4             ;WRITE FIFO
                        PW.RDSTAT       = 5             ;READ STATUS
                        PW.WCTL         = 6             ;WRITE TAPE CONTROL
                        PW.WFMT         = 7             ;WRITE TAPE FORMAT
                        PW.WMISC        = 10            ;WRITE MISCELLANEOUS
                        PW.WNPR         = 11            ;WRITE NPR CONTROL
                        PW.D22          = 20            ;DO MICROTEST 22
                        PW.D11          = 21            ;DO MICROTEST 11
                        PW.D13          = 22            ;DO MICROTEST 13
                        PW.NO1311       = 23            ;DISABLE MICROTEST 11 AND 13
                        PW.RDEXT        = 24            ;READ EXT. TAPE STATUS (NOT SUPPORTED BY ALL TRANSPORTS

                        ;*
                        ;BSEL1 CODES FOR WRITE TAPE CONTROL
                        ;-
                        WC.IFAD         = BIT7          ;IFAD - FORMATTER ADDRESS
                        WC.IOTAD        = BIT6          ;ITAD0    TRANSPORT ADDRESS BIT 0
                        WC.I1TAD        = BIT5          ;ITAD1  - TRANSPORT ADDRESS BIT 1
                        WC.I5RESV       = BIT4          ;IRESV5 - RESERVED #5
                        WC.IREW         = BIT3          ;IREW   - REWIND
                        WC.IRWU         = BIT2          ;IRWU     REWIND AND UNLOAD
```

TSV05 REGISTER AND PACKET DEFINITIONS

```
                        WC.IFEN         = BIT1          ;IFEN     FORMATTER ENABLE
                        WC.IGO          = BIT0          ;GO

                        ;*
                        ;BSEL1 CODES FOR WRITE FORMAT
                        ;-
                        WF.IHISP        = BIT7          ;IHISP    HIGH SPEED
                        WF.IWRT         = BIT6          ;IWRT     - WRITE
                        WF.IREV         = BIT5          ;IREV     - REVERSE
                        WF.IWFM         = BIT4          ;IWFM     - WRITE FILE MARK
                        WF.IEDIT        = BIT3          ;IEDIT    - EDIT
                        WF.IERASE       = BIT2          ;IERASE   - ERASE
                        WF.I3RESV       = BIT1          ;IRESV3     RESERVED #3
                        WF.I4RESV       = BIT0          ;IRESV4   - RESERVED #4

                        ;*
                        ;BSEL1 CODES FOR WRITE MISCELLANEOUS SUBCOMMAND
                        ;-
                        MS.EXT          = BIT7          ;INVERT SENSE OF EXTENDED FEATURES SWITCH
                        MS.RSFIFO       = BIT4          ;RESET FIFO AND INPUT PARITY ERRORR
                        MS.RSTAPE       = BIT3          ;RESET TAPE STATUS IN 2 FLIP FLOPS
                        MS.ATTN         = BIT2!BIT1     ;ATTENTION TRIGGER FIELD
                        MS.RSD          = BIT0          ;RESET TIMER A,B THEN DELAY TIMES IN SEL2
                        ;*
                        ; MS.ATTN SUBCODES
                        ;-
                                MSA.NOP = 0*2           ;NO OP (NOTHING TRIGGERED)
                                MSA.VOL = 1*2           ;SIMULATE ON-LINE/OFF-LINE TRANSISTION
                                MSA.NRAM= 2*2           ;FORCE NON-FATAL RAM ERROR (FORCES ERRCODE 54)
                                MSA.FRAM= 3*2           ;FORCE FATAL RAM ERROR (CAUSES SCE TO SET)
                        ;*
                        ; WRITE SUBSYSTEM WRITE NPR BSEL1 BIT DEFINITIONS
                        ;-
                        NP.IR           = BIT7          ;INTERRUPT REQUEST (0-1 TRANSITION)
                        NP.OUT          = BIT6          ;TAPE DATA DIRECTION OUT (0= IN)
                        NP.LOOP         = BIT5          ;ENABLE TRANSPORT LOOPBACK
                        NP.WRP          = BIT4          ;WRITE CORRECT PARITY (SET=0 TO WRITE WRONG)
                        ;*
                        ; READ STATUS MESSAGE BUFFER BIT DEFINITIONS
                        ;-

                        S2.DIM          = BIT7          ;WORD #9 BYTE 2 DATA IN MISS
                        S2.ILW          = BIT6          ;               ILW H
                        S2.OUTRDY       = BIT5          ;               OUT RDY H
                        S2.INRDY        = BIT4          ;               IN RDY H
                        S2.ATIMR        = BIT3          ;               TIMER A FLAG H
                        S2.BTIMR        = BIT2          ;               TIMER B FLAG H
                        S2.UNDEF        = BIT1+BIT0     ;(UNDEFINED)
                        S1.PARIN        = BIT15         ;WORD #8 BYTE 1 PARIN H
                        S1.I2RESV       = BIT14         ;               IRESV2
                        S1.I1RESV       = BIT13         ;               IRESV1
                        S1.IEOT         = BIT12         ;               IEOT L
                        S1.IIDENT       = BIT11         ;               IIDENT H
                        S1.ICER         = BIT10         ;               ICER H
                        S1.IFMK         = BIT9          ;               IFMK H
                        S1.IHER         = BIT8          ;               IHER H
                        S0.ISPEED       = BIT7          ;WORD #8 BYTE 0 ISPEED H
```

TSVOS REGISTER AND PACKET DEFINITIONS

```
000100                  SO.IRDY         = BIT6          ;               IRDY L
000040                  SO.IONL         = BIT5          ;               IONL L
000020                  SO.ILDP         = BIT4          ;               ILDP L
000010                  SO.IDBY         = BIT3          ;               IDBY L
000004                  SO.IRWD         = BIT2          ;               IRWD L
000002                  SO.IFBY         = BIT1          ;               IFBY L
000001                  SO.IFPT         = BIT0          ;               IFPT L
                                .SBTTL  SPECIAL MACROS AND OPDEFS.

                        ;+
                        ;SAVE GENERAL REGS 1 TO 5
                        ;-

                                .MACRO  SAVREG
                                JSR     R5,REGSAV
                                .ENDM

                        ;+
                        ; MACRO TO FORCE AN ERROR
                        ;
                        .MACRO  FORCERROR       TAG,NOTSSR
                        .NLIST
                        .IIF NDF LISTALL, .NLIST
                        .LIST
                        .IF B NOTSSR
                                MOV     TSSR(R5),R1     ;READ TSSR
                        .ENDC
                                MOV     FORCER,FORCER   ;IS FORCER SET? (LEAVE C BIT ALONE)
                                BNE     TAG             ;BR IF YES
                        .NLIST
                        .IIF NDF LISTALL, .LIST
                        .LIST
                        .ENDM

                        ;+
                        ; MACRO TO FORCE AN EXIT TO AVOID SECTION ITERATIONS
                        ;       WILL EXIT TO A LABEL IF FORCER IS NEGATIVE
                        ;       SO TO FORCE ERRORS AND EXIT ON 1 ERROR SET
                        ;       FORCER TO 177777
                        ;       TO FORCE ERRORS AND ITERATIONS SET FORCER TO 1.
                        ;-
                        .MACRO  FORCEXIT        TAG
                        .NLIST
                        .IIF NDF LISTALL, .NLIST
                        .LIST
                                MOV     FORCER,FORCER   ;IS FORCER NEGATIVE?
                                BMI     TAG             ;BR IF YES
                        .NLIST
                        .IIF NDF LISTALL, .LIST
                        .LIST
                        .ENDM
                        ;+
                        ; MACRO TO INCREMENT ERROR COUNTS
                        ;-
                        .MACRO  NEXT.ERRNO
                        .NLIST
                        ;;;.IIF NDF LISTALL, .NLIST
```

SPECIAL MACROS AND OPDEFS.

```
                                        ERRNO=ERRNO+1
                                ;;;.IIF NDF LISTALL, .LIST
                                .LIST
                                .ENDM

                                ;+
                                ;MACRO TO PERFORM XOR
                                ;

                                        .MACRO  XOR     A,B
                                        MOV     A,-(SP)
                                        BIC     B,(SP)
                                        BIC     A,B
                                        BIS     (SP)+,B
                                        .ENDM

  000000                                EN=0                    ; INITIALIZE ERROR NUMBER
                                        .SBTTL  FORCER  - FORCE ERROR FLAG

                                ;
                                ; THE FOLLOWING LOCATIONS MAY BE PATCHED BY THE USER
                                ; TO OBTAIN THE RESULTS DESCRIBED FOR EACH.
                                ;

002166  000000                  FORCER::       0       ; FORCE TYPE ALL HARD ERRORS (THE ONES CALLED
                                               ; - BY THE MACRO "IFERROR").  AN ERROR NEED NOT -
                                               ; - EXIST, JUST ASSUME AND TYPE THE MESSAGE.
                                        .SBTTL  GLOBAL DATA SECTION

                                ;++
                                ;THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                ;IN MORE THAN ONE TEST.
                                ;--

                                ;
                                ;THE FOLLOWING DATA ARE SET FOR EACH UNIT AT INIT TIME.
                                ;SINGLE UNIT DEFAULTS (LISTED) ARE IN THE DEFAULT P-TABLE.
                                ;
002170  000000                  EPRTSW::        .WORD   0       ;PRINT SWITCH
002172  000000                  UNITN::         .WORD   0       ;UNIT # UNDER TEST.
002174  000000                  Q/P::           .WORD   0       ;QUICK VERIFY FLAG.
002176  000000                  CSRADDR::       .WORD   0       ;ADDRESS OF CSR FOR CURRENT DEVICE
002200  000224                  IVEC::          .WORD   224     ;INTERRUPT VECTOR
002202  000200                  IPRI::          .WORD   PRI04   ;INTERRUPT PRIORITY.
002204  000000                  TSTCNT::        .WORD   0       ;NUMBER OF TESTS RUN IN THIS PASS
002206  000000                  LOOPCNT::       .WORD   0       ;REMAINING ITERATION COUNT FOR TEST
002210  000000                  DEVCNT::        .WORD   0       ;NUMBER OF DEVICE UNDER TEST
002212  000000                  FATFLG::        .WORD   0       ;SET IF FATAL ERROR IS DETECTED IN TEST
002214  000000                  INTRECV::       .WORD   0       ;SET IF TAPE INTERRUPT WAS RECEIVED
002216  000000                  EXTFEA::        .WORD   0       ;EXTENDED FEATURES SOFTWARE SW 0=OFF;1=ON
002220  000000                  BENBSW::        .WORD   0       ;BUFFER ENABLE SWITCH SW 0=OFF;1=ON
002222  000000                  EXPD::          .WORD   0       ;EXPECTED RAM DATA FOR PRAMPKT ROUTINE
002224  000000                  RECV::          .WORD   0       ;RECEIVED RAM DATA FOR PRAMPKT ROUTINE
002226  000000                  ERRHI::         .WORD   0       ;HIGH ADDRESS MEMORY ERROR
002230  000000                  ERRLO::         .WORD   0       ;LOW ADDRESS MEMORY ERROR
002232                          RAMDATA::       .BLKW   16.     ;DATA READ FROM RAM PACKET OR MESSAGE BUF AREA
002272  000000                  RAMSIZ::        .WORD   0       ;RAM DATA SIZE FOR PRAMPKT ROUTINE
```

GLOBAL DATA SECTION

```
                                RCVHIADD::      .WORD   0       ;RECEIVED BUFFER HIGH ADDRESS
                                RCVLOADD::      .WORD   0       ;RECEIVED BUFFER LOW ADDRESS
                                COUNT::         .WORD   0       ;TEST COUNT PATTERN
                                DATA::          .WORD   0       ;TEST DATA
                                TSTFLAG::       .WORD   0       ;TEST FLAG WORD
                                TSTPTR::        .WORD   0       ;TSTBLK POINTER
                                PRMNO::         .WORD   0       ;PRINT ROUTINE TEMP
                                EXPMSG:.        .BLKB   100.    ;EXPECTED MESSAGE BUFFER DATA
                                RECMSG::        .BLKB   100.    ;RECEIVED MESSAGE BUFFER DATA
                                TMPBFR:.        .BLKB   80.     ;TEMPORARY STORAGE FOR PRINT
                                        .SBTTL  TSTBLK  - TEST DATA TABLE

                                ;+
                                ;
                                ;THIS TABLE CONTAINS TEST DATA USED IN SEVERAL TESTS
                                ;
                                ;IN SEQUENCE THE DATA IS:
                                ;
                                ;       ALL ZEROS
                                ;       ALL ONES
                                ;       WALKING ONES
                                ;       WALKING ZEROS
                                ;       ALTERNATING ONES AND ZEROS
                                ;
                                ;-

 002742                         TSTBLK::
 002742  000000                         .WORD   0               ;ALL ZEROS
 002744  177777                         .WORD   177777          ;ALL ONES
 002746  000001                         .WORD   BIT0            ;DATA FOR WALKING ONES
 002750  000002                         .WORD   BIT1
 002752  000004                         .WORD   BIT2
 002754  000010                         .WORD   BIT3
 002756  000020                         .WORD   BIT4
 002760  000040                         .WORD   BIT5
 002762  000100                         .WORD   BIT6
 002764  000200                         .WORD   BIT7
 002766  000400                         .WORD   BIT8
 002770  001000                         .WORD   BIT9
 002772  002000                         .WORD   BIT10
 002774  004000                         .WORD   BIT11
 002776  010000                         .WORD   BIT12
 003000  020000                         .WORD   BIT13
 003002  040000                         .WORD   BIT14
 003004  100000                         .WORD   BIT15
 003006  177776                         .WORD   ^CBIT0          ;DATA FOR WALKING ZEROS
 003010  177775                         .WORD   ^CBIT1
 003012  177773                         .WORD   ^CBIT2
 003014  177767                         .WORD   ^CBIT3
 003016  177757                         .WORD   ^CBIT4
 003020  177737                         .WORD   ^CBIT5
 003022  177677                         .WORD   ^CBIT6
 003024  177577                         .WORD   ^CBIT7
 003026  177377                         .WORD   ^CBIT8
 003030  176777                         .WORD   ^CBIT9
 003032  175777                         .WORD   ^CBIT10
 003034  173777                         .WORD   ^CBIT11
```

TSTBLK TEST DATA TABLE

```
                                        .WORD   ↑CBIT12
                                        .WORD   ↑CBIT13
                                        .WORD   ↑CBIT14
                                        .WORD   ↑CBIT15
                                        .WORD   125252          ;ALTERNATING ONES, ZEROS
                                        .WORD   052525          ;ALTERNATING ONES, ZERO OPPOSITE FROM ABOVE
003052                          TBLEND==.
                                        .SBTTL  GLOBAL ENVIRONMENT STORAGE
                                ;
                                ;STORAGE FOR DEVICE REGISTERS
                                ;
003052  000000  100000  000000  DUMMY:  0,100000,0,0    ;DUMMY DEVICE REGISTERS...
003062  000000  000000  000000          0,0,0,0,0,0,0,0
                                                        ;...FOR MULTI-UNIT CHECKOUT.

003102  000000                  DUFLG::         .WORD   0               ;"DROPPED UNIT" FLAG.
                                                                        ;INHIBITS CODE IN "CLEAN UP".
003104  000000                  NCDEV::         .WORD   0               ;FLAG TO SAY NO DEVICE.

003106  000000                  TEMP1::         .WORD   0               ;SOME TEMP LOCATIONS.
003110  000000                  TEMP2::         .WORD   0
003112  000000                  XXCOMM::        .WORD   0               ;XXDP+ COMM BLOCK POINTER.
003114  000000                  FREE::          .WORD   0               ;1ST FREE MEMORY ADDRESS...
003116  000000                  FRESIZ::        .WORD   0               ;...AND SIZE (IN WORDS).
003120  000000                  FREEHI: .WORD   0               ;LAST WORD IN FREE SPACE
003122  000000                  KTFLG::         .WORD   0               ;KT11, MEM AVAIL FLAG -
                                                                        ;- .WORD        0 = <24K OR NO KT -
                                                                        ;- NZ = >24K AND KT.
003124  000000                  KTENABLE::      .WORD   0               ;SET BY TEST ROUTINES TO FLAG >28K UNDER TEST
003126  000000                  NXMFLG::        .WORD   0               ;SET IF WE CAN TEST CLEARED OTHERWISE
003130  000000                  NXMLO::         .WORD   0               ;NXM LO ADDRESS BITS
003132  000000                  NXMHI::         .WORD   0               ;NXM HI ADDRESS BITS FOR DAL'S 16-21
003134  000000                  T23A::          .WORD   0               ;11/23A FLAG
003136  000000                  T23B::          .WORD   0               ;11/23B FLAG
003140  000000                  T3BFLG::        .WORD   0               ;TEST 3B FLAG ↑O
003142  002000                  PST32W::        .WORD   2000            ;32W BLOCK ADDRESS FOR 32K START
003144  000000                  SIFLAG::        .WORD   0               ;
003146  000000                  BADDAT::        .WORD   0               ;ACTUAL DATA
003150  000000                  GDDAT::         .WORD   0               ;EXPECTED DATA
003152  000000                  LOOPFL::        .WORD   0
003154                          CTAB::                                  ;CONFIGURATION TABLES.
003154  000000                  CTABM::         .WORD   0               ;CONFIG WORK.
003156  000000                                  .WORD   0
003160  000000                                  .WORD   0
003162  000000                                  .WORD   0
003164  177777                                  .WORD   -1              ;END OF MEM TABLE.
003166                          CTABE::
                                ;ERROR STATISTICS TABLE (1 WORD PER UNIT), 64 UNITS MAX:
                                ;
                                ;       0       =       UNIT NOT TESTED
                                ;       100000  =       UNIT ONLINE, NO ERRORS
                                ;       10XXXX  =       UNIT ONLINE, ENCOUNTERED XXXX ERRORS
                                ;       160000  =       UNIT DROPPED, NON-EXISTENT DEVICE REGISTER
                                ;       160001  =       UNIT DROPPED, NOT IDLE AT START
                                ;       14XXXX  =       UNIT DROPPED, ENCOUNTERED XXXX ERRORS
                                ;
003166                          ERTABL:         .BLKW   64.
```

GLOBAL ENVIRONMENT STORAGE

```
552 003366  000000                ERTABE:         .WORD   0
553
554 003370  000000                SKIPT:  .WORD   0               ;1=SKIP SUBTEST 0=NO SKIP OF SUBTEST
```

GLOBAL TEXT MESSAGES

```
                                        .SBTTL  GLOBAL TEXT MESSAGES
                                ;++
                                ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
                                ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
                                ; MORE THAN ONE TEST.
                                ;-

                                ;+
                                ;NAMES OF DEVICES SUPPORTED
                                ;-

003372                                  DEVTYP  <TSV05>
003372                          L$DVTYP::
003372  124  123  126                    .ASCIZ  %TSV05%
                                        .EVEN

                                ;+
                                ;TEST DESCRIPTION
                                ;-
003400                                  DESCRIPT <**** TSV05 LOGIC DIAGNOSTIC - CHK CABLES TRANSPORT IF ERR ****>
003400                          L$DESC::
003400  052  052  052                    .ASCIZ  /**** TSV05 LOGIC DIAGNOSTIC - CHK CABLES TRANSPORT IF ERR ****/
                                        .EVEN

                                ;+
                                ;BIT TO ASCII CONVERSION FOR TSSR REGISTER
                                ;-

003500  003540  003543  003547  TSSRBIT::       .WORD   1$,2$,3$,4$,5$,6$,7$,8$
003520  003601  003605  003611                  .WORD   9$,10$,11$,12$,13$,14$,15$,16$
003540  123  103  000  1$:      .ASCIZ  'SC'
003543  102  111  105  2$:      .ASCIZ  'BIE'
003547  123  103  105  3$:      .ASCIZ  'SCE'
003553  122  115  122  4$:      .ASCIZ  'RMR'
003557  116  130  115  5$:      .ASCIZ  'NXM'
003563  116  102  101  6$:      .ASCIZ  'NBA'
003567  102  111  124  7$:      .ASCIZ  'BIT9'
003574  102  111  124  8$:      .ASCIZ  'BIT8'
003601  123  123  122  9$:      .ASCIZ  'SSR'
003605  117  106  114  10$:     .ASCIZ  'OFL'
003611  102  111  124  11$:     .ASCIZ  'BIT5'
003616  102  111  124  12$:     .ASCIZ  'BIT4'
003623  102  111  124  13$:     .ASCIZ  'BIT3'
003630  102  111  124  14$:     .ASCIZ  'BIT2'
003635  102  111  124  15$:     .ASCIZ  'BIT1'
003642  102  111  124  16$:     .ASCIZ  'BIT0'
                                .EVEN
003650  124  123  123  SFIERR:  .ASCIZ  'TSSR ERROR AFTER SOFT INIT'
003703  124  123  123  SFHERR:  .ASCIZ  'TSSR ERROR AFTER BUS RESET'
003736  040  040  116  NXR:     .ASCIZ  /  NON-EXISTANT DEVICE REGISTER/
003775  045  101  040  NXRX:    .ASCIZ  /%A  ADDRESS: %O6/
004016  045  101  040  TSSX:    .ASCII  /%A  TSBA,TSSR EXP'D: %O6%A,%O6%N/
004056  045  101  040           .ASCIZ  /%A  TSBA,TSSR REC'D: %O6%A,%O6/
004115  045  116  045  FUSI:    .ASCII  /%N%A/
004121  040  040  125  USI:     .ASCIZ  /  UNEXPECTED INTERRUPT/
004150  040  040  111  NSI:     .ASCIZ  /  INTERRUPT EXPECTED, NOT RECEIVED/
004213  045  116  045  FNOINTR:         .ASCII  /%N%A/
```

GLOBAL TEXT MESSAGES

```
628 004217      040      040      116  NOINTR: .ASCIZ  /  NO INTERRUPT WAS GENERATED/
629 004254      040      040      111  IFAULT: .ASCIZ  /  INTERRUPT FAULT/
630 004276      045      101      040  INTX:   .ASCIZ  /%A  CPU PC: %O6%A  TSBA: %O6/
631 004333      040      040      042  NOINIT: .ASCIZ  /  "BUS-INIT" DIDN'T INITIALIZE CONTROLLER/
632 004405      040      040      042  NSINIT: .ASCIZ  /  "SOFT-INIT" DIDN'T INITIALIZE THE DPU/
633 004455      040      040      042  BRINIT: .ASCIZ  /  "BUS-RESET" DIDN'T INITIALIZE THE DPU/
634
635 004525      000               000  NUL:    .ASCIZ  //
636 004526      045      116      000  NULCR:  .ASCIZ  /%N/
637 004531      045      101      040  EXPGOT: .ASCIZ  /%A EXP'D: %O6%A, REC'D: %O6/
638 004565      045      116      045  EXPGT2: .ASCIZ  /%N%A EXP'D: %O6%A, %O6%N%A REC'D: %O%A, %O6/
639 004641      045      101      040  DUAD12: .ASCIZ  /%A REG(W) WRITTEN TO: %O6%A REG(R) READ; EXP'D: %O6%A, REC D: %O6/
640 004743      122      101      115  PKTRAM::        .ASCIZ  'RAM Contents Do Not Match Packet Sent'
641 005011      040      040      103  SCME:   .ASCIZ  /  CONFIG DOESN'T MATCH MFG. MASTER/
642 005054      127      122      111  WRTMSG: .ASCIZ  'WRITE CHARACTERISTICS Failed'
643 005111      124      123      123  WRTERR: .ASCIZ  'TSSR Incorrect After WRITE Command, More Bits Set Than SSR'
644 005204      124      123      123  RDERR:  .ASCIZ  'TSSR Incorrect After READ Command, More Bits Set Than SSR'
645 005276      106      101      124  SCHERR: .ASCIZ  'FATAL ERROR IN SUBTEST - CHECK TAPE,CABLES,TRANSPORT etc.'
646 005370      105      122      122  RETERR: .ASCIZ  'ERROR IN SUBTEST - WRITE DATA RETRY FIVE TIMES FAILED'
647 005456      045      116      045  NOMEM:  .ASCIZ  '%N%A ***** NO NXM ADDRESS--CANNOT TEST NXM TIMEOUT. ******%N'
648 005552      045      116      045  M8186:  .ASCIZ  '%N%A ****************** 11/23A SYSTEM ******************%N'
649 005643      045      116      045  M8189:  .ASCIZ  '%N%A ****************** 11/23B SYSTEM ******************%N'
650                                               .EVEN
651                                               .SBTTL  GLOBAL ERROR REPORT SECTION
652
653                                     ;++
654                                     ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX
655                                     ; CALLS THAT ARE USED IN MORE THAN ONE TEST.
656                                     ; ASCII TEXT STRINGS ARE FOUND IN THE GLOBAL TEXT SECTION.
657                                     ;--
658
659 005734                                       BGNMSG  NXRERR          ;NON-EXISTANT DEVICE REGISTER.
    005734                              NXRERR::
660 005734                                       PRINTX  @NXRX,NODEV     ;NODEV = NEXM ADDRESS.
    005734  013746  003104                       MOV     NODEV,-(SP)
    005740  012746  003775                       MOV     @NXRX,-(SP)
    005744  012746  000002                       MOV     #2,-(SP)
    005750  010600                               MOV     SP,R0
    005752  104415                               TRAP    C$PNTX
    005754  062706  000006                       ADD     #6,SP
661 005760  004737  005766                       JSR     PC,EXTEND       ; PRINT EXTENSION IF REQUIRED.
662 005764                                       ENDMSG
    005764                              L10002:
    005764  104423                               TRAP    C$MSG
663
664                                     ;
665                                     ; THIS ROUTINE APPENDS A UNIQUE EXTENSION (IF REQUIRED)
666                                     ; TO ANY OF THE ABOVE ERROR SIGNATURES.
667                                     ;
668 005766  005727                      EXTEND: TST     (PC)+
669 005770  000000                      EXTA:   0                       ; 0 = NO EXTENSION.
670 005772  001402                              BEQ     1$
671 005774  004777  177770                       JSR     PC,@EXTA        ; APPEND EXTENSION TEXT.
672 006000                               1$:     PRINTX  #NULCR          ; PRINT A BLANK LINE
    006000  012746  004526                       MOV     #NULCR,-(SP)
    006004  012746  000001                       MOV     #1,-(SP)
    006010  010600                               MOV     SP,R0
```

GLOBAL ERROR REPORT SECTION

```
        006012  104415                          TRAP    C$PNTX
        006014  062706  000004                  ADD     #4,SP
    673 006020  000207                          RTS     PC
```

```
                        .SBTTL  PRITSSR - PRINT TSSR CONTENTS

                ;+
                ;
                ;ROUTINE TO DISPLAY THE CONTENTS, AND BIT DEFINITIONS, OF
                ;THE TSSR REGISTER. THIS ROUTINE IS NORMALLY CALLED ONLY
                ;BY A MESSAGE PRINTING ROUTINE
                ;
                ;INPUTS:
                ;
                ;       R1      CONTENTS OF TSSR
                ;
                ;SUBORDINATE ROUTINES:
                ;
                ;       CHKAMB  CHECK FOR AMBIGUOUS CONTENTS
                ;
                ;-

006022          PRITSSR:
006022                  SAVREG                          ;SAVE GENERAL REGISTERS
006026  010104          MOV     R1,R4                   ;SAVE THE TSSR CONTENTS
006030                  PRINTB  #TSSRFOR,R4             ;PRINT THE CONTENTS OF TSSR
006030  010446          MOV     R4,-(SP)
006032  012746  006505  MOV     #TSSRFOR,-(SP)
006036  012746  000002  MOV     #2,-(SP)
006042  010600          MOV     SP,R0
006044  104414          TRAP    C$PNTB
006046  062706  000006  ADD     #6,SP
006052  010400          MOV     R4,R0                   ;GET TSSR BACK FOR CHKAMB
006054  004737  016134  JSR     PC,CHKAMB               ;ARE CONTENTS AMBIGUOUS ?
006060  103410          BCS     5$                      ;BRANCH IF NOT
006062                  PRINTX  #AMBTSSR                ;SHOW CONTENTS ARE AMBIGUOUS
006062  012746  006725  MOV     #AMBTSSR,-(SP)
006066  012746  000001  MOV     #1,-(SP)
006072  010600          MOV     SP,R0
006074  104415          TRAP    C$PNTX
006076  062706  000004  ADD     #4,SP
006102  010403          5$:     MOV     R4,R3                   ;CONTENTS OF TSSR
006104  042703  001476          BIC     #HIADDR!FATERR!TERCLS,R3        ;CLEAR ALL MULTIPLE BIT FIELDS
006110  001434          BEQ     20$                     ;NO BITS ARE SET
006112  012702  002622  MOV     #TMPBFR,R2              ;TEMPORARY ASCII BUFFER
006116  012701  003500  MOV     #TSSRBIT,R1             ;ASCII EQUIVALENT OF BITS
006122  005703          10$:    TST     R3              ;REMAINING BITS TO CONVERT
006124  001413          BEQ     15$                     ;BRANCH WHEN ALL ARE DONE
006126  000241          CLC                             ;CLEAR CARRY FOR SHIFT
006130  006103          ROL     R3                      ;SHIFT NEXT BIT TO CARRY
006132  103006          BCC     13$                     ;BRANCH IF BIT NOT SET
006134  011100          MOV     (R1),R0                 ;POINTER TO BIT DEFINITION
006136  112022          11$:    MOVB    (R0)+,(R2)+     ;MOVE ASCIZ TO BUFFER
006140  001376          BNE     11$                     ;MOVE ALL BITS
006142  112762  000054  177777  MOVB    #',,-1(R2)      ;INSERT A COMMA TO TERMINATE
006150  005721          13$:    TST     (R1)+           ;POINT TO NEXT DESCRIPTION
006152  000763          BR      10$                     ;GET THE REMAINING BITS
006154  105042          15$:    CLRB    -(R2)           ;TERMINATE THE LINE
006156                  PRINTX  #TSSDEF,#TMPBFR         ;PRINT THE BIT DEFINITIONS
006156  012746  002622  MOV     #TMPBFR,-(SP)
006162  012746  006676  MOV     #TSSDEF,-(SP)
```

```
                006166  012746  000002                  MOV     #2, (SP)
                006172  010600                          MOV     SP,R0
                006174  104415                          TRAP    C$PNTX
                006176  062706  000006                  ADD     #6,SP
        719
        720     006202  010403                  20$:    MOV     R4,R3           ;GET THE TSSR CONTENTS
        721     006204  042703  177761                  BIC     #^CTERCLS,R3    ;CLEAR ALL BUT TERMINATION
        722     006210  016303  006766                  MOV     TCOCOD(R3),R3   ;GET THE TERMINATION CODE MEANING
        723     006214                                  PRINTX  #TCOASC,R3      ;PRINT THE TERMINATION CODE
                006214  010346                          MOV     R3,-(SP)
                006216  012746  006566                  MOV     #TCOASC, (SP)
                006222  012746  000002                  MOV     #2,-(SP)
                006226  010600                          MOV     SP,R0
                006230  104415                          TRAP    C$PNTX
                006232  062706  000006                  ADD     #6,SP
        724     006236  010403                          MOV     R4,R3           ;TSSR CONTENTS AGAIN
        725     006240  042703  177717                  BIC     #^CFATERR,R3    ;CLEAR ALL BUT FATAL TERMINATION
        726     006244  001416                          BEQ     25$             ;DON'T PRINT IF ZERO
        727     006246  006203                          ASR     R3
        728     006250  006203                          ASR     R3
        729     006252  006203                          ASR     R3              ;ALINE TERMINATION CODE FOR INDEX
        730     006254  016303  007326                  MOV     TSFCOD(R3),R3   ;GET THE FATAL TERMINATION CODE
        731     006260                                  PRINTX  #TFCASC,R3      ;PRINT THE FATAL TERMINATION CODE
                006260  010346                          MOV     R3,-(SP)
                006262  012746  006627                  MOV     #TFCASC,-(SP)
                006266  012746  000002                  MOV     #2,-(SP)
                006272  010600                          MOV     SP,R0
                006274  104415                          TRAP    C$PNTX
                006276  062706  000006                  ADD     #6,SP
        732     006302  042704  176377          25$:    BIC     #^CHIADDR,R4    ;CLEAR ALL BUT EXTENDED ADDRESS
        733     006306  001411                          BEQ     30$             ;DON'T PRINT IF ZERO
        734     006310                                  PRINTX  #TEXASC,R4      ;PRINT THE EXTENDED ADDRESS BITS
                006310  010446                          MOV     R4,-(SP)
                006312  012746  006525                  MOV     #TEXASC,-(SP)
                006316  012746  000002                  MOV     #2,-(SP)
                006322  010600                          MOV     SP,R0
                006324  104415                          TRAP    C$PNTX
                006326  062706  000006                  ADD     #6,SP
        735     006332  013703  002170          30$:    MOV     EPRTSW,R3               ;PRINT MEAASGE BUFFER ADDRESS
        736     006336                                  PRINTX  R3                      ;PRINT PROPER MESSAGE
                006336  010346                          MOV     R3,-(SP)
                006340  012746  000001                  MOV     #1,-(SP)
                006344  010600                          MOV     SP,R0
                006346  104415                          TRAP    C$PNTX
                006350  062706  000004                  ADD     #4,SP
        737     006354  000207                          RTS     PC              ;RETURN TO CALLER
        738
        749     006356      045     116     045  EPRT1:  .ASCIZ  '<N><A *****CHECK CABLES BETWEEN M7196 AND TRANSPORT*****
        750     006446      045     116     045  EPRT2:  .ASCIZ  '<N><A *****CHECK TRANSPORT*****'
        756     006505      045     116     045  TSSRFOR:        .ASCIZ  '<N><A TSSR = <06>'
        757     006525      045     116     045  TEXASC:         .ASCIZ  '<N><A Extended Address Bits = <06>'
        758     006566      045     116     045  TCOASC:         .ASCIZ  '<N><A Termination Class Code = <T>'
        759     006627      045     116     045  TFCASC:         .ASCIZ  '<N><A Fatal Termination Class Code = <T>
        760     006676      045     116     045  TSSDEF:         .ASCIZ  '<N><A TSSR Bits Set: <T>'
        761     006725      045     116     045  AMBTSSR:        .ASCIZ  '<N><A TSSR Contents Are Ambiguous'
        762                                             .EVEN
        763     006766  007006  007031  007057  TCOCOD: .WORD   1$,2$,3$,4$,5$,6$,7$,8$
```

```
 764 007006      116     157     162  1$:     .ASCIZ  'Normal Termination'
 765 007031      124     145     162  2$:     .ASCIZ  'Termination Condition'
 766 007057      124     141     160  3$:     .ASCIZ  'Tape Status Alert'
 767 007101      106     165     156  4$:     .ASCIZ  'Function Reject'
 768 007121      122     145     143  5$:     .ASCIZ  'Recoverable Error - Tape Position One Record Down'
 769 007203      122     145     143  6$:     .ASCIZ  'Recoverable Error   Tape Was Not Moved'
 770 007252      125     156     162  7$:     .ASCIZ  'Unrecoverable Error
 771 007276      106     141     164  8$:     .ASCIZ   Fatal Controller Error'
 772                                           .EVEN
 773
 774 007326  007336  007372  007403  TSFCOD: .WORD   1$,2$,3$,4$
 775 007336      111     156     164  1$:     .ASCIZ  'Internal Diagnostic Failure
 776 007372      122     145     163  2$:     .ASCIZ  'Reserved
 777 007403      102     165     163  3$:     .ASCIZ  'Bus Interface or Sanity Check Error'
 778 007447      122     145     163  4$:     .ASCIZ  'Reserved
 779                                           .EVEN
 780                                           .SBTTL  PRIPKT  - PRINT THE ADDRESS/CONTENTS OF COMMAND PACKET
 781
 782                                   ;+
 783                                   ;THIS ROUTINE PRINTS THE ADDRESS AND CONTENTS OF A COMMAND PACKET.
 784                                   ;THIS ROUTINE IS NORMALLY ONLY CALLED FROM A PRINT ROUTINE.
 785                                   ;
 786                                   ;INPUT:
 787                                   ;
 788                                   ;       R0      NUMBER OF WORDS IN PACKET
 789                                   ;       R3      HIGH ORDER COMMAND PACKET ADDRESS
 790                                   ;       R4      ADDRESS OF COMMAND PACKET
 791                                   ;
 792                                   ;       NOTE:   R3 IS IGNORED IF THE KTENABLE FLAG IS CLEAR.
 793                                   ;-
 794
 795 007460                            PRIPKT::
 796 007460                                    SAVREG                  ;SAVE THE REGISTERS
 797 007464  010005                            MOV     R0,R5           ;SAVE NO. OF WORDS IN PACKET
 798 007466  005737  003124                    TST     KTENABLE        ;ABOVE 28K UNDER TEST?
 799 007472  001001                            BNE     10$             ;BR IF YES
 800 007474  005003                            CLR     R3              ;SET HIGH ORDER ADDRESS TO 0
 801 007476  010301                    10$:    MOV     R3,R1           ;COPY HIGH ORDER ADDRESS
 802 007500  010400                            MOV     R4,R0           ;GET LOWER ADDRESS
 803 007502  006100                            ROL     R0              ;SHIFT BIT 15 INTO C BIT
 804 007504  006101                            ROL     R1              ;AND INTO HIGH ORDER.
 805 007506                                    PRINTB  #PKTADD,R1,R4   ;PRINT PACKET ADDRESS
     007506  010446                            MOV     R4,-(SP)
     007510  010146                            MOV     R1,-(SP)
     007512  012746  007644                    MOV     #PKTADD,-(SP)
     007516  012746  000003                    MOV     #3,-(SP)
     007522  010600                            MOV     SP,R0
     007524  104414                            TRAP    C$PNTB
     007526  062706  000010                    ADD     #10,SP
 806 007532  010300                    15$:    MOV     R3,R0           ;GET HIGH ORDER ADDRESS
 807 007534  001404                            BEQ     20$             ;BR IF NOT ABOVE 28K.
 808 007536  010401                            MOV     R4,R1           ;GET LOW ORDER ADDRESS
 809 007540  004737  017406                    JSR     PC,SETMAP       ;SETUP PAR6 MAPPING FOR 18 BIT ADDRESS
 810 007544  010004                            MOV     R0,R4           ;GET RETURNED PAR6 ADDRESS BIAS
 811 007546  005001                    20$:    CLR     R1              ;SAVE WORD NUMBER
 812 007550  012402                    25$:    MOV     (R4)+,R2        ;GET PACKET CONTENTS
 813 007552                                    PRINTB  #PKTFRM,R1,R2   ;PRINT THE DATA
```

```
PRIPKT    PRINT THE ADDRESS/CONTENTS OF COMMAND PACKET

        007552  010246                          MOV     R2, (SP)
        007554  010146                          MOV     R1, (SP)
        007556  012746  007606                  MOV     #PKTFRM, (SP)
        007562  012746  000003                  MOV     #3, (SP)
        007566  010600                          MOV     SP,R0
        007570  104414                          TRAP    C$PNTB
        007572  062706  000010                  ADD     #10,SP
   814  007576  005201                          INC     R1              ;NEXT WORD NUMBER
   815  007600  020105                          CMP     R1,R5           ;DONE ALL PACKET WORDS?
   816  007602  002762                          BLT     25$             ;LOOP TILL ALL DONE
   817  007604  000207                          RTS     PC              ;RETURN
   818
   819  007606      045     116     045  PKTFRM: .ASCIZ  '<N><A Packet Word #<D1><A = <06>'
   820  007644      045     116     045  PKTADD: .ASCIZ  '<N><A Packet Address = <01><05>'
   821                                          .EVEN
   822                                          .SBTTL  PRIBXOR - PRINT EXPD, RECV AND XOR BYTE
   823
   824                                  ;+
   825                                  ;
   826                                  ;PRINT EXPECTED DATA, RECEIVED DATA, AND XOR OF THE DATA BYTE
   827                                  ;THIS ROUTINE IS NORMALLY CALLED ONLY FOR PRINT ROUTINES.
   828                                  ;
   829                                  ;INPUTS:
   830                                  ;
   831                                  ;       R1      RECEIVED DATA
   832                                  ;       R2      EXPECTED DATA
   833                                  ;
   834                                  ;OUTPUT:
   835                                  ;
   836                                  ;       R0      XOR OF EXPECTED/RECEIVED DATA
   837                                  ;
   838                                  ;-
   839
   840  007702      -                   PRIBXOR::
   841  007702                                  SAVREG                  ;SAVE THE REGISTERS
   842  007706  010203                          MOV     R2,R3           ;EXPECTED DATA
   843  007710                                  XOR     R1,R3           ;FORM THE EXCLUSIVE OR
   844  007720  012700  177400                  MOV     #^C<377>,R0     ;BYTE MASK
   845  007724  040001                          BIC     R0,R1           ;SAVE LOW BYTE RECV
   846  007726  040002                          BIC     R0,R2           ;SAVE LOW BYTE EXPD
   847  007730  040003                          BIC     R0,R3           ;SAVE LOW BYTE XOR
   848  007732                                  PRINTB  #XORBFOR,R2,R1,R3 ;PRINT THE MESSAGE
        007732  010346                          MOV     R3,-(SP)
        007734  010146                          MOV     R1,-(SP)
        007736  010246                          MOV     R2,-(SP)
        007740  012746  007764                  MOV     #XORBFOR,-(SP)
        007744  012746  000004                  MOV     #4,-(SP)
        007750  010600                          MOV     SP,R0
        007752  104414                          TRAP    C$PNTB
        007754  062706  000012                  ADD     #12,SP
   849  007760  010300                          MOV     R3,R0           ;R0 HAS XOR ON RETURN
   850  007762  000207                          RTS     PC              ;RETURN TO CALLER
   851
   852  007764      045     116     045  XORBFOR:        .ASCIZ  '<N><A EXPD: <03><A RECV: <03><A XOR: <03'
   853                                          .EVEN
   854                                          .SBTTL  PRIXOR    PRINT EXPD, RECV AND XOR
   855
```

```
                        ;*
                        ;
                        ;PRINT EXPECTED DATA, RECEIVED DATA, AND XOR OF THE TWO
                        ;THIS ROUTINE IS NORMALLY CALLED ONLY FOR PRINT ROUTINES.
                        ;
                        ;INPUTS:
                        ;
                        ;       R1      RECEIVED DATA
                        ;       R2      EXPECTED DATA
                        ;
                        ;OUTPUT:
                        ;
                        ;       R0      XOR OF EXPECTED/RECEIVED DATA
                        ;
                        ;-

010032                  PRIXOR::
010032                          SAVREG                          ;SAVE THE REGISTERS
010036  010203                  MOV     R2,R3                   ;EXPECTED DATA
010040                          XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
010050                          PRINTB  #XORFOR,R2,R1,R3 ;PRINT THE MESSAGE
010050  010346                  MOV     R3,-(SP)
010052  010146                  MOV     R1,-(SP)
010054  010246                  MOV     R2,-(SP)
010056  012746  010102          MOV     #XORFOR,-(SP)
010062  012746  000C04          MOV     #4,-(SP)
010066  010600                  MOV     SP,R0
010070  104414                  TRAP    C$PNTB
010072  062706  000012          ADD     #12,SP
010076  010300                  MOV     R3,R0                   ;R0 HAS XOR ON RETURN
010100  000207                  RTS     PC                      ;RETURN TO CALLER

010102      045     116     045 XORFOR: .ASCIZ  '<N><A EXPD: <06><A RECV: <06><A XOR: <06>'
                                .EVEN
                                .SBTTL  PRIEQU    PRINT BIT NUMBEPS AS ASCII EQUIVALENT

                        ;*
                        ;
                        ;ROUTINE TO CONVERT BIT VALUES TO ASCII AND PRINT THE STRING
                        ;THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                        ;
                        ;INPUTS:
                        ;
                        ;       R0      OCTAL VALUE TO CONVERT
                        ;       R1      TABLE OF POINTERS TO ASCII EQUIVALENT
                        ;
                        ;

010150                  PRIEQU:
010150                          SAVREG                                  ;SAVE THE REGISTERS
010154  000207                  RTS     PC                              ;RETURN TO CALLER

                                .SBTTL  PRIRAM  - PRINT RAM ADDRESS
                        ;*
                        ;
                        ;PRINT CONTROLLER RAM ADDRESS.
                        ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
```

```
                                ;
                                ;INPUTS:
                                ;
                                ;       R4      RAM ADDRESS
                                ;
                                ;
010156                          PRIRAM:
010156                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
010162                                  PRINTB  #RAMFOR,R4              ;PRINT RAM ADDRESS IN ERROR
010162  010446                          MOV     R4,-(SP)
010164  012746  010206                  MOV     #RAMFOR,-(SP)
010170  012746  000002                  MOV     #2,-(SP)
010174  010600                          MOV     SP,R0
010176  104414                          TRAP    C$PNTB
010200  062706  000006                  ADD     #6,SP
010204  000207                          RTS     PC                      ;RETURN

010206    045    116    045  RAMFOR:    .ASCIZ  '%N%A CONTROLLER RAM ADDRESS = %06'
                                        .EVEN

                                        .SBTTL  PRIADD  - PRINT MEMORY ERROR ADDRESS
                                ;+
                                ;
                                ;PRINT MEMORY ADDRESS
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                                ;
                                ; IMPLICIT INPUTS
                                ;
                                ;       ERRHI   - HIGH ORDER ADDRESS
                                ;       ERRLO   - LOW ORDER ADDRESS
                                ;
                                ;-
010250                          PRIADD:
010250                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
010254  013700  002226                  MOV     ERRHI,R0                ;GET HIGH ADDRESSS
010260  013701  002230                  MOV     ERRLO,R1                ;GET LOW ADDRESS
010264  010102                          MOV     R1,R2                   ;COPY LOW ADDRESS
010266  006101                          ROL     R1                      ;SHIFT BIT 15 TO C BIT
010270  006100                          ROL     R0                      ;SHIFT INTO HIGH ORDER
010272                                  PRINTB  #PRIA0,R0,R2            ;PRINT MEMORY ADDRESS IN ERROR
010272  010246                          MOV     R2,-(SP)
010274  010046                          MOV     R0,-(SP)
010276  012746  010320                  MOV     #PRIA0,-(SP)
010302  012746  000003                  MOV     #3,-(SP)
010306  010600                          MOV     SP,R0
010310  104414                          TRAP    C$PNTB
010312  062706  000010                  ADD     #10,SP
010316  000207                          RTS     PC                      ;RETURN

010320    045    116    045  PRIA0:     .ASCIZ  '%N%A MEMORY ERROR ADDRESS = %01%05'
                                        .EVEN

                                        .SBTTL  PRITADD - PRINT MEMORY TEST ADDRESS
                                ;+
                                ;
                                ;PRINT MEMORY ADDRESS
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
```

```
                        ;
                        ; IMPLICIT INPUTS
                        ;
                        ;       ERRHI   - HIGH ORDER ADDRESS
                        ;       ERRLO     LOW ORDER ADDRESS
                        ;
                        ;-
                        PRITADD.
                                SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
010370  013702  002226          MOV     ERRHI,R2        ;GET HIGH ADDRESSS
010374  013701  002230          MOV     ERRLO,R1        ;GET LOW ADDRESS
                                ;MOV    R1,R2           ;COPY LOW ADDRESS
                                ;ROL    R1              ;SHIFT BIT 15 TO C BIT
                                ;ROL    R0              ;SHIFT INTO HIGH ORDER
010400                          PRINTB  #PRIT0,R1       ;PRINT MEMORY ADDRESS LOW IN ERROR
010400  010146                  MOV     R1,-(SP)
010402  012746  010446          MOV     #PRIT0,-(SP)
010406  012746  000002          MOV     #2,-(SP)
010412  010600                  MOV     SP,R0
010414  104414                  TRAP    C$PNTB
010416  062706  000006          ADD     #6,SP
010422                          PRINTB  #PRIT1,R2       ;PRINT MEMORY ADDRESS HIGH IN ERROR
010422  010246                  MOV     R2,-(SP)
010424  012746  010511          MOV     #PRIT1,-(SP)
010430  012746  000002          MOV     #2,-(SP)
010434  010600                  MOV     SP,R0
010436  104414                  TRAP    C$PNTB
010440  062706  000006          ADD     #6,SP
010444  000207                  RTS     PC              ;RETURN

010446  045  116  045  PRIT0:  .ASCIZ  '%N%A MEMORY TEST ADDRESS LOW = %06'
010511  045  116  045  PRIT1:  .ASCIZ  '%N%A MEMORY TEST ADDRESS HIGH = %06'
                                .EVEN
                                .SBTTL  SPACE   - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

                        ;+
                        ;
                        ;ROUTINE TO ISSUE A SPACE RECORDS
                        ;COMMAND (FORWARD OR REVERSE)
                        ;
                        ;INPUT:
                        ;
                        ;       R3      NUMBER OF RECORDS TO BE SPACED OVER
                        ;               BIT15 CONTROLS DIRECTION
                        ;               BIT15 = 0 IS FORWARD
                        ;               BIT15 = 1 IS REVERSE
                        ;       R5      FIRST DEVICE UNIBUS ADDRESS
                        ;
                        ;       REQUIRES A WRITE CHARACTERISTICS DONE PREVIOUSLY
                        ;
                        ;OUTPUT:
                        ;
                        ;       CARRY   SET - SPACE RECORDS COMMAND OK
                        ;               CLR - SPACE RECORDS FAILED
                        ;
                        ;
                        ;       R0      THE CONTENTS OF R4 IS MOVED TO R0
```

```
 994                                    ;
 995                                    ;
 996                                    ;IMPLICIT OUTPUT:
 997                                    ;
 998                                    ;       TAPE HAS BEEN MOVED
 999                                    ;
1000                                    ;SIDE EFFECTS:
1001                                    ;
1002                                    ;
1003                                    ;-
1004
1005 010556                            SPACE::
1006 010556                                    SAVREG                          ;SAVE THE GENERAL REGISTERS
1007 010562  012737  000764  010750            MOV     #500.,SDELAY            ;SET UP DELAY
1008 010570  012737  140010  010740            MOV     #140010,80$             ;SET UP COMMAND, SPACE FORWARD
1009 010576  005703                            TST     R3                      ;CHECK FOR DIRECTION
1010 010600  100403                            BMI     5$                      ;BR, IF REVERSE INDICATED
1011 010602  010337  010742                    MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
1012 010606  000407                            BR      10$                     ;GO DO COMMAND
1013 010610  042703  100000            5$:     BIC     #BIT15,R3               ;CLEAR DIRECTION BIT
1014 010614  010337  010742                    MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
1015 010620  052737  000400  010740            BIS     #BIT8,80$               ;SET REVERSE BIT IN COMMAND PACKET
1016 010626  012704  010740            10$:    MOV     #80$,R4                 ;SET UP R4 WITH PACKET ADDRESS
1017 010632  010465  000000                    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
1018 010636  004737  016340            15$:    JSR     PC,WAITF                ;WAIT FOR SSR
1019 010642  103420                            BCS     20$                     ;BR, IF SSR IS SET AND OK
1020 010644                                    DELAY   250             ;DELAY ABOUT .25 SECONDS
     010644  012727  000250                    MOV     #250,(PC)+
     010650  000000                            .WORD   0
     010652  013727  002116                    MOV     L$DLY,(PC)+
     010656  000000                            .WORD   0
     010660  005367  177772                    DEC     -6(PC)
     010664  001375                            BNE     .-4
     010666  005367  177756                    DEC     -22(PC)
     010672  001367                            BNE     .-20
1021 010674  005337  010750                    DEC     SDELAY                  ;BUMP DELAY COUNTER DOWN
1022 010700  001356                            BNE     15$                     ;BR, IF MORE DELAY
1023 010702  000411                            BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
1024 010704  016501  000002            20$:    MOV     TSSR(R5),R1             ;READ TSSR
1025 010710  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
1026 010714  020201                    25$:    CMP     R2,R1                   ;ARE THEY OK
1027 010716  001401                            BEQ     40$                     ;BR, IF EQUAL = OK
1028 010720  000402                            BR      60$                     ;TROUBLE EXIT
1029 010722  000261                    40$:    SEC                             ;SET CARRY NO TROUBLE
1030 010724  000401                            BR      70$                     ;EXIT
1031 010726  000241                    60$:    CLC                             ;CARRY CLEAR = ERROR
1032 010730                            70$:
1033 010730  010400                            MOV     R4,R0                   ;PASS PACKET ADDRESS
1034 010732  000207                            RTS     PC                      ;RETURN
```

SPACE SPACE RECORDS (FORWARD AND REVERSE) COMMAND

```
                                        ;
                                        ;
                                        ;
                                        ;PACKET FOR SPACE COMMAND
                                        ;
                                                .=<.+10>&177770
                                        ;
                                        ;COMMAND WORD
010740  000000                          80$:    .WORD
                                        ;NUMBER OF RECORDS TO BE SPACED OVER WORD
010742  000000                          90$:    .WORD
010744  000000                                  .WORD
010746  000000                                  .WORD
010750  000000                          SDELAY: .WORD   0                       ;DELAY COUNTER
                                                .EVEN
                                                .SBTTL  WRTCHR    WRITE CHARACTERISTICS COMMAND

                                        ;+
                                        ;
                                        ;ROUTINE TO ISSUE A WRITE CHARACTERISTICS
                                        ;COMMAND SO THAT OTHER COMMANDS WILL BE ACCEPTED
                                        ;
                                        ;INPUT:
                                        ;
                                        ;       R4      ADDRESS OF PACKET FROM TEST
                                        ;       R5      FIRST DEVICE UNIBUS ADDRESS
                                        ;       REQUIRES A CALL TO SOFINIT BE DONE PREVIOUSLY
                                        ;
                                        ;OUTPUT:
                                        ;
                                        ;       R0      TSSR CONTENTS
                                        ;       CARRY   SET - WRITE CHARACTERISTICS COMMAND OK
                                        ;               CLR - WRITE CHARACTERISTICS FAILED
                                        ;
                                        ;IMPLICIT OUTPUT:
                                        ;
                                        ;       MESSAGE BUFFER AND OTHER BUFFERS ALL SET UP
                                        ;       SOFTWARE SWITCHES SET AS FOLLOWS:
                                        ;               EXTFEA = EXTENDED FEATURES PRESENT
                                        ;               BENBSW = BUFFER ENABLE SWITCH ON OR OFF
                                        ;
                                        ;SIDE EFFECTS:
                                        ;
                                        ;
                                        ;-

010752                                  WRTCHR::
010752                                          SAVREG                          ;SAVE THE GENERAL REGISTERS
010756  005037  002220                          CLR     BENBSW          ;CLEAR BUFFER ENABLE SWITCH
010762  005037  002216                          CLR     EXTFEA                  ;CLEAR EXTENDED FEATURES SW SWITCH
010766  010465  000000                  10$:    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010772  004737  016426                          JSR     PC,CHKTSSR              ;WAIT FOR SSR
010776  103401                                  BCS     20$                     ;BR, IF SSR IS SET AND OK
011000  000435                                  BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
011002  016501  000002                  20$:    MOV     TSSR(R5),R1             ;READ TSSR
011006  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED
```

```
1095 011012  032701  000100                BIT     #OFL,R1                 ;WAS OFF LINE SET IN TSSR
1096 011016  001402                        BEQ     25$                     ;BR, IF NO OFL SET
1097 011020  052702  000100                BIS     #OFL,R2                 ;MAKE THEM LOOK ALIKE
1098 011024  020201                 25$:   CMP     R2,R1                   ;ARE THEY OK
1099 011026  001401                        BEQ     40$                     ;BR, IF EQUAL = OK
1100 011030  000421                        BR      60$                     ;TROUBLE EXIT
1101 011032  062704  000010         40$:   ADD     #8.,R4                  ;POINT TO WRT CHARA DATA PACKET
1102 011036  011403                        MOV     (R4),R3                 ;GET ADDRESS OF MESSAGE BUFFER
1103 011040  032763  000200  000012        BIT     #X2.EXTF,XST2(R3)       ;EXTENDED FEATURES BIT SET?
1104 011046  001402                        BEQ     45$                     ;BR IF NO
1105 011050  005237  002216                INC     EXTFEA                  ;SET EXTENDED FEATURES SW SWITCH
1106 011054                         45$:
1107 011054  032763  000100  000012        BIT     #X2.BUFE,XST2(R3)                               ;BUFFER ENABLE SWITCH SET
1108 011062  001402                        BEQ     50$                     ;BR, IF SWITCH NOT SET
1109 011064  005237  002220                INC     BENBSW                  ;SET SOFTWARE SWITCH FOR ENABLED
1110 011070                         50$:
1111 011070  000261                        SEC                             ;SET CARRY NO TROUBLE
1112 011072  000401                        BR      70$                     ;EXIT
1113 011074  000241                 60$:   CLC                             ;CARRY CLEAR = ERROR
1114 011076  016500  000002         70$:   MOV     TSSR(R5),R0             ;RETURN TSSR CONTENTS
1115 011102  000207                        RTS     PC                      ;RETURN
1116                                       .SBTTL  REWIND  - POSITION TAPE (REWIND) COMMAND
1117
1118                                ;+
1119                                ;
1120                                ;THIS ROUTINE WILL REWIND THE SELECTED TAPE.
1121                                ;
1122                                ;       CAUTION: THE ROUTINE DOES NOT WAIT FOR BOT
1123                                ;                TO ARRIVE. ALSO THE CALLER MUST CHECK FOR
1124                                ;                SSR TO SET IN THE TSSR
1125                                ;
1126                                ;
1127                                ;CALLING SEQUENCE:
1128                                ;
1129                                ;       DO A SOFT INIT
1130                                ;       DO A WRITE CHARACTERISTICS
1131                                ;       JSR     PC,REWIND
1132                                ;
1133                                ;INPUT:
1134                                ;
1135                                ;       R5      FIRST DEVICE UNIBUS ADDRESS
1136                                ;
1137                                ;
1138                                ;OUTPUT
1139                                ;
1140                                ;       R0      THE CONTENTS OF R4 IS PASSED TO R0
1141                                ;
1142                                ;
1143                                ;-
1144 011104                         REWIND::
1145 011104                                SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
1146 011110  012704  011200                MOV     #RWPACK,R4              ;GET PACKET ADDRESS
1147 011114  010465  000000                MOV     R4,TSDB(R5)             ;SEND PACKET ADDRESS TO EXECUTE
1148 011120  012703  000550                MOV     #360.,R3                ;ENOUGH TIME FOR 2400' REEL TO REWIND
1149 011124  004737  016340         10$:   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1150 011130  103417                        BCS     20$                     ;LEAVE WHEN SSR IS SET
1151 011132                                DELAY   250.                    ;WAIT FOR .25 SECONDS
```

```
REWIND    POSITION TAPE (REWIND) COMMAND

        011132  012727  000372                  MOV     #250.,(PC)+
        011136  000000                          .WORD   0
        011140  013727  002116                  MOV     L$DLY,(PC)+
        011144  000000                          .WORD   0
        011146  005367  177772                  DEC     -6(PC)
        011152  001375                          BNE     . 4
        011154  005367  177756                  DEC     -22(PC)
        011160  001367                          BNE     .-20
   1152 011162  005303                          DEC     R3                      ;BUMP COUNTER DOWN
   1153 011164  001357                          BNE     10$                     ;KEEP GOING
   1154 011166  000241                          CLC                             ;CLEAR CARRY TO SET ERROR
   1155 011170  010400                  20$:    MOV     R4,R0                   ;PASS THE PACKET ADDRESS
   1156 011172  000207                          RTS     PC                      ;RETURN
   1157
   1159         011200                          .=<.+10>&177770
   1161 011200                          RWPACK:
   1162 011200  102010                          .WORD   102010                  ;POSTION COMMAND (REWIND)
   1163 011202  000000                          .WORD   0                       ;NOT USED
   1164                                         .SBTTL  CKRAM   - COMPARE RAM TO I/O PACKET
   1165
   1166                                 ;+
   1167                                 ;
   1168                                 ;ROUTINE TO READ THE FIRST 8 BYTES FROM RAM
   1169                                 ;MEMORY AND COMPARE THIS DATA TO A COMMAND PACKET.
   1170                                 ;
   1171                                 ;INPUT:
   1172                                 ;
   1173                                 ;       R4      ADDRESS OF THE COMMAND PACKET
   1174                                 ;       R5      FIRST DEVICE UNIBUS ADDRESS
   1175                                 ;
   1176                                 ;OUTPUT:
   1177                                 ;
   1178                                 ;       CARRY   SET - RAM MATCHES PACKET
   1179                                 ;               CLR - RAM DOES NOT MATCH PACKET
   1180                                 ;
   1181                                 ;IMPLICIT OUTPUT:
   1182                                 ;
   1183                                 ;       THE TABLE RAMDATA IS FILLED WITH THE
   1184                                 ;       DATA HELD IN RAM.
   1185                                 ;       RAMSIZ IS SET TO 8. FOR PRAMPKT ROUTINE
   1186                                 ;
   1187                                 ;SIDE EFFECTS:
   1188                                 ;
   1189                                 ;       THE SUBSYSTEM IS LEFT IN MAINTENANCE MODE
   1190                                 ;
   1191                                 ;-
   1192
   1193 011204                          CKRAM::
   1194 011204                                  SAVREG                          ;SAVE THE GENERAL REGISTERS
   1195 011210  012701  002232                  MOV     #RAMDATA,R1             ;ADDRESS TO SAVE THE RAM DATA
   1196 011214  012702  000201                  MOV     #RMPKTBEG,R2            ;BYTE ADDRESS OF FIRST RAM DATA
   1197 011220  005003                          CLR     R3                      ;CLEAR THE ERROR FLAG
   1198 011222  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
   1199 011226  112765  000000  000000          MOVB    #0,TSDB(R5)             ;SET MAINTENANCE MODE
   1200 011234  004737  016426          10$:    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
   1201 011240  010265  000000                  MOV     R2,TSDB(R5)             ;SELECT NEXT RAM ADDRESS
   1202 011244  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
```

```
CKRAM     COMPARE RAM TO I/O PACKET

 1203 011250  116511  000000                 MOVB    TSBA(R5),(R1)           ;READ THE RAM DATA
 1204 011254  122124                         CMPB    (R1)+,(R4)+             ;COMPARE TO EXPECTED
 1205 011256  001401                         BEQ     20$                     ;BRANCH IF OK
 1206 011260  005203                         INC     R3                      ;SET ERROR FLAG
 1207 011262  005202                 20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
 1208 011264  020227  000210                 CMP     R2,#RMPKTEND            ;REACHED END YET ?
 1209 011270  003761                         BLE     10$                     ;BRANCH TILL ALL READ
 1210 011272  005703                         TST     R3                      ;WAS AN ERROR FOUND ?
 1211 011274  001402                         BEQ     30$                     ;BRANCH IF NOT
 1212 011276  000241                         CLC                             ;CLEAR CARRY TO SHOW ERROR
 1213 011300  000401                         BR      50$                     ;AND EXIT
 1214 011302  000261                 30$:    SEC                             ;SHOW GOOD COMPARE
 1215 011304  012737  000010  002272  50$:    MOV     #8.,RAMSIZ              ;SETUP RAMSIZ FOR PRAMPKT ROUTINE
 1216 011312  000207                         RTS     PC                      ;RETURN
 1217                                         .SBTTL  CKRAM2  - COMPARE RAM TO I/O CHARACTERISTICS DATA
 1218                                 ;+
 1219                                 ;
 1220                                 ;ROUTINE TO READ THE FIRST 8 OR 10 BYTES FROM RAM
 1221                                 ;MEMORY AND COMPARE THIS DATA TO A CHARACTERISTICS DATA BLOCK.
 1222                                 ;
 1223                                 ;INPUT:
 1224                                 ;
 1225                                 ;       R4      ADDRESS OF THE CHARACTERISTICS DATA
 1226                                 ;       R5      FIRST DEVICE UNIBUS ADDRESS
 1227                                 ;
 1228                                 ;OUTPUT:
 1229                                 ;
 1230                                 ;       CARRY   SET - RAM MATCHES PACKET
 1231                                 ;               CLR - RAM DOES NOT MATCH PACKET
 1232                                 ;
 1233                                 ;IMPLICIT OUTPUT:
 1234                                 ;
 1235                                 ;       THE TABLE RAMDATA IS FILLED WITH THE
 1236                                 ;       DATA HELD IN RAM.
 1237                                 ;       RAMSIZ IS SET TO 8. OR 10. FOR PRAMPKT ROUTINE
 1238                                 ;
 1239                                 ;SIDE EFFECTS:
 1240                                 ;
 1241                                 ;       THE SUBSYSTEM IS LEFT IN MAINTENANCE MODE
 1242                                 ;
 1243                                 ;-
 1244
 1245 011314                         CKRAM2::
 1246 011314                                 SAVREG                          ;SAVE THE GENERAL REGISTERS
 1247 011320  012701  002232                 MOV     #RAMDATA,R1             ;ADDRESS TO SAVE THE RAM DATA
 1248 011324  012702  000167                 MOV     #RMCHBEG,R2             ;BYTE ADDRESS OF FIRST RAM DATA
 1249 011330  005003                         CLR     R3                      ;CLEAR THE ERROR FLAG
 1250 011332  004737  016426                 JSR     PC,CHKTSSR              ;WAIT FOR SSR
 1251 011336  112765  000000  000000         MOVB    #0,TSDB(R5)             ;SET MAINTENANCE MODE
 1252 011344  004737  016426         10$:    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
 1253 011350  010265  000000                 MOV     R2,TSDB(R5)             ;SELECT NEXT RAM ADDRESS
 1254 011354  004737  016426                 JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
 1255 011360  116511  000000                 MOVB    TSBA(R5),(R1)           ;READ THE RAM DATA
 1256 011364  122124                         CMPB    (R1)+,(R4)+             ;COMPARE TO EXPECTED
 1257 011366  001401                         BEQ     20$                     ;BRANCH IF OK
 1258 011370  005203                         INC     R3                      ;SET ERROR FLAG
 1259 011372  005202                 20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
```

CKRAM2 COMPARE RAM TO I/O CHARACTERISTICS DATA

```
1260 011374  012737  000010  002272          MOV     #8.,RAMSIZ              ;ASSUME EXTFEA NOT SET
1261 011402  005737  002216                  TST     EXTFEA                  ;IS THE SOFTWARE EXTENDED FEATURES SET
1262 011406  001407                          BEQ     25$                     ;BR, IF NOT SET
1263 011410  012737  000012  002272          MOV     #10.,RAMSIZ             ;SET RAMSIZ FOR EXTEND FEATURES
1264 011416  020227  000200                  CMP     R2,#RMCHEND             ;AT END OF EXTENDED BUFFER
1265 011422  003750                          BLE     10$                     ;BR, IF NOT AT END YET
1266 011424  000403                          BR      27$                     ;AT END BRANCH
1267 011426  020227  000176          25$:    CMP     R2,#RMCHEND 2           ;REACHED END YET ?
1268 011432  003744                          BLE     10$                     ;BRANCH TILL ALL READ
1269 011434  005703                  27$:    TST     R3                      ;WAS AN ERROR FOUND ?
1270 011436  001402                          BEQ     30$                     ;BRANCH IF NOT
1271 011440  000241                          CLC                             ;CLEAR CARRY TO SHOW ERROR
1272 011442  000401                          BR      50$                     ;AND EXIT
1273 011444  000261                  30$:    SEC                             ;SHOW GOOD COMPARE
1274 011446  000207                  50$:    RTS     PC                      ;RETURN
1275                                         .SBTTL  CKMSG   - COMPARE WRITE CHAR. MESSAGE BUFFERS
1276                                 ;+
1277                                 ;
1278                                 ;ROUTINE TO COMPARE A WRITE CHARACTERISTICS EXPD AND RECV
1279                                 ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
1280                                 ;ERROR PRINT ROUTINES.
1281                                 ;
1282                                 ;INPUT:
1283                                 ;
1284                                 ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
1285                                 ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
1286                                 ;       R2      EXPD MESSAGE BUFFER ADDRESS
1287                                 ;OUTPUT:
1288                                 ;
1289                                 ;       CARRY   SET - MESSAGE BUFFERS MATCH
1290                                 ;               CLR -MESSAGE BUFFERS DON'T MATCH
1291                                 ;
1292                                 ;IMPLICIT OUTPUT:
1293                                 ;
1294                                 ;       EXPMSG          BUFFER IS SET TO EXPD DATA
1295                                 ;       RECMSG          BUFFER IS SET TO RECV DATA
1296                                 ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
1297                                 ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
1298                                 ;
1299                                 ;-
1300 011450                         CKMSG::
1301 011450                                 SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
1302 011454  010037  002274                 MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
1303 011460  010137  002276                 MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
1304 011464  005737  003124                 TST     KTENABLE                ;TESTING ABOVE 28K?
1305 011470  001403                         BEQ     10$                     ;BR IF NO
1306 011472  004737  017406                 JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
1307 011476  010001                         MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
1308 011500  005004                 10$:    CLR     R4                      ;WORD IN BUFFER
1309 011502  005003                         CLR     R3                      ;CLEAR ERROR SEEN FLAG
1310 011504  010205                         MOV     R2,R5                   ;GET EXPD BUFFER ADDRESS
1311 011506  011264  002312         15$:    MOV     (R2),EXPMSG(R4)         ;SAVE EXPD FOR ERROR REPORT
1312 011512  011164  002456                 MOV     (R1),RECMSG(R4)         ;SAVE RECV FOR ERROR REPORT
1313 011516  022221                         CMP     (R2)+,(R1)+             ;EXPD EQUAL RECV?
1314 011520  001401                         BEQ     25$                     ;BR IF YES
1315 011522  005203                         INC     R3                      ;SET ERROR SEEN FLAG
1316 011524  062704  000002         25$:    ADD     #2,R4                   ;POINT TO NEXT WORD ADDRESS
```

```
1317 011530  020427  000014                  CMP     R4,#14          ;DONE FIRST 7 WORDS?
1318 011534  003764                          BLE     15$             ;BR IF NO
1319 011536  032765  000200  000012          BIT     #X2.EXTF,XST2(R5);IS EXTENDED FEATURES SET IN EXPD?
1320 011544  001403                          BEQ     50$             ;BR IF NO
1321 011546  020427  000016                  CMP     R4,#16          ;DONE EXTENDED FEATURES WORD?
1322 011552  003755                          BLE     15$             ;BR IF NO
1323 011554  005703                  50$:    TST     R3              ;ANY ERRORS SEEN?
1324 011556  001402                          BEQ     55$             ;BR IF NO
1325 011560  000241                          CLC                     ;SET FAILURE
1326 011562  000401                          BR      60$             ;
1327 011564  000261                  55$:    SEC                     ;SET SUCCESS
1328 011566  000207                  60$:    RTS     PC              ;RETURN
1329                                          .SBTTL  CKMSG2  - COMPARE EXPD RECV MESSAGE BUFFERS
1330                                 ;+
1331                                 ;
1332                                 ;ROUTINE TO COMPARE AN EXPECTED AND RECEIVED MESSAGE
1333                                 ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
1334                                 ;ERROR PRINT ROUTINES.
1335                                 ;
1336                                 ;INPUT:
1337                                 ;
1338                                 ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
1339                                 ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
1340                                 ;       R2      EXPD MESSAGE BUFFER ADDRESS
1341                                 ;       R3      NUMBER OF BYTES TO COMPARE
1342                                 ;
1343                                 ;OUTPUT:
1344                                 ;
1345                                 ;       CARRY   SET - MESSAGE BUFFERS MATCH
1346                                 ;               CLR - MESSAGE BUFFERS DON'T MATCH
1347                                 ;
1348                                 ;IMPLICIT OUTPUT:
1349                                 ;
1350                                 ;       EXPMSG          BUFFER IS SET TO EXPD DATA
1351                                 ;       RECMSG          BUFFER IS SET TO RECV DATA
1352                                 ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
1353                                 ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
1354                                 ;
1355                                 ;-
1356 011570                         CKMSG2::
1357 011570                                 SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
1358 011574  020327  000144                 CMP     R3,#RECMSG-EXPMSG;@@D IS COUNT ABOVE MAX ALLOWED?
1359 011600  003412                         BLE     5$              ;@@D BR IF NO
1360 011602  012703  000144                 MOV     #RECMSG-EXPMSG,R3;@@D
1361 011606                                 PRINTF  #DEBUGMSG       ;@@D
     011606  012746  011722                 MOV     #DEBUGMSG,-(SP)
     011612  012746  000001                 MOV     #1,-(SP)
     011616  010600                         MOV     SP,R0
     011620  104417                         TRAP    C$PNTF
     011622  062706  000004                 ADD     #4,SP
1362 011626  010037  002274         5$:     MOV     R0,RCVHIADD     ;SAVE RECV HIGH ADDRESS
1363 011632  010137  002276                 MOV     R1,RCVLOAD      ;SAVE RECV LOW ADDRESS
1364 011636  005737  003124                 TST     KTENABLE        ;TESTING ABOVE 28K?
1365 011642  001403                         BEQ     10$             ;BR IF NO
1366 011644  004737  017406                 JSR     PC,SETMAP       ;RETURN ADDRESS BIASED TO PAR6 IN R0
1367 011650  010001                         MOV     R0,R1           ;GET RETURNED ADDRESS BIASED TO PAR6
1368 011652  005004         10$:    CLR     R4                      ;WORD IN BUFFER
```

```
1369 011654  005005                        CLR     R5              ;CLEAR ERROR SEEN FLAG
1370 011656  111264  002312          15$:   MOVB    (R2),EXPMSG(R4) ;SAVE EXPD FOR ERROR REPORT
1371 011662  111164  002456                MOVB    (R1),RECMSG(R4) ;SAVE RECV FOR ERROR REPORT
1372 011666  122221                        CMPB    (R2)+,(R1)+     ;EXPD EQUAL RECV?
1373 011670  001401                        BEQ     25$             ;BR IF YES
1374 011672  005205                        INC     R5              ;SET ERROR SEEN FLAG
1375 011674  062704  000001          25$:   ADD     #1,R4           ;POINT TO NEXT BYTE
1376 011700  020403                        CMP     R4,R3           ;DONE ALL BYTES?
1377 011702  002001                        BGE     50$             ;BR IF YES
1378 011704  000764                        BR      15$             ;DO NEXT BYTE
1379 011706  005705                  50$:   TST     R5              ;ANY ERRORS SEEN?
1380 011710  001402                        BEQ     55$             ;BR IF NO
1381 011712  000241                        CLC                     ;SET FAILURE
1382 011714  000401                        BR      60$             ;
1383 011716  000261                  55$:   SEC                     ;SET SUCCESS
1384 011720  000207                  60$:   RTS     PC              ;RETURN
1385
1386 011722     120     122     117  DEBUGMSG:      .ASCIZ  'PROGRAM INTERNAL ERROR -CKMSG2 MESSAGE BUFFER EXCEEDED '<200>
1387 012012     045     116     045  FERCM:  .ASCII  /%N%A  %%%/
1388 012023     040     040     124  ERCM:   .ASCIZ  /  TSSR ERROR CODE REC'D = /
1389 012056     056     056     056  SIMSG:  .ASCIZ  /.... AFTER DOING SOFT INIT/
1390 012111     124     105     123  TINERR: .ASCIZ  /TEST: .../
1391                                          .EVEN
1392
1393                                  ;+
1394                                  ;
1395                                  ;PRINT ROUTINE TO FATAL SOFT INIT ERRORS
1396                                  ;
1397                                  ;INPUT:
1398                                  ;
1399                                  ;       R1      CONTENTS OF TSSR AT ERROR
1400                                  ;
1401                                  ;SIDE EFFECTS:
1402                                  ;
1403                                  ;       EXECUTES DROP UNIT TO CEASE TESTING
1404                                  ;
1405                                  ;-
1406
1407 012124                                       BGNMSG  SFIMSG
      012124
1408 012124  004737  006022          SFIMSG::
                                             JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
1409 012130  004737  017272                 JSR     PC,CKDROP       ;DROP UNIT, IF ALLOWED
1410 012134                                  ENDMSG
      012134
      012134  104423                 L10003:
                                             TRAP    C$MSG
1411
1412                                  ;+
1413                                  ;PRINT ROUTINE TO PRINT THE CONTENTS OF
1414                                  ;TSSR AND A COMMAND PACKET OTHER THAN GET STATUS COMMAND PACKET.
1415                                  ;
1416                                  ;INPUTS:
1417                                  ;
1418                                  ;       R1      TSSR CONTENTS
1419                                  ;       R4      ADDRESS OF COMMAND PACKET
1420                                  ;
1421                                  ;-
1422
```

```
1423 012136                                    BGNMSG  PKTSSR
     012136                              PKTSSR::
1424 012136  004737  006022                    JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
1425 012142  012700  000004                    MOV     #4,R0           ;NO. OF WORDS IN PACKET
1426 012146  004737  007460                    JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
1427 012152                                    ENDMSG
     012152                              L10004:
     012152  104423                           TRAP    C$MSG
1428
1429                                        ;+
1430                                        ;PRINT ROUTINE TO PRINT THE CONTENTS OF
1431                                        ;TSSR AND A GET STATUS COMMAND PACKET.
1432                                        ;
1433                                        ;INPUTS:
1434                                        ;
1435                                        ;       R1      TSSR CONTENTS
1436                                        ;       R4      ADDRESS OF COMMAND PACKET
1437                                        ;
1438                                        ;
1439
1440 012154                                    BGNMSG  PKTGETS
     012154                              PKTGETS::
1441 012154  004737  006022                    JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
1442 012160  012700  000002                    MOV     #2,R0           ;NO. OF WORDS IN GET STATUS PACKET
1443 012164  004737  007460                    JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
1444 012170                                    ENDMSG
     012170                              L10005:
     012170  104423                           TRAP    C$MSG
1445
1446                                        ;+
1447                                        ;PRINT TSSR ERRORS FOR INITIALIZATION TESTS
1448                                        ;
1449                                        ;INPUTS:
1450                                        ;
1451                                        ;       R1      TSSR CONTENTS
1452                                        ;       R4      ADDRESS OF COMMAND PACKET
1453                                        ;-
1454
1455 012172                                    BGNMSG  SFFMSG
     012172                              SFFMSG::
1456 012172  004737  006022                    JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
1457 012176                                    ENDMSG
     012176                              L10006:
     012176  104423                           TRAP    C$MSG
1458
1459                                        .SBTTL  PKTMES  - PRINT TSSR AND MESSAGE BUFFER
1460                                        ;+
1461                                        ;
1462                                        ;PRINT ROUTINE TO PRINT THE CONTENTS OF TSSR AND MESSAGE
1463                                        ;BUFFER FOR ERROR REPORTS
1464                                        ;
1465                                        ;INPUTS:
1466                                        ;
1467                                        ;       R1      CONTENTS OF TSSR
1468                                        ;       R2      LOW ORDER MESSAGE BUFFER
1469                                        ;       R3      HIGH ORDER MESSAGE BUFFER ADDRESS
1470                                        ;       NOTE: R3 IS IGNORED IF KTENABLE FLAG IS CLEAR
```

PKTMES PRINT TSSR AND MESSAGE BUFFER

```
1471
1472 012200                                    ;
     012200                                          BGNMSG  PKTMES
1473 012200  004737  006022                    PKTMES::
1474 012204  010200                                  JSR     PC,PRITSSR              ;PRINT CONTENTS OF TSSR
1475 012206  010301                                  MOV     R2,R0                   ;LOW ORDER ADDRESS
1476 012210  004737  014332                          MOV     R3,R1                   ;HIGH ORDER ADDRESS
1477 012214                                          JSR     PC,PRMESS               ;PRINT THE MESSAGE BUFFER
     012214                                          ENDMSG
     012214                                    L10007:
     012214  104423                                  TRAP    C$MSG
1478                                                 .SBTTL  ADDSSR  - PRINT TEST ADDRESS AND TSSR
1479                                               ;*
1480                                               ;PRINT ROUTINE TO PRINT THE CONTENTS OF
1481                                               ;TSSR AND A MEMORY TEST ADDRESS
1482                                               ;
1483                                               ;INPUTS:
1484                                               ;
1485                                               ;       R5      FIRST DEVICE UNIBUS ADDRESS
1486                                               ;       ERRHI   HIGH ORDER MEMORY TEST ADDRESS
1487                                               ;       ERRLO   LOW ORDER MEMORY TEST ADDRESS
1488                                               ;-
1489
1490 012216                                          BGNMSG  ADDSSR
     012216                                    ADDSSR::
1491 012216  004737  010364                          JSR     PC,PRITADD      ;PRINT MEMORY TEST ADDRESS
1492 012222  016501  000002                          MOV     TSSR(R5),R1     ;GET CURRENT TSSR
1493 012226  004737  006022                          JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
1494 012232                                          ENDMSG
     012232                                    L10010:
     012232  104423                                  TRAP    C$MSG
1495                                                 .SBTTL  MSGEXP   PRINT WRITE CHAR. EXPD-RECV MESSAGE BUFFERS
1496                                               ;*
1497                                               ;
1498                                               ;PRINT ROUTINE TO PRINT WRITE CHARACTERISTIC MESSAGE BUFFER
1499                                               ;
1500                                               ;IMPLICIT INPUTS:
1501                                               ;
1502                                               ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1503                                               ;       RECMSG  - RECEIVED MESSAGE BUFFER
1504                                               ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
1505                                               ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
1506                                               ;-
1507
1508 012234                                          BGNMSG  MSGEXP
     012234                                    MSGEXP::
1509 012234  012700  000007                          MOV     #7,R0           ;ASSUME NO EXT FEATURES
1510 012240  005737  002216                          TST     EXTFEA          ;EXT FEATURES SET?
1511 012244  001402                                  BEQ     5$              ;BR IF NO
1512 012246  012700  000010                          MOV     #8.,R0          ;EXT FEATURE BUFFER IS 8 WORDS
1513 012252  004737  014642                    5$:   JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
1514 012256                                          ENDMSG
     012256                                    L10011:
     012256  104423                                  TRAP    C$MSG
1515                                                 .SBTTL  FIFEXP  - PRINT FIFO EXP/RECV DATA
1516                                               ;*
1517                                               ;
1518                                               ;PRINT ROUTINE TO PRINT FIFO EXP/RECV DATA
```

```
1519                                    ;
1520                                    ;       R1          BYTE COUNT
1521                                    ;
1522                                    ;IMPLICIT INPUTS:
1523                                    ;
1524                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY
1525                                    ;       RECMSG    RECEIVED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY)
1526                                    ;-
1527 012260                            BGNMSG  FIFEXP
     012260                         FIFEXP::
1528 012260                            PRINTX  #FIF1MSG,R1     ;PRINT BYTES TRANSFERRED
     012260  010146                    MOV     R1,-(SP)
     012262  012746  012332            MOV     #FIF1MSG,-(SP)
     012266  012746  000002            MOV     #2,-(SP)
     012272  010600                    MOV     SP,R0
     012274  104415                    TRAP    C$PNTX
     012276  062706  000006            ADD     #6,SP
1529 012302                            PRINTX  #FIF2MSG        ;PRINT HEADER MSG
     012302  012746  012401            MOV     #FIF2MSG,-(SP)
     012306  012746  000001            MOV     #1,-(SP)
     012312  010600                    MOV     SP,R0
     012314  104415                    TRAP    C$PNTX
     012316  062706  000004            ADD     #4,SP
1530 012322  010100                    MOV     R1,R0           ;GET BYTE COUNT
1531 012324  004737  015212            JSR     PC,PRBYTEXP     ;PRINT FIFO BYTES IN ERROR
1532 012330                            ENDMSG
     012330                         L10012:
     012330  104423                    TRAP    C$MSG
1533 012332    045    116    045   FIF1MSG:        .ASCIZ  '<NA NUMBER OF BYTES TRANSFERRED = <D2>'
1534 012401    045    116    045   FIF2MSG:        .ASCIZ  '<NA FIFO DATA BYTES IN ERROR:'
1535                                        .EVEN
1536                                        .SBTTL  MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS
1537                                    ;*
1538                                    ;
1539                                    ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
1540                                    ;
1541                                    ;
1542                                    ;IMPLICIT INPUTS:
1543                                    ;
1544                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1545                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
1546                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
1547                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
1548                                    ;-
1549 012440                            BGNMSG  MSGSTAT
     012440                         MSGSTAT::
1550 012440  012701  012502            MOV     #STATCOD,R1     ;ASCII ADDRESS TABLE
1551 012444  012100                10$: MOV     (R1)+,R0        ;DONE ALL MSG LINES?
1552 012446  001410                    BEQ     20$             ;BR IF YES
1553 012450                            PRINTX  R0              ;PRINT STATUS BIT NAMES
     012450  010046                    MOV     R0,(SP)
     012452  012746  000001            MOV     #1,-(SP)
     012456  010600                    MOV     SP,R0
     012460  104415                    TRAP    C$PNTX
     012462  062706  000004            ADD     #4,SP
1554 012466  000766                    BR      10$             ;DO ANOTHER MSG LINE
1555 012470  012700  000012        20$: MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
```

MSGSTAT PRINT STATUS HEADER AND MESSAGE BUFFERS

```
                                        JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
                                        ENDMSG
                                L10013:
                                        TRAP    C$MSG

STATCOD:        .WORD   1$,2$,3$,4$,5$,6$,0
1$:.ASCIZ  '<N><A Tape Bus Signals in Word #8:'
2$:.ASCIZ  '<N><A       PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>'
3$:.ASCIZ  '<N><A       IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>'
4$:.ASCIZ  '<N><A       IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>'
5$:.ASCIZ  '<N><A Tape Bus Signals in Word #9:'
6$:.ASCIZ  '<N><A       DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>'
                                        .EVEN

                                        .SBTTL  MSGLOOP   PRINT LOOPBACK HEADER AND MESSAGE BUFFERS
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;
                                        BGNMSG  MSGLOOP
                                MSGLOOP::
                                        MOV     #LOOPCOD,R1     ;ASCII ADDRESS TABLE
                                10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
                                        BEQ     20$             ;BR IF YES
                                        PRINTX  R0              ;PRINT STATUS BIT NAMES
                                        MOV     R0,-(SP)
                                        MOV     #1,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
                                        ADD     #4,SP
                                        BR      10$             ;DO ANOTHER MSG LINE
                                20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
                                        JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
                                        ENDMSG
                                L10014:
                                        TRAP    C$MSG

LOOPCOD:        .WORD   1$,2$,3$,4$,5$,6$,7$,0
1$:.ASCIZ  '<N><A Tape Bus Loopback Signals in Word #8:'
2$:.ASCIZ  '<N><A       PARERR<15>          IRESV2<14>          IRESV1<13>'
3$:.ASCIZ  '<N><A IHISP=>IEOT<12>    IWRT=>IIDENT<11>    IREV  =>ICER  <10>'
4$:.ASCIZ  '<N><A IWFM =>IFMK<09>    IEDIT=>IHER <08>    IFAD  =>ISPEED<07>'
5$:.ASCIZ  '<N><A ITADO=>IRDY<06>    ITAD1=>IONL <05>    IERASE=>ILDP  <04>'
6$:.ASCIZ  '<N><A IREW =>IDBY<03>    IRWU =>IRWD <02>    IFEN  =>IFBY  <01>'
7$:.ASCIZ  '<N><A IGO  =>IFPT<00>'
                                .EVEN
                                .SBTTL  MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
```

MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER

```
                                        ;
                                        ;
                                        ;IMPLICIT INPUTS:
                                        ;
                                        ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                        ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                        ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                        ;       RCVLOADD  RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                        ;-
                                                BGNMSG  MSGSUB
014032                                  MSGSUB::
014032  012700  000012                          MOV     #10.,R0         ;SIZE OF WRITE SUBSYSTEM BUFFER
014036  004737  014642                          JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
014042                                          ENDMSG
014042                                  L10015:
014042  104423                                  TRAP    C$MSG

                                                .SBTTL  MEMADD   PRINT MEMORY ADDRESS DATA ERROR
                                        ;*
                                        ;
                                        ;PRINT ROUTINE TO PRINT MEMORY ADDRESS DATA COMPARE ERROR
                                        ;
                                        ;IMPLICIT INPUTS:
                                        ;
                                        ;       ERRHI   - MEMORY ERROR HIGH ORDER ADDRESS
                                        ;       ERRLO   - MEMORY ERROR LOW ORDER ADDRESS
                                        ;       EXP     - EXPECTED DATA
                                        ;       RECV    - RECEIVED DATA
                                        ;-
                                                BGNMSG  MEMADD
014044                                  MEMADD::
014044  004737  010250                          JSR     PC,PRIADD       ;PRINT MEMORY ADDRESS IN ERROR
014050  013701  002222                          MOV     EXPD,R1         ;GET EXPD DATA
014054  013702  002224                          MOV     RECV,R2         ;GET RECEIVED DATA
014060  004737  010032                          JSR     PC,PRIXOR       ;PRINT EXPD/RECV
014064                                          ENDMSG
014064                                  L10016:
014064  104423                                  TRAP    C$MSG
                                                .SBTTL  PRAMPKT - PRINT RAM AND PACKET DATA
                                        ;*
                                        ;
                                        ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                                        ;WHEN THE RAM DATA DOES NOT MATCH.
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R4      POINTER TO COMMAND PACKET
                                        ;
                                        ;IMPLICIT INPUTS:
                                        ;
                                        ;       RAMDATA         DATA AS READ FROM THE RAM
                                        ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                                        ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                                        ;
                                        ;IMPLICIT OUTPUTS:
                                        ;
                                        ;       RAMSIZ  SET TO 0
```

```
                                        ;
                                        ;
014066                                  PRAMPKT:
014066                                          SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
014072  012701  002232                          MOV     @RAMDATA,R1             ;DATA FROM THE RAM
014076  005002                                  CLR     R2                      ;INIT BYTE NUMBER
014100  122124                          5$:     CMPB    (R1)+,(R4)+             ;COMPARE EXPECTED, RECEIVED
014102  001005                                  BNE     7$                      ;BR IF NO MATCH
014104                                          FORCERROR       7$,NOTSSR
014114  000436                                  BR      10$                     ;BRD
014116  116105  177777                  7$:     MOVB     1(R1),R5               ;GET RECV RAM DATA
014122  116403  177777                          MOVB    -1(R4),R3               ;GET EXPD PACKET DATA
014126                                          XOR     R5,R3                   ;XOR EXPD/RECV
014136  042703  177400                          BIC     @177400,R3              ;LOW BYTE ONLY
014142  116137  177777  002224                  MOVB    -1(R1),RECV             ;GET RECEIVED RAM DATA
014150  116437  177777  002222                  MOVB    -1(R4),EXPD             ;GET EXPECTED RAM DATA
014156                                          PRINTB  @RAMASC,R2,RECV,EXPD,R3
014156  010346                                  MOV     R3,-(SP)
014160  013746  002222                          MOV     EXPD,-(SP)
014164  013746  002224                          MOV     RECV,-(SP)
014170  010246                                  MOV     R2,(SP)
014172  012746  014246                          MOV     @RAMASC,-(SP)
014176  012746  000005                          MOV     @5,-(SP)
014202  010600                                  MOV     SP,R0
014204  104414                                  TRAP    C$PNTB
014206  062706  000014                          ADD     @14,SP
014212  005202                          10$:    INC     R2                      ;UPDATE BYTE COUNT
014214  005737  002272                          TST     RAMSIZ                  ;DEFAULT TO 8.?
014220  001404                                  BEQ     15$                     ;BR IF YES
014222  020237  002272                          CMP     R2,RAMSIZ               ;DONE ALL BYTES?
014226  003724                                  BLE     5$                      ;BR IF NO
014230  000403                                  BR      25$                     ;
014232  020227  000010                  15$:    CMP     R2,@8.                  ;DONE DEFAULT NUMBER OF BYTES?
014236  002720                          20$:    BLT     5$                      ;BR IF NO
014240  005037  002272                  25$:    CLR     RAMSIZ                  ;SET DEFAULT RAMSIZ
014244  000207                                  RTS     PC                      ;RETURN

014246      045     116     045  RAMASC: .ASCIZ  '%N%A  BYTE: %D2%A RAM: %03%A Packet: %03%A XOR:%03'
                                         .EVEN
                                         .SBTTL  PRMESS  - PRINT CONTENTS OF MESSAGE BUFFER
                                ;+
                                ;
                                ;THIS ROUTINE PRINTS THE CONTENTS OF
                                ;THE 7 OR 8 WORD MESSAGE BUFFER RETURNED BY THE
                                ;TSV-05.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      LOW ORDER ADDRESS OF MESSAGE BUFFER
                                ;       R1      HIGH ORDER ADDRESS OF MESSAGE BUFFER
                                ;       NOTE: R1 IS IGNORED IF KTENABLE FLAG IS CLEAR
                                ;
                                ;THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                                ;
                                ;

014332                          PRMESS:
```

```
1702 014332                                    SAVREG                  ;SAVE THE REGISTERS
1703 014336  010005                            MOV     R0,R5           ;SAVE LOW ORDER ADDRESS
1704 014340  005737  003124                    TST     KTENABLE        ;ADDRESS ABOVE 28K?
1705 014344  001001                            BNE     10$             ;BR IF YES
1706 014346  005001                            CLR     R1              ;SET HIGH ORDER ADDRESS TO 0
1707 014350  010103                    10$:    MOV     R1,R3           ;SAVE HIGH ORDER ADDRESS
1708 014352  006100                            ROL     R0              ;SHIFT BIT15 TO C BIT
1709 014354  006101                            ROL     R1              ;SHIFT TO HIGH ORDER FOR PRINTOUT
1710 014356                                    PRINTX  #PROASC,R1,R5   ;PRINT MESSAGE BUFFER ADDRESS
     014356  010546                            MOV     R5,-(SP)
     014360  010146                            MOV     R1,-(SP)
     014362  012746  014510                    MOV     #PROASC,(SP)
     014366  012746  000003                    MOV     #3,-(SP)
     014372  010600                            MOV     SP,R0
     014374  104415                            TRAP    C$PNTX
     014376  062706  000010                    ADD     #10,SP
1711 014402                                    PRINTX  #PR1ASC         ;PRINT HEADER FOR CONTENTS
     014402  012746  014555                    MOV     #PR1ASC,-(SP)
     014406  012746  000001                    MOV     #1,(SP)
     014412  010600                            MOV     SP,R0
     014414  104415                            TRAP    C$PNTX
     014416  062706  000004                    ADD     #4,SP
1712 014422  005004                            CLR     R4              ;NUMBER OF THE NEXT WORD
1713 014424  010501                            MOV     R5,R1           ;COPY LOW ORDER ADDRESS
1714 014426  010300                            MOV     R3,R0           ;COPY HIGH ORDER ADDRESS
1715 014430  001403                            BEQ     20$             ;BR IF NOT ABOVE 28K
1716 014432  004737  017406                    JSR     PC,SETMAP       ;SETUP PAR ADDRESS IN R0
1717 014436  010005                            MOV     R0,R5           ;GET PAR FORMAT ADDRESS ABOVE 28K
1718 014440                            20$:    PRINTX  #PRASC,R4,(R5)+ ;PRINT THE CONTENTS OF MEMORY BUFFER
     014440  012546                            MOV     (R5)+,-(SP)
     014442  010446                            MOV     R4,-(SP)
     014444  012746  014613                    MOV     #PRASC,-(SP)
     014450  012746  000003                    MOV     #3,-(SP)
     014454  010600                            MOV     SP,R0
     014456  104415                            TRAP    C$PNTX
     014460  062706  000010                    ADD     #10,SP
1719 014464  005204                            INC     R4              ;NUMBER OF THE NEXT
1720 014466  020427  000007                    CMP     R4,#7           ;DONE ALL YET ?
1721 014472  003005                            BGT     50$             ;BRANCH IF ALL DONE
1722 014474  002761                            BLT     20$             ;PRINT FIRST 7 WORDS
1723 014476  032763  000200  000012            BIT     #X2.EXTF,XST2(R3);EXTENDED FEATUTES ON ?
1724 014504  001355                            BNE     20$             ;PRINT EXTENDED STATUS WORD
1725 014506  000207                    50$:    RTS     PC              ;RETURN
1726
1727 014510     045     116     045    PROASC: .ASCIZ  '<N><A Message Buffer Address = <01><05>'
1728 014555     045     116     045    PR1ASC: .ASCIZ  '<N><A Message Buffer Contents:'
1729 014613     045     116     045    PRASC:  .ASCIZ  '<N><A    Word<01><A: <0>'
1730                                            .EVEN
1731                                            .SBTTL  PRMSGEXP - PRINT EXPD/RECV MESSAGE BUFFERS
1732                                    ;+
1733                                    ;
1734                                    ;ROUTINE TO PRINT EXPECTED AND RECEIVED MESSAGE BUFFERS
1735                                    ;
1736                                    ;       R0      NUMBER OF WORDS IN BUFFER
1737                                    ;
1738                                    ;IMPLICIT INPUTS:
1739                                    ;
```

```
1740                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1741                                    ;       RECMSG    RECEIVED MESSAGE BUFFER
1742                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
1743                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
1744                                    ;
1745 014642                            PRMSGEXP::
1746 014642                                    SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
1747 014646  010005                            MOV     R0,R5                   ;SAVE NUMBER OF WORDS
1748 014650  013700  002276                    MOV     RCVLOADD,R0             ;GET RECV LOW ADDRESS
1749 014654  010004                            MOV     R0,R4                   ;COPY LOW ADDRESS
1750 014656  013701  002274                    MOV     RCVHIADD,R1             ;GET RECV HIGH ADDRESS
1751 014662  006100                            ROL     R0                      ;SHIFT BIT15 TO C BIT
1752 014664  006101                            ROL     R1                      ;SHIFT TO HIGH ORDER FOR PRINTOUT
1753 014666                                    PRINTX  #PRMSG0,R1,R4           ;PRINT MESSAGE BUFFER ADDRESS
     014666  010446                            MOV     R4,-(SP)
     014670  010146                            MOV     R1,-(SP)
     014672  012746  015022                    MOV     #PRMSG0,-(SP)
     014676  012746  000003                    MOV     #3,-(SP)
     014702  010600                            MOV     SP,R0
     014704  104415                            TRAP    C$PNTX
     014706  062706  000010                    ADD     #10,SP
1754 014712                                    PRINTX  #PRMSG1                 ;PRINT HEADER FOR CONTENTS
     014712  012746  015067                    MOV     #PRMSG1,-(SP)
     014716  012746  000001                    MOV     #1,-(SP)
     014722  010600                            MOV     SP,R0
     014724  104415                            TRAP    C$PNTX
     014726  062706  000004                    ADD     #4,SP
1755 014732  005004                            CLR     R4                      ;NUMBER OF THE CURRENT WORD
1756 014734  012701  002312                    MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
1757 014740  012702  002456                    MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
1758 014744  011100                    20$:    MOV     (R1),R0                 ;GET EXPD
1759 014746  011203                            MOV     (R2),R3                 ;GET RECV
1760 014750                                    XOR     R0,R3                   ;XOR EXPD/RECV
1761 014760                                    PRINTX  #PRMSG2,R4,(R1)+,(R2)+,R3
     014760  010346                            MOV     R3,-(SP)
     014762  012246                            MOV     (R2)+,-(SP)
     014764  012146                            MOV     (R1)+,-(SP)
     014766  010446                            MOV     R4,-(SP)
     014770  012746  015125                    MOV     #PRMSG2,-(SP)
     014774  012746  000005                    MOV     #5,-(SP)
     015000  010600                            MOV     SP,R0
     015002  104415                            TRAP    C$PNTX
     015004  062706  000014                    ADD     #14,SP
1762 015010  005204                            INC     R4                      ;NUMBER OF THE NEXT
1763 015012  020405                            CMP     R4,R5                   ;DONE ALL YET?
1764 015014  002001                            BGE     50$                     ;BR IF YES
1765 015016  000752                            BR      20$                     ;DO ANOTHER
1766 015020  000207                    50$:    RTS     PC                      ;RETURN
1767
1768 015022     045     116     045    PRMSG0: .ASCIZ  '%N%A Message Buffer Address = %01%05'
1769 015067     045     116     045    PRMSG1: .ASCIZ  '%N%A Message Buffer Contents:'
1770 015125     045     116     045    PRMSG2: .ASCIZ  '%N%A   WORD #%D2%A  EXPD: %06%A  RECV: %06%A  XOR: %06
1771                                            .EVEN
1772                                            .SBTTL  PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER
1773                                    ;+
1774                                    ;
1775                                    ;ROUTINE TO PRINT ERROR BYTES IN MESSAGE BUFFERS
```

PRBYTEXP PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER

```
1776                                    ;       ONLY THE FIRST 8 ERRORS ENCOUNTERED ARE PRINTED DUE TO SCREEN SPACE
1777                                    ;
1778                                    ;       R0      - NUMBER OF BYTES IN BUFFER
1779                                    ;
1780                                    ;IMPLICIT INPUTS:
1781                                    ;
1782                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1783                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
1784                                    ;-
1785 015212                            PRBYTEXP::
1786 015212                                    SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
1787 015216  010005                            MOV     R0,R5           ;SAVE NUMBER OF BYTES
1788 015220  005037  002310                    CLR     PRMNO           ;INIT ERROR COUNT
1789 015224  005004                            CLR     R4              ;NUMBER OF THE CURRENT BYTE
1790 015226  012701  002312                    MOV     #EXPMSG,R1      ;GET EXPD BUFFER ADDRESS
1791 015232  012702  002456                    MOV     #RECMSG,R2      ;GET RECV BUFFER ADDRESS
1792 015236  111100                    20$:    MOVB    (R1),R0         ;GET EXPD BYTE
1793 015240  042700  177400                    BIC     #^C<377>,R0     ;CLEAR UPPER BYTE
1794 015244  110037  015560                    MOVB    R0,PRBEXP       ;SAVE FOR ERROR REPORT
1795 015250  111203                            MOVB    (R2),R3         ;GET RECV BYTE
1796 015252  042703  177400                    BIC     #^C<377>,R3     ;CLEAR UPPER BYTE
1797 015256  110337  015562                    MOVB    R3,PRBREC       ;FOR ERROR REPORT
1798 015262                                    XOR     R0,R3           ;XOR EXPD/RECV
1799 015272  122122                            CMPB    (R1)+,(R2)+     ;EXPD = RECV?
1800 015274  001431                            BEQ     30$             ;BR IF YES
1801 015276  005237  002310                    INC     PRMNO           ;UPDATE ERROR COUNT
1802 015302  023727  002310  000010            CMP     PRMNO,#8.       ;PRINTED 8?
1803 015310  101023                            BHI     30$             ;BR IF YES
1804 015312                            27$:    PRINTX  #PRBMSG,R4,PRBEXP,PRBREC,R3
     015312  010346                            MOV     R3,-(SP)
     015314  013746  015562                    MOV     PRBREC,-(SP)
     015320  013746  015560                    MOV     PRBEXP,-(SP)
     015324  010446                            MOV     R4,-(SP)
     015326  012746  015426                    MOV     #PRBMSG,-(SP)
     015332  012746  000005                    MOV     #5,-(SP)
     015336  010600                            MOV     SP,R0
     015340  104415                            TRAP    C$PNTX
     015342  062706  000014                    ADD     #14,SP
1805 015346                                    FORCEXIT        50$     ;@@D
1806 015356  000404                            BR      35$             ;@@D
1807 015360                            30$:
1808 015360                                    FORCERROR  27$,NOTSSR   ;@@D
1809 015370                            35$:                            ;@@D
1810 015370  005204                            INC     R4              ;NUMBER OF THE NEXT
1811 015372  020405                            CMP     R4,R5           ;DONE ALL YET?
1812 015374  002001                            BGE     50$             ;BR IF YES
1813 015376  000717                            BR      20$             ;DO ANOTHER
1814 015400                            50$:    PRINTX  #PRBTOT,PRMNO   ;PRINT TOTAL ERROR COUNT
     015400  013746  002310                    MOV     PRMNO,-(SP)
     015404  012746  015513                    MOV     #PRBTOT,-(SP)
     015410  012746  000002                    MOV     #2,-(SP)
     015414  010600                            MOV     SP,R0
     015416  104415                            TRAP    C$PNTX
     015420  062706  000006                    ADD     #6,SP
1815 015424  000207                            RTS     PC              ;RETURN
1816
1817 015426     045     116     045  PRBMSG: .ASCIZ  '<N><A>  BYTE #<D2><A>  EXPD: <03><A>  RECV: <03><A>  XOR: <03>
```

PRBYTEXP PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER

```
1818 015513     045     116     045  PRBTOT: .ASCIZ  '%N%A NUMBER OF BYTES IN ERROR = %D2'
1819                                         .EVEN
1820 015560  000000                  PRBEXP: .WORD   0               ;EXPD
1821 015562  000000                  PRBREC: .WORD   0               ;RECV
1822                                         .SBTTL  EXPREC    PRINT EXPD/RECV WORD DATA
1823                                 ;+
1824                                 ;
1825                                 ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
1826                                 ;
1827                                 ;INPUTS:
1828                                 ;
1829                                 ;       R1      RECEIVED DATA
1830                                 ;       R2      EXPECTED DATA
1831                                 ;
1832                                 ;-
1833
1834 015564                                   BGNMSG  EXPREC
     015564                          EXPREC::
1835 015564  004737  010032                   JSR     PC,PRIXOR               ;PRINT THE DATA
1836 015570                                   ENDMSG
     015570                          L10017:
     015570  104423                         TRAP    C$MSG
1837                                         .SBTTL  EXPBREC - PRINT EXPD/RECV BYTE DATA
1838                                 ;+
1839                                 ;
1840                                 ;PRINT ROUTINE TO DISPLAY BYTE EXPD/RECV DATA
1841                                 ;
1842                                 ;
1843                                 ;INPUTS:
1844                                 ;
1845                                 ;       R1      RECEIVED DATA BYTE
1846                                 ;       R2      EXPECTED DATA BYTE
1847                                 ;
1848                                 ;-
1849
1850 015572                                   BGNMSG  EXPBREC
     015572                          EXPBREC::
1851 015572  004737  007702                   JSR     PC,PRIBXOR              ;PRINT THE DATA
1852 015576                                   ENDMSG
     015576                          L10020:
     015576  104423                         TRAP    C$MSG
1853
1854
1855                                         .SBTTL  RAMERR  - PRINT RAM AND PACKET DATA
1856                                 ;+
1857                                 ;
1858                                 ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
1859                                 ;
1860                                 ;INPUTS:
1861                                 ;
1862                                 ;       R4      POINTER TO COMMAND PACKET
1863                                 ;
1864                                 ;IMPLICIT INPUTS:
1865                                 ;
1866                                 ;       RAMDATA         DATA AS READ FROM THE RAM
1867                                 ;       RAMSIZ          NUMBER OF BYTES IN PACKET
1868                                 ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
```

```
                                ;
                                ;IMPLICIT OUTPUTS:
                                ;
                                ;       RAMSIZ  SET TO 0
                                ;-
                                
                                        BGNMSG  RAMERR
015600                          RAMERR:.
015600  004737  014066                  JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
015604                                  ENDMSG
015604                          L10021:
015604  104423                          TRAP    C$MSG

                                        .SBTTL  RAMTADD - PRINT TEST ADDRESS, RAM AND PACKET DATA
                                ;+
                                ;
                                ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                                ;
                                ;INPUTS:
                                ;
                                ;       R4      POINTER TO COMMAND PACKET
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       RAMDATA         DATA AS READ FROM THE RAM
                                ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                                ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                                ;       ERRHI           HIGH ORDER TEST ADDRESS
                                ;       ERRLO           LOW ORDER TEST ADDRESS
                                ;
                                ;IMPLICIT OUTPUTS:
                                ;
                                ;       RAMSIZ  SET TO 0
                                ;-
                                
                                        BGNMSG  RAMTADD
015606                          RAMTADD::
015606  004737  010364                  JSR     PC,PRITADD      ;PRINT TEST ADDRESS
015612  004737  014066                  JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
015616                                  ENDMSG
015616                          L10022:
015616  104423                          TRAP    C$MSG

                                        .SBTTL  RAMEXP  - PRINT RAM EXPD/RECV DATA
                                ;+
                                ;
                                ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
                                ;       R4      CONTROLLER RAM ADDRESS
                                ;-
                                
                                        BGNMSG  RAMEXP
015620                          RAMEXP::
```

RAMEXP PRINT RAM EXPD/RECV DATA

```
1919 015620  042701  177400                  BIC     #^C<377>,R1             ;SAVE EXPD RAM DATA BYTE
1920 015624  042702  177400                  BIC     #^C<377>,R2             ;SAVE EXPD RAM DATA BYTE
1921 015630  004737  010156                  JSR     PC,PRIRAM               ;PRINT THE RAM ADDRESS
1922 015634  004737  010032                  JSR     PC,PRIXOR               ;PRINT THE DATA
1923 015640                                  ENDMSG
     015640                          L10023:
     015640  104423                          TRAP    C$MSG
1924
1925                                         .SBTTL  TIMEXP  - PRINT TIMER A,B AND EXP/REC
1926                                 ;+
1927                                 ;
1928                                 ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
1929                                 ;AND TIMER A,B HEADER MESSAGE
1930                                 ;
1931                                 ;INPUTS:
1932                                 ;
1933                                 ;       R1      RECEIVED DATA
1934                                 ;       R2      EXPECTED DATA
1935                                 ;-
1936
1937 015642                                  BGNMSG  TIMEXP
     015642                          TIMEXP::
1938 015642                                  PRINTX  #TIMSGO                 ;PRINT HEADER
     015642  012746  015670                  MOV     #TIMSGO,-(SP)
     015646  012746  000001                  MOV     #1,-(SP)
     015652  010600                          MOV     SP,R0
     015654  104415                          TRAP    C$PNTX
     015656  062706  000004                  ADD     #4,SP
1939 015662  004737  010032                  JSR     PC,PRIXOR               ;PRINT THE DATA
1940 015666                                  ENDMSG
     015666                          L10024:
     015666  104423                          TRAP    C$MSG
1941
1942 015670    045    116    045  TIMSGO: .ASCIZ  '<N><A TIMER A STATUS IS IN BIT 3<N><A TIMER B STATUS IS IN BIT 2'
1943                                 .EVEN
1944                                         .SBTTL  BADSSR - PRINT TSSR ERRORS ON DATA TRANSFERS
1945
1946                                 ;+
1947                                 ;
1948                                 ;PRINT ROUTINE FOR TSSR ERRORS ON DATA TRANSFERS
1949                                 ;
1950                                 ;INPUTS:
1951                                 ;
1952                                 ;       R1      CONTENTS OF TSSR
1953                                 ;       R2      DATA WRITTEN (8 BITS)
1954                                 ;
1955                                 ;
1956
1957 015770                                  BGNMSG  BADSSR
     015770                          BADSSR::
1958 015770  010246                          MOV     R2,-(SP)                ;SAVE DATA TRANSFERRED
1959 015772  042702  177400                  BIC     #177400,R2              ;GET JUST ONE BYTE
1960 015776                                  PRINTB  #XFERASC,R2
     015776  010246                          MOV     R2,-(SP)
     016000  012746  016030                  MOV     #XFERASC,-(SP)
     016004  012746  000002                  MOV     #2,-(SP)
     016010  010600                          MOV     SP,R0
```

BADSSR - PRINT TSSR ERRORS ON DATA TRANSFERS

```
                016012  104414                          TRAP    C$PNTB
                016014  062706  000006                  ADD     #6,SP
     1961       016020  012602                          MOV     (SP)+,R2                ;RESTORE R2
     1962       016022  004737  006022                  JSR     PC,PRITSSR              ;DECODE TSSR CONTENTS
     1963       016026                                  ENDMSG
                016026                          L10025:
                016026  104423                          TRAP    C$MSG
     1964       016030     045     116     045  XFERASC.        .ASCIZ  #%NSA Data Transferred - %03
     1965                                               .SBTTL  GLOBAL SUBROUTINES SECTION
     1966
     1967                                       ;++
     1968                                       ; THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
     1969                                       ; THAT ARE USED IN MORE THAN ONE TEST.
     1970                                       ; -
     1971                                               .SBTTL  SOFINIT   SOFT INITIALIZE OF CONTROLLER
     1972
     1973                                       ;+
     1974                                       ;
     1975                                       ;ROUTINE TO DO A SOFT INITIALIZE OF THE CONTROLLER
     1976                                       ;BY WRITING INTO THE TSSR REGISTER. AFTER THE INIT,
     1977                                       ;THE TSSR REGISTER IS TESTED FOR ERRORS. ANY ERRORS
     1978                                       ;DETECTED SHOULD BE TREATED AS DEVICE FATAL ERRORS.
     1979                                       ;
     1980                                       ;INPUTS:
     1981                                       ;
     1982                                       ;       R5      ADDRESS OF FIRST REGISTER
     1983                                       ;
     1984                                       ;OUTPUTS:
     1985                                       ;
     1986                                       ;       R0      CONTENTS OF TSSR, IF ERROR
     1987                                       ;       CARRY   SET IF INIT WAS OKAY
     1988                                       ;               CLEAR IF FATAL ERROR
     1989                                       ;
     1990                                       ;CALLING SEQUENCE:
     1991                                       ;
     1992                                       ;       MOV     #ADDRESS,R5
     1993                                       ;       JSR     PC,SOFINIT
     1994                                       ;       BCS     CONTINUE
     1995                                       ;       ERRDF                           ;REPORT FATAL ERROR
     1996                                       ;
     1997                                       ;-
     1998
     1999 016064                               SOFINIT::
     2000 016064                                       SAVREG                          ; SAVE THE REGISTERS
     2001 016070  012765  000000  000000               MOV     #0,TSSR(R5)             ; DO THE INIT.
     2002 016076  004737  016340                       JSR     PC,WAITF                ; WAIT FOR SSR
     2003 016102  016500  000002                       MOV     TSSR(R5),R0             ;GET THE TSSR REGISTER
     2004 016106  010004                               MOV     R0,R4                   ;TSSR CONTENTS
     2005 016110  042704  176277                       BIC     #^C<HIADDR!OFL>,R4
     2006 016114  052704  002200                       BIS     #SSR!NBA,R4             ;R4 HAS EXPECTED CONTENTS
     2007 016120  020400                               CMP     R4,R0                   ;ONLY EXPECTED BITS SET ?
     2008 016122  001402                               BEQ     5$                      ;BRANCH IF OKAY
     2009 016124  000241                               CLC                             ;CLEAR THE CARRY FOR ERROR
     2010 016126  000401                               BR      10$                     ;GO TO EXIT
     2011 016130  000261                        5$:    SEC                             ;SET THE CARRY BIT
     2012 016132  000207                        10$:   RTS     PC                      ;RETURN TO CALLER
     2013                                              .SBTTL  CHKAMB  - CHECK TSSR FOR AMBIGUITY
```

```
                                ;*
                                ;
                                ;THIS ROUTINE TESTS THE CONTENTS OF THE TSSR REGISTER
                                ;FOR AMBIGUITY
                                ;
                                ;INPUT:
                                ;
                                ;       R0      CONTENTS OF TSSR
                                ;
                                ;OUTPUT:
                                ;
                                ;       R0      CONTENTS OF TSSR
                                ;
                                ;       CARRY   SET   NO AMBIGUITY
                                ;               CLR   AMBIGUOUS CONTENTS
                                ;
                                ;

016134                          CHKAMB:
016134                                  SAVREG                          ;SAVE THE GENERAL REGISTERS
016140  010004                          MOV     R0,R4                   ;CONTENTS OF TSSR
016142  032700  100000                  BIT     #SC,R0                  ;IS BIT 15 SET ?
016146  001004                          BNE     5$                      ;BRANCH IF YES
016150  032700  174077                  BIT     #^C<NBA!OFL!SSR!HIADDR>,R0      ;ANY OTHER BITS SET ?
016154  001023                          BNE     40$                     ;MUST BE AN ERROR
016156  000424                          BR      45$                     ;RETURN WITH SUCCESS
016160  032700  000200          5$:     BIT     #SSR,R0                 ;IS READY BIT SET ?
016164  001011                          BNE     10$                     ;BRANCH IF READY BIT IS SET.
016166  032700  000040                  BIT     #BIT5,R0                ;IS FATAL ERROR BIT SET ?
016172  001414                          BEQ     40$                     ;ERROR IF NOT
016174  042704  177761                  BIC     #^CTERCLS,R4            ;CLEAR ALL BUT TERMINATION CODE
016200  020427  000016                  CMP     R4,#16                  ;ALL THREE BITS MUST BE SET
016204  001007                          BNE     40$                     ;ERROR IF NOT SET
016206  000410                          BR      45$                     ;OK IF ALL ARE SET
016210  032700  000040          10$:    BIT     #BIT5,R0                ;IS FATAL ERROR BIT SET ?
016214  001405                          BEQ     45$                     ;ERROR IF BIT IS SET WITH SSR
016216  032700  000006                  BIT     #BIT2!BIT1,R0           ;IS THIS A FUNCTION REJECT
016222  001002                          BNE     45$                     ;BR. IF TSSR IS OK
016224  000241                  40$:    CLC                             ;AMBIGUOUS CONTENTS
016226  000401                          BR      50$
016230  000261                  45$:    SEC                             ;SHOW SUCCESS - NO AMBIGUITY
016232  000207                  50$:    RTS     PC                      ;RETURN TO CALLER
                                        .SBTTL  ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS
                                ;
                                ; DEFAULT DISPLAY INTERRUPT HANDLERS.
                                ; IF DISPLAY TIME-OUT, REPORT DEV FATAL, AND ABORT PASS.
                                ; OTHERWISE, SAVE DPU REGISTERS AND DISMISS.
                                ;

                                ; BIT DEFINITIONS FOR "INTMASK" AND "INTFLAG" BYTES:
                                ;
                                        IOKCKIN=BIT7    ; DON'T CHECK FOR BAD INTERRUPTS -- TEST WILL.
                                        IOKSTP=BIT0     ; EXPECT "STOP" INTERRUPT.
                                ;
                                ;INTERRUPT MASK -- SAYS EXPECTING INTERRUPTS
016234      000                 INTMASK:        .BYTE   0
```

```
2071                                    ;INTERRUPT FLAG    SAYS WE GOT ONE (IF POSITIVE)
2072 016235     000                     INTFLAG:        .BYTE   0
2073
2074                                    ;SAVED INTERRUPT VECTOR:
2075 016236  000000                     INTVEC: .WORD   0
2076                                    ;SAVE CPU PC
2077 016240  000000                     INTCPC: .WORD   0
2078
2079                                    ;SUBROUTINE TO ENABLE INTERRUPTS:
2080 016242  010046                     ENAINT: MOV     R0,-(SP)        ;SAVE R0
2081 016244  013700  002200                     MOV     IVEC,R0         ;GET POINTER TO VECTORS
2082 016250  012720  016306                     MOV     #INTR,(R0)+     ;SET UP INTERRUPT VECTOR
2083 016254  012720  000300                     MOV     #PRI06,(R0)+
2084 016260  012600                             MOV     (SP)+,R0        ;RESTORE R0
2085 016262  011646                             MOV     (SP),-(SP)
2086 016264  012766  000000  000002             MOV     #0,2(SP)        ;SET CPU TO LEVEL 0
2087 016272  000002                             RTI
2088
2089                                    ;SUBROUTINE TO DISABLE INTERRUPTS (RAISE PRIORITY TO LEVEL 6)
2090 016274  011646                     DSBINT: MOV     (SP),-(SP)
2091 016276  012766  000300  000002             MOV     #PRI06,2(SP)
2092 016304  000002                             RTI
2093                                            .SBTTL  INTR    - INTERRUPT HANDLERS
2094
2095 016306                                     BGNSRV  INTR            ;DEFINE INTERRUPT ENTRY
     016306                             INTR::
2096 016306  012737  000001  002214             MOV     #1,INTRECV      ;SET FLAG TO SHOW INTERRUPT RECEIVED
2097 016314  105037  016235                     CLRB    INTFLAG         ;CLEAR FLAG TO SAY WE GOT INTERRUPT
2098 016320  132737  000001  016234             BITB    #IOKSTP,INTMASK ;EXPECTING STOP INTERRUPT?
2099 016326  001003                             BNE     1$              ;BR IF YES
2100 016330  152737  000001  016235             BISB    #IOKSTP,INTFLAG ;NO. SET THE ERROR FLAG.
2101
2102                                    ;SAVE REGISTERS, MSG BUFFER, ETC.
2103 016336                             1$:
2104 016336                                     ENDSRV
     016336                             L10026:
     016336  000002                             RTI
2105                                            .SBTTL  WAITF   - WAIT FOR SUBSYSTEM READY
2106                                    ;
2107                                    ; SUBROUTINE TO WAIT FOR THE SUBSYSTEM READY FLAG
2108                                    ;
2109                                    ;INPUTS:
2110                                    ;
2111                                    ;       R5      ADDRESS OF FIRST DEVICE REGISTER
2112                                    ;
2113                                    ;OUTPUTS:
2114                                    ;
2115                                    ;       R0      CONTENTS OF LAST TSSR READ
2116                                    ;       CARRY   SET - READY BIT SET
2117                                    ;               CLR - TIMEOUT WAITING FOR READY
2118                                    ;
2119 016340  000401                     WAITF:: BR      1$              ;NOP WHEN SUPER FIXED
2120 016342                                     BREAK                   ; DO A SUPVSR BREAK FIRST.
     016342  104422                             TRAP    C$BRK
2121 016344  012746  011000             1$:     MOV     #11000, (SP)    ;25-APRIL 83 REV B  - 1100 MSEC TIMER
2122 016350  016500  000002             2$:     MOV     TSSR(R5),R0     ;READ THE TSSR REGISTER
2123 016354  105700                             TSTB    R0              ;TEST FOR READY BIT SET
```

```
                        BMI     3$              ; EXIT ON STOP FLAG.
                        DELAY   1               ; WAIT 100 USEC
016360  012727  000001  MOV     #1,(PC)+
016364  000000          .WORD   0
016366  013727  002116  MOV     L$DLY,(PC)+
016372  000000          .WORD   0
016374  005367  177772  DEC     -6(PC)
016400  001375          BNE     .-4
016402  005367  177756  DEC     -22(PC)
016406  001367          BNE     .-20
016410  005316          DEC     (SP)            ;REDUCE DELAY COUNT
016412  001356          BNE     2$              ;RETRY UNTIL TIMER EXPIRES
016414  000241          CLC                     ; C = 0, CONTROLLER STI L RUNNING...
016416  000401          BR      4$              ;...OR HUNG-UP AFTER 300 MSEC.
016420  000261  3$:     SEC                     ; C = 1, CONTROLLER IS STOPPED.
016422  005326  4$:     DEC     (SP)+           ;RESTORE STACK WITHOUT CHANGING CARRY BIT
016424  000207          RTS     PC
                        .SBTTL  CHKTSSR - CHECK TSSR FOR READY

                ;+
                ;
                ;THIS ROUTINE WAITS FOR READY IN THE TSSR
                ;AND TESTS FOR AMBIGUOUS BIT SETTINGS IN TSSR.
                ;
                ;INPUT:
                ;
                ;       R5      ADDRESS OF CSR REGISTERS
                ;
                ;OUTPUT:
                ;
                ;       R0      CONTENTS OF TSSR
                ;       CARRY   SET - OKAY
                ;               CLR - NOT READY AMBIGUOUS, OR SC SET
                ;
                ;

016426          CHKTSSR:
016426  004737  016340          JSR     PC,WAITF                ;WAIT FOR READY
016432  103014                  BCC     20$                     ;BRANCH IF TIME OUT
016434  004737  016134          JSR     PC,CHKAMB               ;TSSR AMBIGOUS?
016440  103006                  BCC     10$                     ;BR IF YES
016442  032700  100000          BIT     #SC,R0                  ;SPECIAL CONDITION SET?
016446  001405                  BEQ     15$                     ;BR IF NO
016450  032700  074000          BIT     #<SCE!BIE!RMR!NXM>,R0   ;ANY ERROR BITS SET?
016454  001402                  BEQ     15$                     ;BR IF NO
016456  000241  10$:     CLC                                     ;SET FAILURE
016460  000401                  BR      20$                     ;
016462  000261  15$:     SEC                                     ;SET SUCCESS
016464  000207  20$:     RTS     PC                              ;RETURN TO CALLER
                        .SBTTL  XNXM    - CHECK FOR NONEXISTENT MEMORY
                ;+
                ; ROUTINE TO TEST FOR A NEXM IN THE RANGE (R1) THRU (R2).
                ; ON RETURN, IF "C" = 1, (R1) = NEXM ADDRESS.
                ;               "C" = 0, ALL ADDRESSES OK.
                ;
                ;CALL:  MOV ADR1,R1
```

```
XNXM      CHECK FOR NONEXISTENT MEMORY

                                        ;       MOV ADR2,R2
                                        ;       JSR PC,NXM
                                        ;       RETURN          ;TEST "C" AND PROCEED.
                                        ;
016466  012737  016520  000004  XNXM:   MOV     @2$,@#4         ; SET BUSERR VECTOR.
016474  012737  000200  000006          MOV     @#PRI04,@#6
016502  005003                          CLR     R3              ;FLAG.
016504  005711                  1$:     TST     (R1)            ;TEST THE ADDRESS(ES).
                                                                ;IF ANY TRAP, CONTINUE AT 2$.
016506  020102                          CMP     R1,R2           ;OTHERWISE, CONTINUE HERE.
016510  001407                          BEQ     3$              ;BR IF FINISHED (NO NEXM'S).
016512  062701  000002                  ADD     #2,R1           ;SET NEXT ADDRESS...
016516  000772                          BR      1$              ;...AND CONTINUE.

016520  005103                  2$:     COM     R3              ;GOT ONE, SET FLAG...
016522  012716  016530                  MOV     #3$,(SP)
016526  000002                          RTI                     ;...AND DISMISS INTERRUPT...
016530                          3$:     CLRVEC  #4              ;...AND GIVE BACK THE VECTOR.
016530  012700  000004                  MOV     #4,R0
016534  104436                          TRAP    C$CVEC
016536  005703                          TST     R3              ;DID WE CATCH ONE ??
016540  001401                          BEQ     .+4             ;NO, "C" = 0, SKIP NEXT.
016542  000261                          SEC                     ;YES, "C" = 1, (R1) = NEXM ADDR.
016544  000207                          RTS     PC


                                        .SBTTL  TSTLOOP   CHECK ITERATION COUNT
                                ;+
                                ; SUBROUTINE TO EXECUTE TEST ITERATIONS.
                                ; EXIT WITH "C" SET IF LOOPS ALLOWED AND LOOP COUNT NON ZERO.
                                ; LOOP COUNTER IS SET BY "BEGIN.TEST" MACRO.
                                ;
                                ; CALL: LOOPTO  ARG
                                ;
016546                          TSTLOOP::
016546  005737  002160                  TST     NOITS           ; ITERATIONS INHIBITED?
016552  001006                          BNE     1$              ; YES.
016554  005737  002174                  TST     QVP             ; NO.
016560  100403                          BMI     1$              ;LOOPS DISALLOWED IN QUICK PASS.
016562  005337  002206                  DEC     LOOPCNT         ; BUMP LOOP COUNTER.
016566  001002                          BNE     2$
016570  000241                  1$:     CLC                     ;LOOP DISALLOWED, OR DONE.
016572  000401                          BR      3$
016574  000261                  2$:     SEC                     ;LOOP ENABLED.
016576  000207                  3$:     RTS     PC

                                        .SBTTL  TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS
                                ;+
                                ; PRINT THE NUMBER AND NAME OF EACH TEST AS WE GO ALONG.
                                ; INCREMENT "TESTK" TO INDICATE THE NUMBER OF TESTS
                                ; IN THE CURRENT RUN SEQUENCE.
                                ; CLEAR THE ERROR COUNTER AND SIGNATURE EXTENSION FLAGS.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      POINTER TO TEST ID ASCIZ STRING
                                ;
```

```
                                        ;OUTPUT:
                                        ;
                                        ;       R5      ADDRESS OF FIRST DEVICE REGISTER
                                        ;
                                        ;IMPLICIT OUTPUTS:
                                        ;
                                        ;       TSTCNT  UPDATED TO COUNT TESTS PERFORMED SINCE START OR RESTART
                                        ;
                                        ;SIDE EFFECTS:
                                        ;
                                        ;       INTERRUPT LEVEL IS RAISED TO LEVEL OF
                                        ;       THE DEVICE UNDER TEST
                                        ;
                                        ;-

016600                                  TSTSETUP::
016600  010046                                  MOV     R0,-(SP)        ;SAVE THE TEST ID MESSAGE
016602  005037  003144                          CLR     SIFLAG          ; CLEAR "SOFT INIT" FLAG
016606  005037  017046                          CLR     ERRK            ; CLEAR LOCAL ERROR COUNTER.
016612  005037  005770                          CLR     EXTA            ; CLEAR ERROR EXTENSION FLAG.
016616  105037  016234                          CLRB    INTMASK         ; CLEAR INTERRUPT MASK (CHECK ERROR)
016622  013700  002172                          MOV     UNITN,R0        ; GET THE UNIT NUMBER,
016626  006300                                  ASL     R0              ; ... AND MAKE IT A WORD OFFSET.
016630  005737  003104                          TST     NODEV           ; DID STARTUP FIND THE DEVICE?
016634  001430                                  BEQ     4$              ; BR IF YES
016636  100010                                  BPL     3$              ; BR IF NOT IDLE
016640  052760  160000  003166                  BIS     #160000,ERTABL(R0) ; FLAG ERROR IN THE ERROR TABLE
016646                                          ERRDF   1,NXR,NXRERR    ; NO DEVICE HERE -- PRINT IT
016646  104455                                  TRAP    C$ERDF
016650  000001                                  .WORD   1
016652  003736                                  .WORD   NXR
016654  005734                                  .WORD   NXRERR
016656  000407                                  BR      2$
016660  052760  160001  003166  3$:             BIS     #160001,ERTABL(R0)      ; FLAG ERROR IN THE ERROR TABLE
016666                                          ERRDF   2,NOINIT        ; DEVICE NOT IDLE
016666  104455                                  TRAP    C$ERDF
016670  000002                                  .WORD   2
016672  004333                                  .WORD   NOINIT
016674  000000                                  .WORD   0
016676  012737  177777  003102  2$:             MOV     #-1,DUFLG       ; DROP THE UNIT
016704                                          DODU    UNITN
016704  013700  002172                          MOV     UNITN,R0
016710  104451                                  TRAP    C$DODU
016712                                          DOCLN                   ; ABORT THE PASS
016712  104444                                  TRAP    C$DCLN
016714  000423                                  BR      5$

016716                                  4$:     RFLAGS  R0              ; GET THE OPERATOR FLAGS.
016716  104421                                  TRAP    C$RFLA
016720  032700  001000                          BIT     #PNT,R0         ; PRINT THE TEST NUMBERS?
016724  001412                                  BEQ     1$              ; BR IF NO
016726  011600                                  MOV     (SP),R0         ;GET THE ID MESSAGE
016730                                          PRINTF  #TNAM,R0                ;DISPLAY THE TEST ID
016730  010046                                  MOV     R0,-(SP)
016732  012746  016774                          MOV     #TNAM,-(SP)
016736  012746  000002                          MOV     #2,-(SP)
016742  010600                                  MOV     SP,R0
```

TSTSETUP PRINT TEST NAME AND INIT ERROR COUNTS

```
        016744  104417                          TRAP    C$PNTF
        016746  062706  000006                  ADD     #6,SP
   2269 016752  005237  002204          1$:     INC     TSTCNT          ; BUMP TEST COUNTER.
   2270 016756                                  SETPRI  IPRI            ;PRIORITY THAT OF DEVICE
        016756  013700  002202                  MOV     IPRI,R0
        016762  104441                          TRAP    C$SPRI
   2271 016764  005726                  5$:     TST     (SP)+           ;FIX UP THE STACK
   2272 016766  013705  002176                  MOV     CSRADDR,R5      ; ADDRESS OF TSV REGISTERS ON UNIBUS
   2273 016772  000207                          RTS     PC
   2274 016774     045     123     045  TNAM:   .ASCIZ  '%S%T%A Test'
   2275                                         .EVEN
   2276                                         .SBTTL  TSTEND    PRINT ERRORS RECEIVED
   2277                                 ;
   2278                                 ; AT END OF EACH TEST, PRINT THE NUMBER OF ERRORS RECEIVED
   2279                                 ; IF NORMAL ERROR REPORTING IS DISABLED (FLA:IER).
   2280                                 ;
   2281 017010                          TSTEND: RFLAGS  R0
        017010  104421                          TRAP    C$RFLA
   2282 017012  030027  020000                  BIT     R0,#IER
   2283 017016  001412                          BEQ     1$              ; BR IF "IER" NOT SET.
   2284 017020                                  PRINTF  #ESUM,ERRK      ; PRINT ERROR COUNT.
        017020  013746  017046                  MOV     ERRK, (SP)
        017024  012746  017050                  MOV     #ESUM,-(SP)
        017030  012746  000002                  MOV     #2,-(SP)
        017034  010600                          MOV     SP,R0
        017036  104417                          TRAP    C$PNTF
        017040  062706  000006                  ADD     #6,SP
   2285 017044  000207                  1$:     RTS     PC
   2286
   2287 017046  000000                  ERRK:   0                       ; LOCAL ERROR COUNT.
   2288 017050     045     101     040  ESUM:   .ASCIZ  /%A %D%A ERRORS/
   2289 017067     105     122     122  EMAXDU: .ASCIZ  /ERROR LIMIT REACHED -- DROPPING UNIT/
   2290                                         .EVEN
   2291
   2292                                         .SBTTL  INCERK  - INCREMENT LOCAL ERROR COUNT
   2293                                 ;+
   2294                                 ; ROUTINES TO INCREMENT LOCAL ERROR COUNT AND CHECK FOR LIMIT:
   2295                                 ;-
   2296 017134  005237  017046          INCERK: INC     ERRK            ; INCREMENT LOCAL ERROR COUNT
   2297 017140  010046                          MOV     R0,-(SP)        ; SAVE R0
   2298 017142  013700  002172                  MOV     UNITN,R0        ; GET UNIT NUMBER,
   2299 017146  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET.
   2300 017150  062700  003166                  ADD     #ERTABL,R0      ; R0 GETS ADDRESS OF ERROR TABLE ENTRY.
   2301 017154  005210                          INC     (R0)            ; INCREMENT THE DEVICE ERROR COUNT
   2302 017156  032710  007777                  BIT     #7777,(R0)      ; DID WE OVERFLOW THE FIELD?
   2303 017162  001001                          BNE     1$              ; BR IF NO.
   2304 017164  005310                          DEC     (R0)            ; YES -- BACK IT UP TO 7777.
   2305 017166  012600                  1$:     MOV     (SP)+,R0        ; RESTORE R0
   2306 017170  000207                          RTS     PC              ; RETURN TO CALLER.
   2307
   2308 017172  010046                  CKEMAX: MOV     R0,-(SP)        ; SAVE R0
   2309 017174  013700  002172                  MOV     UNITN,R0        ; GET UNIT NUMBER
   2310 017200  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET
   2311 017202  016000  003166                  MOV     ERTABL(R0),R0   ; GET ERROR TABLE ENTRY
   2312 017206  042700  170000                  BIC     #170000,R0      ; EXTRACT ERROR COUNT FIELD
   2313 017212  020037  002164                  CMP     R0,GERRMAX      ; IS GLOBAL LIMIT EXCEEDED FOR THIS UNIT?
   2314 017216  103004                          BHIS    1$              ; BR IF YES
```

```
2315 017220  023737  017046  002162          CMP     ERRK,LERRMAX    ; IS LOCAL LIMIT EXCEEDED FOR THIS TEST?
2316 017226  103417                          BLO     2$              ; BR IF NO
2317 017230                          1$:      RFLAGS  R0              ; GET OPERATOR FLAGS
     017230  104421                          TRAP    C$RFLA
2318 017232  032700  000040                  BIT     #IDU,R0         ; IS DROPPING INHIBITED?
2319 017236  001013                          BNE     2$              ; BR IF YES.
2320 017240  012737  177777  003102          MOV     #-1,DUFLG       ; NO    DROP THE UNIT
2321 017246                                  ERRDF   4,EMAXDU
     017246  104455                          TRAP    C$ERDF
     017250  000004                          .WORD   4
     017252  017067                          .WORD   EMAXDU
     017254  000000                          .WORD   0
2322 017256                                  DODU    UNITN
     017256  013700  002172                  MOV     UNITN,R0
     017262  104451                          TRAP    C$DODU
2323 017264                                  DOCLN
     017264  104444                          TRAP    C$DCLN
2324 017266  012600                  2$:     MOV     (SP)+,R0        ; RESTORE R0
2325 017270  000207                          RTS     PC              ; RETURN TO CALLER
2326                                         .SBTTL  CKDROP  - CHECK IF UNIT SHOULD BE DROPPED
2327                                 ;+
2328                                 ; CHECK IF UNIT SHOULD BE DROPPED
2329                                 ;
2330 017272  010046                  CKDROP: MOV     R0,-(SP)
2331 017274                                  FORCERROR       1$,NOTSSR
2332 017304                                  RFLAGS  R0
     017304  104421                          TRAP    C$RFLA
2333 017306  032700  000040                  BIT     #IDU,R0
2334 017312  001010                          BNE     1$
2335 017314  011600                          MOV     (SP),R0
2336 017316  012737  177777  003102          MOV     #-1,DUFLG
2337 017324                                  DODU    UNITN
     017324  013700  002172                  MOV     UNITN,R0
     017330  104451                          TRAP    C$DODU
2338 017332                                  DOCLN                   ;ABORT THE PASS
     017332  104444                          TRAP    C$DCLN
2339 017334  012600                  1$:     MOV     (SP)+,R0
2340 017336  000207                          RTS     PC
2341
2342
2343                                         .SBTTL  CONFIG  - DETERMINE CONFIGURATION OF SYSTEM
2344                                 ;
2345                                 ; SUBROUTINE - DETERMINE CONFIGURATION OF TSV05 SYSTEM.
2346                                 ;
2347 017340                          CONFIG:
2348 017340  004737  016064                  JSR     PC,SOFINIT
2349 017344  000207                          RTS     PC
2350                                         .SBTTL  KTON,KTOFF      - ENABLE/DISABLE MEMORY MANAGEMENT
2351                                 ;
2352                                 ; SUBROUTINE   ENABLE MEM MGT.
2353                                 ;
2354 017346  005737  003122          KTON:   TST     @KTFLG          ; GOT KT?
2355 017352  001403                          BEQ     1$              ; NO.
2356 017354  012737  000001  177572          MOV     #1,SR0          ; YES. ENABLE KT11.
2357 017362  000207                  1$:     RTS     PC
2358
2359                                 ;
```

KTON,KTOFF - ENABLE/DISABLE MEMORY MANAGEMENT

```
                                        ; SUBROUTINE   DISABLE MEM MGT.
                                        ;
017364  005737  003122          KTOFF:  TST     KTFLG           ; GOT KT11?
017370  001405                          BEQ     1$              ; NO.
017372  000240                          NOP
017374  000240                          NOP
017376  012737  000000  177572          MOV     #0,SR0          ; DISABLE KT.
017404  000207                  1$:     RTS     PC
                                        .SBTTL  SETMAP  - SETUP PAR6 MAPPING

                                        ;+
                                        ;
                                        ;THIS ROUTINE SETS UP KERNEL PAR6 TP HANDLE
                                        ;AN 18 BIT ADDRESS. THE OFFSET INTO THE PAGE
                                        ;IS RETURNED BIASED TO PAR6.
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R0      HIGH ORDER ADDRESS BITS
                                        ;       R1      LOW ORDER ADDRESS BITS
                                        ;
                                        ;OUTPUTS:
                                        ;
                                        ;       R0      OFFSET INTO BLOCK WITH PAR6 BIAS (I.E. THE ADDRESS)
                                        ;       CARRY   SET IF SUCCESS
                                        ;               CLR IF ERROR
                                        ;-
017406                          SETMAP:
017406                                  SAVREG                          ;SAVE R1-R4 UNTIL NEXT RETURN
017412  005737  003122                  TST     KTFLG                   ;SYSTEM HAVE ABOVE 28K?
017416  001433                          BEQ     10$                     ;BR IF NO
017420  010102                          MOV     R1,R2                   ;SAVE LOW ORDER BITS
        000006                          .REPT   6
                                        ASR     R0                      ;CONVERT WORD ADDRESS TO 32W BLOCKS
                                        ROR     R1                      ;MAKE IT DOUBLE PRECISION
                                        .ENDR
017452  042701  000177                  BIC     #177,R1                 ;ALINE FOR LOWER 4K BOUNDARY
017456  020137  003122                  CMP     R1,KTFLG                ;HIGHER THAN EXISTING MEMORY?
017462  103011                          BHIS    10$                     ;BR IF YES
017464  010137  172354                  MOV     R1,@#KIPAR6             ;SETUP MAPPING REGISTER PAR6
017470  042702  160000                  BIC     #160000,R2              ;SETUP DISPLACEMENT IN PAGE
017474  062702  140000                  ADD     #140000,R2              ;ADD IN PAR6 BIAS
017500  010200                          MOV     R2,R0                   ;RETURN IN R0
017502  000261                          SEC                             ;SET SUCCESS
017504  000401                          BR      15$                     ;
017506  000241                  10$:    CLC                             ;SET FAILURE
017510  000207                  15$:    RTS     PC                      ;RETURN
                                        .SBTTL  FILLMEM - FILL MEMORY WITH BACKGROUND PATTERN
                                ;+
                                ;  FILL MEMORY WITH A BACKGROUND PATTERN
                                ;
                                ; INPUTS:
                                ;
                                ;       R0 = BACKGROUND PATTERN
                                ;       FREE    = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
                                ;       KTFLG   = SET TO HIGHEST MEMORY LOCATION IF > 28K.
                                ;
```

```
                                        ; OUTPUTS:
                                        ;
                                        ;       NONE
                                        ;-
                                        ;
017512                                  FILLMEM:
017512                                          SAVREG                  ;SAVE R1 R5 UNTIL NEXT RETURN
017516  004737  017364                          JSR     PC,KTOFF        ;DISABLE KT.
017522  010003                                  MOV     R0,R3           ;COPY TEST PATTERN
017524  013701  003114                          MOV     FREE,R1         ;GET FIRST FREE LOCATION
017530  013702  003116                          MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
017534  010321                          10$:    MOV     R3,(R1)+        ;STORE A BACKGROUND WORD
017536  005302                                  DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
017540  003375                                  BGT     10$             ;BR IF NO
017542  005737  003122                          TST     KTFLG           ; GOT KT?
017546  001477                                  BEQ     55$             ; NO. GET OUT.
017550  004737  017346                          JSR     PC,KTON         ; YES. ENABLE KT.
017554  005000                                  CLR     R0              ;HIGH ORDER ADDRESS START
017556  013701  003142                          MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
        000006                                  .REPT   6
                                                CLC                     ;CLEAR C BIT
                                                ROL     R1              ;CONVERT BLOCKS TO WORDS
                                                ROL     R0              ;MAKE IT DOUBLE PRECISION
                                                .ENDR
017626  004737  017406                          JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
017632  010320                          30$:    MOV     R3,(R0)+        ;STORE TEST PATTERN IN >28K ADDRESS
017634  020027  160000                          CMP     R0,#160000      ;END OF PAR6 MAPPING AREA?
017640  103774                                  BLO     30$             ;BR IF NO
017642  162700  020000                          SUB     #20000,R0       ;BACKUP INTO PAR6 MAPPING BEGIN
017646  062737  000200  172354                  ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
017654  023737  172354  003122                  CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
017662  001427                                  BEQ     50$             ;BR IF YES
017664  005737  003134                          TST     T23A            ;11/23A?
017670  001407                                  BEQ     35$             ;NO KEEP GOING
017672  013704  177572                          MOV     SR0,R4          ;GET SR0 CONTENTS
017676  042704  177761                          BIC     #177761,R4      ;CLEAR ALL BUT PAGE NUMBER
017702  022704  000016                          CMP     #16,R4          ;SEE IF PAGE 7
017706  001415                                  BEQ     50$             ;EXIT IF THERE
017710  005737  003136                  35$:    TST     T23B            ;11/23B?
017714  001410                                  BEQ     45$             ;NO KEEP GOING
017716  023727  172354  007600                  CMP     @#KIPAR6,#7600  ;REACHED 18 BITS?
017724  103001                                  BHIS    40$             ;YES
017726  000403                                  BR      45$             ;NO KEEP GOING
017730  012737  000020  172516          40$:    MOV     #20,SR3         ;SET 22 BIT RELOCATION
017736  000137  017632                  45$:    JMP     30$             ;KEEP GOING ON ETC.
017742  004737  017364                  50$:    JSR     PC,KTOFF        ; DISABLE KT.
017746  000207                          55$:    RTS     PC
                                                .SBTTL  CMPMEM  - COMPARE MEMORY TO BACKGROUND PATTERN
                                        ;+
                                        ; COMPARE MEMORY WITH A BACKGROUND PATTERN
                                        ;
                                        ; INPUTS:
                                        ;
                                        ;       R0 = BACKGROUND PATTERN
                                        ;       FREE    = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
                                        ;       KTFLG   = SET TO HIGHEST MEMORY LOCATION IF > 28K.
                                        ;
```

```
2474                                    ; OUTPUTS:
2475                                    ;
2476                                    ;       CARRY     SET IF NO ERROR
2477                                    ;       CARRY     CLR IF ERROR
2478                                    ;
2479                                    ; IMPLICIT OUTPUTS:
2480                                    ;
2481                                    ;       ERRHI   - ERROR HIGH ADDRESS
2482                                    ;       ERRLO   - ERROR LOW ADDRESS
2483                                    ;       EXPD      EXPECTED DATA
2484                                    ;       RECV      RECEIVED DATA
2485                                    ;
2486 017750                            CMPMEM:
2487 017750                                    SAVREG                  ;SAVE R1 R5 UNTIL NEXT RETURN
2488 017754  010003                            MOV     R0,R3           ;COPY TEST PATTERN
2489 017756  004737  017364                    JSR     PC,KTOFF        ;DISABLE KT.
2490 017762  013701  003114                    MOV     FREE,R1         ;GET FIRST FREE LOCATION
2491 017766  013702  003116                    MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
2492 017772  020311                    10$:    CMP     R3,(R1)         ;FREE SPACE LOCATION EQUAL TO EXPD?
2493 017774  001411                            BEQ     15$             ;BR IF YES
2494 017776  010137  002230                    MOV     R1,ERRLO        ;SAVE ADDRESS IN ERROR
2495 020002  005037  002226                    CLR     ERRHI           ;NO HIGH ADDRESS
2496 020006  010337  002222                    MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
2497 020012  011137  002224                    MOV     (R1),RECV       ;SAVE RECV FOR ERROR REPORT
2498 020016  000474                            BR      50$             ;
2499 020020  005721                    15$:    TST     (R1)+           ;POINT TO NEXT ADDRESS
2500 020022  005302                            DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
2501 020024  003362                            BGT     10$             ;BR IF NO
2502 020026  005737  003122                    TST     KTFLG           ; GOT KT?
2503 020032  001472                            BEQ     55$             ; NO. GET OUT.
2504 020034  004737  017346                    JSR     PC,KTON         ; YES. ENABLE KT.
2505 020040  005000                            CLR     R0              ;HIGH ORDER ADDRESS START
2506 020042  013701  003142                    MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
2507         000006                            .REPT   6
2508                                            ROL     R1              ;CONVERT BLOCKS TO WORDS
2509                                            ROL     R0              ;MAKE IT DOUBLE PRECISION
2510                                            .ENDR
2511 020076  042701  000177                    BIC     #177,R1         ;ALINE 4K BOUNDARY
2512 020102  010046                            MOV     R0,-(SP)        ;SAVE HIGH ORDER
2513 020104  010146                            MOV     R1,-(SP)        ;SAVE LOW ORDER
2514 020106  004737  017406                    JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
2515 020112  010004                            MOV     R0,R4           ;COPY ADDRESS BIASED TO PAR6
2516 020114  012601                            MOV     (SP)+,R1        ;RESTORE LOW ORDER IN NON PAR6 FORMAT
2517 020116  012600                            MOV     (SP)+,R0        ;RESTORE HIGH ORDER IN NON PAR6 FORMAT
2518 020120  020314                    30$:    CMP     R3,(R4)         ;ABOVE 28K LOCATION EQUAL EXPD?
2519 020122  001411                            BEQ     32$             ;BR IF YES
2520 020124  010037  002226                    MOV     R0,ERRHI        ;SAVE HIGH ORDER IN ERROR
2521 020130  010137  002230                    MOV     R1,ERRLO        ;SAVE LOW ORDER IN ERROR
2522 020134  010337  002222                    MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
2523 020140  011437  002224                    MOV     (R4),RECV       ;SAVE RECV FOR ERROR REPORT
2524 020144  000421                            BR      50$             ;
2525 020146  062701  000002            32$:    ADD     #2,R1           ;UPDATE NON PAR6 ADDRESS
2526 020152  005500                            ADC     R0              ;MAKE IT DOUBLE PRECISION ADD
2527 020154  062704  000002                    ADD     #2,R4           ;UPDATE PAR FORMAT ADDRESS
2528 020160  020427  160000                    CMP     R4,#160000      ;END OF PAR6 MAPPING AREA?
2529 020164  103755                            BLO     30$             ;BR IF NO
2530 020166  162704  020000                    SUB     #20000,R4       ;BACKUP INTO PAR6 MAPPING BEGIN
```

CMPMEM COMPARE MEMORY TO BACKGROUND PATTERN

```
2531 020172  062737  000200  172354          ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
2532 020200  023737  172354  003122          CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
2533 020206  101744                          BLOS    30$             ;BR IF NO
2534 020210  004737  017364          50$:    JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2535 020214  000241                          CLC                     ;SET FAILURE
2536 020216  000403                          BR      60$             ;
2537 020220  004737  017364          55$:    JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2538 020224  000261                          SEC                     ;SET SUCCESS
2539 020226  000207                  60$:    RTS     PC
2540                                         .SBTTL  REGSAV  - SAVE R1 R5 ON STACK
2541                                 ;+
2542                                 ;
2543                                 ;ROUTINE TO
2544                                 ;SAVE R1 THROUGH R5 ON THE STACK
2545                                 ;
2546                                 ;CALLING SEQUENCE:
2547                                 ;
2548                                 ;       JSR     R5,REGSAV
2549                                 ;
2550                                 ;THIS IS A COOROUTINE WHICH TRANSFER CONTROL BACK TO
2551                                 ;THE CALLING ROUTINE. AT THE END OF THE CALLING ROUTINE,
2552                                 ;THE RTS PC RETURNS CONTROL TO THIS ROUTINE TO RESTORE
2553                                 ;REGISTERS.
2554                                 ;
2555                                 ;THIS ROUTINE SHOULD ONLY BE CALLED FROM ROUTINES WHICH ARE
2556                                 ;CALLED VIA A JSR PC INSTRUCTION
2557                                 ;
2558                                 ;-
2559
2560 020230                          REGSAV:
2561 020230  010446                          MOV     R4,-(SP)
2562 020232  010346                          MOV     R3,-(SP)
2563 020234  010246                          MOV     R2,-(SP)
2564 020236  010146                          MOV     R1,-(SP)
2565 020240  010546                          MOV     R5,-(SP)
2566 020242  016605  000012                  MOV     10.(SP),R5
2567 020246  004736                          JSR     PC,@(SP)+
2568 020250  012601                          MOV     (SP)+,R1
2569 020252  012602                          MOV     (SP)+,R2
2570 020254  012603                          MOV     (SP)+,R3
2571 020256  012604                          MOV     (SP)+,R4
2572 020260  012605                          MOV     (SP)+,R5
2573 020262  000207                          RTS     PC
2574                                         .SBTTL  GETPAT  - GET 8 BIT PATTERN FROM OPERATOR
2575                                 ;+
2576                                 ;
2577                                 ;ROUTINE TO REQUEST AN 8 BIT DATA PATTERN FROM THE OPERATOR
2578                                 ;
2579                                 ;INPUTS:
2580                                 ;
2581                                 ;       NONE.
2582                                 ;
2583                                 ;OUTPUTS:
2584                                 ;
2585                                 ;       R0      OCTAL NUMBER FROM THE OPERATOR
2586                                 ;
2587                                 ;CALLING SEQUENCE:
```

N6

GETPAT GET 8 BIT PATTERN FROM OPERATOR

```
                                        ;
                                        ;       JSR     PC,GETPAT
                                        ;
                                        ;-

                                        GETPAT::
                                                SAVREG                          ;SAVE THE GENERAL REGISTERS
020270                                  1$:     GMANID  DATASC,PATDAT,0,377,0,377,NO
020270  104443                                  TRAP    C$GMAN
020272  000406                                  BR      10000$
020274  020320                                  .WORD   PATDAT
020276  000022                                  .WORD   T$CODE
020300  020322                                  .WORD   DATASC
020302  000377                                  .WORD   377
020304  000000                                  .WORD   T$LOLIM
020306  000377                                  .WORD   T$HILIM
020310                                  10000$:
020310                                          BNCOMPLETE      1$      ;RETRY IF ERROR
020310  103367                                  BCC     1$
020312  013700  020320                          MOV     PATDAT,R0       ;DATA PATTERN FROM OPERATOR
020316  000207                                  RTS     PC              ;RETURN TO CALLER

                                        ;+
                                        ;LOCAL DATA AREA
                                        ;-

020320  000000                          PATDAT: .WORD   0               ;TEMPORARY STORAGE FOR DATA
020322    105     116     124           DATASC: .ASCIZ  'ENTER DATA PATTERN'
                                                .EVEN
                                                .SBTTL  GETSEL  - ISSUE MENU AND GET OPERATOR RESPONSE
                                        ;+
                                        ;
                                        ;ROUTINE TO ISSUE A MENU AND GET
                                        ;THE OPERATOR'S RESPONSE.
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R0      ADDRESS OF ASCIZ STRING OF MENU
                                        ;       R1      MAXIMUM ALLOWABLE OPERATOR RESPONSE
                                        ;
                                        ;OUTPUTS:
                                        ;
                                        ;       R0      NUMBER OF THE OPERATOR'S SELECTION
                                        ;
                                        ;-

020346                                  GETSEL::
020346                                          SAVREG                          ;SAVE GENERAL REGISTERS
020352  010002                                  MOV     R0,R2                   ;SAVE THE MENU ADDRESS
020354  010203                          1$:     MOV     R2,R3                   ;START OF MENU STRING
020356  005713                          2$:     TST     (R3)                    ;END OF ASCII ?
020360  001412                                  BEQ     3$                      ;BRANCH IF ALL LINES DISPLAYED
020362                                          PRINTF  #SELASC,(R3)+           ;DISPLAY THE MENU
020362  012346                                  MOV     (R3)+,-(SP)
020364  012746  020532                         MOV     #SELASC,-(SP)
020370  012746  000002                         MOV     #2,-(SP)
020374  010600                                  MOV     SP,R0
```

```
        020376  104417                          TRAP    C$PNTF
        020400  062706  000006                  ADD     #6,SP
   2631 020404  000764                          BR      2$
   2632 020406                          3$:     GMANID  MENASC,MENRES,D, 1,0, 1,NC
        020406  104443                          TRAP    C$GMAN
        020410  000406                          BR      10001$
        020412  020566                          .WORD   MENRES
        020414  000042                          .WORD   T$CODE
        020416  020537                          .WORD   MENASC
        020420  177777                          .WORD   -1
        020422  000000                          .WORD   T$LOLIM
        020424  177777                          .WORD   T$HILIM
        020426                          10001$:
   2633 020426                                  BNCOMPLETE      1$      ;RETRY IF ERROR
        020426  103352                          BCC     1$
   2634 020430  013700  020566                  MOV     MENRES,R0       ;GET THE OPERATOR'S REPLY
   2635 020434  020001                          CMP     R0,R1           ;COMPARE TO MAXIMUM ALLOWED
   2636 020436  101411                          BLOS    5$              ;BRANCH IF OK
   2637 020440                                  PRINTF  #MENERR         ;DISPLAY ERROR MESSAGE
        020440  012746  020464                  MOV     #MENERR,-(SP)
        020444  012746  000001                  MOV     #1,-(SP)
        020450  010600                          MOV     SP,R0
        020452  104417                          TRAP    C$PNTF
        020454  062706  000004                  ADD     #4,SP
   2638 020460  000735                          BR      1$              ;RETRY
   2639 020462  000207                  5$:     RTS     PC              ;RETURN TO CALLER
   2640 020464     045     116     045  MENERR: .ASCIZ  '%N%A *** Menu Selection Too Large ***'
   2641 020532     045     116     045  SELASC: .ASCIZ  '%N%T'
   2642 020537     105     156     164  MENASC: .ASCIZ  'Enter Menu Selection: '
   2643                                         .EVEN
   2644 020566  000000                  MENRES:         .WORD   0
   2645                                         .SBTTL  CHKMAN  CHECK MANUAL INTERVENTION LEGALITY
   2646                                 ;+
   2647                                 ;
   2648                                 ;ROUTINE TO TEST FOR MANUAL INTERVENTION LEGALITY.
   2649                                 ;
   2650                                 ;INPUT:
   2651                                 ;
   2652                                 ;       NONE.
   2653                                 ;
   2654                                 ;OUTPUT:
   2655                                 ;
   2656                                 ;       CARRY   0       MANUAL INTERVENTION NOT ALLOWED
   2657                                 ;               1       MANUAL INTERVENTION IS OK
   2658                                 ;
   2659                                 ;SIDE EFFECTS:
   2660                                 ;
   2661                                 ;       A MESSAGE IS DISPLAYED WARNING THAT TEST IS
   2662                                 ;       NOT EXECUTED IF MANUAL INTERVENTION IS NOT
   2663                                 ;       ALLOWED.
   2664                                 ;
   2665                                 ;-
   2666
   2667 020570                          CHKMAN::
   2668 020570                                  SAVREG                  ;SAVE THE REGISTERS
   2669 020574                                  MANUAL                  ;SEE IF MANUAL INTERVENTION OK
        020574  104450                          TRAP    C$MANI
```

```
2670 020576                                    BCOMPLETE 1$            ;BRANCH IF ALLOWED
     020576  103411                            BCS     1$
2671 020600                                    PRINTF  #NOMAN          ;PRINT THE WARNING MESSAGE
     020600  012746  020624                    MOV     #NOMAN,-(SP)
     020604  012746  000001                    MOV     #1,(SP)
     020610  010600                            MOV     SP,R0
     020612  104417                            TRAP    C$PNTF
     020614  062706  000C04                    ADD     #4,SP
2672 020620  000241                            CLC                     ;CLEAR CARRY FOR ERROR
2673 020622  000207                    1$:     RTS     PC              ;RETURN
2674
2675 020624     045     116     045    NOMAN:  .ASCIZ  '<NS>A *** Manual Intervention not Allowed   Test Aborted ***'
2676                                           .even
2677                                           .SBTTL  ENVIRN    SETUP FREE DIAGNOSTIC SPACE
2678                                   ;
2679                                   ; SUBROUTINE TO SET-UP VARIOUS ENVIRONMENTAL PARAMETERS.
2680                                   ;
2681 020720                            ENVIRN: MEMORY  R0
     020720  104431                            TRAP    C$MEM
2682 020722  010037  003114                    MOV     R0,FREE         ; GET 1ST FREE ADDRESS...
2683 020726  062737  000002  003114            ADD     #2,FREE
2684 020734  011037  003116                    MOV     (R0),FRESIZ     ;...AND WORD COUNT.
2685 020740  162737  000004  003116            SUB     #4,FRESIZ
2686 020746  013702  002012                    MOV     L$UNIT,R2       ; GET NUMBER OF UNITS
2687 020752  162737  000007  003116    10$:    SUB     #7,FRESIZ       ; TAKE AWAY 7 WORDS PER UNIT
2688 020760  005302                            DEC     R2
2689 020762  001373                            BNE     10$
2690 020764  013700  003114                    MOV     FREE,R0         ;GET FIRST FREE ADDRESS
2691 020770  063700  003116                    ADD     FRESIZ,R0       ;POINT TO LAST FREE ADDRESS
2692 020774  162700  000002                    SUB     #2,R0           ;BACKUP 1 WORD
2693 021000  010037  003120                    MOV     R0,FREEHI       ;STORE LAST FREE ADDRESS
2694 021004  000240                            NOP                     ;*****************************************
2695 021006  012701  177520                    MOV     #BDVPCR,R1      ;GET BDV11 PCR ADDRESS
2696 021012  010102                            MOV     R1,R2           ;COPY TO R2
2697 021014  062702  000002                    ADD     #2,R2           ;SET THE RANGE
2698 021020  004737  016466                    JSR     PC,XNXM         ;SEE IF WE HAVE ONE
2699 021024  103001                            BCC     15$             ;OK TO SET FLAGS
2700 021026  000445                            BR      40$             ;RETURN WITH FLAGS CLEAR
2701 021030  013701  177520            15$:    MOV     BDVPCR,R1       ;SAVE PCR CONTENTS
2702 021034  062701  000001                    ADD     #1,R1           ;ADD ONE TO IT
2703 021040  012702  177520                    MOV     #BDVPCR,R2      ;GET BDV11 PCR ADDRESS
2704 021044  005212                            INC     (R2)            ;TRY TO WRITE TO IT
2705 021046  013703  177520                    MOV     BDVPCR,R3       ;GET RESULTS
2706 021052  020103                            CMP     R1,R3           ;DID IT CHANGE?
2707 021054  001017                            BNE     20$             ;NO, MUST BE 11/23B
2708 021056  005237  003134                    INC     T23A            ;SET THE FLAG
2709 021062  042737  170000  002120            BIC     #170000,L$HIME  ;SUPERVISOR COULD BE WRONG
2710 021070  000240                            NOP                     ;BR 40$ FOR RELEASE
2711 021072                                    PRINTF  #M8186          ;TELL THE SYSTEM TYPE
     021072  012746  005552                    MOV     #M8186,-(SP)
     021076  012746  000001                    MOV     #1,-(SP)
     021102  010600                            MOV     SP,R0
     021104  104417                            TRAP    C$PNTF
     021106  062706  000004                    ADD     #4,SP
2712 021112  000413                            BR      40$             ;RETURN
2713 021114  005237  003136            20$:    INC     T23B            ;SET THE FLAG
2714 021120  000240                            NOP                     ;BR 40$ FOR RELEASE
```

ENVIRN SETUP FREE DIAGNOSTIC SPACE

```
2715 021122                                    PRINTF  @M8189          ;TELL THE SYSTEM TYPE
     021122  012746  005643                    MOV     @M8189,(SP)
     021126  012746  000001                    MOV     #1,(SP)
     021132  010600                            MOV     SP,R0
     021134  104417                            TRAP    C$PNTF
     021136  062706  000004                    ADD     #4,SP
2716 021142  000207                 40$:       RTS     PC              ;RETURN
2717                                           .SBTTL  KTINIT    SETUP KT11 MEMORY MANAGEMENT REGISTERS
2718                                ;+
2719                                ;
2720                                ;ROUTINE TO INIT KT 11
2721                                ;
2722                                ;
2723
2724 021144                          KTINIT:
2725 021144  005037  003122                    CLR     KTFLG           ; INIT >28K MEMORY FLAG
2726 021150  005037  003124                    CLR     KTENABLE        ; INIT TEST >28K FLAG
2727 021154  023727  002120  001577            CMP     L$HIME,#1577    ; GOT ENOUGH MEMORY (>28K)?
2728 021162  101444                            BLOS    9$              ; NO.
2729 021164  013700  000004                    MOV     @#ERRVEC,R0     ; SAVE OLD ERR VEC PTR.
2730 021170  012737  021262  000004            MOV     #2$,@#ERRVEC    ; SET ERR VEC PTR.
2731 021176  005737  177572                    TST     @#SR0           ; GOT KT11?
2732 021202  000240                            NOP                     ;  (TRAP IF NO).
2733 021204  013737  002120  003122            MOV     L$HIME,KTFLG    ; YES. SET KT FLAG.
2734 021212  042737  000177  003122            BIC     #177,KTFLG      ;
2735 021220  010037  000004                    MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
2736 021224  005000                            CLR     R0              ; R0 = AR DATA.
2737 021226  012701  172340                    MOV     #KIPAR0,R1      ; R1 = KI REGS PTR.
2738 021232  012761  077406  177740  1$:       MOV     #77406,-40(R1)  ; SET DESCRIPTOR REG.
2739 021240  010021                            MOV     R0,(R1)+        ; SET KIPAR REG.
2740 021242  062700  000200                    ADD     #200,R0         ; BUMP AR DATA BY "4K".
2741 021246  020027  002000                    CMP     R0,#2000        ; AT "I/O"?
2742 021252  001367                            BNE     1$              ; NO.
2743 021254  012741  177600                    MOV     #177600,-(R1)   ; YES. SET KTPAR7 FOR I/O.
2744 021260  000405                            BR      9$
2745
2746 021262  012716  021270          2$:       MOV     #6$,(SP)        ; SET UP RETURN
2747 021266  000002                            RTI                     ; RTI TO NEXT LOCATION
2748
2749 021270  010037  000004          6$:       MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
2750
2751 021274  000207                  9$:       RTS     PC
2752                                ;+
2753                                ;       SUBROUTINE TO SET EXTENDED FEATURES SWITCH
2754                                ;
2755                                ;       Requires that SOFINIT and WRTCHR have been done previous to call.
2756                                ;
2757                                ;
2758                                ;INPUTS:
2759                                ;       R5      CURRENT UNIT NUMBER
2760                                ;OUTPUTS:
2761                                ;       The Extended Features Switch is set.
2762                                ;
2763                                ;-
2764
2765 021276                          INVERT::
2766
```

```
2767 021276  005737  002216                    TST     EXTFEA                  ; IS SWITCH SET?
2768 021302  001020                            BNE     1$                      ; YES,EXIT STAGE RIGHT!(or the next one outa town!)
2769 021304  012737  100206  021350            MOV     #100206,CMDPKT          ; WRT SUB SYS MEM CMD
2770 021312  012737  021360  021352            MOV     #WSMBK,CMDPKT+2         ; MSG BUF ADDR
2771 021320  012737  000006  021356            MOV     #6,CMDPKT+6             ; BYTE COUNT
2772 021326  012737  100010  021360            MOV     #100010,WSMBK           ; INVERT THE SWITCH
2773 021334  012704  021350                    MOV     #CMDPKT,R4              ; SET CMDPKT INTO R4
2774 021340  004737  010752                    JSR     PC,WRTCHR               ; DO IT
2775 021344  000207                    1$:     RTS     PC                      ; RETURN
2776
2777                                           ;       COMMAND PACKET.
2778
2779         021350                            .       =       <.+3>&177774    ;MUST BE ON MOD 4 BOUNDRY.
2780
2781 021350  000000                    CMDPKT:: 0                              ;1ST WORD IS TSO5 COMMAND.
2782 021352  000000                             0                              ;2ND WORD IS THE BUFFER LOW ADDRESS.
2783 021354  000000                             0                              ;3RD WORD IS THE BUFFER HIGH ADDRESS.
2784 021356  000000                             0                              ;4TH WORD IS THE BYTE/RECORD/FILE COUNT.
2785
2786                                           ;       WRITE SUB-SYSTEM MEMORY CHARACTERISTIC BLOCK.
2787
2788 021360  000000                    WSMBK:: 0                               ;1ST WORD:: SEL 0
2789 021362  000000                             0                              ;2ND WORD:: SEL 2
2790 021364  000000                             0                              ;3RD WORD:: SEL 4
2791                                            .EVEN
2792                                   ;*
2793                                   ;       SUBROUTINE TO CHECK WETHER OR NOT WE'LL TEST NXM
2794                                   ;
2795                                   ;
2796                                   ;INPUTS:
2797                                   ;OUTPUTS:
2798                                   ;       The NXMFLG is set if we can test.
2799                                   ;       The NXMLO and NXMHI addresses are setup.
2800                                   ;-
2801
2802 021366                            MEMCK::
2803
2804 021366                                    SAVREG                          ;SAVE THE REGISTERS
2805 021372  005037  003126                    CLR     NXMFLG                  ;CLEAR THE FLAG
2806 021376  005037  003130                    CLR     NXMLO                   ;CLEAR THE TEST ADDRESS LO
2807 021402  005037  003132                    CLR     NXMHI                   ;CLEAR THE TEST ADDRESS HI
2808 021406  005737  003136                    TST     T23B                    ;IS IT A 11/23B?
2809 021412  001407                            BEQ     1$                      ;NO
2810 021414  023727  002120  007777            CMP     L$HIME,#7777            ; GREATER THAN 128K
2811 021422  103406                            BLO     2$                      ; NO
2812 021424  004737  021542                    JSR     PC,NXMTST               ;SETUP THE ADDRESS
2813 021430  000427                            BR      13$                     ;SET THE FLAG AND EXIT
2814 021432  005737  003134            1$:     TST     T23A                    ;IS IT A 11/23A?
2815 021436  001413                            BEQ     4$                      ;NO
2816 021440  023727  002120  005777    2$:     CMP     L$HIME,#5777            ;GREATER THAN 96K
2817 021446  101023                            BHI     14$                     ;YES,23A/23B WITH 128K MEMORY
2818 021450  023727  002120  003777            CMP     L$HIME,#3777            ;GREATER THAN 64K BUT LESS THAN 92K?
2819 021456  103403                            BLO     4$                      ;NO, CHECK 24K
2820 021460  004737  021542                    JSR     PC,NXMTST               ;SETUP THE ADDRESS
2821 021464  000411                            BR      13$                     ;SET THE FLAG AND EXIT
2822 021466  023727  002120  001577    4$:     CMP     L$HIME,#1577            ;GREATER THAN 24K BUT LESS THAN 64K?
2823 021474  103410                            BLO     14$                     ;NO, TELL THEM AND EXIT WITH FLAG CLEAR
```

```
2824 021476  004737  021542                JSR     PC,NXMTST               ;SETUP THE ADDRESS
2825 021502  062737  000077  003132        ADD     #77,NXMHI               ;FOOL THE 11/02 & 11/03
2826 021510  005237  003126        13$:    INC     NXMFLG                  ;SET THE FLAG
2827 021514  000411                BR      15$                             ;EXIT
2828 021516  000410                14$:    BR      15$                     ;NOP FOR PRINTOUT
2829 021520                               PRINTF  #NOMEM                  ;TELL THEM & EXIT ***NO PRINT*****
     021520  012746  005456               MOV     #NOMEM,-(SP)
     021524  012746  000001               MOV     #1,-(SP)
     021530  010600                       MOV     SP,R0
     021532  104417                       TRAP    C$PNTF
     021534  062706  000004               ADD     #4,SP
2830 021540  000207                15$:    RTS     PC                      ;RETURN
2831
2832                                       ;*
2833                                       ;       SUBROUTINE TO SETUP THE NXM ADDRESS FOR TESTING
2834                                       ;
2835                                       ;OUTPUTS:NXMLO,NXMHI            ;SETUP WITH NXM ADDRESS
2836                                       ;
2837                                       ;-
2838
2839 021542  013701  002120        NXMTST: MOV     L$HIME,R1               ;GET TOP OF MEMORY
2840 021546  062701  000200                ADD     #200,R1                 ;MAKE IT I/O BLOCK OR OTHER NXM
2841 021552  042701  000177                BIC     #177,R1
2842 021556  010102                       MOV     R1,R2                   ;RESAVE RESULTS
2843         000006                        .REPT   6
2844                                       ASL     R1                      ;PUT IN PLACE FOR XFER
2845                                       .ENDR
2846 021574  010137  003130                MOV     R1,NXMLO                ;SAVE TEST ADDRESS LOW
2847         000012                        .REPT   10.
2848                                       ASR     R2                      ;PUT IN PLACE FOR XFER
2849                                       .ENDR
2850 021624  042702  177700                BIC     #177700,R2              ;DON'T WANT ILA!
2851 021630  010237  003132                MOV     R2,NXMHI                ;SAVE TEST ADDRESS HIGH
2852 021634  000207                       RTS     PC                      ;RETURN
2853
2854
2855
2856 021636                                ENDMOD
```

```
      7                                          .TITLE  TSV4 - MISCELLANEOUS SECTIONS
      8
      9 021636                                   BGNMOD  TSV4
        021636                           TSV4::
     10
     16
```

PROTECTION TABLE

```
                                                .SBTTL  PROTECTION TABLE
                                                BGNPROT
                                        L$PROT::
                                                .WORD    1,  1,  1,  1          ;NO DEVICE PROTECTION REQUIRED.
                                                ENDPROT
```

INITIALIZE SECTION

```
                                        .SBTTL  INITIALIZE SECTION

                                ;++
                                ;THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
                                ;AT THE BEGINNING OF EACH PASS.
                                ;
                                ;IF "START" OR "RESTART", SET QUICK PASS FLAG AND BUS-INIT.
                                ;IF "CONTINUE", NOTHING IS REQUIRED.
                                ;
                                ;--
                                ;+
                                ;INSERT TEMPORARY JUMP TO ODT
                                ;-
021646                                  BGNINIT
021646                          L$INIT::

021646                                  SETVEC  #140,#170000,#340       ;ODT ROM ADDRESS                        ;JB REV A-0
021646  012746  000340                  MOV     #340, (SP)
021652  012746  170000                  MOV     #170000, (SP)
021656  012746  000140                  MOV     #140, (SP)
021662  012746  000003                  MOV     #3, (SP)
021666  104437                          TRAP    C$SVEC
021670  062706  000010                  ADD     #10,SP

021674  005037  002216          40$:    CLR     EXTFEA
021700  005037  003126                  CLR     NXMFLG
021704  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY MESSAGE FOR REPLACEMENT
021712  005037  003144                  CLR     SIFLAG                  ;CLEAR  SOFT INIT' FLAG
021716  005037  003124                  CLR     KTENABLE                ;CLEAR TEST ABOVE 28K FLAG
021722  005037  002272                  CLR     RAMSIZ                  ;CLEAR RAM SIZE FOR RAMERR ROUTINE
021726                                  READEF  #EF.CONTINUE
021726  012700  000036                  MOV     #EF.CONTINUE,R0
021732  104447                          TRAP    C$REFG
021734                                  BNCOMPLETE 1$
021734  103023                          BCC     1$
021736  023737  002172  002012          CMP     UNITN,L$UNIT            ;UNIT IN RANGE?
021744  103070                          BHIS    4$                      ;BR IF NO.
021746  005737  003102                  TST     DUFLG                   ;DROPPED UNIT?
021752  100472                          BMI     NXTU                    ;BR IF YES
021754  013701  002172                  MOV     UNITN,R1
021760  006301                          ASL     R1
021762  005761  003166                  TST     ERTABL(R1)
021766  001516                          BEQ     SETU
021770  032761  040000  003166          BIT     #BIT14,ERTABL(R1)       ;DROPPED?
021776  001060                          BNE     NXTU
022000                                  EXIT    INIT                    ;DO NOTHING IF "CONTINUE".
022000  104432                          TRAP    C$EXIT
022002  000416                          .WORD   L10030-.
022004                          1$:     READEF  #EF.NEW
022004  012700  000035                  MOV     #EF.NEW,R0
022010  104447                          TRAP    C$REFG
022012                                  BNCOMPLETE NXTU                 ;TAKE NEXT UNIT IF NOT NEW PASS.
022012  103052                          BCC     NXTU
022014                                  READEF  #EF.START
022014  012700  000040                  MOV     #EF.START,R0
022020  104447                          TRAP    C$REFG
022022                                  BCOMPLETE 2$
```

INITIALIZE SECTION

```
                022022  103404                          BCS     2$
     64         022024                                  READEF  @EF.RESTART
                022024  012700  000037                  MOV     @EF.RESTART,R0
                022030  104447                          TRAP    C$REFG
     65         022032                                  BNCOMPLETE 31$
                022032  103031                          BCC     31$
     66         022034                          2$:                             ;1ST PASS, BUS-INIT...
     67         022034                                  BRESET                  ;BUS RESET.
                022034  104433                          TRAP    C$RESET
     68         022036  005037  002204                  CLR     TSTCNT          ;NUMBER OF TESTS RUN IN PASS
     69         022042  005037  002212                  CLR     FATFLG          ;CLEAR FATAL ERROR COUNT
     70         022046  005037  003134                  CLR     T23A            ;CLEAR 11/23A FLAG
     71         022052  005037  003136                  CLR     T23B            ;CLEAR 11/23B FLAG
     72                                          ;       MOV     @340,-(SP)
     73                                          ;       MOV     @20$,-(SP)      ;RETURN TO DEBUGGER
     74                                          ;       JMP     0.ODT       ;;@@ENTER THE DEBUGGER
     75         022056  005037  003370                  CLR     SKIPT       ;CLEAR THE SUBTEST 'SKIPPER
     76         022062                          20$:
     77         022062  012737  177777  002174          MOV     @ 1,QVP                 ;...QUICK VERIFY...
     78         022070  004737  020720                  JSR     PC,ENVIRN               ;SET ENVIRONMENT.
     79         022074  004737  021144                  JSR     PC,KTINIT               ;INITIALIZE KT MEMORY MANAGEMENT
     80         022100  012700  003166                  MOV     @ERTABL,R0
     81         022104  005020                  30$:    CLR     (R0)+                   ;CLEAR THE ERROR TABLE
     82         022106  020027  003366                  CMP     R0,@ERTABE
     83         022112  103774                          BLO     30$
     84         022114  000404                          BR      4$
     85         022116  005037  002174          31$:    CLR     QVP
     86         022122  000137  022172                  JMP     PASRPT                  ;GO REPORT THE STATUS
     87
     88         022126                          4$:
     89         022126  012737  177777  002172  NEWPAS: MOV     @-1,UNITN               ;INIT UNIT NUMBER...
     90         022134  005037  002210                  CLR     DEVCNT                  ;CLEAR COUNT OF DEVICES RUNNING
     91         022140                          NXTU:   BREAK
                022140  104422                          TRAP    C$BRK
     92         022142  005237  002172                  INC     UNITN                   ;...AND SET NEXT UNIT NUMBER.
     93         022146  023737  002172  002012          CMP     UNITN,L$UNIT
     94         022154  103423                          BLO     SETU
     95         022156  012737  177777  003102          MOV     @-1,DUFLG
     96         022164  000401                          BR      11$
     97         022166                                  DOCLN                   ;ABORT, NO MORE UNITS.
                022166  104444                          TRAP    C$DCLN
     98         022170  000240                  11$:    NOP
     99         022172                          PASRPT:
    100         022172  023727  002012  000001          CMP     L$UNIT,@1               ;HOW MANY UNITS SELECTED?
    101         022200  101752                          BLOS    NEWPAS                  ;BR IF ONLY 1
    102         022202  005737  002210                  TST     DEVCNT                  ;ARE ANY STILL RUNNING?
    103         022206  001747                          BEQ     NEWPAS                  ;BR IF NO
    104         022210                                  RFLAGS  R0
                022210  104421                          TRAP    C$RFLA
    105         022212  032700  000100                  BIT     @ISR,R0                 ;SHOULD WE PRINT STATISTICS
    106         022216  001343                          BNE     NEWPAS                  ;BR IF NO
    107
    108         022220                                  DORPT
                022220  104424                          TRAP    C$DRPT
    109         022222  000741                          BR      NEWPAS
    110         022224                          10$:
    111
```

INITIALIZE SECTION

```
112 022224                          SETU:   GPHARD  UNITN,R0                 ;GET UNIT N P TABLE POINTER.
    022224  013700  002172                  MOV     UNITN,R0
    022230  104442                          TRAP    C$GPHRD
113 022232                                  BNCOMPLETE NXTU                 ;BR IF UNIT NOT AVAILABLE.
    022232  103342                          BCC     NXTU
114 022234  005037  003102                  CLR     DUFLG                   ;CLEAR  DROPPED' FLAG.
115 022240  005237  002210                  INC     DEVCNT
116 022244  012001                          MOV     (R0)+,R1                ;GET 1ST REGISTER ADDRESS.
117 022246  010137  002176                  MOV     R1,CSRADDR              ;ADDRESS OF REGISTERS OF UNIT UNDER TEST
118
119 022252  012001                          MOV     (R0)+,R1                ;GET VECTOR ADDRESS.
120                                         ;MOV    (R0),R2                 ;GET INTERRUPT PRIORITY
121                                         ;MOV    R2,IPRI                 ;SET INTERRUPT PRIORITY.
122 022254  010137  002200                  MOV     R1,IVEC                 ;SET INTERRUPT VECTOR POINTER...
123 022260  012721  016306                  MOV     #INTR,(R1)+             ;...VECTOR...
124 022264  013721  002202                  MOV     IPRI,(R1)+              ;...AND PRIORITY.
125
126 022270                          1$:
127                                 ;       TST     QVP             ;1ST PASS ??
128                                 ;       BEQ     5$              ;NO, SKIP THE PASS 1 STUFF.
129
130                                 ;
131                                 ;1ST PASS, CHECK THAT DEVICE ADDRESSES ARE VALID, AND
132                                 ;THAT THE DISPLAY STATUS IS PROPERLY INITIALIZED.
133                                 ;
134 022270  013701  002172                  MOV     UNITN,R1
135 022274  006301                          ASL     R1
136 022276  052761  100000  003166          BIS     #BIT15,ERTABL(R1)       ;SAY DEVICE RUNNING
137 022304  005037  005770                  CLR     EXTA                    ;CLEAR ERROR EXTENSION FLAG.
138 022310  023727  002012  000001          CMP     L$UNIT,#1               ;ARE WE TESTING MULTIPLE UNITS?
139 022316  101416                          BLOS    10$                     ;BR IF NO.
140 022320                                  RFLAGS  R0                      ;YES -- GET OPERATOR FLAGS.
    022320  104421                          TRAP    C$RFLA
141 022322  032700  001000                  BIT     #PNT,R0                 ;SHOULD WE PRINT UNIT #?
142 022326  001412                          BEQ     10$                     ;BR IF NOT.
143 022330                                  PRINTF  #PUNIT,UNITN            ;PRINT THE UNIT #
    022330  013746  002172                  MOV     UNITN,-(SP)
    022334  012746  022422                  MOV     #PUNIT,-(SP)
    022340  012746  000002                  MOV     #2, (SP)
    022344  010600                          MOV     SP,R0
    022346  104417                          TRAP    C$PNTF
    022350  062706  000006                  ADD     #6,SP
144 022354                          10$:
145 022354  005037  003104                  CLR     NODEV
146 022360  013701  002176                  MOV     CSRADDR,R1              ;ADDRESS OF FIRST REGISTER
147 022364  010102                          MOV     R1,R2                   ;START OF REGISTERS
148 022366  062702  000002                  ADD     #TSSR,R2                ;ADDRESS OF TSSR REGISTER
149 022372  004737  016466                  JSR     PC,XNXM                 ;TEST BOTH CONTROLLER REGISTERS...
150 022376  103005                          BCC     2$                      ;...AND BR IF ALL OK.
151 022400  010137  003104                  MOV     R1,NODEV                ;FLAG DEVICE AS NON-EXISTENT
152 022404  012737  177777  003102          MOV     #-1,DUFLG               ;DROP THIS UNIT.
153 022412                          2$:
154                                 ;
155                                 ;FINALLY, SET CPU PRIORITY AND WE'RE DONE.
156                                 ;
157 022412                          5$:     SETPRI  #PRI00          ;ENABLE INTERRUPTS.
    022412  012700  000000                  MOV     #PRI00,R0
```

INITIALIZE SECTION

```
        022416  104441                          TRAP    C$SPRI
    158 022420                                  ENDINIT
        022420                          L10030:
        022420  104411                          TRAP    C$INIT
    159
    160 022422     045     116     045  PUNIT:  .ASCIZ  /%N%N%A***** TESTING UNIT %D2%A *****/
    161                                         .EVEN
```

ADD AND DROP UNITS SECTION

```
163                                             .SBTTL  ADD AND DROP UNITS SECTIONS
164
165                                     ;++
166                                     ; THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
167                                     ; TO BE (A) ADDED TO THE TEST LIST FOR THE FIRST TIME,
168                                     ;    OR (B) RE INSERTED IF IT HAD BEEN PREVIOUSLY DROPPED.
169                                     ; -
170 022470                                      BGNAU
    022470                              L$AU::
171 022470  010001                              MOV     R0,R1                   ; GET UNIT TO BE ADDED (R0)
172 022472  006301                              ASL     R1                      ; MAKE IT A WORD INDEX
173 022474  052761  100000  003166              BIS     #100000,ERTABL(R1)      ; SET THE "ACTIVE" BIT
174 022502  042761  040000  003166              BIC     #40000,ERTABL(R1)       ; CLEAR THE "DROPPED" BIT
175 022510                                      PRINTF  #1$,R0
    022510  010046                              MOV     R0,-(SP)
    022512  012746  022536                      MOV     #1$,-(SP)
    022516  012746  000002                      MOV     #2,-(SP)
    022522  010600                              MOV     SP,R0
    022524  104417                              TRAP    C$PNTF
    022526  062706  000006                      ADD     #6,SP
176 022532                                      EXIT    AU
    022532  000167                              .WORD   J$JMP
    022534  000026                              .WORD   L10031-2-.
177 022536     045     116     045  1$:         .ASCIZ  /%N%A  UNIT %D%A ADDED/
178                                             .EVEN
179
180 022564                                      ENDAU           ; UNUSED.
    022564                              L10031:
    022564  104452                              TRAP    C$AU
181
182                                     ;++
183                                     ; THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
184                                     ; TO BE REMOVED FROM THE TEST LIST.
185                                     ;
186                                     ; SUPVSR DOES THE "DROPPING".  THIS IS JUST TO TELL THE MAN.
187                                     ; "DROPPED" UNITS ARE RE-SELECTED ON OPERATOR "STA" OR "ADD"
188                                     ; COMMAND, OTHERWISE REMAIN INACTIVE.  THE "DISPLAY" COMMAND
189                                     ; WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
190                                     ; WHICH ARE STILL ACTIVE.
191                                     ; UPON ENTRY, R0 CONTAINS THE UNIT TO BE DROPPED.
192 022566                                      BGNDU
    022566                              L$DU::
193 022566  012737  177777  003102              MOV     #-1,DUFLG
194 022574  010001                              MOV     R0,R1
195 022576  006301                              ASL     R1
196 022600  052761  140000  003166              BIS     #140000,ERTABL(R1)      ; SAY DROPPED
197 022606  000240  000240  000240              240,240,240                     ; ?????????
198 022614                                      PRINTF  #1$,R0
    022614  010046                              MOV     R0,-(SP)
    022616  012746  022642                      MOV     #1$,-(SP)
    022622  012746  000002                      MOV     #2,-(SP)
    022626  010600                              MOV     SP,R0
    022630  104417                              TRAP    C$PNTF
    022632  062706  000006                      ADD     #6,SP
199 022636                                      EXIT    DU
    022636  000167                              .WORD   J$JMP
    022640  000030                              .WORD   L10032-2-.
```

```
ADD AND DROP UNITS SECTIONS

    200 022642      045     116     045 1$:     .ASCIZ  /%N%A  UNIT %D%A DROPPED/
    201                                 .EVEN
    202 022672                          ENDDU
        022672                      L10032:
        022672  104453                      TRAP    C$DU
    203                             ;++
    204                             ; AUTO-DROP CODE SECTION.
    205                             ;--
    206 022674                          BGNAUTO
        022674                      L$AUTO::
    207 022674  013705  002176              MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
    208 022700  012703  000550              MOV     #360.,R3                ;ENOUGH TIME FOR 2400' REEL TO REWIND
    209 022704  004737  016340      10$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    210 022710  103420                      BCS     20$                     ;LEAVE WHEN SSR IS SET
    211 022712                              DELAY   250.                    ;WAIT FOR .25 SECONDS
        022712  012727  000372              MOV     #250.,(PC)+
        022716  000000                      .WORD   0
        022720  013727  002116              MOV     L$DLY,(PC)+
        022724  000000                      .WORD   0
        022726  005367  177772              DEC     -6(PC)
        022732  001375                      BNE     .-4
        022734  005367  177756              DEC     -22(PC)
        022740  001367                      BNE     .-20
    212 022742  005303                      DEC     R3                      ;BUMP COUNTER DOWN
    213 022744  001357                      BNE     10$                     ;KEEP GOING
    214 022746  004737  017272              JSR     PC,CKDROP               ;TRY AND DROP UNIT
    215 022752                          20$:
    216 022752                              ENDAUTO                 ; UNUSED.
        022752                      L10033:
        022752  104461                      TRAP    C$AUTO
```

CLEAN-UP AND REPORT CODING SECTIONS

```
                                        .SBTTL  CLEAN-UP AND REPORT CODING SECTIONS

                                ;**
                                ; THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS
                                ; EXECUTED AT THE END OF EACH PASS (OR SUB PASS).
                                ; USE TO RETURN DEVICE UNDER TEST TO A NEUTRAL STATE.
                                ;--
                                        BGNCLN
                                L$CLEAN::
                                        MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
                                        TST     DUFLG           ;"DROPPED" FLAG IS SET ON...
                                        BMI     1$              ;...AND GROSS CONTROLLER FAULT...
                                                                ;...DON'T TRY TO XCT CLEANUP CODE.

                                        MOV     #0,TSSR(R5)     ;DO SOFT INIT
                                        JSR     PC,WAITF
                                1$:
                                2$:     ENDCLN
                                L10034:
                                        TRAP    C$CLEAN
                                ;**
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;--
                                        BGNRPT
                                L$RPT::
                                        PRINTS  #DEVSUM
                                        MOV     #DEVSUM,-(SP)
                                        MOV     #1,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTS
                                        ADD     #4,SP
                                        MOV     R2,-(SP)
                                        MOV     R3,-(SP)
                                        MOV     R4,-(SP)
                                        MOV     #ERTABL,R4      ; GET START OF ERROR TABLE.
                                        CLR     R3              ; CLEAR UNIT NUMBER
                                1$:     MOV     (R4),R2         ; GET ERROR TABLE ENTRY & TEST IT.
                                        BEQ     4$              ; ZERO IF UNIT NOT RUN
                                        BPL     4$
                                        BIT     #BIT14,R2       ; WAS UNIT DROPPED?
                                        BNE     2$              ; BR IF YES
                                        BIC     #^C7777,R2      ; GET ERROR COUNT FIELD
                                        PRINTS  #DEVONL,R3,R2   ; PRINT
                                        MOV     R2,-(SP)
                                        MOV     R3,-(SP)
                                        MOV     #DEVONL,-(SP)
                                        MOV     #3,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTS
                                        ADD     #10,SP
                                        BR      4$
                                2$:     CMP     R2,#160000      ; WAS UNIT NON-EXISTENT?
                                        BNE     3$              ; BR IF NO
                                        PRINTS  #DEVNXR,R3
                                        MOV     R3,-(SP)
                                        MOV     #DEVNXR,-(SP)
```

CLEAN-UP AND REPORT CODING SECTIONS

```
        023120  012746  000002                  MOV     #2, (SP)
        023124  010600                          MOV     SP,R0
        023126  104416                          TRAP    C$PNTS
        023130  062706  000006                  ADD     #6,SP
    257 023134  000431                          BR      4$
    258 023136  020227  160001          3$:     CMP     R2,#160001      ; WAS UNIT NOT READY AT STARTUP?
    259 023142  001012                          BNE     30$             ; BR IF NO.
    260 023144                                  PRINTS  #DEVNRD,R3
        023144  010346                          MOV     R3,-(SP)
        023146  012746  023433                  MOV     #DEVNRD,-(SP)
        023152  012746  000002                  MOV     #2, (SP)
        023156  010600                          MOV     SP,R0
        023160  104416                          TRAP    C$PNTS
        023162  062706  000006                  ADD     #6,SP
    261 023166  000414                          BR      4$
    262 023170  042702  170000          30$:    BIC     #^C7777,R2
    263 023174                                  PRINTS  #DEVDRO,R3,R2
        023174  010246                          MOV     R2,-(SP)
        023176  010346                          MOV     R3,-(SP)
        023200  012746  023514                  MOV     #DEVDRO,-(SP)
        023204  012746  000003                  MOV     #3,-(SP)
        023210  010600                          MOV     SP,R0
        023212  104416                          TRAP    C$PNTS
        023214  062706  000010                  ADD     #10,SP
    264 023220  062704  000002          4$:     ADD     #2,R4
    265 023224  005203                          INC     R3
    266 023226  020427  003366                  CMP     R4,#ERTABE
    267 023232  103701                          BLO     1$
    268 023234  012604                          MOV     (SP)+,R4
    269 023236  012603                          MOV     (SP)+,R3
    270 023240  012602                          MOV     (SP)+,R2
    271 023242                                  ENDRPT                  ; UNUSED.
        023242                          L10035:
        023242  104425                          TRAP    C$RPT
    272
    273
    274 023244      045     116     045 DEVSUM: .ASCIZ  /<N><A  DEVICE STATUS SUMMARY:<N>/
    275 023301      045     101     040 DEVONL: .ASCIZ  /<A   UNIT <D3><A    ONLINE,  ERRORS = <D><N>/
    276 023351      045     101     040 DEVNXR: .ASCIZ  /<A   UNIT <D3><A    DROPPED, NON-EXISTENT REGISTER<N>/
    277 023433      045     101     040 DEVNRD: .ASCIZ  /<A   UNIT <D3><A    DROPPED, NOT READY AT STARTUP<N>/
    278 023514      045     101     040 DEVDRO: .ASCIZ  /<A   UNIT <D3><A    DROPPED, ERRORS = <D><N>/
    279                                         .EVEN
    280
    281 023564                                  ENDMOD
    282
    283
```

```
                                        .TITLE  TSV7 - HARDWARE TESTS 1-8
                                        BGNMOD  TSV7
023564                          TSV7::
```

```
                                        .SBTTL  TEST  1: INITIALIZE #4 TEST
                                ;*
                                ;
                                ;THIS TEST VERIFIES THAT WRITING INTO THE TSSR RETURNS THE
                                ;CONTROLLER TO ITS INITIALIZED STATE FROM VARIOUS CONDITIONS
                                ;(I.E. LOOPBACK ENABLED, FORCING WRONG PARITY, INVERTING SENSE OF
                                ;EXTENDED FEATURES SWITCH, ETC.)
                                ;
                                ;-
023564                                  BGNTST
023564                                                                          T1::
023564  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE

                                ;
                                ;
                                ;TEST 1
                                ;
                                ;
                                ;-

023572  004737  016274                  JSR     PC,DSBINT               ;DISABLE INTERRUPTS
023576  012700  024524                  MOV     #TST21ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
023602  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
023606  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
023614                          T21LOOP:
023614  004737  024546                  JSR     PC,T21REST              ;SET COMMAND PACKET
023620  004737  024636                  JSR     PC,T21RT2               ;SET UP OTHER COMMAND PACKET

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************

023624  012737  176750  024202          MOV     #65000.,T21DLY          ;SET DELAY ROUTINE
023632  004737  016064          11$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
023636  103426                  BCS     20$                             ;BR IF INIT WAS OK
023640                          DELAY   250                             ;DELAY FOR A REWIND TO FINISH
023640  012727  000250                                                          MOV     #250.,(PC)+
023644  000000                                                                  .WORD   0
023646  013727  002116                                                          MOV     L$DLY,(PC)+
023652  000000                                                                  .WORD   0
023654  005367  177772                                                          DEC      6(PC)
023660  001375                                                                  BNE     . 4
023662  005367  177756                                                          DEC     -22(PC)
023666  001367                                                                  BNE     . 20
023670  005337  024202                  DEC     T21DLY                  ;BUMP COUNTER DOWN
023674  001356                  BNE     11$                             ;BR, IF MORE TIME TO GO
023676  005237  002212                  INC     FATFLG                  ;BUMP COUNT
023702  010001                  MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
023704                          ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
023704  104455                                                                  TRAP    C$ERDF
023706  000145                                                                  .WORD   101
023710  003650                                                                  .WORD   SFIERR
023712  012124                                                                  .WORD   SFIMSG
023714                          20$:
023714  012704  024160                  MOV     #T21PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
```

```
 77
 78                                     ;*****************************************************************
 79                                     ;
 80                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 81                                     ;
 82                                     ;*****************************************************************
 83
 84 023720  013737  002172  024200             MOV     UNITN,T21DSW            ;SET UP DRIVE NUMBER
 85 023726  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 86 023732  103407                             BCS     23$                     ;BR. IF COMMAND ISSUED OK
 87 023734  005237  002212                     INC     FATFLG                  ;BUMP COUNT
 91 023740  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 92 023742                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    023742  104456                                                                     TRAP    C$ERHRD
    023744  000146                                                                     .WORD   102
    023746  005054                                                                     .WORD   WRTMSG
    023750  012124                                                                     .WORD   SFIMSG
 93 023752                                     23$:    CKLOOP
    023752  104406                                                                     TRAP    C$CLP1
 94 023754  112737  000200  024300             MOVB    #200,T21BS0             ;WRITE MISCELLANEOUS CONT/READ STATUS
 95 023762  112737  000010  024301             MOVB    #10,T21BS1              ;FUNCTION SELECTION BIT
 96 023770                                     25$:
 97 023770  012704  024270                     MOV     #T21PK2,R4              ;WRITE SUBSYS MEM PACKET
 98 023774  010465  000000                     MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 99 024000  004737  016426                     JSR     PC,CHKTSSR              ;WAIT FOR SSR
100 024004  103407                             BCS     30$                     ;BR. IF NO ERROR
101 024006  010001                             MOV     R0,R1                   ;ERROR. SAVE TSSR
102 024010  005237  002212                     INC     FATFLG                  ;BUMP COUNT
106 024014                                     ERRHRD  ERRNO,T21SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
    024014  104456                                                                     TRAP    C$ERHRD
    024016  000147                                                                     .WORD   103
    024020  024306                                                                     .WORD   T21SSR
    024022  012136                                                                     .WORD   PKTSSR
107 024024                                     30$:    CKLOOP                  ;SCOPE LOOP
    024024  104406                                                                     TRAP    C$CLP1
108 024026  012765  000000  000002             MOV     #0,TSSR(R5)             ;ISSUE A SOFT INITIALIZE
109 024034  004737  016340                     JSR     PC,WAITF                ;WAIT FOR JUST THE SSR BIT TO SET
110 024040  016501  000002                     MOV     TSSR(R5),R1             ;READ THE TSSR BACK
111 024044  010102                             MOV     R1,R2                   ;WORK REGISTER
112 024046  042702  176377                     BIC     #^C<HIADDR>,R2          ;CLEAR OUT OTHER BITS
113 024052  052702  002200                     BIS     #SSR!NBA,R2             ;SOME OF THE BITS THAT SHOULD BE SET
114 024056  032701  000100                     BIT     #OFL,R1                 ;IS OFF LINE BIT SET
115 024062  001012                             BNE     38$                     ;BR. IF DRIVE IS OFF LINE
116 024064  020102                     35$:    CMP     R1,R2                   ;EXPECTED (R2) = RECEIVED (R1)
117 024066  001406                             BEQ     37$                     ;BR. IF THEY ARE EQUAL (OK)
118 024070  005237  002212                     INC     FATFLG                  ;BUMP COUNT
122 024074                                     ERRHRD  ERRNO,T21AM3,EXPREC     ;"ERROR TRYING TO INIT AFTER WRITE MISC.
    024074  104456                                                                     TRAP    C$ERHRD
    024076  000150                                                                     .WORD   104
    024100  024403                                                                     .WORD   T21AM3
    024102  015564                                                                     .WORD   EXPREC
123 024104                                     37$:    CKLOOP                  ;LOOP IF SELECTED
    024104  104406                                                                     TRAP    C$CLP1
124 024106  000406                             BR      40$                     ;SKIP OVER OFF-LINE STUFF
125 024110                                     38$:
129 024110                                     ERRDF   ERRNO,T21OFL,EXPREC     ;DRIVE IS OFF LINE
    024110  104455                                                                     TRAP    C$ERDF
```

TEST 1: INITIALIZE 04 TEST

```
        024112  000151                                                          .WORD   105
        024114  024503                                                          .WORD   T210FL
        024116  015564                                                          .WORD   EXPREC
    130 024120  004737  017272              JSR     PC,CKDROP       ;TRY AND DROP UNIT
    131 024124  000241          40$:        CLC                     ;DON'T LET CARRY SNEAK IN
    132 024126  106037  024301              RORB    T21BS1          ;TRY NEXT "LOWEST" BIT POSITION
    133 024132  001316                      BNE     25$             ;LOOP UNTIL ALL EIGHT BITS TESTED
    134 024134                  50$:        CKLOOP                  ;SCOPE LOOP
        024134  104406                                                          TRAP    C$CLPi
    135 024136  004737  016546              JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
    136 024142  103002                      BCC     63$             ;BR, IF NO LOOP REQUIRED
    137 024144  000137  023614              JMP     T21LOOP         ;EXECUTE AGAIN
    138 024150                  63$:        EXIT    TST             ;ALL DONE THIS TEST
        024150  104432                                                          TRAP    C$EXIT
        024152  000526                                                          .WORD   L10036 .
```

```
                                ;+
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
        024160                          .=<.+10>&177770
024160                          T21PACKET:                      ;COMMAND PACKET FOR TEST
024160  100004                          .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH, ACK
024162  024170                          .WORD   T21DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
024164  000000                          .WORD   0
024166  000012                          .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
024170                          T21DATA:                        ;CHARACTERISTICS DATA BLOCK
024170  024204                          .WORD   T21BFR          ;ADDRESS OF MESSAGE BUFFER
024172  000000                          .WORD   0
024174  000024                          .WORD   20.             ;LENGTH OF MESSAGE BUFFER
024176  000000                          .WORD   0
024200  000000                  T21DSW: .WORD   0               ;DRIVE SELECT WORD
024202  000000                  T21DLY: .WORD   0               ;DELAY COUNTER
024204                          T21BFR: .BLKW   25.             ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
        024270                          .=<.+10>&177770
024270                          T21PK2:
024270  100206                          .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
024272  024300                          .WORD   T21BF2          ;ADDRESS OF SELECT BLOCK DATA
024274  000000                          .WORD   0
024276  000006                          .WORD   6.              ;SIZE OF DATA PACKET

                                        .EVEN
024300                          T21BF2:
024300      000                 T21BS0: .BYTE   0               ;BSEL0 AREA ---  COMMAND" BYTE
024301      000                 T21BS1: .BYTE   0               ;BSEL1 AREA
024302  000000                  T21S2:  .WORD   0               ;SEL 2 AREA
024304  000000                  T21S3:  .WORD   0               ;DATA AREA
```

```
                                        ;+
                                        ;LOCAL TEXT MESSAGES FOR TEST
                                        ;-

024306      127     122     111  T21SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted
024403      124     123     123  T21AM3: .ASCIZ   TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS
024503      104     162     151  T210FL: .ASCIZ   Drive is OFFLINE
024524      111     156     151  TST21ID:        .ASCIZ  'Initialization #4'
                                            .EVEN
                                        ;+
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;
024546                                  T21REST:
024546                                          SAVREG                          ;SAVE THE REGISTERS
024552  012701  024160                          MOV     #T21PACKET,R1           ;START OF THE PACKET
024556  012721  100004                          MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
024562  012721  024170                          MOV     #T21DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
024566  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
024570  012721  000010                          MOV     #8.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
024574  012721  024204                          MOV     #T21BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
024600  005021                                  CLR     (R1)+
024602  012721  000024                          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
024606  005021                                  CLR     (R1)+
024610  005011                                  CLR     (R1)
024612  012702  000020                          MOV     #20,R2                  ;NUMBER OF LOCATIONS TO BE CLEARED
024616  012762  177777  024204  64$:           MOV     #177777,T21BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
024624  005742                                  TST     -(R2)                   ;NEXT LOCATION
024626  020227  000000                          CMP     R2,#0                   ;CHECK R2 FOR ZERO
024632  001371                                  BNE     64$                     ;BR. IF NOT AT ZERO YE
024634  000207                                  RTS     PC                      ;RETURN
                                        ;
024636                                  T21RT2:
024636                                          SAVREG                          ;SAVE THE REGISTERS
024642  012701  024270                          MOV     #T21PK2,R1              ;START OF THE PACKET
024646  012721  100206                          MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK. IE
024652  012721  024300                          MOV     #T21BF2,(R1)+           ;ADDRESS OF DATA BLOCK
024656  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
024660  012721  000006                          MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
024664  005021                                  CLR     (R1)+
024666  012701  024300                          MOV     #T21BF2,R1              ;ADDRESS OF DATA FOR WRT SUB SYS MEM
024672  005021                                  CLR     (R1)+
024674  005011                                  CLR     (R1)
024676  000207                                  RTS     PC                      ;RETURN
024700                                          ENDTST
024700
024700  104401                                                  L10036:
                                                                        TRAP    C$ETST
```

TEST 2: OFF-LINE AND REJECT REWIND

```
                                        .SBTTL  TEST  2: OFF LINE AND REJECT REWIND
                                ;*
                                ;
                                ;THIS TEST VERIFIES BASIC TAPE-MOTION COMMAND DECODING AND BASIC
                                ;OPERATION OF THE REWIND POSITIONING COMMAND. IT DOES NOT
                                ;NECESSARILY DEMONSTRATE THAT THE TRANSPORT CAN BE REWOUND FROM AN
                                ;ARBITRARY POSITION ON THE TAPE. SUBSEQUENT TESTS IMPLICITLY
                                ;CHECK THE OPERATION OF THE REWIND COMMAND SINCE THEY MUST
                                ;TYPICALLY REWIND THE TAPE IN THE NORMAL COURSE OF THEIR TEST
                                ;SEQUENCES. THE TEST CONSISTS OF THE FOLLOWING THREE SUBTESTS
                                ;
                                ;
                                ;
024702                                  BGNTST
024702                                                                  T2::
024702  012737  006356  002170         MOV     #EPRT1,EPRTSW          ;SET UP PRIMARY ERROR MESSAGE
024710  004737  016274                 JSR     PC,DSBINT              ;DISABLE INTERRUPTS
024714  012700  027167                 MOV     #TST22ID,R0            ;ASCII MESSAGE TO IDENTIFY TEST
024720  004737  016600                 JSR     PC,TSTSETUP            ;DO INITIAL TEST SETUP
024724  012737  000005  002206         MOV     #5,LOOPCNT             ;PERFORM 5 ITERATIONS
                                ;*
                                ;
                                ;TEST 2, SUBTEST 1
                                ;
                                ;VERIFIES THAT ALL TAPE-MOTION COMMANDS (WITH VALID
                                ;MODE CODES) TERMINATE WITH FUNCTION REJECT AND
                                ;OFF-LINE STATUS WHEN THE TAPE TRANSPORT IS OFF-LINE.
                                ;THE SUBTEST OPERATES BY PLACING THE CONTROLLER INTO
                                ;EXTENDED MODE, SELECTING UNIT 7, AND ISSUING EACH
                                ;TAPE MOTION COMMAND, CHECKING, AFTER EACH COMMAND,
                                ;THAT FUNCTION REJECT TERMINATION WAS ACCOMPLISHED.
                                ;-
                                T22LOOP:
024732                                  BGNSUB                         ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
024732                                                                          T2.1:
024732  104402                                                                  TRAP    C$BSUB
024734  004737  027222                 JSR     PC,T22REST             ;SET COMMAND PACKET
024740  004737  027314                 JSR     PC,T22RT2              ;SET UP OTHER COMMAND PACKET
                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************
024744  004737  016064                 JSR     PC,SOFINIT             ;DO INITIALIZE ON CONTROLLER
024750  103407                         BCS     20$                    ;BR IF INIT WAS OK
024752  005237  002212                 INC     FATFLG                 ;BUMP COUNT
024756  010001                         MOV     R0,R1                  ;CONTENTS OF TSSR REGISTER
024760                                  ERRDF   ERRNO,SFIERR,SFIMSG    ;FATAL ERROR TSSR WAS NOT OK
024760  104455                                                                  TRAP    C$ERDF
024762  000311                                                                  .WORD   201
024764  003650                                                                  .WORD   SFIERR
024766  012124                                                                  .WORD   SFIMSG
024770                          20$:
024770  012704  026250                 MOV     #T22PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
```

TEST 2: OFF LINE AND REJECT REWIND

```
288
289                                     ;*****************************************************************
290                                     ;
291                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
292                                     ;
293                                     ;*****************************************************************
294
295 024774  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
296 025000  103407                      BCS     23$                     ;BR, IF COMMAND ISSUED OK
297 025002  005237  002212              INC     FATFLG                  ;BUMP COUNT
301 025006  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
302 025010                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    025010  104456                                                                  TRAP    C$ERHRD
    025012  000312                                                                  .WORD   202
    025014  005054                                                                  .WORD   WRTMSG
    025016  012124                                                                  .WORD   SFIMSG
303 025020                      23$:    CKLOOP
    025020  104406                                                                  TRAP    C$CLP1
304 025022  013701  026300              MOV     T22BFR+6,R1             ;PICK UP XTSO
305 025026  032701  000004              BIT     #4,R1                   ;IS UNIT WRITE LOCKED?
306 025032  001407                      BEQ     24$                     ;NO,PROCEED WITH TESTING
307 025034  005237  002212              INC     FATFLG                  ;BUMP COUNT
311 025040                              ERRDF   ERRNO,T22WLK,SFIMSG     ;TAPE IS WRITE LOCKED
    025040  104455                                                                  TRAP    C$ERDF
    025042  000313                                                                  .WORD   203
    025044  027102                                                                  .WORD   T22WLK
    025046  012124                                                                  .WORD   SFIMSG
312 025050                              DOCLN
    025050  104444                                                                  TRAP    C$DCLN
313 025052                      24$:    CKLOOP
    025052  104406                                                                  TRAP    C$CLP1
314 025054  005737  002216              TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
315 025060  001041                      BNE     50$                     ;BR IF SWITCH IS ON
316 025062  112737  000200  026371      MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
317 025070  112737  000010  026370      MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
318 025076  012704  026360              MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
319 025102  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
320 025106  004737  016426              JSR     PC,CHKTSSR              ;WAIT FOR SSR
321 025112  103407                      BCS     30$                     ;BR, IF NO ERROR
322 025114  010001                      MOV     R0,R1                   ;ERROR, SAVE TSSR
323 025116  005237  002212              INC     FATFLG                  ;BUMP COUNT
327 025122                              ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
    025122  104456                                                                  TRAP    C$ERHRD
    025124  000314                                                                  .WORD   204
    025126  026410                                                                  .WORD   T22SSR
    025130  012136                                                                  .WORD   PKTSSR
328 025132                      30$:    CKLOOP                          ;LOOP IF SELECTED
    025132  104406                                                                  TRAP    C$CLP1
329 025134  012704  026250              MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
330
331                                     ;*****************************************************************
332                                     ;
333                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
334                                     ;
335                                     ;*****************************************************************
336
337 025140  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

TEST 2: OFF LINE AND REJECT REWIND

```
338 025144  103407                    BCS     50$                     ;BR. IF COMMAND ISSUED OK
339 025146  005237  002212             INC     FATFLG                  ;BUMP COUNT
343 025152  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
344 025154                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    025154  104456                                                                 TRAP    C$ERHRD
    025156  000315                                                                 .WORD   205
    025160  005054                                                                 .WORD   WRTMSG
    025162  012124                                                                 .WORD   SFIMSG
345 025164                     50$:    CKLOOP                          ;SCOPE LOOP
    025164  104406                                                                 TRAP    C$CLP1
346 025166  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
347 025172  032701  000100             BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
348 025176  001006                     BNE     60$                     ;BR. IF OFFLINE (GOOD)
349 025200  005237  002212             INC     FATFLG                  ;BUMP COUNT
353 025204                             ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    025204  104455                                                                 TRAP    C$ERDF
    025206  000316                                                                 .WORD   206
    025210  026605                                                                 .WORD   T22OFL
    025212  012124                                                                 .WORD   SFIMSG
354 025214                     60$:    CKLOOP                          ;LOOP IF SELECTED
    025214  104406                                                                 TRAP    C$CLP1
355 025216  012703  026376             MOV     #T22RD,R3               ;POINTER FOR COMMANDS
356 025222  011337  026360     65$:    MOV     (R3),T22PK2             ;TAPE MOTION COMMAND IN PLACE
357 025226  012704  026360             MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
358 025232  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
359 025236  004737  016340             JSR     PC,WAITF                ;WAIT FOR SSR TO SET
360 025242  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
361 025246  012702  100306             MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
362 025252  020102                     CMP     R1,R2                   ;ARE THEY EQUAL
363 025254  001406                     BEQ     80$                     ;BR. IF OK ESP. FUNCTION REJECT
364 025256  005237  002212             INC     FATFLG                  ;BUMP COUNT
368 025262                             ERRHRD  ERRNO,T22TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
    025262  104456                                                                 TRAP    C$ERHRD
    025264  000317                                                                 .WORD   207
    025266  026660                                                                 .WORD   T22TM
    025270  015564                                                                 .WORD   EXPREC
369 025272                     80$:    CKLOOP                          ;LOOP IF SELECTED
    025272  104406                                                                 TRAP    C$CLP1
370 025274  005723                     TST     (R3)+                   ;POINT TO NEXT COMMAND
371 025276  022713  177777             CMP     #177777,(R3)            ;END OF THE COMMANDS YET
372 025302  001401                     BEQ     90$                     ;BR. IF DONE
373 025304  000746                     BR      65$                     ;MORE COMMAND(S) TO GO
374 025306                     90$:
375 025306                             ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    025306                                                                      L10040:
    025306  104403                                                                 TRAP    C$ESUB
376 025310  023727  002212  000017             CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
377 025316  103402                             BLO     999$                    ;BR. IF LESS THAN 25
378 025320  004737  017272                     JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
379 025324                     999$:
```

TEST 2: OFF LINE AND REJECT REWIND

```
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT A REWIND COMMAND, WITH THE CLEAR VOLUME
                                        ;CHECK (CVC) BIT CLEAR, IS REJECTED IF THE VOLUME CHECK
                                        ;(VCK) FLAG IS SET.
                                        ;
                                        ;
                                        ;-
025324                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
025324                                                                                  T2.2:
025324  104402                                                                                  TRAP    C$BSUB
025326  004737  027222                          JSR     PC,T22REST              ;SET COMMAND PACKET
025332  004737  027314                          JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET

                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************

025336  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
025342  103407                                  BCS     20$                     ;BR IF INIT WAS OK
025344  005237  002212                          INC     FATFLG                  ;BUMP COUNT
025350  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
025352                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
025352  104455                                                                                  TRAP    C$ERDF
025354  000320                                                                                  .WORD   208
025356  003650                                                                                  .WORD   SFIERR
025360  012124                                                                                  .WORD   SFIMSG
025362                                  20$:
025362  012704  026250                          MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*************************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************************

025366  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
025372  103407                                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
025374  005237  002212                          INC     FATFLG                  ;BUMP COUNT
025400  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
025402                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
025402  104456                                                                                  TRAP    C$ERHRD
025404  000321                                                                                  .WORD   209
025406  005054                                                                                  .WORD   WRTMSG
025410  012124                                                                                  .WORD   SFIMSG
025412  005737  002216                  23$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
025416  001041                                  BNE     50$                     ;BR IF SWITCH IS ON

025420  112737  000200  026371                  MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
025426  112737  000010  026370                  MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
025434  012704  026360                          MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
025440  010465  000000                          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
025444  004737  016426                          JSR     PC,CHKTSSR              ;WAIT FOR SSR
```

TEST 2: OFF-LINE AND REJECT REWIND

```
434 025450  103407                      BCS     30$                     ;BR, IF NO ERROR
435 025452  010001                      MOV     R0,R1                   ;ERROR, SAVE TSSR
436 025454  005237  002212              INC     FATFLG                  ;BUMP COUNT
440 025460                              ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT, MISCELLANEOUS
    025460  104456                                                              TRAP    C$ERHRD
    025462  000322                                                              .WORD   210
    025464  026410                                                              .WORD   T22SSR
    025466  012136                                                              .WORD   PKTSSR
441 025470                      30$:    CKLOOP                          ;LOOP IF SELECTED
    025470  104406                                                              TRAP    C$CLP1
442 025472  012704  026250              MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
443
444                             ;*****************************************************************
445                             ;
446                             ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
447                             ;
448                             ;*****************************************************************
449
450 025476  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
451 025502  103407                      BCS     50$                     ;BR, IF COMMAND ISSUED OK
452 025504  005237  002212              INC     FATFLG                  ;BUMP COUNT
456 025510  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
457 025512                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    025512  104456                                                              TRAP    C$ERHRD
    025514  000323                                                              .WORD   211
    025516  005054                                                              .WORD   WRTMSG
    025520  012124                                                              .WORD   SFIMSG
458 025522                      50$:    CKLOOP                          ;SCOPE LOOP
    025522  104406                                                              TRAP    C$CLP1
459 025524  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
460 025530  032701  000100              BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
461 025534  001006                      BNE     60$                     ;BR, IF OFFLINE (GOOD)
462 025536  005237  002212              INC     FATFLG                  ;BUMP COUNT
466 025542                              ERRDF   ERRNO,T220FL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    025542  104455                                                              TRAP    C$ERDF
    025544  000324                                                              .WORD   212
    025546  026605                                                              .WORD   T220FL
    025550  012124                                                              .WORD   SFIMSG
467 025552                      60$:    CKLOOP                          ;LOOP IF SELECTED
    025552  104406                                                              TRAP    C$CLP1
468 025554  012737  102210  026360  63$:    MOV     #102210,T22PK2          ;POSITION COMMAND (REWIND MODE)
469 025562  012704  026360              MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
470 025566  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
471 025572  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
472 025576  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
473 025602  012702  100306              MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
474 025606  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
475 025610  001406                      BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
476 025612  005237  002212              INC     FATFLG                  ;BUMP COUNT
480 025616                              ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
    025616  104456                                                              TRAP    C$ERHRD
    025620  000325                                                              .WORD   213
    025622  026754                                                              .WORD   T22RWJ
    025624  015564                                                              .WORD   EXPREC
481 025626                      80$:    CKLOOP                          ;LOOP IF SELECTED
    025626  104406                                                              TRAP    C$CLP1
482 025630                              ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
```

TEST 2: OFF LINE AND REJECT REWIND

```
                                                                                                                    SEQ 0105

        025630
        025630  104403
    483 025632  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
    484 025640  103402                          BLO     9998                    ;BR. IF LESS THAN 25
    485 025642  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
    486 025646                          9998:

                                                                        L10041:
                                                                                TRAP    C$ESUB
```

TEST 2: OFF LINE AND REJECT REWIND

```
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 3
                                        ;
                                        ;VERIFIES THAT A REWIND COMMAND WITH CVC=1 CLEARS VCK
                                        ;AND RETURNS PROPER STATUS IN THE MESSAGE BUFFER.
                                        ;
                                        ;
                                        ;
025646                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
025646                                                                                      T2.3:
025646  104402                                                                              TRAP    C$BSUB
025650  004737  027222                          JSR     PC,T22REST              ;SET COMMAND PACKET
025654  004737  027314                          JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET
                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************
025660  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
025664  103407                                  BCS     20$                     ;BR IF INIT WAS OK
025666  005237  002212                          INC     FATFLG                  ;BUMP COUNT
025672  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
025674                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
025674  104455                                                                          TRAP    C$ERDF
025676  000326                                                                          .WORD   214
025700  003650                                                                          .WORD   SFIERR
025702  012124                                                                          .WORD   SFIMSG
025704                                  20$:
025704  012704  026250                          MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************
025710  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
025714  103407                                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
025716  005237  002212                          INC     FATFLG                  ;BUMP COUNT
025722  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
025724                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
025724  104456                                                                          TRAP    C$ERHRD
025726  000327                                                                          .WORD   215
025730  005054                                                                          .WORD   WRTMSG
025732  012124                                                                          .WORD   SFIMSG
025734  005737  002216          23$:            TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
025740  001041                                  BNE     50$                     ;BR IF SWITCH IS ON
                                        ;
025742  112737  000200  026371                  MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
025750  112737  000010  026370                  MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
025756  012704  026360                          MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
025762  010465  000000                          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
025766  004737  016426                          JSR     PC,CHKTSSR              ;WAIT FOR SSR
025772  103407                                  BCS     30$                     ;BR, IF NO ERROR
```

TEST 2: OFF LINE AND REJECT REWIND

```
541 025774  010001                        MOV     R0,R1                   ;ERROR, SAVE TSSR
542 025776  005237  002212                INC     FATFLG                  ;BUMP COUNT
546 026002                                ERRHRD  ERR%0,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
    026002  104456                                                                     TRAP    C$ERHRD
    026004  000330                                                                     .WORD   216
    026006  026410                                                                     .WORD   T22SSR
    026010  012136                                                                     .WORD   PKTSSR
547 026012                          30$:    CKLOOP                          ;LOOP IF SELECTED
    026012  104406                                                                     TRAP    C$CLP1
548 026014  012704  026250                    MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
549
550                                 ;*************************************************************
551                                 ;
552                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
553                                 ;
554                                 ;*************************************************************
555
556 026020  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
557 026024  103407                            BCS     50$                     ;BR, IF COMMAND ISSUED OK
558 026026  005237  002212                    INC     FATFLG                  ;BUMP COUNT
562 026032  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
563 026034                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    026034  104456                                                                     TRAP    C$ERHRD
    026036  000331                                                                     .WORD   217
    026040  005054                                                                     .WORD   WRTMSG
    026042  012124                                                                     .WORD   SFIMSG
564 026044                          50$:    CKLOOP                          ;SCOPE LOOP
    026044  104406                                                                     TRAP    C$CLP1
565 026046  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
566 026052  032701  000100                    BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
567 026056  001006                            BNE     60$                     ;BR, IF OFFLINE (GOOD)
568 026060  005237  002212                    INC     FATFLG                  ;BUMP COUNT
572 026064                                    ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (B%D)
    026064  104455                                                                     TRAP    C$ERDF
    026066  000332                                                                     .WORD   218
    026070  026605                                                                     .WORD   T22OFL
    026072  012124                                                                     .WORD   SFIMSG
573 026074                          60$:    CKLOOP                          ;LOOP IF SELECTED
    026074  104406                                                                     TRAP    C$CLP1
574 026076  012737  142010  026360  65$:     MOV     #142010,T22PK2          ;POSITION COMMAND (REWIND MODE) CVC=1
575 026104  012704  026360                    MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
576 026110  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
577 026114  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
578 026120  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
579 026124  012702  100306                    MOV     #SSR!OFL!SC!BIT1!BIT2,R2;SET UP EXPECTED
580 026130  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
581 026132  001406                            BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
582 026134  005237  002212                    INC     FATFLG                  ;BUMP COUNT
586 026140                                    ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
    026140  104456                                                                     TRAP    C$ERHRD
    026142  000333                                                                     .WORD   219
    026144  026754                                                                     .WORD   T22RWJ
    026146  015564                                                                     .WORD   EXPREC
587 026150                          80$:    CKLOOP                          ;LOOP IF SELECTED
    026150  104406                                                                     TRAP    C$CLP1
588 026152  012703  026272                    MOV     #T22BFR,R3              ;POINTER TO MESSAGE BUFFER
589 026156  016301  000006                    MOV     XST0(R3),R1             ;PICK UP XST0 FROM MESSAGE BUFFER
```

TEST 2: OFF-LINE AND REJECT REWIND

```
590 026162  010102                    MOV     R1,R2                   ;SET UP EXPECTED
591 026164  042702  000020             BIC     #BIT4,R2                ;VCK SHOULD BE CLEAR
592 026170  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
593 026172  001406                    BEQ     90$                     ;BR, IF OK (GOOD)
594 026174  005237  002212            INC     FATFLG                  ;BUMP COUNT
598 026200                            ERRHRD  ERRNO,T22VCK,EXPREC     ;VCK WASN'T CLEAR (BAD)
    026200  104456                                                                  TRAP    C$ERHRD
    026202  000334                                                                  .WORD   220
    026204  027027                                                                  .WORD   T22VCK
    026206  015564                                                                  .WORD   EXPREC
599 026210                        90$:
600 026210                            ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    026210                                                                      L10042:
    026210  104403                                                                  TRAP    C$ESUB
601 026212  023727  002212  000017        CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
602 026220  103402                        BLO     999$                        ;BR, IF LESS THAN 25
603 026222  004737  017272                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
604 026226                        999$:
605 026226  004737  016546                JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
606 026232  103002                        BCC     163$                    ;BR, IF NO LOOP REQUIRED
607 026234  000137  024732                JMP     T22LOOP                 ;EXECUTE AGAIN
608 026240                        163$:   EXIT    TST                     ;ALL DONE THIS TEST
    026240  104432                                                                  TRAP    C$EXIT
    026242  001116                                                                  .WORD   L10037 .
```

TEST 2: OFF LINE AND REJECT REWIND

```
                                ;*
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
        026250                          .=<.+10>&177770
026250                          T22PACKET:                      ;COMMAND PACKET FOR TEST
026250  100204                          .WORD   100204          ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
026252  026260                          .WORD   T22DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
026254  000000                          .WORD   0
026256  000012                          .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
026260                          T22DATA:                        ;CHARACTERISTIC DATA BLOCK
026260  026272                          .WORD   T22BFR          ;ADDRESS OF MESSAGE BUFFER
026262  000000                          .WORD   0
026264  000024                          .WORD   20.             ;LENGTH OF MESSAGE BUFFER
026266  000000                          .WORD   0
026270  000007                          .WORD   7               ;SELECT DRIVE 7
026272                          T22BFR: .BLKW   25.             ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
        026360                          .=<.+10>&177770
026360                          T22PK2:
026360  100206                          .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
026362  026370                          .WORD   T22BF2          ;ADDRESS OF SELECT BLOCK DATA
026364  000000                          .WORD   0
026366  000006                          .WORD   6.              ;SIZE OF DATA PACKET

                                        .EVEN
026370                          T22BF2:
026370     000                  T22BS0: .BYTE   0               ;BSEL0 AREA
026371     000                  T22BS1: .BYTE   0               ;BSEL1 AREA
026372  000000                  T22S2:  .WORD   0               ;SEL 2 AREA
026374  000000                  T22S3:  .WORD   0               ;DATA AREA
                                ;
                                ;
                                        .EVEN
                                ;TAPE MOTION PACKET COMMAND VALUES
026376  100201                  T22RD:  .WORD   100201          ;READ TAPE FORWARD
026400  100205                  T22WRT: .WORD   100205          ;WRITE TAPE FORWARD
026402  100210                  T22POS: .WORD   100210          ;POSITION TAPE
026404  100211                  T22FOR: .WORD   100211          ;FORMAT TAPE
026406  177777                          .WORD   177777          ;END OF DATA
```

```
                                        ;*
                                        ;LOCAL TEXT MESSAGES FOR TEST
                                        ;-

026410  127  122  111  T22SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted'
026505  124  123  123  T22AM3: .ASCIZ  'TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS'
026605  104  162  151  T22OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
026660  124  123  123  T22TM:  .ASCIZ  'TSSR Incorrect After Tape Motion Command To Off Line Device'
026754  124  123  123  T22RWJ: .ASCIZ  'TSSR Not Correct After REWIND With VCK Set'
027027  103  126  103  T22VCK: .ASCIZ  'CVC Set, Didn't Reset VCK In Message Buffer'
027102  052  052  052  T22WLK: .ASCIZ  '*****TAPE IS WRITE-LOCKED AND WILL CAUSE ERRORS*****
027167  117  146  146  TST22ID:        .ASCIZ  'Off-Line And Reject Rewind
                                        .EVEN
                                        ;*
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-
027222                                  T22REST:
027222                                          SAVREG                          ;SAVE THE REGISTERS
027226  012701  026250                          MOV     #T22PACKET,R1           ;START OF THE PACKET
027232  012721  100204                          MOV     #100204,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
027236  012721  026260                          MOV     #T22DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
027242  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
027244  012721  000012                          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
027250  012721  026272                          MOV     #T22BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
027254  005021                                  CLR     (R1)+
027256  012721  000024                          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
027262  005021                                  CLR     (R1)+
027264  012711  000007                          MOV     #7,(R1)                 ;SELECT DRIVE SEVEN
027270  012702  000020                          MOV     #20,R2                  ;NUMBER OF LOCATIONS TO BE CLEARED
027274  012762  177777  026272  64$:           MOV     #177777,T22BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
027302  005742                                  TST     -(R2)                   ;BUMP R2 DOWN
027304  020227  000000                          CMP     R2,#0                   ;IS R2 AT ZERO YET
027310  001371                                  BNE     64$                     ;KEEP GOING UNTIL DONE
027312  000207                                  RTS     PC                      ;RETURN
                                        
027314                                  T22RT2:
027314                                          SAVREG                          ;SAVE THE REGISTERS
027320  012701  026360                          MOV     #T22PK2,R1              ;START OF THE PACKET
027324  012721  100206                          MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
027330  012721  026370                          MOV     #T22BF2,(R1)+           ;ADDRESS OF DATA BLOCK
027334  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
027336  012721  000006                          MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
027342  005021                                  CLR     (R1)+
027344  012701  026370                          MOV     #T22BF2,R1              ;POINT TO DATA SEL AREA
027350  005021                                  CLR     (R1)+
027352  005011                                  CLR     (R1)
027354  005011                                  CLR     (R1)                    ;LAST LOC TO BE CLEARED
027356  000207                                  RTS     PC                      ;RETURN
027360                                          ENDTST
027360
027360  104401                                                  L10037:
                                                                        TRAP    C$ETST
711
```

TEST 3: BASIC WRITE DATA

```
                                        .SBTTL  TEST  3: BASIC WRITE DATA
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT THE WRITE DATA (NEXT) COMMAND OPERATES
                                ;PROPERLY, UP TO THE POINT OF CHECKING THAT THE DATA WAS ACTUALLY
                                ;WRITTEN ONTO THE TAPE CORRECTLY. CHECKING IN THIS TEST IS
                                ;LIMITED TO VERIFYING THAT THE COMMAND TERMINATED CORRECTLY WITH
                                ;THE CORRECT REGISTER, MESSAGE BUFFER AND RAM CONTENTS.
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 7 SUBTESTS
                                ;
                                ;
                                ;
                                ;
027362                                  BGNTST
027362                                                                          T3::
027362  012737  006356  002170          MOV     @#PRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
027370  005037  003124                  CLR     KTENABLE                        ;TURN OFF KT11
027374  004737  017364                  JSR     PC,KTOFF                        ;TURN OFF KT11
027400  004737  016274                  JSR     PC,DSBINT               ;DISABLE INTERRUPTS
027404  012700  033766                  MOV     #TST23ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
027410  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
027414  004737  021366                  JSR     PC,MEMCK                ;CHECK FOR MEMORY
027420  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
                                ;+
                                ;
                                ;TEST 3, SUBTEST 1
                                ;
                                ;VERIFIES THAT A WRITE COMMAND (ANY VALID MODE CODE)
                                ;WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS
                                ;REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL
                                ;VALID MODE CODES ARE CHECKED (WRITE DATA, WRITE
                                ;RETRY).
                                ;-

                                T23LOOP:
027426                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
027426                                                                          T3.1:
027426  104402                                                                  TRAP    C$BSUB
027430  004737  034002                  JSR     PC,T23REST              ;SET COMMAND PACKET
027434  004737  034074                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT' INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************

027440  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
027444  103407                          BCS     20$                     ;BR IF INIT WAS OK
027446  005237  002212                  INC     FATFLG                  ;BUMP COUNT
027452  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
027454                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
027454  104455                                                                  TRAP    C$ERDF
027456  000455                                                                  .WORD   301
027460  003650                                                                  .WORD   SFIERR
027462  012124                                                                  .WORD   SFIMSG
```

```
TEST  3: BASIC WRITE DATA

    770 027464                                  20$:
    771 027464  012737  000007  032510            MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
    772 027472  012704  032470                    MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
    773
    774                                         ;*************************************************************
    775                                         ;
    776                                         ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
    777                                         ;
    778                                         ;*************************************************************
    779
    780 027476  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
    781 027502  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
    782 027504  005237  002212                    INC     FATFLG                  ;BUMP COUNT
    786 027510  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
    787 027512                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        027512  104456                                                                TRAP    C$ERHRD
        027514  000456                                                                .WORD   302
        027516  005054                                                                .WORD   WRTMSG
        027520  012124                                                                .WORD   SFIMSG
    788 027522  005737  002216          23$:      TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
    789 027526  001044                            BNE     50$                     ;BR IF SWITCH IS ON
    790
    791 027530  112737  000200  032623            MOVB    #200,T23BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
    792 027536  112737  000010  032622            MOVB    #10,T23BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
    793 027544  012704  032600                    MOV     #T23PK2,R4              ;WRITE SUBSYS MEM PACKET
    794 027550  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    795 027554  004737  016426                    JSR     PC,CHKTSSR              ;WAIT FOR SSR
    796 027560  103407                            BCS     30$                     ;BR, IF NO ERROR
    797 027562  010001                            MOV     R0,R1                   ;ERROR, SAVE TSSR
    798 027564  005237  002212                    INC     FATFLG                  ;BUMP COUNT
    802 027570                                    ERRHRD  ERRNO,T23SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
        027570  104456                                                                TRAP    C$ERHRD
        027572  000457                                                                .WORD   303
        027574  032644                                                                .WORD   T23SSR
        027576  012136                                                                .WORD   PKTSSR
    803 027600                          30$:      CKLOOP                          ;LOOP IF SELECTED
        027600  104406                                                                TRAP    C$CLP1
    804 027602  012737  000007  032510            MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
    805 027610  012704  032470                    MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
    806
    807                                         ;*************************************************************
    808                                         ;
    809                                         ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
    810                                         ;
    811                                         ;*************************************************************
    812
    813 027614  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
    814 027620  103407                            BCS     50$                     ;BR, IF COMMAND ISSUED OK
    815 027622  005237  002212                    INC     FATFLG                  ;BUMP COUNT
    819 027626  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
    820 027630                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        027630  104456                                                                TRAP    C$ERHRD
        027632  000460                                                                .WORD   304
        027634  005054                                                                .WORD   WRTMSG
        027636  012124                                                                .WORD   SFIMSG
    821 027640                          50$:      CKLOOP                          ;SCOPE LOOP
        027640  104406                                                                TRAP    C$CLP1
```

TEST 3: BASIC WRITE DATA

```
822 027642  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
823 027646  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
824 027652  001006                          BNE     60$                     ;BR, IF OFFLINE (GOOD)
825 027654  005237  002212                  INC     FATFLG                  ;BUMP COUNT
829 027660                                  ERRDF   ERRNO,T230FL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    027660  104455                                                                  TRAP    C$ERDF
    027662  000461                                                                  .WORD   305
    027664  033306                                                                  .WORD   T230FL
    027666  012124                                                                  .WORD   SFIMSG
830 027670                          60$:    CKLOOP                          ;LOOP IF SELECTED
    027670  104406                                                                  TRAP    C$CLP1
831 027672  012703  032634                  MOV     #T23WD,R3               ;POINTER FOR COMMANDS
832 027676  011337  032600          65$:    MOV     (R3),T23PK2             ;TAPE MOTION COMMAND IN PLACE
833 027702  012704  032600                  MOV     #T23PK2,R4              ;R4 = POINTER TO PACKET
834 027706  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
835 027712  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
836 027716  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
837 027722  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
838 027726  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
839 027730  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
840 027732  005237  002212                  INC     FATFLG                  ;BUMP COUNT
844 027736                                  ERRHRD  ERRNO,T23TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
    027736  104456                                                                  TRAP    C$ERHRD
    027740  000462                                                                  .WORD   306
    027742  033042                                                                  .WORD   T23TM
    027744  015564                                                                  .WORD   EXPREC
845 027746                          80$:    CKLOOP                          ;LOOP IF SELECTED
    027746  104406                                                                  TRAP    C$CLP1
846 027750  005723                          TST     (R3)+                   ;POINT TO NEXT COMMAND
847 027752  022713  177777                  CMP     #177777,(R3)            ;END OF THE COMMANDS YET
848 027756  001401                          BEQ     90$                     ;BR, IF DONE
849 027760  000746                          BR      65$                     ;MORE COMMAND(S) TO GO
850 027762                          90$:
851 027762                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    027762                                                                      L10044:
    027762  104403                                                                  TRAP    C$ESUB
852 027764  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
853 027772  103402                          BLO     999$                            ;BR, IF LESS THAN 25
854 027774  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
855 030000                          999$:
```

TEST 3: BASIC WRITE DATA

```
                                        ;*
                                        ;
                                        ;TEST 3, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT WRITE DATA COMMANDS WITH CVC=1 AND THE
                                        ;SWAP BYTES (SWB) BIT CLEAR OPERATES PROPERLY. THE
                                        ;BYTE COUNT (RECORD SIZE) VARIES FROM 20 THROUGH 64K
                                        ;IN VARYING INCREMENTS (DEPENDING UPON WHETHER OR NOT
                                        ;THE DIAGNOSTIC IS RUNNING IN THE LONG VERIFICATION
                                        ;MODE). THE TAPE IS NOT REWOUND BETWEEN SUCCESSIVE
                                        ;RECORDS BUT IS REWOUND AFTER THE FINAL RECORD IS
                                        ;WRITTEN. AN INCREMENTING COUNT PATTERN IS SUPPLIED
                                        ;IN THE DATA BUFFER. AFTER EACH BLOCK IS WRITTEN, THE
                                        ;TSSR AND TSBA REGISTERS, THE MESSAGE BUFFER, AND THE
                                        ;RAM CONTENTS ARE CHECKED. (THE RAM CONTENTS ARE CHECKED
                                        ;USING THE WRITE SUBSYSTEM MEMORY COMMAND.
                                        ;
                                        ;
                                        ;
                                        ;
 030000                                         BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
 030000                                                                                 T3.2:
 030000  104402                                                                         TRAP    C$BSUB
 030002  013701  003116                        MOV     FRESIZ,R1               ;GET SIZE OF AVAILIABLE MEMORY
 030006  000241                                CLC                             ;CLEAR THE CARRY BIT
 030010  006101                                ROL     R1                      ;MAKE INTO BYTES
 030012  010137  032620                        MOV     R1,T23RSZ               ;STORE IN TEST FOR USE LATER
 030016  004737  034002                        JSR     PC,T23REST              ;SET COMMAND PACKET
 030022  004737  034136                        JSR     PC,T23RT3               ;RESTORE PACKET
 030026  004737  034074                        JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************

 030032  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 030036  103407                                BCS     20$                     ;BR IF INIT WAS OK
 030040  005237  002212                        INC     FATFLG                  ;BUMP COUNT
 030044  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 030046                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
 030046  104455                                                                         TRAP    C$ERDF
 030050  000463                                                                         .WORD   307
 030052  003650                                                                         .WORD   SFIERR
 030054  012124                                                                         .WORD   SFIMSG
 030056                                 20$:
 030056  013737  002172  032510                MOV     UNITN,T23DSW            ;LOAD UP SELECTED UNIT NUMBER
 030064  012704  032470                        MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*************************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************************

 030070  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

TEST 3: BASIC WRITE DATA

```
 911 030074  103407                    BCS     23$                     ;BR, IF COMMAND ISSUED OK
 912 030076  005237  002212            INC     FATFLG                  ;BUMP COUNT
 916 030102  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 917 030104                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     030104  104456                                                                    TRAP    C$ERHRD
     030106  000464                                                                    .WORD   308
     030110  005054                                                                    .WORD   WRTMSG
     030112  012124                                                                    .WORD   SFIMSG
 918 030114                        23$:    CKLOOP                          ;LOOP IF SELECTED
     030114  104406                                                                    TRAP    C$CLP1
 919
 920                               ;*****************************************************************
 921                               ;
 922                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 923                               ;
 924                               ;*****************************************************************
 925
 926 030116  004737  011104                JSR     PC,REWIND               ;CALL THE TAPE REWIND
 927 030122  012703  000024                MOV     #20.,R3                 ;STARTING RECORD SIZE
 928 030126  013737  003114  032612  65$:   MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
 929
 930                               ;*****************************************************************
 931                               ;
 932                               ;WRITE DATA,CVC=1,ACK COMMAND
 933                               ;
 934                               ;*****************************************************************
 935
 936 030134  012737  140005  032610          MOV     #140005,T23PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 937 030142  012737  140005  032632          MOV     #140005,T23WRT          ;SETUP FOR RETRY COMMAND
 938 030150  052737  004000  032632          BIS     #4000,T23WRT            ;MAKE IT A RETRY
 939 030156  012704  032610                MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 940 030162  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 941 030164  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 942 030170  010337  032616                MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
 943 030174  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 944 030200  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 945 030204  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 946 030210  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 947 030214  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 948 030216  001402                        BEQ     80$                     ;BR, IF OK
 949 030220  004737  034162                JSR     PC,T23CHK               ;CHECK SPECIAL CONDITION
 950 030224                        80$:    CKLOOP                          ;LOOP IF SELECTED
     030224  104406                                                                    TRAP    C$CLP1
 951 030226  016501  000000                MOV     TSBA(R5),R1             ;GET TSBA CONTENTS
 952 030232  012702  032512                MOV     #T23BFR,R2              ;SET UP EXPECTED
 953 030236  062702  000016                ADD     #16,R2                  ;SET TO END OF MESSAGE BUFFER
 954 030242  005737  002216                TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SET
 955 030246  001402                        BEQ     85$                     ;BR, IF IT NOT SET
 956 030250  062702  000002                ADD     #2,R2                   ;BUMP R2 FOR EXTRA DATA
 957 030254  020102                85$:    CMP     R1,R2                   ;ARE THEY EQUAL
 958 030256  001406                        BEQ     90$                     ;BR, IF TSBA IS CORRECT
 959 030260  005237  002212                INC     FATFLG                  ;BUMP COUNT
 963 030264                            ERRHRD  ERRNO,T23BA,EXPREC      ;TSBA WAS NOT CORRECT AFTER WRITE DATA
     030264  104456                                                                    TRAP    C$ERHRD
     030266  000465                                                                    .WORD   309
     030270  033625                                                                    .WORD   T23BA
     030272  015564                                                                    .WORD   EXPREC
```

TEST 3: BASIC WRITE DATA

```
 964 030274                          90$:    CKLOOP                          ;LOOP IF SELECTED
     030274  104406                                                                  TRAP    C$CLP1
 965 030276  020327  007376                  CMP     R3,#7376                ;ONLY CHECK RAM UNTIL ITS FULL
 966 030302  002114                          BGE     115$                    ;IT WRAPS AROUND ETC.
 967 030304  004737  034074                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
 968 030310  012737  000400  032624          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
 969 030316  112737  000000  032622          MOVB    #0,T23BS0               ;STOP INTERNAL TSV05 DIAGNOSTICS
 970 030324  112737  000000  032623          MOVB    #0,T23BS1               ;SIZE OF RAM READ
 971 030332  012704  032600                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
 972 030336  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
 973 030342  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
 974 030346  103407                          BCS     92$                     ;BR. IF NO ERRORS IN TSSR
 975 030350  010001                          MOV     R0,R1                   ;SAVE TSSR
 976 030352  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 980 030356                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     030356  104456                                                                  TRAP    C$ERHRD
     030360  000466                                                                  .WORD   310
     030362  033677                                                                  .WORD   T23WSS
     030364  012136                                                                  .WORD   PKTSSR
 981 030366                          92$:    CKLOOP                          ;LOOP IF SELECTED
     030366  104406                                                                  TRAP    C$CLP1
 982 030370  004737  034074                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
 983 030374  012737  000400  032624          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
 984 030402  112737  000001  032622          MOVB    #1,T23BS0               ;READ RAM COMMAND FOR WRITE SUB SYS M.
 985 030410  112737  000002  032623          MOVB    #2,T23BS1               ;SIZE OF RAM READ
 986 030416  012704  032600                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
 987 030422  010465  000000          95$:    MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
 988 030426  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
 989 030432  103407                          BCS     100$                    ;BR. IF NO ERRORS IN TSSR
 990 030434  010001                          MOV     R0,R1                   ;SAVE TSSR
 991 030436  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 995 030442                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     030442  104456                                                                  TRAP    C$ERHRD
     030444  000467                                                                  .WORD   311
     030446  033677                                                                  .WORD   T23WSS
     030450  012136                                                                  .WORD   PKTSSR
 996 030452                          100$:   CKLOOP                          ;LOOP IF SELECTED
     030452  104406                                                                  TRAP    C$CLP1
 997 030454  005001                          CLR     R1                      ;CLEAR REGISTER
 998 030456  005002                          CLR     R2                      ;CLEAR REGISTER
 999 030460  013701  032532                  MOV     T23BFR+20,R1            ;PICK UP BYTE READ FROM RAM
1000 030464  010302                          MOV     R3,R2                   ;SET UP EXPECTED
1001 030466  020102                          CMP     R1,R2                   ;IS RAM DATA CORRECT
1002 030470  001406                          BEQ     110$                    ;BR. IF OK (EQUAL)
1003 030472  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1007 030476                                  ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC=RAM NOT CORRECT
     030476  104456                                                                  TRAP    C$ERHRD
     030500  000470                                                                  .WORD   312
     030502  033165                                                                  .WORD   T23RNC
     030504  015564                                                                  .WORD   EXPREC
1008 030506                          110$:   CKLOOP                          ;LOOP IF SELECTED
     030506  104406                                                                  TRAP    C$CLP1
1009 030510  005237  032624                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1010 030514  005237  032624                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1011 030520  010301                          MOV     R3,R1                   ;GET SIZE OF RECORD
1012 030522  062701  000400                  ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
1013 030526  023701  032624                  CMP     T23S2,R1                ;AT END OF RAM CHECK YET
```

TEST 3: BASIC WRITE DATA

```
1014 030532  001333                        BNE     95$                 ;BR, IF MORE TO CHECK
1015 030534  062703  001750          115$: ADD     #1000.,R3           ;NEXT RECORD SIZE/DATA PATTERN
1016 030540  020337  032620                CMP     R3,T23RSZ           ;IS R3 OVER MAX RECORD SIZE
1017 030544  002005                        BGE     120$                ;IF RECORD SIZE IS TOO BIG QUIT
1018 030546  020327  177776                CMP     R3,#65534.          ;END OF SUBTEST MAX RECORD SIZE
1019 030552  001402                        BEQ     120$                ;BR, IF COMPLETED
1020 030554  000137  030126                JMP     65$                 ;DO MORE RECORDS
1021 030560                          120$:
1022 030560  004737  034136                JSR     PC,T23RT3           ;RESTORE PACKET
1023 030564  004737  034074                JSR     PC,T23RT2           ;CLEAN UP PACKET
1024 030570  012737  102010  032600        MOV     #102010,T23PK2      ;REWIND (POSITION) COMMAND
1025 030576  012704  032600                MOV     #T23PK2,R4          ;LOAD R4 WITH PACKET ADDRESS
1026 030602  010465  000000                MOV     R4,TSDB(R5)         ;ISSUE REWIND COMMAND
1027 030606  004737  016426                JSR     PC,CHKTSSR          ;WAIT FOR SSR TO SET
1028 030612  103407                        BCS     130$                ;BR, IF TSSR IS OK (GOOD)
1029 030614  010001                        MOV     R0,R1               ;SAVE TSSR CONTENTS
1030 030616  005237  002212                INC     FATFLG              ;BUMP COUNT
1034 030622                                ERRHRD  ERRNO,T23RWN,PKTSSR ;TSSR IS INCORRECT AFTER REWIND
     030622  104456                                                            TRAP    C$ERHRD
     030624  000471                                                            .WORD   313
     030626  033116                                                            .WORD   T23RWN
     030630  012136                                                            .WORD   PKTSSR
1035 030632                          130$:
1036 030632                                ENDSUB                      ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     030632                                                                  L10045:
     030632  104403                                                            TRAP    C$ESUB
1037 030634  023727  002212  000017        CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
1038 030642  103402                        BLO     999$                        ;BR, IF LESS THAN 25
1039 030644  004737  017272                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
1040 030650                          999$:
```

TEST 3: BASIC WRITE DATA

```
                                        ;*
                                        ;
                                        ;TEST 3, SUBTEST 3
                                        ;
                                        ;VERIFIES THAT WRITE DATA COMMANDS WITH CVC=1 AND THE
                                        ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY.  THE TEST
                                        ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
                                        ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
                                        ;
                                        ;
                                        ;
                                        ;-
030650                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T3.3:
030650  104402                                                                                  TRAP    C$BSUB
030652  004737  034002                          JSR     PC,T23REST              ;SET COMMAND PACKET
030656  004737  034074                          JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

030662  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
030666  103407                                  BCS     20$                     ;BR IF INIT WAS OK
030670  005237  002212                          INC     FATFLG                  ;BUMP COUNT
030674  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
030676                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
030676  104455                                                                                  TRAP    C$ERDF
030700  000472                                                                                  .WORD   314
030702  003650                                                                                  .WORD   SFIERR
030704  012124                                                                                  .WORD   SFIMSG
030706                                  20$:
030706  013737  002172  032510                  MOV     UNITN,T23DSW            ;SET UP UNIT NUMBER
030714  012704  032470                          MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

030720  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
030724  103407                                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
030726  005237  002212                          INC     FATFLG                  ;BUMP COUNT
030732  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
030734                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
030734  104456                                                                                  TRAP    C$ERHRD
030736  000473                                                                                  .WORD   315
030740  005054                                                                                  .WORD   WRTMSG
030742  012124                                                                                  .WORD   SFIMSG
030744                                  23$:
030744  012703  000024                          MOV     #20.,R3                 ;STARTING RECORD SIZE
030750  013737  003114  032612          65$:    MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS

                                        ;*****************************************************************
```

```
1095                                    ;
1096                                    ;WRITE DATA,CVC=1,ACK,SWB COMMAND
1097                                    ;
1098                                    ;*****************************************************************
1099
1100 030756  012737  150005  032610          MOV     #150005,T23PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
1101 030764  012737  150005  032632          MOV     #150005,T23WRT          ;SETUP FOR RETRY COMMAND
1102 030772  052737  004000  032632          BIS     #4000,T23WRT            ;MAKE IT A RETRY
1103 031000  012704  032610                  MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1104 031004  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
1105 031006  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
1106 031012  010337  032616                  MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKE
1107 031016  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1108 031022  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1109 031026  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1110 031032  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
1111 031036  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
1112 031040  001402                          BEQ     80$                     ;BR, IF OK
1113 031042  004737  034162                  JSR     PC,T23CHK               ;CHECK SPECIAL CONDITION
1114 031046                          80$:    CKLOOP                          ;LOOP IF SELECTED
     031046  104406                                                                  TRAP    C$CLP1
1115 031050  016501  000000                  MOV     TSBA(R5),R1             ;GET TSBA CONTENTS
1116 031054  012702  032512                  MOV     #T23BFR,R2              ;SET UP EXPECTED
1117 031060  062702  000016                  ADD     #16,R2                  ;SET TO END OF MESSAGE BUFFER
1118 031064  005737  002216                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SET
1119 031070  001402                          BEQ     85$                     ;BR, IF IT NOT SET
1120 031072  062702  000002                  ADD     #2,R2                   ;BUMP R2 FOR EXTRA DATA
1121 031076  020102                  85$:    CMP     R1,R2                   ;ARE THEY EQUAL
1122 031100  001406                          BEQ     90$                     ;BR, IF TSBA IS CORRECT
1123 031102  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1127 031106                                  ERRHRD  ERRNO,T23BA,EXPREC      ;TSBA WAS NOT CORRECT AFTER WRITE DATA
     031106  104456                                                                  TRAP    C$ERHRD
     031110  000474                                                                  .WORD   316
     031112  033625                                                                  .WORD   T23BA
     031114  015564                                                                  .WORD   EXPREC
1128 031116                          90$:    CKLOOP                          ;LOOP IF SELECTED
     031116  104406                                                                  TRAP    C$CLP1
1129 031120  020327  007376                  CMP     R3,#7376                ;ONLY CHECK RAM UNTIL ITS FULL
1130 031124  002115                          BGE     115$                    ;IT WRAPS AROUND ETC.
1131 031126  004737  034074                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
1132 031132  012737  000400  032624          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
1133 031140  112737  000000  032622          MOVB    #0,T23BS0               ;STOP INTERNAL TSV05 DIAGNOSTICS
1134 031146  112737  000000  032623          MOVB    #0,T23BS1               ;SIZE OF RAM READ
1135 031154  012704  032600                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
1136 031160  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
1137 031164  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
1138 031170  103407                          BCS     92$                     ;BR, IF NO ERRORS IN TSSR
1139 031172  010001                          MOV     R0,R1                   ;SAVE TSSR
1140 031174  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1144 031200                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     031200  104456                                                                  TRAP    C$ERHRD
     031202  000475                                                                  .WORD   317
     031204  033677                                                                  .WORD   T23WSS
     031206  012136                                                                  .WORD   PKTSSR
1145 031210                          92$:    CKLOOP                          ;LOOP IF SELECTED
     031210  104406                                                                  TRAP    C$CLP1
1146 031212  004737  034074                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
```

TEST 3: BASIC WRITE DATA

```
1147 031216  012737  000400  032624          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
1148 031224  112737  000001  032622          MOVB    #1,T23BS0               ;READ RAM COMMAND FOR WRITE SUB SYS M.
1149 031232  112737  000002  032623          MOVB    #2,T23BS1               ;SIZE OF RAM READ
1150 031240  012704  032600                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
1151 031244  010465  000000          95$:    MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM CMD (READ RAM)
1152 031250  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
1153 031254  103407                          BCS     100$                    ;BR, IF NO ERRORS IN TSSR
1154 031256  010001                          MOV     R0,R1                   ;SAVE TSSR
1155 031260  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1159 031264                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     031264  104456                                                                  TRAP    C$ERHRD
     031266  000476                                                                  .WORD   318
     031270  033677                                                                  .WORD   T23WSS
     031272  012136                                                                  .WORD   PKTSSR
1160 031274                          100$:   CKLOOP                          ;LOOP IF SELECTED
     031274  104406                                                                  TRAP    C$CLP1
1161 031276  005001                          CLR     R1                      ;CLEAR REGISTERS
1162 031300  005002                          CLR     R2                      ;CLEAR REGISTERS
1163 031302  013701  032532                  MOV     T23BFR+20,R1            ;PICK UP BYTE READ FROM RAM
1164 031306  010302                          MOV     R3,R2                   ;SET UP EXPECTED
1165 031310  000302                          SWAB    R2                      ;SWAP BYTES
1166 031312  020102                          CMP     R1,R2                   ;IS RAM DATA CORRECT
1167 031314  001406                          BEQ     110$                    ;BR, IF OK (EQUAL)
1168 031316  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1172 031322                                  ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC=RAM NOT CORRECT
     031322  104456                                                                  TRAP    C$ERHRD
     031324  000477                                                                  .WORD   319
     031326  033165                                                                  .WORD   T23RNC
     031330  015564                                                                  .WORD   EXPREC
1173 031332                          110$:   CKLOOP                          ;LOOP IF SELECTED
     031332  104406                                                                  TRAP    C$CLP1
1174 031334  005237  032624                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1175 031340  005237  032624                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1176 031344  010301                          MOV     R3,R1                   ;GET SIZE OF RECORD
1177 031346  062701  000400                  ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
1178 031352  023701  032624                  CMP     T23S2,R1                ;AT END OF RAM CHECK YET
1179 031356  001332                          BNE     95$                     ;BR, IF MORE TO CHECK
1180 031360  062703  001750          115$:   ADD     #1000.,R3               ;NEXT RECORD SIZE/DATA PATTERN
1181 031364  020337  032620                  CMP     R3,T23RSZ               ;IS R3 OVER MAX RECORD SIZE
1182 031370  002005                          BGE     120$                    ;IF RECORD SIZE IS TOO BIG QUIT
1183 031372  020327  177776                  CMP     R3,#65534.              ;END OF SUBTEST MAX RECORD SIZE
1184 031376  001402                          BEQ     120$                    ;BR, IF COMPLETED
1185 031400  000137  030750                  JMP     65$                     ;DO MORE RECORDS
1186 031404                          120$:
1187 031404  004737  034074                  JSR     PC,T23RT2               ;CLEAN UP PACKET
1188 031410  012737  102010  032600          MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1189 031416  012704  032600                  MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1190 031422  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1191 031426  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1192 031432  103407                          BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1193 031434  010001                          MOV     R0,R1                   ;SAVE TSSR CONTENTS
1194 031436  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1198 031442                                  ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     031442  104456                                                                  TRAP    C$ERHRD
     031444  000500                                                                  .WORD   320
     031446  033116                                                                  .WORD   T23RWN
     031450  012136                                                                  .WORD   PKTSSR
```

TEST 3: BASIC WRITE DATA

```
1199 031452                                  130$:
1200 031452                                        ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     031452                                                                                       L10046:
     031452  104403                                                                                    TRAP    C$ESUB
1201 031454  023727  002212  000017                CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1202 031462  103402                                BLO     999$                            ;BR, IF LESS THAN 25
1203 031464  004737  017272                        JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1204 031470                                  999$:
```

TEST 3: BASIC WRITE DATA

```
1206                                    .*
1207                                    ;
1208                                    ;TEST 3, SUBTEST 4
1209                                    ;
1210                                    ;VERIFIES THAT A WRITE COMMAND WITH AN ILLEGAL MODE
1211                                    ;FIELD OR AN ILLEGAL BUFFER ADDRESS IS REJECTED WITH
1212                                    ;THE PROPER ERROR STATUS AND THAT TAPE DOES NOT MOVE
1213                                    ;
1214                                    ;
1215                                    ;-
1216
1217 031470                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     031470                                                                                    T3.4:
     031470  104402                                                                              TRAP    C$BSUB
1218 031472  004737  034002                    JSR     PC,T23REST              ;SET COMMAND PACKET
1219 031476  004737  034136                    JSR     PC,T23RT3               ;RESTORE PACKET
1220 031502  004737  034074                    JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1221
1222                                    ;*****************************************************************
1223                                    ;
1224                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1225                                    ;
1226                                    ;*****************************************************************
1227
1228 031506  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1229 031512  103407                            BCS     20$                     ;BR IF INIT WAS OK
1230 031514  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1234 031520  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1235 031522                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     031522  104455                                                                            TRAP    C$ERDF
     031524  000501                                                                            .WORD   321
     031526  003650                                                                            .WORD   SFIERR
     031530  012124                                                                            .WORD   SFIMSG
1236 031532                                    20$:
1237 031532  013737  002172  032510                MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
1238 031540  012704  032470                        MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1239
1240                                    ;*****************************************************************
1241                                    ;
1242                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1243                                    ;
1244                                    ;*****************************************************************
1245
1246 031544  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1247 031550  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
1248 031552  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1252 031556  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1253 031560                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     031560  104456                                                                            TRAP    C$ERHRD
     031562  000502                                                                            .WORD   322
     031564  005054                                                                            .WORD   WRTMSG
     031566  012124                                                                            .WORD   SFIMSG
1254
1255                                    ;*****************************************************************
1256                                    ;
1257                                    ;WRITE DATA, ACK, ILLEGAL BITS
1258                                    ;
```

TEST 3: BASIC WRITE DATA

```
1259                                    ;*****************************************************************
1260
1261 031570  012737  104405  032610  23$:    MOV     #104405,T23PK3          ;WRITE DATA, ACK, ILLEGAL BITS
1262 031576  013737  003114  032612           MOV     FREE,T23WB              ;SET UP WRITE BUFFER ADDRESS
1263 031604  062737  000001  032612           ADD     #1,T23WB                ;MAKE ADDRESS ODD (ILLEGAL)
1264 031612  012737  000400  032616           MOV     #256.,T23SZ             ;SET UP BUFFER SIZE
1265 031620  012704  032610                    MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
1266 031624  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1267 031630  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1268 031634  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1269 031640  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
1270 031644  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
1271 031646  001406                            BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1272 031650  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1276 031654                                    ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     031654  104456                                                                    TRAP    C$ERHRD
     031656  000503                                                                    .WORD   323
     031660  033042                                                                    .WORD   T23TM
     031662  012136                                                                    .WORD   PKTSSR
1277 031664                            80$:    CKLOOP                          ;LOOP IF SELECTED
     031664  104406                                                                    TRAP    C$CLP1
1278 031666                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     031666                                                                         L10047:
     031666  104403                                                                    TRAP    C$ESUB
1279 031670  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1280 031676  103402                            BLO     999$                            ;BR, IF LESS THAN 25
1281 031700  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1282 031704                            999$:
```

```
1284                                    ;*
1285                                    ;
1286                                    ;TEST 3, SUBTEST 5
1287                                    ;
1288                                    ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
1289                                    ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
1290                                    ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
1291                                    ;
1292                                    ;       ********************************************************************
1293                                    ;                                CAUTION
1294                                    ;
1295                                    ;               The LSI BUS drivers for all available address lines(16-21)
1296                                    ;       are only checked when running on a 11/23B system with more than
1297                                    ;       128K words of memory!
1298                                    ;
1299                                    ;       ********************************************************************
1300                                    ;-
1301
1302 031704                                         BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      031704                                                                                    T3.5:
      031704  104402                                                                                TRAP    C$BSUB
1303 031706  005737  003126                        TST     NXMFLG                  ;DO WE HAVE IT?
1304 031712  001002                              BNE     10$                     ;BR. IF  ENOUGH
1305 031714  000137  032120                        JMP     90$                     ;SKIP THIS TEST IF NOT
1306 031720  004737  034002              10$:      JSR     PC,T23REST              ;SET COMMAND PACKET
1307 031724  004737  034136                        JSR     PC,T23RT3               ;RESTORE PACKET
1308 031730  004737  034074                        JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1309
1310                                    ;*******************************************************************
1311                                    ;
1312                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1313                                    ;
1314                                    ;*******************************************************************
1315
1316 031734  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1317 031740  103407                              BCS     20$                     ;BR IF INIT WAS OK
1318 031742  005237  002212                        INC     FATFLG                  ;BUMP COUNT
1322 031746  010001                              MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1323 031750                                      ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      031750  104455                                                                           TRAP    C$ERDF
      031752  000504                                                                          .WORD   324
      031754  003650                                                                          .WORD   SFIERR
      031756  012124                                                                          .WORD   SFIMSG
1324 031760                             20$:
1325 031760  013737  002172  032510                MOV     UNITN,T23DSW            ;SET DRIVE NUMBER UP
1326 031766  012704  032470                        MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1327
1328                                    ;*******************************************************************
1329                                    ;
1330                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1331                                    ;
1332                                    ;*******************************************************************
1333
1334 031772  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1335 031776  103407                              BCS     23$                     ;BR. IF COMMAND ISSUED OK
1336 032000  005237  002212                        INC     FATFLG                  ;BUMP COUNT
1340 032004  010001                              MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
```

TEST 3: BASIC WRITE DATA

```
1341 032006                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     032006  104456                                                                TRAP    C$ERHRD
     032010  000505                                                                .WORD   325
     032012  005054                                                                .WORD   WRTMSG
     032014  012124                                                                .WORD   SFIMSG
1342
1343                                       ;*************************************************************************
1344                                       ;
1345                                       ;WRITE DATA, ACK, CVC=1
1346                                       ;
1347                                       ;*************************************************************************
1348
1349 032016                                23$:
1350 032016  004737  021276                       JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
1351 032022  012737  140005  032610              MOV     #140005,T23PK3          ;WRITE DATA, ACK, CVC=1
1352 032030  013737  003130  032612              MOV     NXMLO,T23WB             ;SET UP WRITE BUFFER ADDRESS
1353 032036  013737  003132  032614              MOV     NXMHI,T23WB+2           ;HIGH ORDER ADDRESS BITS
1354 032044  012737  000100  032616              MOV     #64.,T23SZ              ;SET UP BUFFER SIZE
1355 032052  012704  032610                       MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
1356 032056  010465  000000                       MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1357 032062  004737  016340                       JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1358 032066  016501  000002                       MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1359 032072  012702  104210                       MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
1360 032076  020102                               CMP     R1,R2                   ;ARE THEY EQUAL
1361 032100  001406                               BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1362 032102  005237  002212                       INC     FATFLG                  ;BUMP COUNT
1366 032106                                       ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     032106  104456                                                                TRAP    C$ERHRD
     032110  000506                                                                .WORD   326
     032112  033042                                                                .WORD   T23TM
     032114  012136                                                                .WORD   PKTSSR
1367 032116                                80$:    CKLOOP                          ;LOOP IF SELECTED
     032116  104406                                                                TRAP    C$CLP1
1368 032120                                90$:
1369 032120                                       ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     032120                                                                     L10050:
     032120  104403                                                                TRAP    C$ESUB
1370 032122  023727  002212  000017               CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
1371 032130  103402                               BLO     999$                    ;BR, IF LESS THAN 25
1372 032132  004737  017272                       JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
1373 032136                                999$:
```

```
1375                                    ;*
1376                                    ;
1377                                    ;TEST 3, SUBTEST 6
1378                                    ;
1379                                    ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
1380                                    ;BUFFER STARTING IN EXISTANT MEMORY BUT RUNNING INTO
1381                                    ;NONEXISTENT MEMORY TERMINATES WITH THE PROPER ERROR
1382                                    ;STATUS. A LARGE ENOUGH RECORD SIZE IS SPECIFIED SUCH
1383                                    ;THAT TAPE IS ACTUALLY MOVED AND WRITTEN.
1384                                    ;       ************************************************************************
1385                                    ;                                CAUTION
1386                                    ;
1387                                    ;               The LSI BUS drivers for all available address lines(16 21)
1388                                    ;       are only checked when running on a 11/238 system with more than
1389                                    ;       128K words of memory!
1390                                    ;       ************************************************************************
1391                                    ;-
1392
1393 032136                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      032136                                                                                T3.6:
      032136  104402                                                                            TRAP    C$BSUB
1394 032140  005737  003126                     TST     NXMFLG                  ;DO WE HAVE IT?
1395 032144  001002                           BNE     10$                     ;BR, IF  ENOUGH
1396 032146  000137  032432                   JMP     130$                    ;SKIP THIS TEST IF NOT
1397 032152  004737  034136           10$:    JSR     PC,T23RT3               ;RESTORE PACKET
1398 032156  004737  034002                   JSR     PC,T23REST              ;SET COMMAND PACKET
1399 032162  004737  034074                   JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1400
1401                                    ;************************************************************************
1402                                    ;
1403                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1404                                    ;
1405                                    ;************************************************************************
1406
1407 032166  004737  016064                   JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1408 032172  103407                           BCS     20$                     ;BR IF INIT WAS OK
1409 032174  005237  002212                   INC     FATFLG                  ;BUMP COUNT
1413 032200  010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1414 032202                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      032202  104455                                                                        TRAP    C$ERDF
      032204  000507                                                                       .WORD   327
      032206  003650                                                                       .WORD   SFIERR
      032210  012124                                                                       .WORD   SFIMSG
1415 032212                                    20$:
1416 032212  013737  002172  032510                MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
1417 032220  012704  032470                   MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1418
1419                                    ;************************************************************************
1420                                    ;
1421                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1422                                    ;
1423                                    ;************************************************************************
1424
1425 032224  004737  010752                   JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1426 032230  103407                           BCS     23$                     ;BR, IF COMMAND ISSUED OK
1427 032232  005237  002212                   INC     FATFLG                  ;BUMP COUNT
1431 032236  010001                           MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
```

TEST 3: BASIC WRITE DATA

```
1432 032240                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTI C FAILED
     032240  104456                                                                TRAP    C$ERHRD
     032242  000510                                                                .WORD   328
     032244  005054                                                                .WORD   WRTMSG
     032246  012124                                                                .WORD   SFIMSG
1433
1434                                 ;*************************************************************************
1435                                 ;
1436                                 ;WRITE DATA, ACK,CVC=1
1437                                 ;
1438                                 ;*************************************************************************
1439
1440 032250                          23$:
1441 032250  004737  021276                 JSR     PC,INVERT               ;INVERT EXT'D FEATURES
1442 032254  012737  140005  032610         MOV     #140005,T23PK3          ;WRITE DATA, ACK,CVC=1
1443 032262  013701  003130                 MOV     NXMLO,R1                ;HIGHEST MEMORY ADDRESS LOW BITS
1444 032266  162701  001000                 SUB     #1000,R1                ;SET ADDRESS A LITTLE LOWER
1445 032272  010137  032612                 MOV     R1,T23WB                ;LOAD INTO THE PACKET
1446 032276  013737  003132  032614         MOV     NXMHI,T23WB+2           ;HIGHEST MEM ADDRESS HI BITS
1447 032304  012737  000000  032616         MOV     #0.,T23SZ               ;SET UP BUFFER SIZE (64K BYTES)
1448 032312  012704  032610                 MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
1449 032316  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1450 032322  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1451 032326  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1452 032332  012702  104210                 MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
1453 032336  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
1454 032340  001406                         BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1455 032342  005237  002212                 INC     FATFLG                  ;BUMP COUNT
1459 032346                                 ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     032346  104456                                                                TRAP    C$ERHRD
     032350  000511                                                                .WORD   329
     032352  033042                                                                .WORD   T23TM
     032354  012136                                                                .WORD   PKTSSR
1460 032356                          80$:    CKLOOP                          ;LOOP IF SELECTED
     032356  104406                                                                TRAP    C$CLP1
1461 032360  004737  034074                 JSR     PC,T23RT2               ;CLEAN UP PACKET
1462 032364  004737  034136                 JSR     PC,T23RT3               ;RESTORE PACKET
1463 032370  012737  102010  032600         MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1464 032376  012704  032600                 MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1465 032402  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1466 032406  004737  016426                 JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1467 032412  103407                         BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1468 032414  010001                         MOV     R0,R1                   ;SAVE TSSR CONTENTS
1469 032416  005237  002212                 INC     FATFLG                  ;BUMP COUNT
1473 032422                                 ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     032422  104456                                                                TRAP    C$ERHRD
     032424  000512                                                                .WORD   330
     032426  033116                                                                .WORD   T23RWN
     032430  012136                                                                .WORD   PKTSSR
1474 032432                          130$:
1475 032432                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     032432                                                                       L10051:
     032432  104403                                                                TRAP    C$ESUB
1476 032434  023727  002212  000017                 CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1477 032442  103402                                 BLO     999$                            ;BR, IF LESS THAN 25
1478 032444  004737  017272                         JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1479 032450                          999$:
```

TEST 3: BASIC WRITE DATA

```
1480 032450  004737  016546                JSR     PC,TSTLOOP          ;DO WE NEED TO ITERATE TEST
1481 032454  103002                        BCC     163$                ;BR, IF NO LOOP REQUIRED
1482 032456  000137  027426                JMP     T23LOOP             ;EXECUTE AGAIN
1483 032462                          163$:
1484 032462                              EXIT    TST                 ;ALL DONE THIS TEST
     032462  104432                                                          TRAP    C$EXIT
     032464  001664                                                          .WORD   L10043 .
```

TEST 3: BASIC WRITE DATA

```
                                ;*
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
                        032470          .=<.+10>&177770
032470                  T23PACKET:                      ;COMMAND PACKET FOR TEST
032470  100004                  .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH ACK
032472  032500                  .WORD   T23DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
032474  000000                  .WORD   0
032476  000010                  .WORD   8.              ;STARTING VALUE OF BLOCK SIZE
032500                  T23DATA:                        ;CHARACTERISTICS DATA BLOCK
032500  032512                  .WORD   T23BFR          ;ADDRESS OF MESSAGE BUFFER
032502  000000                  .WORD   0
032504  000012                  .WORD   10.             ;LENGTH OF MESSAGE BUFFER
032506  000000                  .WORD   0
032510  000000          T23DSW: .WORD   0               ;SELECT DRIVE 0
032512          T23BFR: .BLKW   25.                     ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
                        032600          .=<.+10>&177770
032600                  T23PK2:
032600  100006                  .WORD   100006          ;WRITE SUB SYS MEM COMMAND, AND ACK
032602  032622                  .WORD   T23BF2          ;ADDRESS OF SELECT BLOCK DATA
032604  000000                  .WORD   0
032606  000006                  .WORD   6.              ;SIZE OF DATA PACKET

032610                  T23PK3:
032610  100005                  .WORD   100005          ;WRITE COMMAND,  AND ACK
032612  000000          T23WB:  .WORD   0               ;ADDRESS OF WRITE BUFFER
032614  000000                  .WORD   0
032616  000000          T23SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
                                .EVEN
                                ;
032620  000000          T23RSZ: .WORD   0               ;LARGEST TAPE RECORD IN BYTES
                                ;
                                ;
032622                  T23BF2:
032622     010          T23BS0: .BYTE   10              ;BSEL0 AREA
032623     200          T23BS1: .BYTE   200             ;BSEL1 AREA
032624  000000          T23S2:  .WORD   0               ;SEL 2 AREA
032626  000000          T23S3:  .WORD   0               ;DATA AREA
                                ;
                                ;
032630  000000          T23TMP: .WORD   0               ;TEMPORARY REGISTER
032632  000000          T23WRT: .WORD   0               ;RETRY COMMAND
                                ;
                                .EVEN
                                ;TAPE MOTION PACKET COMMAND VALUES

032634  100005          T23WD:  .WORD   100005          ;WRITE DATA (NEXT)
032636  100405          T23WDR: .WORD   100405          ;WRITE DATA RETRY
032640  102005          T23CON: .WORD   102005          ;WRITE CONTINOUS
032642  177777                  .WORD   177777          ;END OF DATA
```

```
1549
1550                                    ;+
1551                                    ;LOCAL TEXT MESSAGES FOR TEST
1552                                    ;-
1553
1554 032644  127  122  111  T23SSR: .ASCIZ  'WRITE Command Not Accepted'
1555 032677  105  117  124  T23ET:  .ASCIZ  'EOT Not Found In 12000 4k Writes, (Use Shorter Tape)'
1556 032764  127  122  111  T23EOT: .ASCIZ  'WRITE DATA OVER EOT GAVE NO TAPE STATUS ALERT'
1557 033042  124  123  123  T23TM:  .ASCIZ  'TSSR Not Correct After WRITE Command Reject'
1558 033116  122  145  167  T23RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
1559 033165  122  101  115  T23RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
1560 033240  124  123  123  T23AM3: .ASCIZ  'TSSR Init. Failed After WRITE Command'
1561 033306  104  162  151  T23OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
1562 033361  124  123  123  T23WDD: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, SWB Bit Set'
1563 033450  124  123  123  T23WDC: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, Check For Tape Offline'
1564 033552  103  126  103  T23VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
1565 033625  124  123  102  T23BA:  .ASCIZ  'TSBA Not Correct After WRITE DATA Command'
1566 033677  127  122  111  T23WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
1567 033766  102  141  163  TST23ID:       .ASCIZ  'Basic Write'
1568                                    .EVEN
1569                                    ;+
1570                                    ;
1571                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
1572                                    ;WRITE SUBSYSTEM MEMORY COMMAND
1573                                    ;
1574                                    ;-
1575
1576 034002                             T23REST:
1577 034002                                     SAVREG                          ;SAVE THE REGISTERS
1578 034006  012701  032470                      MOV     #T23PACKET,R1          ;START OF THE PACKET
1579 034012  012721  100004                      MOV     #100004,(R1)+          ;WRITE SUBSYSTEM MEM. WITH ACK
1580 034016  012721  032500                      MOV     #T23DATA,(R1)+         ;ADDRESS OF CHARAISTICS DATA BLOCK
1581 034022  005021                              CLR     (R1)+                  ;EXTENDED ADDRESS
1582 034024  012721  000012                      MOV     #10.,(R1)+             ;SIZE OF DATA BLOCK IN BYTES
1583 034030  012721  032512                      MOV     #T23BFR,(R1)+          ;ADDRESS OF MESSAGE BUFFER
1584 034034  005021                              CLR     (R1)+
1585 034036  012721  000024                      MOV     #20.,(R1)+             ;LENGTH OF MESSAGE BUFFER
1586 034042  005021                              CLR     (R1)+
1587 034044  012711  000000                      MOV     #0,(R1)                ;SELECT DRIVE ZERO
1588 034050  012702  000030                      MOV     #24.,R2                ;NUMBER OF LOCATIONS TO BE CLEARED
1589 034054  012762  177777  032512  64$:       MOV     #177777,T23BFR(R2)     ;ALL ONES TO MESSAGE BUFFER
1590 034062  005742                              TST     -(R2)                  ;BUMP DOWN TO NEXT LOCATION
1591 034064  020227  000000                      CMP     R2,#0                  ;R2 AT ZERO YET
1592 034070  001371                              BNE     64$                    ;KEEP GOING UNTIL DONE
1593 034072  000207                              RTS     PC                     ;RETURN
1594
1595
1596 034074                             T23RT2:
1597 034074                                     SAVREG                          ;SAVE THE REGISTERS
1598 034100  012701  032600                      MOV     #T23PK2,R1             ;START OF THE PACKET
1599 034104  012721  100006                      MOV     #100006,(R1)+          ;WRITE SUBSYSTEM MEM. WITH ACK
1600 034110  012721  032622                      MOV     #T23BF2,(R1)+          ;ADDRESS OF DATA BLOCK
1601 034114  005021                              CLR     (R1)+                  ;EXTENDED ADDRESS
1602 034116  012721  000006                      MOV     #6.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
1603 034122  012701  032622                      MOV     #T23BF2,R1             ;POINT TO DATA SEL AREA
1604 034126  005021                              CLR     (R1)+
1605 034130  005021                              CLR     (R1)+
```

TEST 3: BASIC WRITE DATA

```
1606 034132  005011                        CLR     (R1)
1607 034134  000207                        RTS     PC                      ;RETURN
1608 034136                          T23RT3:
1609 034136                                SAVREG                          ;SAVE THE REGISTERS
1610 034142  012701  032610                MOV     #T23PK3,R1              ;START OF THE PACKET
1611 034146  012721  100005                MOV     #100005,(R1)+           ;WRITE  TAPE. WITH ACK
1612 034152  005021                        CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
1613 034154  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
1614 034156  005011                        CLR     (R1)                    ;SIZE OF DATA BLOCK
1615 034160  000207                        RTS     PC                              ;RETURN
1616                                 ;+
1617                                 ;
1618                                 ;ROUTINE TO RETRY WRITE DATA IN CASE OF BAD TAPE FOR TEST
1619                                 ;3,SUBTEST 2 & 3
1620                                 ;
1621                                 ;INPUTS:        R1=TSSR
1622                                 ;               SUBROUTINE SETS UP T23WRT FOR RETRY
1623                                 ;-
1624
1625 034162                          T23CHK:
1626 034162                                SAVREG                          ;SAVE THE REGISTERS
1627 034166  005037  032630                CLR     T23TMP                  ;CLEAR LOCAL REGISTER
1628 034172  032701  100000                BIT     #SC,R1                  ;IS SC SET IN TSSR?
1629 034176  001452                        BEQ     FATAL                   ;NO, YOU GOT PROBLEMS!
1630 034200  013702  032522                MOV     T23BFR+10,R2            ;YES,GET XSTAT1
1631 034204  032702  000002                BIT     #X1.UNC,R2              ;IS UNC SET IN XSTAT1?
1632 034210  001401                        BEQ     1$                      ;NO, CHECK COR
1633 034212  000405                        BR      RETRY                   ;YES,DO WRITE DATA RETRY
1634 034214  032702  020000          1$:   BIT     #X1.COR,R2              ;IS COR SET IN XSTAT1 THEN?
1635 034220  001002                        BNE     RETRY                   ;YES SO RETRY
1636 034222  000440                        BR      FATAL                   ;NO, YOU GOT PROBLEMS
1637 034224  000207                  EXIT: RTS     PC                      ;RETURN
1638
1639 034226                          RETRY:
1640 034226  012703  000024          2$:   MOV     #20.,R3                 ;STARTING RECORD SIZE
1641 034232  013737  003114  032612        MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
1642 034240  012737  032632  032610        MOV     #T23WRT,T23PK3          ;WRITE DATA RETRY COMMAND SETUP BY SUBROUTINE
1643 034246  012704  032610                MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1644 034252  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
1645 034254  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
1646 034260  010337  032616                MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
1647 034264  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1648 034270  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1649 034274  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1650 034300  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
1651 034304  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
1652 034306  001746                        BEQ     EXIT                    ;BR, IF OK
1653 034310  005237  032630                INC     T23TMP                  ;TRY FIVE TIMES THEN EXIT
1654 034314  022737  000005  032630        CMP     #5,T23TMP               ;DONE FIVE YET?
1655 034322  001341                        BNE     2$                      ;NO GO AGAIN
1656 034324  005237  002212          FATAL: INC     FATFLG                  ;BUMP COUNT
1660 034330  013702  032512                MOV     T23BFR,R2               ;LOW ORDER MSGBUF
1661 034334                                ERRHRD  ERRNO,SCHERR,PKTMES     ;TSSR INCORRECT AFTER WRITE DATA
     034334  104456                                                                TRAP    C$ERHRD
     034336  000513                                                                .WORD   331
     034340  005276                                                                .WORD   SCHERR
     034342  012200                                                                .WORD   PKTMES
```

TEST 3: BASIC WRITE DATA

```
1662 034344  004737  017272          JSR     PC,CKDROP           ;DROP THE UNIT
1663 034350                          ENDTST
     034350
     034350                                                  L10043:
     034350  104401                                                  TRAP    C$ETST
```

```
                                        .SBTTL  TEST  4: BASIC READ DATA (FORWARD AND REVERSE)
                                ;*
                                ;
                                ;THIS TEST VERIFIES THAT THE READ FORWARD AND READ REVERSE
                                ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
                                ;DATA BUFFER BOUNDARIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
                                ;SPACE IS AVAILIABLE), AND BYTE-SWAP CONTROL ARE USED. THIS TEST
                                ;OF COURSE, FURTHER VERIFIES THE WRITE DATA COMMAND BY ACTUALLY
                                ;READING AND VERIFYING WRITTEN DATA. ALSO TESTED ARE PROPER
                                ;TERMINATIONS ON EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH
                                ;LONG, RECORD LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA
                                ;BUFFER ADDRESSES, ILLEGAL CODES IN THE MODE FIELD OF THE BASIC
                                ;READ COMMAND, AND DATA BUFFERS IN NON EXISTANT MEMORY. THE TEST
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 14 SUBTESTS
                                ;
                                ;
                                ;
                                ;
034352                                  BGNTST
034352                                                                          T4::
034352  012737  006356  002170          MOV     @EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
034360  005037  003124                  CLR     KTENABLE                ;TURN OFF KT11
034364  004737  017364                  JSR     PC,KTOFF                ;TURN KT11 OFF
034370  012700  046232                  MOV     @TST24ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
034374  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
034400  004737  021366                  JSR     PC,MEMCK                ;CHECK FOR MEMORY
034404  012737  000005  002206          MOV     @5,LOOPCNT              ;PERFORM 5 ITERATIONS
                                ;*
                                ;
                                ;TEST 4, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A READ DATA COMMAND WITH THE CLEAR
                                ;VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE
                                ;VOLUME CHECK (VCK) IS SET. ALL LEGAL
                                ;COMBINATIONS OF THE COMMAND MODE FIELD ARE TESTED
                                ;(I.E., IT IS VERIFIED THAT THE COMMAND IS REJECTED
                                ;DUE TO VCK BEING SET RATHER THAN ERRONEOUS DECODING
                                ;OF THE MODE FIELD.
                                ;
                                ;
                                ;-
                                
                                T24LOOP:
034412                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
034412                                                                          T4.1:
034412  104402                                                                  TRAP    C$BSUB
034414  004737  046300                  JSR     PC,T24REST              ;SET COMMAND PACKET
034420  004737  046434                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
034424  004737  046372                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
034430  012737  176750  043766          MOV     #65000.,T24DLY          ;LOAD UP DELAY ROUTINE
                                
                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
1723                                    ;
1724                                    ;*************************************************************************
1725
1726 034436  004737  016064            5$:     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1727 034442  103426                            BCS     20$                     ;BR IF INIT WAS OK
1728 034444                                    DELAY   250                     ;DELAY AWHILE
     034444  012727  000250                                                            MOV     #250,(PC)+
     034450  000000                                                                    .WORD   0
     034452  013727  002116                                                            MOV     L$DLY,(PC)+
     034456  000000                                                                    .WORD   0
     034460  005367  177772                                                            DEC     -6(PC)
     034464  001375                                                                    BNE     .-4
     034466  005367  177756                                                            DEC     -22(PC)
     034472  001367                                                                    BNE     .-20
1729 034474  005337  043766                    DEC     T24DLY                  ;BUMP DELAY COUNTER
1730 034500  001356                            BNE     5$                      ;BR. IF MORE DELAY REQUIRED
1731 034502  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1735 034506  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1736 034510                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     034510  104455                                                                    TRAP    C$ERDF
     034512  000621                                                                    .WORD   401
     034514  003650                                                                    .WORD   SFIERR
     034516  012124                                                                    .WORD   SFIMSG
1737 034520                            20$:
1738 034520  012737  000007  043640            MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
1739 034526  012704  043620                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1740
1741                                    ;*************************************************************************
1742                                    ;
1743                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1744                                    ;
1745                                    ;*************************************************************************
1746
1747 034532  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1748 034536  103407                            BCS     24$                     ;BR. IF COMMAND ISSUED OK
1749 034540  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1753 034544  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1754 034546                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     034546  104456                                                                    TRAP    C$ERHRD
     034550  000622                                                                    .WORD   402
     034552  005054                                                                    .WORD   WRTMSG
     034554  012124                                                                    .WORD   SFIMSG
1755 034556  005737  002216            24$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
1756 034562  001044                            BNE     50$                     ;BR IF SWITCH IS ON
1757
1758 034564  112737  000200  043751            MOVB    #200,T24BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
1759 034572  112737  000010  043750            MOVB    #10,T24BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
1760 034600  012704  043730                    MOV     #T24PK2,R4              ;WRITE SUBSYS MEM PACKET
1761 034604  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1762 034610  004737  016426                    JSR     PC,CHKTSSR              ;WAIT FOR SSR
1763 034614  103407                            BCS     30$                     ;BR. IF NO ERROR
1764 034616  010001                            MOV     R0,R1                   ;ERROR. SAVE TSSR
1765 034620  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1769 034624                                    ERRHRD  ERRNO,T24SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     034624  104456                                                                    TRAP    C$ERHRD
     034626  000623                                                                    .WORD   403
     034630  044507                                                                    .WORD   T24SSR
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
      034632  012136                                                                .WORD   PKTSSR
1770  034634                          30$:    CKLOOP                          ;LOOP IF SELECTED
      034634  104406                                                                TRAP    C$CLP1
1771  034636  012737  000007  043640          MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
1772  034644  012704  043620                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1773
1774                          ;*****************************************************************
1775                          ;
1776                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1777                          ;
1778                          ;*****************************************************************
1779
1780  034650  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1781  034654  103407                          BCS     50$                     ;BR. IF COMMAND ISSUED OK
1782  034656  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1786  034662  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1787  034664                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      034664  104456                                                                TRAP    C$ERHRD
      034666  000624                                                                .WORD   404
      034670  005054                                                                .WORD   WRTMSG
      034672  012124                                                                .WORD   SFIMSG
1788  034674                          50$:    CKLOOP                          ;SCOPE LOOP
      034674  104406                                                                TRAP    C$CLP1
1789  034676  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1790  034702  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
1791  034706  001006                          BNE     60$                     ;BR. IF OFFLINE 'GOOD)
1792  034710  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1796  034714                                  ERRDF   ERRNO,T24OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
      034714  104455                                                                TRAP    C$ERDF
      034716  000625                                                                .WORD   405
      034720  045265                                                                .WORD   T24OFL
      034722  012124                                                                .WORD   SFIMSG
1797  034724                          60$:    CKLOOP                          ;LOOP IF SELECTED
      034724  104406                                                                TRAP    C$CLP1
1798  034726  012703  043756                  MOV     #T24RN,R3               ;POINTER FOR COMMANDS
1799
1800                          ;*****************************************************************
1801                          ;
1802                          ;TAPE READ COMMAND IN PLACE
1803                          ;
1804                          ;*****************************************************************
1805
1806  034732  011337  043740          65$:    MOV     (R3),T24PK3             ;TAPE READ COMMAND IN PLACE
1807  034736  012704  043740                  MOV     #T24PK3,R4              ;R4 = POINTER TO PACKET
1808  034742  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1809  034746  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1810  034752  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1811  034756  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
1812  034762  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
1813  034764  001406                          BEQ     80$                     ;BR. IF OK ESP. FUNCTION REJECT
1814  034766  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1818  034772                                  ERRHRD  ERRNO,T24TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
      034772  104456                                                                TRAP    C$ERHRD
      034774  000626                                                                .WORD   406
      034776  045023                                                                .WORD   T24TM
      035000  012136                                                                .WORD   PKTSSR
1819  035002                          80$:    CKLOOP                          ;LOOP IF SELECTED
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
      035002  104406                                                    TRAP    C$CLP1
1820  035004  005723                          TST     (R3)+             ;BUMP TO NEXT COMMAND
1821  035006  022713  177777                  CMP     #177777,(R3)      ;END OF THE COMMANDS YET
1822  035012  001401                          BEQ     90$               ;BR, IF DONE
1823  035014  000746                          BR      65$               ;MORE COMMAND(S) TO GO
1824  035016                          90$:
1825  035016                          ENDSUB                            ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      035016                                                              L10053:
      035016  104403                                                    TRAP    C$ESJB
1826  035020  023727  002212  000017          CMP     FATFLG,#15.               ;IS ERROR COUNT AT 25
1827  035026  103402                          BLO     999$                      ;BR, IF LESS THAN 25
1828  035030  004737  017272                  JSR     PC,CKDROP                 ;TRY TO DROP THE UNI*
1829  035034                          999$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
1831                                    ;*
1832                                    ;
1833                                    ;TEST 4, SUBTEST 2
1834                                    ;
1835                                    ;VERIFIES THAT READ FORWARD COMMANDS WITH SWB=0
1836                                    ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
1837                                    ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
1838                                    ;LENGTH AND DATA CONTENT. THE TAPE IS THEN REWOUND
1839                                    ;AGAIN AND THE RECORD READ SEQUENTIALLY AND RESULTS
1840                                    ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
1841                                    ;EACH READ FORWARD COMMAND IS SET TO THE LENGTH OF THE
1842                                    ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
1843                                    ;OCCUR.
1844                                    ;
1845                                    ;
1846                                    ;
1847                                    ;-
1848 035034                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     035034                                                                                    T4.2:
     035034  104402                                                                                    TRAP    C$BSUB
1849 035036  004737  046434                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
1850 035042  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
1851 035046  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
1852
1853                                    ;*************************************************************
1854                                    ;
1855                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
1856                                    ;
1857                                    ;*************************************************************
1858
1859 035052  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1860 035056  103407                            BCS     20$                     ;BR IF INIT WAS OK
1861 035060  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1865 035064  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1866 035066                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     035066  104455                                                                                    TRAP    C$ERDF
     035070  000627                                                                                    .WORD   407
     035072  003650                                                                                    .WORD   SFIERR
     035074  012124                                                                                    .WORD   SFIMSG
1867 035076                                20$:
1868 035076  013737  002172  043640                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
1869 035104  012704  043620                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1870
1871                                    ;*************************************************************
1872                                    ;
1873                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1874                                    ;
1875                                    ;*************************************************************
1876
1877 035110  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1878 035114  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
1879 035116  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1883 035122  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1884 035124                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     035124  104456                                                                                    TRAP    C$ERHRD
     035126  000630                                                                                    .WORD   408
     035130  005054                                                                                    .WORD   WRTMSG
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
      035132  012124                                                                    .WORD   SFIMSG
1885  035134                        24$:    CKLOOP                          ;LOOP IF SELECTED
      035134  104406                                                                    TRAP    C$CLP1
1886
1887                                ;*****************************************************************
1888                                ;
1889                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
1890                                ;
1891                                ;*****************************************************************
1892
1893  035136  004737  011104               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
1894  035142  103407                       BCS     30$                     ;BR, IF NO PROBLEM
1895  035144  010001                       MOV     R0,R1                   ;SAVE TSSR
1896  035146  005237  002212               INC     FATFLG                  ;BUMP COUNT
1900  035152                               ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      035152  104456                                                                    TRAP    C$ERHRD
      035154  000631                                                                    .WORD   409
      035156  045076                                                                    .WORD   T24RWN
      035160  012136                                                                    .WORD   PKTSSR
1901  035162                        30$:    CKLOOP                          ;LOOP IF SELECTED
      035162  104406                                                                    TRAP    C$CLP1
1902
1903                                ;*****************************************************************
1904                                ;
1905                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
1906                                ;
1907                                ;*****************************************************************
1908
1909  035164  013701  043650               MOV     T24BFR+6,R1             ;PICK UP XST0
1910  035170  010102                       MOV     R1,R2                   ;SET UP EXPECTED
1911  035172  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
1912  035176  020102                       CMP     R1,R2                   ;DOES EXP = REC'D
1913  035200  001406                       BEQ     40$                     ;BR, IF EQUAL (OK)
1914  035202  005237  002212               INC     FATFLG                  ;BUMP COUNT
1918  035206                               ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      035206  104456                                                                    TRAP    C$ERHRD
      035210  000632                                                                    .WORD   410
      035212  044613                                                                    .WORD   T24BOT
      035214  015564                                                                    .WORD   EXPREC
1919  035216                        40$:    CKLOOP                          ;LOOP IF SELECTED
      035216  104406                                                                    TRAP    C$CLP1
1920  035220  012703  000400               MOV     #256.,R3                ;RECORD SIZE
1921  035224  013737  003114  043742       MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
1922
1923                                ;*****************************************************************
1924                                ;
1925                                ;WRITE DATA,CVC=1,ACK COMMAND
1926                                ;
1927                                ;*****************************************************************
1928
1929  035232  012737  140005  043740       MOV     #140005,T24PK3          ;WRITE DATA,CVC=1,ACK COMMAND
1930  035240  012704  043740               MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1931  035244                        65$:
1932  035244  010300                       MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
1933  035246  004737  017512               JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
1934  035252  010337  043746               MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
1935  035256  010465  000000               MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
1936 035262  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1937 035266  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1938 035272  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
1939 035276  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
1940 035300  001406                          BEQ     75$                     ;BR, IF OK
1941 035302  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1945 035306                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     035306  104456                                                          TRAP    C$ERHRD
     035310  000633                                                          .WORD   411
     035312  005111                                                          .WORD   WRTERR
     035314  012136                                                          .WORD   PKTSSR
1946 035316                          75$:    CKLOOP                          ;LOOP IF SELECTED
     035316  104406                                                          TRAP    C$CLP1
1947 035320  005723                          TST     (R3)+           ;BUMP RECORD SIZE
1948 035322  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
1949 035326  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
1950 035330                          80$:    CKLOOP                          ;LOOP IF SELECTED
     035330  104406                                                          TRAP    C$CLP1
1951 035332                          120$:
1952
1953                                 ;*****************************************************************
1954                                 ;
1955                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
1956                                 ;
1957                                 ;*****************************************************************
1958
1959 035332  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
1960 035336  004737  016426                  JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
1961 035342  103407                          BCS     130$                    ;BR, IF NO PROBLEM
1962 035344  010001                          MOV     R0,R1                   ;SAVE TSSR
1963 035346  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1967 035352                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     035352  104456                                                          TRAP    C$ERHRD
     035354  000634                                                          .WORD   412
     035356  045076                                                          .WORD   T24RWN
     035360  012136                                                          .WORD   PKTSSR
1968 035362                          130$:   CKLOOP                          ;LOOP IF SELECTED
     035362  104406                                                          TRAP    C$CLP1
1969
1970                                 ;*****************************************************************
1971                                 ;
1972                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
1973                                 ;
1974                                 ;*****************************************************************
1975
1976 035364  013701  043650                  MOV     T24BFR+6,R1             ;PICK UP XST0
1977 035370  010102                          MOV     R1,R2                   ;SET UP EXPECTED
1978 035372  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
1979 035376  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
1980 035400  001406                          BEQ     140$                    ;BR, IF EQUAL (OK)
1981 035402  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1985 035406                                  ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     035406  104456                                                          TRAP    C$ERHRD
     035410  000635                                                          .WORD   413
     035412  044613                                                          .WORD   T24BOT
     035414  015564                                                          .WORD   EXPREC
1986 035416                          140$:   CKLOOP                          ;LOOP IF SELECTED
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
      035416  104406                                                                  TRAP    C$CLP1
1987  035420  012703  000400                MOV     #256.,R3                ;RECORD SIZE
1988  035424  013737  003114  043742        MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
1989
1990                                ;*************************************************************************
1991                                ;
1992                                ;READ DATA,CVC=1,ACK COMMAND
1993                                ;
1994                                ;*************************************************************************
1995
1996  035432  012737  140001  043740        MOV     #140001,T24PK3          ;READ DATA,CVC=1,ACK COMMAND
1997  035440  012704  043740        165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1998  035444  010337  043746                MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
1999  035450  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2000  035454  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2001  035460  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2002  035464  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
2003  035470  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2004  035472  001406                        BEQ     170$                    ;BR, IF OK
2005  035474  005237  002212                INC     FATFLG                  ;BUMP COUNT
2009  035500                                ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
      035500  104456                                                                  TRAP    C$ERHRD
      035502  000636                                                                  .WORD   414
      035504  005204                                                                  .WORD   RDERR
      035506  012136                                                                  .WORD   PKTSSR
2010  035510                        170$:   CKLOOP                          ;LOOP IF SELECTED
      035510  104406                                                                  TRAP    C$CLP1
2011  035512  013702  003114                MOV     FREE,R2                 ;GET BUFFER ADDRESS
2012  035516  010304                        MOV     R3,R4                   ;CURRENT RECORD SIZE
2013  035520  162704  000400                SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
2014  035524  060204                173$:   ADD     R2,R4                   ;GET LOCATION IN BUFFER (ADDRESS)
2015  035526  021403                        CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
2016  035530  001410                        BEQ     180$                    ;BR, IF ALL IS WELL
2017  035532  011401                        MOV     (R4),R1                 ;RECD DATA
2018  035534  010302                        MOV     R3,R2                   ;EXPECTED DATA
2019  035536  005237  002212                INC     FATFLG                  ;BUMP COUNT
2023  035542                                ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
      035542  104456                                                                  TRAP    C$ERHRD
      035544  000637                                                                  .WORD   415
      035546  044660                                                                  .WORD   T24DTA
      035550  015564                                                                  .WORD   EXPREC
2024  035552                        180$:   CKLOOP                          ;LOOP IF SELECTED
      035552  104406                                                                  TRAP    C$CLP1
2025  035554  005724                        TST     (R4)+           ;BUMP TO NEXT LOCATION
2026  035556  160204                        SUB     R2,R4           ;GET BACK TO CORRECT SIZE
2027  035560  020403                        CMP     R4,R3                   ;END OF RECORD YET
2028  035562  001360                        BNE     173$                    ;BR, IF NOT AT END OF RECORD
2029  035564  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
2030  035566  022703  000412                CMP     #266.,R3                ;END OF RECORD YET
2031  035572  001322                        BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
2032  035574                        190$:   CKLOOP                          ;LOOP IF SELECTED
      035574  104406                                                                  TRAP    C$CLP1
2033  035576                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      035576                                                                        L10054:
      035576  104403                                                                  TRAP    C$ESUB
2034  035600  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2035  035606  103402                        BLO     999$                            ;BR, IF LESS THAN 25
```

SEQ 0141

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2036 035610  004737  017272                JSR     PC,CKDROP                ;TRY TO DROP THE UNIT
2037 035614                          999$:
```

```
2039                                    ;*
2040                                    ;
2041                                    ;TEST 4, SUBTEST 3
2042                                    ;
2043                                    ;VERIFIES THAT READ DATA COMMANDS WITH CVC=1 AND THE
2044                                    ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
2045                                    ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
2046                                    ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
2047                                    ;
2048                                    ;
2049                                    ;
2050                                    ;-
2051 035614                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     035614                                                                                    T4.3:
     035614  104402                                                                          TRAP    C$BSUB
2052 035616  004737  046434                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2053 035622  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
2054 035626  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2055
2056                                    ;*********************************************************************
2057                                    ;
2058                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
2059                                    ;
2060                                    ;*********************************************************************
2061
2062 035632  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2063 035636  103407                            BCS     20$                     ;BR IF INIT WAS OK
2064 035640  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2068 035644  010001                            MOV     R0,R1                   ;CONTENTS OF TSSP REGISTER
2069 035646                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     035646  104455                                                                          TRAP    C$ERDF
     035650  000640                                                                          .WORD   416
     035652  003650                                                                          .WOR    SFIERR
     035654  012124                                                                          .WORD   SFIMSG
2070 035656                                    20$:
2071 035656  013737  002172  043640                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2072 035664  012704  043620                        MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2073
2074                                    ;*********************************************************************
2075                                    ;
2076                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2077                                    ;
2078                                    ;*********************************************************************
2079
2080 035670  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2081 035674  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
2082 035676  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2086 035702  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2087 035704                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     035704  104456                                                                          TRAP    C$ERHRD
     035706  000641                                                                          .WORD   417
     035710  005054                                                                          .WORD   WRTMSG
     035712  012124                                                                          .WORD   SFIMSG
2088 035714                                    24$:    CKLOOP                  ;LOOP IF SELECTED
     035714  104406                                                                          TRAP    C$CLP1
2089
2090                                    ;*********************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2091                                    ;
2092                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2093                                    ;
2094                                    ;*************************************************************
2095
2096 035716  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2097 035722  103407                            BCS     30$                     ;BR, IF NO PROBLEM
2098 035724  010001                            MOV     R0,R1                   ;SAVE TSSR
2099 035726  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2103 035732                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      035732  104456                                                                    TRAP    C$ERHRD
      035734  000642                                                                    .WORD   418
      035736  045076                                                                    .WORD   T24RWN
      035740  012136                                                                    .WORD   PKTSSR
2104 035742                             30$:    CKLOOP                          ;LOOP IF SELECTED
      035742  104406                                                                    TRAP    C$CLP1
2105
2106                                    ;*************************************************************
2107                                    ;
2108                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
2109                                    ;
2110                                    ;*************************************************************
2111
2112 035744  013701  043650                    MOV     T24BFR+6,R1             ;PICK UP XSTO
2113 035750  010102                            MOV     R1,R2                   ;SET UP EXPECTED
2114 035752  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2115 035756  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
2116 035760  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
2117 035762  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2121 035766                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      035766  104456                                                                    TRAP    C$ERHRD
      035770  000643                                                                    .WORD   419
      035772  044613                                                                    .WORD   T24BOT
      035774  015564                                                                    .WORD   EXPREC
2122 035776                             40$:    CKLOOP                          ;LOOP IF SELECTED
      035776  104406                                                                    TRAP    C$CLP1
2123 036000  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
2124 036004  013737  003114  043742            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2125
2126                                    ;*************************************************************
2127                                    ;
2128                                    ;WRITE DATA,ACK,SWB,CVC=1 COMMAND
2129                                    ;
2130                                    ;*************************************************************
2131
2132 036012  012737  150005  043740            MOV     #150005,T24PK3          ;WRITE DATA,ACK,SWB,CVC=1 COMMAND
2133 036020  012704  043740                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2134 036024                             65$:
2135 036024  010300                            MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
2136 036026  004737  017512                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2137 036032  010337  043746                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2138 036036  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2139 036042  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2140 036046  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2141 036052  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
2142 036056  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
2143 036060  001406                            BEQ     75$                     ;BR, IF OK
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2144 036062  005237  002212                INC     FATFLG                  ;BUMP COUNT
2148 036066                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     036066  104456                                                                TRAP    C$ERHRD
     036070  000644                                                                .WORD   420
     036072  005111                                                                .WORD   WRTERR
     036074  012136                                                                .WORD   PKTSSR
2149 036076                        75$:    CKLOOP                          ;LOOP IF SELECTED
     036076  104406                                                                TRAP    C$CLP1
2150 036100  005723                        TST     (R3)+           ;BUMP RECORD SIZE
2151 036102  022703  000414                CMP     #268.,R3                ;END OF RECORD YET
2152 036106  001346                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
2153 036110                        80$:    CKLOOP                          ;LOOP IF SELECTED
     036110  104406                                                                TRAP    C$CLP1
2154 036112                        120$:
2155
2156                               ;*****************************************************************
2157                               ;
2158                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2159                               ;
2160                               ;*****************************************************************
2161
2162 036112  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2163 036116  103407                        BCS     130$                    ;BR, IF NO PROBLEM
2164 036120  010001                        MOV     R0,R1                   ;SAVE TSSR
2165 036122  005237  002212                INC     FATFLG                  ;BUMP COUNT
2169 036126                                ERRHRD  ERRNO,T24RWN,EXPREC     ;REWIND NOT ACCEPTED
     036126  104456                                                                TRAP    C$ERHRD
     036130  000645                                                                .WORD   421
     036132  045076                                                                .WORD   T24RWN
     036134  015564                                                                .WORD   EXPREC
2170 036136                        130$:   CKLOOP                          ;LOOP IF SELECTED
     036136  104406                                                                TRAP    C$CLP1
2171
2172                               ;*****************************************************************
2173                               ;
2174                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
2175                               ;
2176                               ;*****************************************************************
2177
2178 036140  013701  043650                MOV     T24BFR+6,R1             ;PICK UP XSTO
2179 036144  010102                        MOV     R1,R2                   ;SET UP EXPECTED
2180 036146  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2181 036152  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
2182 036154  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
2183 036156  005237  002212                INC     FATFLG                  ;BUMP COUNT
2187 036162                                ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     036162  104456                                                                TRAP    C$ERHRD
     036164  000646                                                                .WORD   422
     036166  044613                                                                .WORD   T24BOT
     036170  015564                                                                .WORD   EXPREC
2188 036172                        140$:   CKLOOP                          ;LOOP IF SELECTED
     036172  104406                                                                TRAP    C$CLP1
2189 036174  012703  000400                MOV     #256.,R3                ;RECORD SIZE
2190 036200  013737  003114  043742        MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2191
2192                               ;*****************************************************************
2193                               ;
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2194                                    ;READ DATA,IE,ACK,SWB COMMAND
2195                                    ;
2196                                    ;*****************************************************************
2197
2198 036206  012737  110001  043740          MOV     #110001,T24PK3          ;READ DATA,IE,ACK,SWB COMMAND
2199 036214  012704  043740          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2200 036220  010337  043746                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2201 036224  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2202 036230  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2203 036234  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2204 036240  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2205 036244  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2206 036246  001406                          BEQ     170$                    ;BR. IF OK
2207 036250  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2211 036254                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     036254  104456                                                                  TRAP    C$ERHRD
     036256  000647                                                                  .WORD   423
     036260  005204                                                                  .WORD   RDERR
     036262  012136                                                                  .WORD   PKTSSR
2212 036264                          170$:   CKLOOP                          ;LOOP IF SELECTED
     036264  104406                                                                  TRAP    C$CLP1
2213 036266  013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
2214 036272  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
2215 036274  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
2216 036300  060204                  173$:   ADD     R2,R4                   ;GET LOCATION IN BUFFER (ADDRESS)
2217 036302  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
2218 036304  001410                          BEQ     180$                    ;BR. IF ALL IS WELL
2219 036306  011401                          MOV     (R4),R1                 ;RECD DATA
2220 036310  010302                          MOV     R3,R2                   ;EXPECTED DATA
2221 036312  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2225 036316                                  ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
     036316  104456                                                                  TRAP    C$ERHRD
     036320  000650                                                                  .WORD   424
     036322  044660                                                                  .WORD   T24DTA
     036324  015564                                                                  .WORD   EXPREC
2226 036326                          180$:   CKLOOP                          ;LOOP IF SELECTED
     036326  104406                                                                  TRAP    C$CLP1
2227 036330  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
2228 036332  160204                          SUB     R2,R4                   ;SET SIZE TO CORRECT VALUE
2229 036334  020403                          CMP     R4,R3                   ;END OF RECORD YET
2230 036336  001360                          BNE     173$                    ;BR. IF NOT AT END OF RECORD
2231 036340  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
2232 036342  022703  000412                  CMP     #266.,R3                ;END OF RECORD YET
2233 036346  001322                          BNE     165$                    ;BR. IF MORE RECORDS TO WRITE
2234 036350                          190$:   CKLOOP                          ;LOOP IF SELECTED
     036350  104406                                                                  TRAP    C$CLP1
2235 036352                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     036352                                                                       L10055:
     036352  104403                                                                  TRAP    C$ESUB
2236 036354  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
2237 036362  103402                          BLO     999$                    ;BR. IF LESS THAN 25
2238 036364  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2239 036370                          999$:
```

```
2241                                    ;*
2242                                    ;
2243                                    ;TEST 4, SUBTEST 4
2244                                    ;
2245                                    ;VERIFIES THAT A READ FORWARD COMMAND READING A RECORD
2246                                    ;LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
2247                                    ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG
2248                                    ;(RLL) BIT SET.
2249                                    ;
2250                                    ;
2251                                    ;-
2252
2253 036370                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     036370                                                                                    T4.4:
     036370  104402                                                                          TRAP    C$BSUB
2254 036372  004737  046434                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2255 036376  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
2256 036402  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2257
2258                                    ;*****************************************************************
2259                                    ;
2260                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
2261                                    ;
2262                                    ;*****************************************************************
2263
2264 036406  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2265 036412  103407                            BCS     20$                     ;BR IF INIT WAS OK
2266 036414  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2270 036420  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2271 036422                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     036422  104455                                                                          TRAP    C$ERDF
     036424  000651                                                                          .WORD   425
     036426  003650                                                                          .WORD   SFIERR
     036430  012124                                                                          .WORD   SFIMSG
2272 036432                            20$:
2273 036432  013737  002172  043640                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2274 036440  012704  043620                        MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2275
2276                                    ;*****************************************************************
2277                                    ;
2278                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2279                                    ;
2280                                    ;*****************************************************************
2281
2282 036444  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2283 036450  103407                            BCS     24$                     ;BR, ** COMMAND ISSUED OK
2284 036452  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2288 036456  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2289 036460                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     036460  104456                                                                          TRAP    C$ERHRD
     036462  000652                                                                          .WORD   426
     036464  005054                                                                          .WORD   WRTMSG
     036466  012124                                                                          .WORD   SFIMSG
2290 036470                            24$:    CKLOOP                          ;LOOP IF SELECTED
     036470  104406                                                                          TRAP    C$CLP1
2291
2292                                    ;*****************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
                                        ;
                                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                        ;
                                        ;*****************************************************************
036472  004737  011104                      JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
036476  103407                            BCS     30$                     ;BR, IF NO PROBLEM
036500  010001                            MOV     R0,R1                   ;SAVE TSSR
036502  005237  002212                    INC     FATFLG                  ;BUMP COUNT
036506                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
036506  104456                                                                    TRAP    C$ERHRD
036510  000653                                                                    .WORD   427
036512  045076                                                                    .WORD   T24RWN
036514  012136                                                                    .WORD   PKTSSR
036516                                  30$:    CKLOOP                          ;LOOP IF SELECTED
036516  104406                                                                    TRAP    C$CLP1
                                        ;
                                        ;*****************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                                        ;
                                        ;*****************************************************************
                                        ;
036520  013701  043650                      MOV     T24BFR+6,R1             ;PICK UP XST0
036524  010102                            MOV     R1,R2                   ;SET UP EXPECTED
036526  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
036532  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
036534  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
036536  005237  002212                    INC     FATFLG                  ;BUMP COUNT
036542                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
036542  104456                                                                    TRAP    C$ERHRD
036544  000654                                                                    .WORD   428
036546  044613                                                                    .WORD   T24BOT
036550  015564                                                                    .WORD   EXPREC
036552                                  40$:    CKLOOP                          ;LOOP IF SELECTED
036552  104406                                                                    TRAP    C$CLP1
036554  012703  001000                      MOV     #512.,R3                ;RECORD SIZE
036560  013737  003114  043742              MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
                                        ;
                                        ;*****************************************************************
                                        ;
                                        ;WRITE DATA,ACK,CVC=1 COMMAND
                                        ;
                                        ;*****************************************************************
                                        ;
036566  012737  140005  043740              MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
036574  012704  043740                      MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
036600                                  65$:
036600  010337  043746                      MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
036604  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
036610  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
036614  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
036620  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED
036624  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
036626  001406                            BEQ     75$                     ;BR, IF OK
036630  005237  002212                    INC     FATFLG                  ;BUMP COUNT
036634                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
        036634  104456                                                          TRAP    C$ERHRD
        036636  000655                                                          .WORD   429
        036640  005111                                                          .WORD   WRTERR
        036642  012136                                                          .WORD   PKTSSR
  2349  036644                          75$:    CKLOOP                        ;LOOP IF SELECTED
        036644  104406                                                          TRAP    C$CLP1
  2350  036646                          120$:
  2351
  2352                                  ;*****************************************************************
  2353                                  ;
  2354                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  2355                                  ;
  2356                                  ;*****************************************************************
  2357
  2358  036646  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  2359  036652  103407                         BCS     130$                    ;BR. IF NO PROBLEM
  2360  036654  010001                         MOV     R0,R1                   ;SAVE TSSR
  2361  036656  005237  002212                 INC     FATFLG                  ;BUMP COUNT
  2365  036662                                ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
        036662  104456                                                          TRAP    C$ERHRD
        036664  000656                                                          .WORD   430
        036666  045076                                                          .WORD   T24RWN
        036670  012136                                                          .WORD   PKTSSR
  2366  036672                          130$:   CKLOOP                        ;LOOP IF SELECTED
        036672  104406                                                          TRAP    C$CLP1
  2367
  2368                                  ;*****************************************************************
  2369                                  ;
  2370                                  ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
  2371                                  ;
  2372                                  ;*****************************************************************
  2373
  2374  036674  013701  043650                 MOV     T24BFR+6,R1             ;PICK UP XST0
  2375  036700  010102                         MOV     R1,R2                   ;SET UP EXPECTED
  2376  036702  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
  2377  036706  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
  2378  036710  001406                         BEQ     140$                    ;BR. IF EQUAL (OK)
  2379  036712  005237  002212                 INC     FATFLG                  ;BUMP COUNT
  2383  036716                                ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        036716  104456                                                          TRAP    C$ERHRD
        036720  000657                                                          .WORD   431
        036722  044613                                                          .WORD   T24BOT
        036724  015564                                                          .WORD   EXPREC
  2384  036726                          140$:   CKLOOP                        ;LOOP IF SELECTED
        036726  104406                                                          TRAP    C$CLP1
  2385  036730  012703  000400                 MOV     #256.,R3                ;RECORD SIZE
  2386  036734  013737  003114  043742         MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
  2387
  2388                                  ;*****************************************************************
  2389                                  ;
  2390                                  ;READ DATA,ACK,CVC=1 COMMAND
  2391                                  ;
  2392                                  ;*****************************************************************
  2393
  2394  036742  012737  140001  043740         MOV     #140001,T24PK3          ;READ DATA,ACK,CVC=1 COMMAND
  2395  036750  012704  043740         165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
  2396  036754  010337  043746                 MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2397 036760  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2398 036764  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2399 036770  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2400 036774  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
2401 037000  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2402 037002  001406                        BEQ     170$                    ;BR, IF OK
2403 037004  005237  002212                INC     FATFLG                  ;BUMP COUNT
2407 037010                                ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     037010  104456                                                                TRAP    C$ERHRD
     037012  000660                                                                .WORD   432
     037014  046144                                                                .WORD   T24TRL
     037016  012136                                                                .WORD   PKTSSR
2408 037020                        170$:   CKLOOP                          ;LOOP IF SELECTED
     037020  104406                                                                TRAP    C$CLP;
2409
2410                               ;*****************************************************************
2411                               ;
2412                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2413                               ;
2414                               ;*****************************************************************
2415
2416 037022  013701  043650                MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
2417 037026  010102                        MOV     R1,R2                   ;SET UP EXPECTED
2418 037030  052702  010000                BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
2419 037034  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2420 037036  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
2421 037040  005237  002212                INC     FATFLG                  ;BUMP COUNT
2425 037044                                ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     037044  104456                                                                TRAP    C$ERHRD
     037046  000661                                                                .WORD   433
     037050  045712                                                                .WORD   T24LON
     037052  015564                                                                .WORD   EXPREC
2426 037054                        180$:
2427 037054                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     037054                                                                     L10056:
     037054  104403                                                                TRAP    C$ESUB
2428 037056  023727  002212  000017                CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
2429 037064  103402                                BLO     999$                    ;BR, IF LESS THAN 25
2430 037066  004737  017272                        JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2431 037072                        999$:
```

SEQ 0150

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2433                                    ;*
2434                                    ;
2435                                    ;TEST 4, SUBTEST 5
2436                                    ;
2437                                    ;VERIFIES THAT A READ FORWARD COMMAND READING A RECORD
2438                                    ;SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
2439                                    ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT
2440                                    ;(RLS) BITS SET. IT IS VERIFIED THAT THE RESIDUAL BYTE
2441                                    ;COUNT (RBPCR) IN THE MESSAGE BUFFER CONTAINS THE
2442                                    ;PROPER NONZERO VALUE (E.G. THE DIFFERENCE BETWEEN
2443                                    ;THE ORIGINAL BYTE COUNT AND THE ACTUAL RECORD
2444                                    ;LENGTH).
2445                                    ;
2446                                    ;
2447                                    ;
2448                                    ;
2449
2450 037072                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      037072                                                                                T4.5:
      037072  104402                                                                          TRAP    C$BSUB
2451 037074  004737  046434                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2452 037100  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
2453 037104  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2454
2455                                    ;*************************************************************************
2456                                    ;
2457                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
2458                                    ;
2459                                    ;*************************************************************************
2460
2461 037110  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2462 037114  103407                            BCS     20$                     ;BR IF INIT WAS OK
2463 037116  005237  002212                    INC     FATFLG                  ;BUMP COUN
2467 037122  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2468 037124                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      037124  104455                                                                        TRAP    C$ERDF
      037126  000662                                                                       .WORD   434
      037130  003650                                                                       .WORD   SFIERR
      037132  012124                                                                       .WORD   SFIMSG
2469 037134                                20$:
2470 037134  013737  002172  043640              MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2471 037142  012704  043620                      MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2472
2473                                    ;*************************************************************************
2474                                    ;
2475                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2476                                    ;
2477                                    ;*************************************************************************
2478
2479 037146  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2480 037152  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
2481 037154  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2485 037160  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2486 037162                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      037162  104456                                                                        TRAP    C$ERHRD
      037164  000663                                                                       .WORD   435
      037166  005054                                                                       .WORD   WRTMSG
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
     037170  012124                                                                  .WORD   SFIMSG
2487 037172                      24$:    CKLOOP                          LOOP IF SELECTED
     037172  104406                                                                  TRAP    C$CLP1
2488
2489                             ;*************************************************************
2490                             ;
2491                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2492                             ;
2493                             ;*************************************************************
2494
2495 037174  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2496 037200  103407                      BCS     30$                     ;BR, IF NO PROBLEM
2497 037202  010001                      MOV     R0,R1                   ;SAVE TSSR
2498 037204  005237  002212              INC     FATFLG                  ;BUMP COUNT
2502 037210                              ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     037210  104456                                                                  TRAP    C$ERHRD
     037212  000664                                                                  .WORD   436
     037214  045076                                                                  .WORD   T24RWN
     037216  012136                                                                  .WORD   PKTSSR
2503 037220                      30$:    CKLOOP                          ;LOOP IF SELECTED
     037220  104406                                                                  TRAP    C$CLP1
2504 037222  012703  000400              MOV     #256.,R3                ;RECORD SIZE
2505 037226  013737  003114  043742      MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2506
2507                             ;*************************************************************
2508                             ;
2509                             ;WRITE DATA,ACK,CVC=1 COMMAND
2510                             ;
2511                             ;*************************************************************
2512
2513 037234  012737  140005  043740      MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2514 037242  012704  043740              MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2515 037246                      65$:
2516 037246  010337  043746              MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2517 037252  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2518 037256  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2519 037262  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2520 037266  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
2521 037272  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
2522 037274  001406                      BEQ     75$                     ;BR, IF OK
2523 037276  005237  002212              INC     FATFLG                  ;BUMP COUNT
2527 037302                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     037302  104456                                                                  TRAP    C$ERHRD
     037304  000665                                                                  .WORD   437
     037306  005111                                                                  .WORD   WRTERR
     037310  012136                                                                  .WORD   PKTSSR
2528 037312                      75$:    CKLOOP                          ;LOOP IF SELECTED
     037312  104406                                                                  TRAP    C$CLP1
2529 037314                      120$:
2530
2531                             ;*************************************************************
2532                             ;
2533                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2534                             ;
2535                             ;*************************************************************
2536
2537 037314  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2538 037320  103407                        BCS     130$                    ;BR, IF NO PROBLEM
2539 037322  010001                        MOV     R0,R1                   ;SAVE TSSR
2540 037324  005237  002212                INC     FATFLG                  ;BUMP COUNT
2544 037330                                ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     037330  104456                                                        TRAP    C$ERHRD
     037332  000666                                                        .WORD   438
     037334  045076                                                        .WORD   T24RWN
     037336  012136                                                        .WORD   PKTSSR
2545 037340                        130$:   CKLOOP                          ;LOOP IF SELECTED
     037340  104406                                                        TRAP    C$CLP1
2546 037342  012703  001000                MOV     #512.,R3                ;RECORD SIZE
2547 037346  013737  003114  043742        MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2548
2549                                       ;*****************************************************************
2550                                       ;
2551                                       ;READ DATA,ACK,CVC=1 COMMAND
2552                                       ;
2553                                       ;*****************************************************************
2554
2555 037354  012737  140001  043740        MOV     #140001,T24PK3          ;READ DATA,ACK,CVC=1 COMMAND
2556 037362  012704  043740        165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2557 037366  010337  043746                MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2558 037372  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2559 037376  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2560 037402  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2561 037406  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
2562 037412  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2563 037414  001406                        BEQ     170$                    ;BR, IF OK
2564 037416  005237  002212                INC     FATFLG                  ;BUMP COUNT
2568 037422                                ERRHRD  ERRNO,T24TRL,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     037422  104456                                                        TRAP    C$ERHRD
     037424  000667                                                        .WORD   439
     037426  046144                                                        .WORD   T24TRL
     037430  015564                                                        .WORD   EXPREC
2569 037432                        170$:   CKLOOP                          ;LOOP IF SELECTED
     037432  104406                                                        TRAP    C$CLP1
2570
2571                                       ;*****************************************************************
2572                                       ;
2573                                       ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2574                                       ;
2575                                       ;*****************************************************************
2576
2577 037434  013701  043650                MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
2578 037440  010102                        MOV     R1,R2                   ;SET UP EXPECTED
2579 037442  052702  040000                BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
2580 037446  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2581 037450  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
2582 037452  005237  002212                INC     FATFLG                  ;BUMP COUNT
2586 037456                                ERRHRD  ERRNO,T24LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     037456  104456                                                        TRAP    C$ERHRD
     037460  000670                                                        .WORD   440
     037462  045774                                                        .WORD   T24LOP
     037464  015564                                                        .WORD   EXPREC
2587 037466                        180$:
2588 037466  013701  043646                MOV     T24BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
2589 037472  012702  000400                MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2590 037476  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
2591 037500  001406                          BEQ     190$                    ;BR, IF CORRECT
2592 037502  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2596 037506                                  ERRHRD  ERRNO,T24PBP,EXPREC     ;RBPCR NOT CORRECT
     037506  104456                                                                  TRAP    C$ERHRD
     037510  000671                                                                  .WORD   441
     037512  046056                                                                  .WORD   T24PBP
     037514  015564                                                                  .WORD   EXPREC
2597 037516                          190$:   CKLOOP                          ;LOOP IF SELECTED
     037516  104406                                                                  TRAP    C$CLP1
2598 037520                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     037520                                                                       L10057:
     037520  104403                                                                  TRAP    C$ESUB
2599 037522  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2600 037530  103402                          BLO     999$                            ;BR, IF LESS THAN 25
2601 037532  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
2602 037536                          999$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2605                                    ;*
2606                                    ;
2607                                    ;TEST 4, SUBTEST 6
2608                                    ;
2609                                    ;VERIFIES THAT READ REVERSE COMMANDS WITH SWB=0
2610                                    ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
2611                                    ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
2612                                    ;LENGTH AND DATA CONTENT. THE TAPE IS THEN READ IN REVERSE
2613                                    ;SEQUENTIALLY AND THE RESULTS
2614                                    ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
2615                                    ;EACH READ REVERSE COMMAND IS SET TO THE LENGTH OF THE
2616                                    ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
2617                                    ;OCCUR.
2618                                    ;
2619                                    ;
2620                                    ;
2621                                    ;-
2622 037536                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     037536                                                                                    T4.6:
     037536  104402                                                                              TRAP    C$BSUB
2623 037540  004737  046434                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2624 037544  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
2625 037550  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2626
2627                                    ;*************************************************************************
2628                                    ;
2629                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
2630                                    ;
2631                                    ;*************************************************************************
2632
2633 037554  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2634 037560  103407                            BCS     20$                     ;BR IF INIT WAS OK
2635 037562  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2639 037566  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2640 037570                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     037570  104455                                                                           TRAP    C$ERDF
     037572  000672                                                                          .WORD   442
     037574  003650                                                                          .WORD   SFIERR
     037576  012124                                                                          .WORD   SFIMSG
2641 037600                                20$:
2642 037600  013737  002172  043640                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2643 037606  012704  043620                        MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2644
2645                                    ;*************************************************************************
2646                                    ;
2647                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2648                                    ;
2649                                    ;*************************************************************************
2650
2651 037612  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2652 037616  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
2653 037620  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2657 037624  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2658 037626                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     037626  104456                                                                           TRAP    C$ERHRD
     037630  000673                                                                          .WORD   443
     037632  005054                                                                          .WORD   WRTMSG
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
037634  012124                                                          .WORD   SFIMSG
2659 037636                     24$:    CKLOOP                          ;LOOP IF SELECTED
037636  104406                                                          TRAP    C$CLP1
2660
2661                            ;*****************************************************************
2662                            ;
2663                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2664                            ;
2665                            ;*****************************************************************
2666
2667 037640  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2668 037644  103407                    BCS     30$                     ;BR, IF NO PROBLEM
2669 037646  010001                    MOV     R0,R1                   ;SAVE TSSR
2670 037650  005237  002212            INC     FATFLG                  ;BUMP COUNT
2674 037654                            ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
037654  104456                                                          TRAP    C$ERHRD
037656  000674                                                          .WORD   444
037660  045076                                                          .WORD   T24RWN
037662  012136                                                          .WORD   PKTSSR
2675 037664                     30$:    CKLOOP                          ;LOOP IF SELECTED
037664  104406                                                          TRAP    C$CLP1
2676 037666  012703  000400            MOV     #256.,R3                ;RECORD SIZE
2677 037672  013737  003114  043742    MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2678
2679                            ;*****************************************************************
2680                            ;
2681                            ;WRITE DATA,ACK,CVC=1 COMMAND
2682                            ;
2683                            ;*****************************************************************
2684
2685 037700  012737  140005  043740    MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2686 037706  012704  043740            MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2687 037712                     65$:
2688 037712  010300                    MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
2689 037714  004737  017512            JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2690 037720  010337  043746            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2691 037724  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2692 037730  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2693 037734  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2694 037740  012702  000200            MOV     #SSR,R2                  SET UP EXPECTED
2695 037744  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
2696 037746  001406                    BEQ     75$                     ;BR, IF OK
2697 037750  005237  002212            INC     FATFLG                  ;BUMP COUNT
2701 037754                            ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
037754  104456                                                          TRAP    C$ERHRD
037756  000675                                                          .WORD   445
037760  005111                                                          .WORD   WRTERR
037762  012136                                                          .WORD   PKTSSR
2702 037764                     75$:    CKLOOP                          ;LOOP IF SELECTED
037764  104406                                                          TRAP    C$CLP1
2703 037766  005723                    TST     (R3)+                   ;BUMP RECORD SIZE
2704 037770  022703  000414            CMP     #268.,R3                ;END OF RECORD YET
2705 037774  001346                    BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
2706 037776                     80$:    CKLOOP                          ;LOOP IF SELECTED
037776  104406                                                          TRAP    C$CLP1
2707 040000  005743                    TST     -(R3)                   ;SET BACK TO 512.
2708 040002  013737  003114  043742    MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
```

```
2709
2710                                    ;*************************************************************************
2711                                    ;
2712                                    ;READ REVERSE DATA,ACK COMMAND
2713                                    ;
2714                                    ;*************************************************************************
2715
2716 040010  012737  100401  043740          MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
2717 040016  012704  043740          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2718 040022  010337  043746                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2719 040026  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2720 040032  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2721 040036  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2722 040042  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2723 040046  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2724 040050  001406                          BEQ     170$                    ;BR, IF OK
2725 040052  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2729 040056                                  ERRHRD  ERRNO,T24WDC,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     040056  104456                                                                  TRAP    C$ERHRD
     040060  000676                                                                  .WORD   446
     040062  045426                                                                  .WORD   T24WDC
     040064  012136                                                                  .WORD   PKTSSR
2730 040066                          170$:   CKLOOP                          ;LOOP IF SELECTED
     040066  104406                                                                  TRAP    C$CLP1
2731 040070  013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
2732 040074  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
2733 040076  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
2734 040102  060204                  173$:   ADD     R2,R4                   ;SET POINTER TO FRAME (WORD)
2735 040104  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
2736 040106  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
2737 040110  011401                          MOV     (R4),R1                 ;RECD DATA
2738 040112  010302                          MOV     R3,R2                   ;EXPECTED DATA
2739 040114  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2743 040120                                  ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
     040120  104456                                                                  TRAP    C$ERHRD
     040122  000677                                                                  .WORD   447
     040124  044660                                                                  .WORD   T24DTA
     040126  015564                                                                  .WORD   EXPREC
2744 040130                          180$:   CKLOOP                          ;LOOP IF SELECTED
     040130  104406                                                                  TRAP    C$CLP1
2745 040132  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
2746 040134  160204                          SUB     R2,R4                   ;GET RID OF BASE ADDRESS
2747 040136  020403                          CMP     R4,R3                   ;END OF RECORD YET
2748 040140  001360                          BNE     173$                    ;BR, IF NOT AT END OF RECORD
2749 040142  005743                          TST     -(R3)                   ;BUMP RECORD SIZE
2750 040144  022703  000400                  CMP     #256.,R3                ;END OF RECORD YET
2751 040150  001322                          BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
2752 040152                          190$:   CKLOOP                          ;LOOP IF SELECTED
     040152  104406                                                                  TRAP    C$CLP1
2753 040154                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     040154                                                                       L10060:
     040154  104403                                                                  TRAP    C$ESUB
2754 040156  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2755 040164  103402                          BLO     999$                            ;BR, IF LESS THAN 25
2756 040166  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
2757 040172                          999$:
```

TEST 4. BASIC READ DATA (FORWARD AND REVERSE)

```
2760                                    ;+
2761                                    ;
2762                                    ;TEST 4, SUBTEST 7
2763                                    ;
2764                                    ;VERIFIES THAT READ DATA COMMANDS WITH CVC=1 AND THE
2765                                    ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
2766                                    ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
2767                                    ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
2768                                    ;
2769                                    ;
2770                                    ;
2771                                    ;
2772 040172                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>
      040172                                                                                    T4.7:
      040172  104402                                                                              TRAP    C$BSJB
2773 040174  004737  046434                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2774 040200  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
2775 040204  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2776
2777                                    ;*****************************************************************
2778                                    ;
2779                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
2780                                    ;
2781                                    ;*****************************************************************
2782
2783 040210  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2784 040214  103407                            BCS     20$                     ;BR IF INIT WAS OK
2785 040216  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2789 040222  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2790 040224                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      040224  104455                                                                            TRAP    C$ERDF
      040226  000700                                                                            .WORD   448
      040230  003650                                                                            .WORD   SFIERR
      040232  012124                                                                            .WORD   SFIMSG
2791 040234                                    20$:
2792 040234  013737  002172  043640                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2793 040242  012704  043620                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2794
2795                                    ;*****************************************************************
2796                                    ;
2797                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2798                                    ;
2799                                    ;*****************************************************************
2800
2801 040246  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2802 040252  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
2803 040254  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2807 040260  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2808 040262                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      040262  104456                                                                            TRAP    C$ERHRD
      040264  000701                                                                            .WORD   449
      040266  005054                                                                            .WORD   WRTMSG
      040270  012124                                                                            .WORD   SFIMSG
2809 040272                                    24$:    CKLOOP                  ;LOOP IF SELECTED
      040272  104406                                                                            TRAP    C$CLP1
2810
2811                                    ;*****************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2812                                    ;
2813                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2814                                    ;
2815                                    ;*****************************************************************
2816
2817 040274  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2818 040300  103407                            BCS     30$                     ;BR. IF NO PROBLEM
2819 040302  010001                            MOV     R0,R1                   ;SAVE TSSR
2820 040304  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2824 040310                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     040310  104456                                                                    TRAP    C$ERHRD
     040312  000702                                                                    .WORD   450
     040314  045076                                                                    .WORD   T24RWN
     040316  012136                                                                    .WORD   PKTSSR
2825 040320                            30$:    CKLOOP                          ;LOOP IF SELECTED
     040320  104406                                                                    TRAP    C$CLP1
2826 040322  012703  000400                     OV      #256.,R3                ;RECORD SIZE
2827 040326  013737  003114  043742            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2828
2829                                    ;*****************************************************************
2830                                    ;
2831                                    ;WRITE DATA,ACK,CVC=1,SWB COMMAND
2832                                    ;
2833                                    ;*****************************************************************
2834
2835 040334  012737  150005  043740            MOV     #150005,T24PK3          ;WRITE DATA,ACK,CVC=1,SWB COMMAND
2836 040342  012704  043740                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2837 040346                            65$:
2838 040346  010300                            MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
2839 040350  004737  017512                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2840 040354  010337  043746                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2841 040360  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2842 040364  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2843 040370  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2844 040374  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
2845 040400  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
2846 040402  001406                            BEQ     75$                     ;BR. IF OK
2847 040404  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2851 040410                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     040410  104456                                                                    TRAP    C$ERHRD
     040412  000703                                                                    .WORD   451
     040414  005111                                                                    .WORD   WRTERR
     040416  012136                                                                    .WORD   PKTSSR
2852 040420                            75$:    CKLOOP                          ;LOOP IF SELECTED
     040420  104406                                                                    TRAP    C$CLP1
2853 040422  005723                            TST     (R3)+                   ;BUMP RECORD SIZE
2854 040424  022703  000414                    CMP     #268.,R3                ;END OF RECORD YET
2855 040430  001346                            BNE     65$                     ;BR. IF MORE RECORDS TO WRITE
2856 040432                            80$:    CKLOOP                          ;LOOP IF SELECTED
     040432  104406                                                                    TRAP    C$CLP1
2857 040434  005743                            TST     -(R3)                   ;SET RECORD SIZE BACK TO 512.
2858 040436  013737  003114  043742            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2859
2860                                    ;*****************************************************************
2861                                    ;
2862                                    ;READ REVERSE DATA,ACK,SWB COMMAND
2863                                    ;
```

```
2864                                    ;*****************************************************************
2865
2866 040444  012737  110401  043740     MOV     #110401,T24PK3          ;READ REVERSE DATA,ACK,SWB COMMAND
2867 040452  012704  043740     165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2868 040456  010337  043746             MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2869 040462  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2870 040466  004737  016340             JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2871 040472  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2872 040476  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED
2873 040502  020102                     CMP     R1,R2                   ;ARE THEY EQUAL
2874 040504  001406                     BEQ     170$                    ;BR. IF OK
2875 040506  005237  002212             INC     FATFLG                  ;BUMP COUNT
2879 040512                             ERRHRD  ERRNO,T24WDC,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     040512  104456                                                                     TRAP    C$ERHRD
     040514  000704                                                                     .WORD   452
     040516  045426                                                                     .WORD   T24WDC
     040520  015564                                                                     .WORD   EXPREC
2880 040522                     170$:   CKLOOP                          ;LOOP IF SELECTED
     040522  104406                                                                     TRAP    C$CLP1
2881 040524  013702  003114             MOV     FREE,R2                 ;GET BUFFER ADDRESS
2882 040530  010304                     MOV     R3,R4                   ;CURRENT RECORD SIZE
2883 040532  162704  000400             SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
2884 040536  060204             173$:   ADD     R2,R4                   ;SET POINTER TO FRAME (WORD)
2885 040540  021403                     CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
2886 040542  001410                     BEQ     180$                    ;BR. IF ALL IS WELL
2887 040544  011401                     MOV     (R4),R1                 ;RECD DATA
2888 040546  010302                     MOV     R3,R2                   ;EXPECTED DATA
2889 040550  005237  002212             INC     FATFLG                  ;BUMP COUNT
2893 040554                             ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
     040554  104456                                                                     TRAP    C$ERHRD
     040556  000705                                                                     .WORD   453
     040560  044660                                                                     .WORD   T24DTA
     040562  015564                                                                     .WORD   EXPREC
2894 040564                     180$:   CKLOOP                          ;LOOP IF SELECTED
     040564  104406                                                                     TRAP    C$CLP1
2895 040566  005724                     TST     (R4)+                   ;BUMP TO NEXT LOCATION
2896 040570  160204                     SUB     R2,R4                   ;GET RID OF BASE ADDRESS
2897 040572  020403                     CMP     R4,R3                   ;END OF RECORD YET
2898 040574  001360                     BNE     173$                    ;BR. IF NOT AT END OF RECORD
2899 040576  005743                     TST     -(R3)                   ;BUMP RECORD SIZE
2900 040600  022703  000400             CMP     #256.,R3                ;END OF RECORD YET
2901 040604  001322                     BNE     165$                    ;BR. IF MORE RECORDS TO WRITE
2902 040606                     190$:   CKLOOP                          ;LOOP IF SELECTED
     040606  104406                                                                     TRAP    C$CLP1
2903 040610                             ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     040610                                                                     L10061:
     040610  104403                                                                     TRAP    C$ESUB
2904 040612  023727  002212  000017     CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
2905 040620  103402                     BLO     999$                    ;BR. IF LESS THAN 25
2906 040622  004737  017272             JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2907 040626                     999$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE) SEQ 0160

```
                                        ;*
                                        ;
                                        ;TEST 4, SUBTEST 8
                                        ;
                                        ;VERIFIES THAT A READ REVERSE COMMAND READING A RECORD
                                        ;LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
                                        ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG
                                        ;(RLL) BIT SET.
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T4.8:
040626  104402                                                                                  TRAP    C$BSJB
040630  004737  046434                    JSR     PC,T24RT3                       ;SET UP OTHER COMMAND PACKET
040634  004737  046300                    JSR     PC,T24REST                      ;SET COMMAND PACKET
040640  004737  046372                    JSR     PC,T24RT2                       ;SET UP OTHER COMMAND PACKET

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER 'SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

040644  004737  016064                    JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
040650  103407                            BCS     20$                             ;BR IF INIT WAS OK
040652  005237  002212                    INC     FATFLG                          ;BUMP COUNT
040656  010001                            MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
040660                                    ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
040660  104455                                                                                  TRAP    C$ERDF
040662  000706                                                                                  .WORD   454
040664  003650                                                                                  .WORD   SFIERR
040666  012124                                                                                  .WORD   SFIMSG
040670                                  20$:
040670  013737  002172  043640                    MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
040676  012704  043620                            MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

040702  004737  010752                    JSR     PC,WRTCHR                       ;ISSUE WRITE CHARACTERISTICS
040706  103407                            BCS     24$                             ;BR, IF COMMAND ISSUED OK
040710  005237  002212                    INC     FATFLG                          ;BUMP COUNT
040714  010001                            MOV     R0,R1                           ;SAVE CONTENTS OF TSSR
040716                                    ERRHRD  ERRNO,WRTMSG,SFIMSG             ;WRITE CHARACTERISTISC FAILED
040716  104456                                                                                  TRAP    C$ERHRD
040720  000707                                                                                  .WORD   455
040722  005054                                                                                  .WORD   WRTMSG
040724  012124                                                                                  .WORD   SFIMSG
040726                                  24$:    CKLOOP                          ;LOOP IF SELECTED
040726  104406                                                                                  TRAP    C$CLP1

                                        ;*****************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
2961                                    ;
2962                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2963                                    ;
2964                                    ;*****************************************************************
2965
2966 040730  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2967 040734  004737  016426            JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
2968 04074C  103407                    BCS     30$                     ;BR, IF NO PROBLEM
2969 040742  010001                    MOV     R0,R1                   ;SAVE TSSR
2970 040744  005237  002212            INC     FATFLG                  ;BUMP COUNT
2974 040750                            ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     040750  104456                                                            TRAP    C$ERHRD
     040752  000710                                                            .WORD   456
     040754  045076                                                            .WORD   T24RWN
     040756  012136                                                            .WORD   PKTSSR
2975 040760                            30$:    CKLOOP                  ;LOOP IF SELECTED
     040760  104406                                                            TRAP    C$CLP1
2976 040762  012703  001000            MOV     #512.,R3                ;RECORD SIZE
2977 040766  013737  003114  043742    MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2978
2979                                    ;*****************************************************************
2980                                    ;
2981                                    ;WRITE DATA,ACK,CVC=1 COMMAND
2982                                    ;
2983                                    ;*****************************************************************
2984
2985 040774  012737  140005  043740    MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2986 041002  012704  043740            MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2987 041006                            65$:
2988 041006  010337  043746            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2989 041012  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2990 041016  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2991 041022  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2992 041026  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
2993 041032  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
2994 041034  001406                    BEQ     75$                     ;BR, IF OK
2995 041036  005237  002212            INC     FATFLG                  ;BUMP COUNT
2999 041042                            ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     041042  104456                                                            TRAP    C$ERHRD
     041044  000711                                                            .WORD   457
     041046  005111                                                            .WORD   WRTERR
     041050  012136                                                            .WORD   PKTSSR
3000 041052                            75$:    CKLOOP                  ;LOOP IF SELECTED
     041052  104406                                                            TRAP    C$CLP1
3001 041054  012703  000400            MOV     #256.,R3                ;SIZE OF RECORD
3002 041060  013737  003114  043742    MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3003
3004                                    ;*****************************************************************
3005                                    ;
3006                                    ;READ DATA,ACK COMMAND
3007                                    ;
3008                                    ;*****************************************************************
3009
3010 041066  012737  100401  043740    MOV     #100401,T24PK3          ;READ DATA,ACK COMMAND
3011 041074  012704  043740            165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3012 041100  010337  043746            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3013 041104  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3014 041110  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3015 041114  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3016 041120  012702  100204          MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
3017 041124  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
3018 041126  001406                  BEQ     170$                    ;BR, IF OK
3019 041130  005237  002212          INC     FATFLG                  ;BUMP COUNT
3023 041134                          ERRHRD  ERRNO,T24TRL,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     041134  104456                                                          TRAP    C$ERHRD
     041136  000712                                                          .WORD   458
     041140  046144                                                          .WORD   T24TRL
     041142  015564                                                          .WORD   EXPREC
3024 041144                  170$:   CKLOOP                          ;LOOP IF SELECTED
     041144  104406                                                          TRAP    C$CLP1
3025
3026                         ;*****************************************************************
3027                         ;
3028                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3029                         ;
3030                         ;*****************************************************************
3031
3032 041146  013701  043650          MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER (XST0)
3033 041152  010102                  MOV     R1,R2                   ;SET UP EXPECTED
3034 041154  052702  010000          BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
3035 041160  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
3036 041162  001406                  BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3037 041164  005237  002212          INC     FATFLG                  ;BUMP COUNT
3041 041170                          ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     041170  104456                                                          TRAP    C$ERHRD
     041172  000713                                                          .WORD   459
     041174  045712                                                          .WORD   T24LON
     041176  015564                                                          .WORD   EXPREC
3042 041200                  180$:   CKLOOP
     041200  104406                                                          TRAP    C$CLP1
3043 041202                          ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     041202                                                          L10062:
     041202  104403                                                          TRAP    C$ESUB
3044 041204  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3045 041212  103402                          BLO     999$                    ;BR, IF LESS THAN 25
3046 041214  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
3047 041220                  999$:
```

```
3049                                    ;*
3050                                    ;
3051                                    ;TEST 4, SUBTEST 9
3052                                    ;
3053                                    ;VERIFIES THAT A READ REVERSE COMMAND SPECIFYING A DATA
3054                                    ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
3055                                    ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
3056                                    ;       ************************************************************************
3057                                    ;                                       CAUTION
3058                                    ;
3059                                    ;               The LSI BUS drivers for all available address lines(16 21)
3060                                    ;       are only checked when running on a 11/23B system with more than
3061                                    ;       128K words of memory!
3062                                    ;       ************************************************************************
3063                                    ;
3064
3065 041220                                        BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     041220                                                                                       T4.9:
     041220  104402                                                                                  TRAP    C$BSJB
3066 041222  005737  003126                       TST     NXMFLG                  ;DO WE HAVE IT?
3067 041226  001002                               BNE     10$                     ;BR, IF  ENOUGH
3068 041230  000137  041616                       JMP     180$                    ;SKIP THIS TEST IF NOT
3069 041234  004737  046434             10$:      JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
3070 041240  004737  046300                       JSR     PC,T24REST              ;SET COMMAND PACKET
3071 041244  004737  046372                       JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3072
3073                                    ;*************************************************************************
3074                                    ;
3075                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3076                                    ;
3077                                    ;*************************************************************************
3078
3079 041250  004737  016064                       JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3080 041254  103407                               BCS     20$                     ;BR IF INIT WAS OK
3081 041256  005237  002212                       INC     FATFLG                  ;BUMP COUNT
3085 041262  010001                               MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3086 041264                                       ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     041264  104455                                                                                   TRAP    C$ERDF
     041266  000714                                                                                   .WORD   460
     041270  003650                                                                                   .WORD   SFIERR
     041272  012124                                                                                   .WORD   SFIMSG
3087 041274                             20$:
3088 041274  013737  002172  043640                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
3089 041302  012704  043620                       MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3090
3091                                    ;*************************************************************************
3092                                    ;
3093                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3094                                    ;
3095                                    ;*************************************************************************
3096
3097 041306  004737  010752                       JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3098 041312  103407                               BCS     24$                     ;BR, IF COMMAND ISSUED OK
3099 041314  005237  002212                       INC     FATFLG                  ;BUMP COUNT
3103 041320  010001                               MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3104 041322                                       ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     041322  104456                                                                                   TRAP    C$ERHRD
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
        041324  000715                                                          .WORD   461
        041326  005054                                                          .WORD   WRTMSG
        041330  012124                                                          .WORD   SFIMSG
  3105  041332                          24$:    CKLOOP                        ;LOOP IF SELECTED
        041332  104406                                                          TRAP    C$CLP1
  3106
  3107                                  ;*************************************************************************
  3108                                  ;
  3109                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  3110                                  ;
  3111                                  ;*************************************************************************
  3112
  3113  041334  004737  021276                 JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
  3114  041340  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  3115  041344  004737  016426                 JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
  3116  041350  103407                         BCS     30$                     ;BR, IF NO PROBLEM
  3117  041352  010001                         MOV     R0,R1                   ;SAVE TSSR
  3118  041354  005237  002212                 INC     FATFLG                  ;BUMP COUNT
  3122  041360                                 ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
        041360  104456                                                          TRAP    C$ERHRD
        041362  000716                                                          .WORD   462
        041364  045076                                                          .WORD   T24RWN
        041366  012136                                                          .WORD   PKTSSR
  3123  041370                          30$:    CKLOOP                        ;LOOP IF SELECTED
        041370  104406                                                          TRAP    C$CLP1
  3124  041372  012703  000400                 MOV     #256.,R3                ;RECORD SIZE
  3125  041376  013737  003114  043742         MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
  3126                                  ;*************************************************************************
  3127                                  ;
  3128                                  ;WRITE DATA,ACK,CVC=1 COMMAND
  3129                                  ;
  3130                                  ;*************************************************************************
  3131
  3132  041404  012737  140005  043740         MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
  3133  041412  012704  043740                 MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
  3134  041416                          65$:
  3135  041416  010337  043746                 MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
  3136  041422  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
  3137  041426  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
  3138  041432  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
  3139  041436  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
  3140  041442  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
  3141  041444  001406                         BEQ     75$                     ;BR, IF OK
  3142  041446  005237  002212                 INC     FATFLG                  ;BUMP COUNT
  3146  041452                                 ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        041452  104456                                                          TRAP    C$ERHRD
        041454  000717                                                          .WORD   463
        041456  005111                                                          .WORD   WRTERR
        041460  012136                                                          .WORD   PKTSSR
  3147  041462                          75$:    CKLOOP                        ;LOOP IF SELECTED
        041462  104406                                                          TRAP    C$CLP1
  3148  041464  012703  000400                 MOV     #256.,R3                ;RECORD SIZE
  3149  041470  013737  003130  043742         MOV     NXMLO,T24RB             ;STARTING READ BUFFER ADDRESS
  3150  041476  013737  003132  043744         MOV     NXMHI,T24RB+2           ;SET ADDRESS BITS 16-17
  3151
  3152                                  ;*************************************************************************
  3153                                  ;
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
                                        ;READ DATA,ACK COMMAND
                                        ;
                                        ;*********************************************************************
                                        
041504  012737  100001  043740          MOV     #100001,T24PK3          ;READ DATA,ACK COMMAND
041512  012704  043740          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
041516  010337  043746                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
041522  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
041526  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
041532  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
041536  012702  104210                  MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
041542  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
041544  001406                          BEQ     170$                    ;BR. IF OK
041546  005237  002212                  INC     FATFLG                  ;BUMP COUNT
041552                                  ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
041552  104456                                                                  TRAP    C$ERHRD
041554  000720                                                                  .WORD   464
041556  046144                                                                  .WORD   T24TRL
041560  012136                                                                  .WORD   PKTSSR
041562                          170$:   CKLOOP                          ;LOOP IF SELECTED
041562  104406                                                                  TRAP    C$CLP1

                                        ;*********************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                        ;
                                        ;*********************************************************************

041564  013701  043650                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
041570  010102                          MOV     R1,R2                   ;SET UP EXPECTED
041572  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
041576  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
041600  001406                          BEQ     180$                    ;BR. IF EQUAL (ALL IS WELL)
041602  005237  002212                  INC     FATFLG                  ;BUMP COUNT
041606                                  ERRHRD  ERRNO,T24LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
041606  104456                                                                  TRAP    C$ERHRD
041610  000721                                                                  .WORD   465
041612  045774                                                                  .WORD   T24LOP
041614  015564                                                                  .WORD   EXPREC
041616                          180$:   CKLOOP
041616  104406                                                                  TRAP    C$CLP1
041620                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
041620                                                                      L10063:
041620  104403                                                                  TRAP    C$ESUB
041622  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
041630  103402                          BLO     999$                            ;BR. IF LESS THAN 25
041632  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
041636                          999$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3198                                    ;*
3199                                    ;
3200                                    ;TEST 4, SUBTEST 10
3201                                    ;
3202                                    ;VERIFIES THAT ILLEGAL MODE-FIELD CODES IN THE READ
3203                                    ;COMMAND CAUSE A FUNCTION REJECT TERMINATION WITH THE
3204                                    ;ILLEGAL COMMAND (ILC) ERROR BIT SET.
3205                                    ;
3206                                    ;
3207                                    ;
3208                                    ;-
3209
3210 041636                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
    041636                                                                                    T4.10:
    041636  104402                                                                            TRAP    C$BSJB
3211 041640  004737  046434                    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3212 041644  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
3213 041650  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3214
3215                                    ;*****************************************************************
3216                                    ;
3217                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3218                                    ;
3219                                    ;*****************************************************************
3220
3221 041654  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3222 041660  103407                            BCS     20$                     ;BR IF INIT WAS OK
3223 041662  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3227 041666  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3228 041670                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
    041670  104455                                                                            TRAP    C$ERDF
    041672  000722                                                                            .WORD   466
    041674  003650                                                                            .WORD   SFIERR
    041676  012124                                                                            .WORD   SFIMSG
3229 041700                                20$:
3230 041700  013737  002172  043640                MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3231 041706  012704  043620                        MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3232
3233                                    ;*****************************************************************
3234                                    ;
3235                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3236                                    ;
3237                                    ;*****************************************************************
3238
3239 041712  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3240 041716  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
3241 041720  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3245 041724  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3246 041726                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    041726  104456                                                                            TRAP    C$ERHRD
    041730  000723                                                                            .WORD   467
    041732  005054                                                                            .WORD   WRTMSG
    041734  012124                                                                            .WORD   SFIMSG
3247 041736                                24$:    CKLOOP                          ;LOOP IF SELECTED
    041736  104406                                                                            TRAP    C$CLP1
3248 041740  013737  003114  043742                MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3249
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3250                                    ;*************************************************************************
3251                                    ;
3252                                    ;ILLEGAL MODE DATA,ACK COMMAND
3253                                    ;
3254                                    ;*************************************************************************
3255
3256 041746  012737  104001  043740          MOV     #104001,T24PK3          ;ILLEGAL MODE DATA,ACK COMMAND
3257 041754  012704  043740                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3258 041760  012737  000400  043746          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
3259 041766  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3260 041772  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
3261 041776  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3262 042002  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
3263 042006  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3264 042010  001406                          BEQ     75$                     ;BR, IF OK
3265 042012  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3269 042016                                  ERRHRD  ERRNO,T24WDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     042016  104456                                                                  TRAP    C$ERHRD
     042020  000724                                                                  .WORD   468
     042022  044265                                                                  .WORD   T24WDF
     042024  012136                                                                  .WORD   PKTSSR
3270 042026                          75$:    CKLOOP                          ;LOOP IF SELECTED
     042026  104406                                                                  TRAP    C$CLP1
3271
3272                                    ;*************************************************************************
3273                                    ;
3274                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
3275                                    ;
3276                                    ;*************************************************************************
3277
3278 042030  013701  043650                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3279 042034  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3280 042036  052702  001000                  BIS     #BIT9,R2                ;SET THE ILC BIT IN EXPECTED
3281 042042  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3282 042044  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3283 042046  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3287 042052                                  ERRHRD  ERRNO,T24LOQ,EXPREC     ;THE ILC BIT WAS NOT SET IN XSTO
     042052  104456                                                                  TRAP    C$ERHRD
     042054  000725                                                                  .WORD   469
     042056  044426                                                                  .WORD   T24LOQ
     042060  015564                                                                  .WORD   EXPREC
3288 042062                          180$:   CKLOOP
     042062  104406                                                                  TRAP    C$CLP1
3289 042064                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     042064                                                                       L10064:
     042064  104403                                                                  TRAP    C$ESUB
3290 042066  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3291 042074  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
3292 042076  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
3293 042102                          999$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3295                                    ;*
3296                                    ;
3297                                    ;TEST 4, SUBTEST 11
3298                                    ;
3299                                    ;VERIFIES THAT ILLEGAL BUFFER ADDRESSES CAUSE A
3300                                    ;FUNCTION REJECT TERMINATION WITH ILLEGAL ADDRESS
3301                                    ;(ILA) ERROR BIT SET.
3302                                    ;
3303                                    ;
3304                                    ;-
3305
3306
3307 042102                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      042102                                                                                    T4.11:
      042102  104402                                                                              TRAP    C$BSUB
3308 042104  004737  046434                    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3309 042110  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
3310 042114  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3311
3312                                    ;*************************************************************************
3313                                    ;
3314                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3315                                    ;
3316                                    ;*************************************************************************
3317
3318 042120  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3319 042124  103407                            BCS     20$                     ;BR IF INIT WAS OK
3320 042126  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3324 042132  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3325 042134                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      042134  104455                                                                            TRAP    C$ERDF
      042136  000726                                                                           .WORD   470
      042140  003650                                                                           .WORD   SFIERR
      042142  012124                                                                           .WORD   SFIMSG
3326 042144                            20$:
3327 042144  013737  002172  043640                MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3328 042152  012704  043620                        MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3329
3330                                    ;*************************************************************************
3331                                    ;
3332                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3333                                    ;
3334                                    ;*************************************************************************
3335
3336 042156  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3337 042162  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
3338 042164  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3342 042170  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3343 042172                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      042172  104456                                                                           TRAP    C$ERHRD
      042174  000727                                                                           .WORD   471
      042176  005054                                                                           .WORD   WRTMSG
      042200  012124                                                                           .WORD   SFIMSG
3344 042202                            24$:    CKLOOP                          ;LOOP IF SELECTED
      042202  104406                                                                           TRAP    C$CLP1
3345 042204  013737  003114  043742                MOV     FREE,T24RB              ;ILLEGAL STARTING READ BUFFER ADDRESS
3346 042212  012737  177700  043744                MOV     #177700,T24RB+2         ;CREATE ILLEGAL ADDRESS
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3347
3348                                    ;*************************************************************************
3349                                    ;
3350                                    ;LEGAL MODE,ACK,CVC=1,READ COMMAND
3351                                    ;
3352                                    ;*************************************************************************
3353
3354 042220  012737  140001  043740          MOV     #140001,T24PK3          ;LEGAL MODE,ACK,CVC=1,READ COMMAND
3355 042226  012704  043740                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3356 042232  012737  000400  043746          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
3357 042240  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3358 042244  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
3359 042250  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3360 042254  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
3361 042260  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3362 042262  001406                          BEQ     75$                     ;BR, IF OK
3363 042264  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3367 042270                                  ERRHRD  ERRNO,T24WDG,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     042270  104456                                                                  TRAP    C$ERHRD
     042272  000730                                                                  .WORD   472
     042274  044112                                                                  .WORD   T24WDG
     042276  012136                                                                  .WORD   PKTSSR
3368 042300                          75$:    CKLOOP                          ;LOOP IF SELECTED
     042300  104406                                                                  TRAP    C$CLP1
3369
3370                                    ;*************************************************************************
3371                                    ;
3372                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3373                                    ;
3374                                    ;*************************************************************************
3375
3376 042302  013701  043650                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3377 042306  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3378 042310  052702  000400                  BIS     #BIT8,R2                ;SET THE ILA BIT IN EXPECTED
3379 042314  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3380 042316  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3381 042320  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3385 042324                                  ERRHRD  ERRNO,T24ILA,EXPREC     ;THE ILA BIT WAS NOT SET IN XST0
     042324  104456                                                                  TRAP    C$ERHRD
     042326  000731                                                                  .WORD   473
     042330  044342                                                                  .WORD   T24ILA
     042332  015564                                                                  .WORD   EXPREC
3386 042334                          180$:   CKLOOP
     042334  104406                                                                  TRAP    C$CLP1
3387 042336                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     042336                                                                       L10065:
     042336  104403                                                                  TRAP    C$ESUB
3388 042340  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3389 042346  103402                          BLO     999$                            ;BR, IF LESS THAN 25
3390 042350  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
3391 042354                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 4, SUBTEST 12
                                        ;
                                        ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
                                        ;NONEXISTANT MEMORY CAUSES RECOVERABLE ERROR
                                        ;TERMINATION (TC=4), WITH THE NXM BIT SET IN THE TSSR, AND
                                        ;THAT THE TAPE .  ULTIMATELY POSITIONED PROPERLY.
                                        ;       ********************************************************************
                                        ;                                  CAUTION
                                        ;
                                        ;               The LSI BUS drivers for all available address lines(16 21)
                                        ;       are only checked when running on a 11/23B system with more than
                                        ;       128K words of memory!
                                        ;       ********************************************************************
                                        ;

042354                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
042354                                                                                  T4.12:
042354  104402                                                                          TRAP    C$BS,0
042356  005737  003126                          TST     NXMFLG                  ;DO WE HAVE IT?
042362  001002                                  BNE     10$                     ;BR, IF  ENOUGH
042364  000137  042572                          JMP     80$                     ;SKIP THIS TEST IF NOT
042370  004737  046434                  10$:    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
042374  004737  046300                          JSR     PC,T24REST              ;SET COMMAND PACKET
042400  004737  046372                          JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*******************************************************************

042404  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
042410  103407                                  BCS     20$                     ;BR IF INIT WAS OK
042412  005237  002212                          INC     FATFLG                  ;BUMP COUNT
042416  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
042420                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
042420  104455                                                                          TRAP    C$ERDF
042422  000732                                                                          .WORD   474
042424  003650                                                                          .WORD   SFIERR
042426  012124                                                                          .WORD   SFIMSG
042430                                  20$:
042430  013737  002172  043640                  MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
042436  012704  043620                          MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*******************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*******************************************************************

042442  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
042446  103407                                  BCS     24$                     ;BR, IF COMMAND ISSUED OK
042450  005237  002212                          INC     FATFLG                  ;BUMP COUNT
042454  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
042456                                          ERRHRD  ERRNO,WRTMSG,SFIMSG,    ;WRITE CHARACTERISTISC FAILED
```

```
        042456  104456                                                          TRAP    C$ERHRD
        042460  000733                                                          .WORD   475
        042462  005054                                                          .WORD   WRTMSG
        042464  012124                                                          .WORD   SFTMSG
3450    042466                          24$:    CKLOOP                          ;LOOP IF SELECTED
        042466  104406                                                          TRAP    C$CLP1
3451    042470  004737  021276                  JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
3452    042474  013737  003130  043742          MOV     NXMLO,T24RB             ;SET TO NXM MEMORY ADDRESS
3453    042502  013737  003132  043744          MOV     NXMHI,T24RB+2           ;SET HIGH BITS
3454
3455                            ;*****************************************************************
3456                            ;
3457                            ;READ, ACK, CVC=1, COMMAND
3458                            ;
3459                            ;*****************************************************************
3460
3461    042510  012737  140001  043740          MOV     #140001,T24PK3          ;READ, ACK, CVC=1, COMMAND
3462    042516  012704  043740                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3463    042522  012737  000400  043746          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
3464    042530  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3465    042534  004737  016340                  JSR     PC,WAITF                ;WAIT FOF SSR!BIT1!BIT2 TO SET
3466    042540  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3467    042544  012702  104210                  MOV     #SSR!SC!NXM!BIT3,R2             ;SET UP EXPECTED
3468    042550  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3469    042552  001406                          BEQ     75$                     ;BR, IF OK
3470    042554  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3474    042560                                  ERRHRD  ERRNO,T24NXM,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        042560  104456                                                                  TRAP    C$ERHRD
        042562  000734                                                                  .WORD   476
        042564  044201                                                                  .WORD   T24NXM
        042566  012136                                                                  .WORD   PKTSSR
3475    042570                          75$:    CKLOOP                          ;LOOP IF SELECTED
        042570  104406                                                                  TRAP    C$CLP1
3476    042572                          80$:
3477    042572                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>> >>
        042572                                                                  L10066:
        042572  104403                                                                  TRAP    C$ESUB
3478    042574  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3479    042602  103402                          BLO     999$                    ;BR, IF LESS THAN 25
3480    042604  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
3481    042610                          999$:
```

```
3483                                    ;*
3484                                    ;
3485                                    ;TEST 4, SUBTEST 13
3486                                    ;
3487                                    ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
3488                                    ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
3489                                    ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET
3490                                    ;
3491                                    ;
3492                                    ;
3493                                    ;
3494
3495 042610                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
    042610                                                                                    T4.13:
    042610  104402                                                                              TRAP    C$BSJB
3496 042612  004737  046434                    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3497 042616  004737  046300                    JSR     PC,T24REST              ;SET CC MAND PACKET
3498 042622  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3499
3500                                    ;*****************************************************************
3501                                    ;
3502                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
3503                                    ;
3504                                    ;*****************************************************************
3505
3506 042626  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3507 042632  103407                            BCS     20$                     ;BR IF INIT WAS OK
3508 042634  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3512 042640  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3513 042642                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
    042642  104455                                                                            TRAP    C$ERDF
    042644  000735                                                                           .WORD   477
    042646  003650                                                                           .WORD   SFIERR
    042650  012124                                                                           .WORD   SFIMSG
3514 042652                                 20$:
3515 042652  013737  002172  043640                MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3516 042660  012704  043620                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3517
3518                                    ;*****************************************************************
3519                                    ;
3520                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3521                                    ;
3522                                    ;*****************************************************************
3523
3524 042664  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3525 042670  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
3526 042672  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3530 042676  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3531 042700                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    042700  104456                                                                           TRAP    C$ERHRD
    042702  000736                                                                           .WORD   478
    042704  005054                                                                           .WORD   WRTMSG
    042706  012124                                                                           .WORD   SFIMSG
3532 042710                                 24$:    CKLOOP                          ;LOOP IF SELECTED
    042710  104406                                                                           TRAP    C$CLP1
3533
3534                                    ;*****************************************************************
```

```
3535                                    ;
3536                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3537                                    ;
3538                                    ;*****************************************************************
3539
3540 042712  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3541 042716  004737  016426                    JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
3542 042722  103407                            BCS     30$                     ;BR, IF NO PROBLEM
3543 042724  010001                            MOV     R0,R1                   ;SAVE TSSR
3544 042726  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3548 042732                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     042732  104456                                                                    TRAP    C$ERHRD
     042734  000737                                                                    .WORD   479
     042736  045076                                                                    .WORD   T24RWN
     042740  012136                                                                    .WORD   PKTSSR
3549 042742                            30$:    CKLOOP                          ;LOOP IF SELECTED
     042742  104406                                                                    TRAP    C$CLP:
3550 042744  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
3551 042750  013737  003114  043742            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3552
3553                                    ;*****************************************************************
3554                                    ;
3555                                    ;READ REVERSE DATA,ACK COMMAND
3556                                    ;
3557                                    ;*****************************************************************
3558
3559 042756  012737  100401  043740            MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3560 042764  012704  043740                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3561 042770                            65$:
3562 042770  010337  043746                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3563 042774  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3564 043000  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3565 043004  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3566 043010  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
3567 043014  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3568 043016  001406                            BEQ     75$                     ;BR, IF OK
3569 043020  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3573 043024                                    ERRHRD  ERRNO,T24WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043024  104456                                                                    TRAP    C$ERHRD
     043026  000740                                                                    .WORD   480
     043030  044541                                                                    .WORD   T24WDE
     043032  012136                                                                    .WORD   PKTSSR
3574 043034                            75$:    CKLOOP                          ;LOOP IF SELECTED
     043034  104406                                                                    TRAP    C$CLP1
3575
3576                                    ;*****************************************************************
3577                                    ;
3578                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3579                                    ;
3580                                    ;*****************************************************************
3581
3582 043036  013701  043650                    MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3583 043042  010102                            MOV     R1,R2                   ;SET UP EXPECTED
3584 043044  052702  002000                    BIS     #BIT10,R2               ;SET THE NEF BIT IN EXPECTED
3585 043050  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3586 043052  001406                            BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3587 043054  005237  002212                    INC     FATFLG                  ;BUMP COUNT
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3591 043060                                    ERRHRD  ERRNO,T24NEF,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     043060  104456                                                                TRAP    C$ERHRD
     043062  000741                                                                .WORD   481
     043064  043770                                                                .WORD   T24NEF
     043066  015564                                                                .WORD   EXPREC
3592 043070                              180$:  CKLOOP
     043070  104406                                                                TRAP    C$CLP1
3593 043072                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     043072                                                                       L10067:
     043072  104403                                                                TRAP    C$ESUB
3594 043074  023727  002212  000017           CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3595 043102  103402                           BLO     999$                            ;BR, IF LESS THAN 25
3596 043104  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
3597 043110                              999$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3599                                    ;*
3600                                    ;
3601                                    ;TEST 4, SUBTEST 14
3602                                    ;
3603                                    ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
3604                                    ;TAPE IS POSITIONED BEFORE THE FIRST RECORD ON TAPE
3605                                    ;(BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT.
3606                                    ;
3607                                    ;
3608                                    ;
3609                                    ;-
3610
3611 043110                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      043110                                                                                  T4.14:
      043110  104402                                                                            TRAP    C$BSUB
3612 043112  004737  046434                     JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3613 043116  004737  046300                     JSR     PC,T24REST              ;SET COMMAND PACKET
3614 043122  004737  046372                     JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3615
3616                                    ;*************************************************************
3617                                    ;
3618                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3619                                    ;
3620                                    ;*************************************************************
3621
3622 043126  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3623 043132  103407                             BCS     20$                     ;BR IF INIT WAS OK
3624 043134  005237  002212                     INC     FATFLG                  ;BUMP COUNT
3628 043140  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3629 043142                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      043142  104455                                                                          TRAP    C$ERDF
      043144  000742                                                                          .WORD   482
      043146  003650                                                                          .WORD   SFIERR
      043150  012124                                                                          .WORD   SFIMSG
3630 043152                             20$:
3631 043152  013737  002172  043640                 MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3632 043160  012704  043620                         MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3633
3634                                    ;*************************************************************
3635                                    ;
3636                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3637                                    ;
3638                                    ;*************************************************************
3639
3640 043164  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3641 043170  103407                             BCS     24$                     ;BR, IF COMMAND ISSUED OK
3642 043172  005237  002212                     INC     FATFLG                  ;BUMP COUNT
3646 043176  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3647 043200                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      043200  104456                                                                          TRAP    C$ERHRD
      043202  000743                                                                          .WORD   483
      043204  005054                                                                          .WORD   WRTMSG
      043206  012124                                                                          .WORD   SFIMSG
3648 043210                             24$:    CKLOOP                          ;LOOP IF SELECTED
      043210  104406                                                                          TRAP    C$CLP1
3649
3650                                    ;*************************************************************
```

```
3651                                    ;
3652                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3653                                    ;
3654                                    ;*****************************************************************
3655
3656 043212  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3657 043216  004737  016426            JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
3658 043222  103407                    BCS     30$                     ;BR, IF NO PROBLEM
3659 043224  010001                    MOV     R0,R1                   ;SAVE TSSR
3660 043226  005237  002212            INC     FATFLG                  ;BUMP COUNT
3664 043232                            ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     043232  104456                                                            TRAP    C$ERHRD
     043234  000744                                                            .WORD   484
     043236  045076                                                            .WORD   T24RWN
     043240  012136                                                            .WORD   PKTSSR
3665 043242                            30$:    CKLOOP                  ;LOOP IF SELECTED
     043242  104406                                                            TRAP    C$CLP1
3666 043244  012703  000400            MOV     #256.,R3                ;RECORD SIZE
3667 043250  013737  003114  043742    MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3668
3669                                    ;*****************************************************************
3670                                    ;
3671                                    ;WRITE DATA,ACK,CVC=1 COMMAND
3672                                    ;
3673                                    ;*****************************************************************
3674
3675 043256  012737  140005  043740    MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
3676 043264  012704  043740            MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3677 043270                            65$:
3678 043270  010337  043746            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3679 043274  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3680 043300  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3681 043304  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3682 ^ 3310  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
3683 043314  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
3684 043316  001406                    BEQ     75$                     ;BR, IF OK
3685 043320  005237  002212            INC     FATFLG                  ;BUMP COUNT
3689 043324                            ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043324  104456                                                            TRAP    C$ERHPO
     043326  000745                                                            .WORD   485
     043330  005111                                                            .WORD   WRTERR
     043332  012136                                                            .WORD   PKTSSR
3690 043334                            75$:    CKLOOP                  ;LOOP IF SELECTED
     043334  104406                                                            TRAP    C$CLP1
3691 043336  012703  000400            MOV     #256.,R3                ;RECORD SIZE
3692 043342  013737  003114  043742    MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3693
3694                                    ;*****************************************************************
3695                                    ;
3696                                    ;READ REVERSE DATA,ACK COMMAND
3697                                    ;
3698                                    ;*****************************************************************
3699
3700 043350  012737  100401  043740    MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3701 043356  012704  043740            MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3702 043362  010337  043746            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3703 043366  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3704 043372  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3705 043376  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3706 043402  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
3707 043406  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3708 043410  001406                        BEQ     170$                    ;BR, IF OK
3709 043412  005237  002212                INC     FATFLG                  ;BUMP COUNT
3713 043416                                ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043416  104456                                                                TRAP    C$ERHRD
     043420  000746                                                                .WORD   486
     043422  046144                                                                .WORD   T24TRL
     043424  012136                                                                .WORD   PKTSSR
3714 043426                        170$:   CKLOOP                          ;LOOP IF SELECTED
     043426  104406                                                                TRAP    C$CLP1
3715 043430  012703  000400                MOV     #256.,R3                ;RECORD SIZE
3716 043434  013737  003114  043742        MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3717
3718                               ;*****************************************************************
3719                               ;
3720                               ;READ REVERSE DATA,ACK COMMAND
3721                               ;
3722                               ;*****************************************************************
3723
3724 043442  012737  100401  043740        MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3725 043450  012704  043740        195$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3726 043454  010337  043746                MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3727 043460  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3728 043464  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3729 043470  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3730 043474  012702  100204                MOV     #SSR!SC!BIT2,R2                 ;SET UP EXPECTED
3731 043500  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3732 043502  001406                        BEQ     200$                    ;BR, IF OK
3733 043504  005237  002212                INC     FATFLG                  ;BUMP COUNT
3737 043510                                ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043510  104456                                                                TRAP    C$ERHRD
     043512  000747                                                                .WORD   487
     043514  046144                                                                .WORD   T24TRL
     043516  012136                                                                .WORD   PKTSSR
3738 043520                        200$:   CKLOOP                          ;LOOP IF SELECTED
     043520  104406                                                                TRAP    C$CLP1
3739 043522  013701  043656                MOV     T24BFR+14,R1            ;GET MESSAGE BUFFER (XST3)
3740 043526  010102                        MOV     R1,R2                   ;SET UP EXPECTED
3741 043530  052702  000001                BIS     #BIT0,R2                ;SET THE RIB BIT IN EXPECTED
3742 043534  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3743 043536  001406                        BEQ     210$                    ;BR, IF EQUAL (ALL IS WELL)
3744 043540  005237  002212                INC     FATFLG                  ;BUMP COUNT
3748 043544                                ERRHRD  ERRNO,T24LOR,EXPREC     ;THE RIB BIT WAS NOT SET IN XST0
     043544  104456                                                                TRAP    C$ERHRD
     043546  000750                                                                .WORD   488
     043550  044042                                                                .WORD   T24LOR
     043552  015564                                                                .WORD   EXPREC
3749 043554                        210$:   CKLOOP
     043554  104406                                                                TRAP    C$CLP1
3750 043556                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     043556                                                                      L10070:
     043556  104403                                                                TRAP    C$ESUB
3751 043560  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3752 043566  103402                        BLO     999$                            ;BR, IF LESS THAN 25
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3753 043570  004737  017272                JSR     PC,CKDROP                ;TRY TO DROP THE UNIT
3754 043574                            999$:
3755                                   ;
3756                                   ;
3757                                   ;
3758 043574  004737  016546                JSR     PC,TSTLOOP               ;DO WE NEED TO ITERATE TEST
3759 043600  103002                        BCC     163$                     ;BR, IF NO LOOP REQUIRED
3760 043602  000137  034412                JMP     T24LOOP                  ;EXECUTE AGAIN
3761 043606                            163$:
3762 043606                                EXIT    TST                      ;ALL DONE THIS TEST
     043606  104432                                                         TRAP    C$EXIT
     043610  002654                                                         .WORD   L10052-.
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
                                ;*
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
                                        .=<.+10>&177770
043620                          T24PACKET:                              ;COMMAND PACKET FOR TEST
043620  100204                          .WORD   100204                  ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
043622  043630                          .WORD   T24DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
043624  000000                          .WORD   0
043626  000012                          .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
043630                          T24DATA:                                ;CHARACTERISTICS DATA BLOCK
043630  043642                          .WORD   T24BFR                  ;ADDRESS OF MESSAGE BUFFER
043632  000000                          .WORD   0
043634  000024                          .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
043636  000000                          .WORD   0
043640  000000                  T24DSW: .WORD   0                       ;DRIVE SELECTION BITS 2-0
043642                          T24BFR: .BLKW   25.                     ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
                                        .=<.+10>&177770
043730                          T24PK2:
043730  100206                          .WORD   100206                  ;WRITE SUB SYS MEM COMMAND, IE AND ACK
043732  043750                          .WORD   T24BF2                  ;ADDRESS OF SELECT BLOCK DATA
043734  000000                          .WORD   0
043736  000006                          .WORD   6.                      ;SIZE OF DATA PACKET

043740                          T24PK3:
043740  100205                          .WORD   100205                  ;READ COMMAND, IE AND ACK
043742                          T24RB:
043742  003114                  T24WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
043744  000000                          .WORD   0
043746  000000                  T24SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT,
                                        .EVEN
                                ;
                                ;
                                ;
043750                          T24BF2:
043750      010                 T24BS0: .BYTE   10                      ;BSEL0 AREA
043751      200                 T24BS1: .BYTE   200                     ;BSEL1 AREA
043752  000000                  T24S2:  .WORD   0                       ;SEL 2 AREA
043754  000000                  T24S3:  .WORD   0                       ;DATA AREA
                                ;
                                ;
                                        .EVEN
                                ;TAPE MOTION PACKET COMMAND VALUES

043756  100005                  T24RN:  .WORD   100005                  ;READ DATA (NEXT)
043760  100405                  T24WDR: .WORD   100405                  ;READ DATA RETRY
043762  102005                  T24CON: .WORD   102005                  ;WRITE CONTINOUS
043764  177777                          .WORD   177777                  ;END OF DATA
043766  000000                  T24DLY: .WORD   0                       ;DELAY STORAGE AREA
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3825
3826                                    ;+
3827                                    ;LOCAL TEXT MESSAGES FOR TEST
3828                                    ;-
3829
3830 043770     116     105     106    T24NEF: .ASCIZ  'NEF Not Set After NON-EXECUTABLE FUNCTION'
3831 044042     122     111     102    T24LOR: .ASCIZ  'RIB Not Set After READ REVERSE Into BOT'
3832 044112     124     123     123    T24WDG: .ASCIZ  'TSSR Not Correct After Illegal Buffer Address Bits Set
3833 044201     124     123     123    T24NXM: .ASCIZ  'TSSR Not Correct After NXM Memory Address In Packet'
3834 044265     124     123     123    T24WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
3835 044342     111     154     154    T24ILA: .ASCIZ  'Illegal Address Bits, Failed To Set ILA Bit In XSTO'
3836 044426     111     154     154    T24LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
3837 044507     122     105     101    T24SSR: .ASCIZ  'READ COMMAND Not Accepted'
3838 044541     124     123     123    T24WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
3839 044613     124     141     160    T24BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
3840 044660     104     141     164    T24DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape
3841 044746     122     105     101    T24EOT: .ASCIZ  'READ DATA OVER EOT GAVE NO TAPE STATUS ALERT'
3842 045023     124     123     123    T24TM:  .ASCIZ  'TSSR Not Correct After READ COMMAND Reject'
3843 045076     122     145     167    T24RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
3844 045145     122     101     115    T24RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
3845 045220     124     123     123    T24AM3: .ASCIZ  'TSSR Init. Failed After READ COMMAND'
3846 045265     104     162     151    T24OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
3847 045340     124     123     123    T24WDD: .ASCIZ  'TSSR Not Correct After READ DATA Command, SWB Bit Set'
3848 045426     124     123     123    T24WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
3849 045477     103     126     103    T24VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
3850 045552     124     123     102    T24BA:  .ASCIZ  'TSBA Not Correct After READ DATA Command'
3851 045623     127     122     111    T24WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
3852 045712     122     145     141    T24LON. .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
3853 045774     122     145     141    T24LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
3854 046056     122     145     163    T24PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
3855 046144     122     145     141    T24TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
3856 046232     102     141     163    TST24ID:        .ASCIZ  'Basic Read Data (Forward and Reverse)'
3857                                            .EVEN
3858                                    ;+
3859                                    ;
3860                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
3861                                    ;WRITE SUBSYSTEM MEMORY COMMAND
3862                                    ;
3863                                    ;-
3864
3865 046300                             T24REST:
3866 046300                                     SAVREG                          ;SAVE THE REGISTERS
3867 046304  012701  043620                     MOV     #T24PACKET,R1           ;START OF THE PACKET
3868 046310  012721  100004                     MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
3869 046314  012721  043630                     MOV     #T24DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
3870 046320  005021                             CLR     (R1)+                   ;EXTENDED ADDRESS
3871 046322  012721  000012                     MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
3872 046326  012721  043642                     MOV     #T24BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
3873 046332  005021                             CLR     (R1)+
3874 046334  012721  000024                     MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
3875 046340  005021                             CLR     (R1)+
3876 046342  012711  000000                     MOV     #0,(R1)                 ;SELECT DRIVE ZERO
3877 046346  012702  000030                     MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
3878 046352  012762  177777  043642  64$:      MOV     #177777,T24BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
3879 046360  005742                             TST     -(R2)                   ;NEXT LOCATION
3880 046362  022702  000000                     CMP     #0,R2                   ;CKECK FOR END OF LOOP
3881 046366  001371                             BNE     64$                     ;KEEP GOING UNTIL DONE
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3882 046370  000207                    RTS     PC                      ;RETURN
3883
3884
3885 046372                        T24RT2:
3886 046372                            SAVREG                          ;SAVE THE REGISTERS
3887 046376  012701  043730              MOV     #T24PK2,R1              ;START OF THE PACKET
3888 046402  012721  100206              MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
3889 046406  012721  043750              MOV     #T24BF2,(R1)+           ;ADDRESS OF DATA BLOCK
3890 046412  005021                      CLR     (R1)+                   ;EXTENDED ADDRESS
3891 046414  012721  000006              MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
3892 046420  005021                      CLR     (R1)+
3893 046422  012701  043750              MOV     #T24BF2,R1              ;POINT TO DATA SEL AREA
3894 046426  005021                      CLR     (R1)+
3895 046430  005011                      CLR     (R1)
3896 046432  000207                      RTS     PC                      ;RETURN
3897 046434                        T24RT3:
3898 046434                            SAVREG                          ;SAVE THE REGISTERS
3899 046440  012701  043740              MOV     #T24PK3,R1              ;START OF THE PACKET
3900 046444  012721  000000              MOV     #0,(R1)+                ;CLEAR AREA OUT
3901 046450  012721  000000              MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
3902 046454  005021                      CLR     (R1)+                   ;EXTENDED ADDRESS
3903 046456  012711  000000              MOV     #0,(R1)                 ;SIZE OF DATA BLOCK IN BYTES
3904 046462  000207                      RTS     PC                      ;RETURN
3905 046464                            ENDTST
     046464                                                          L10052:
     046464  104401                                                          TRAP    C$ETST
```

```
                                        .SBTTL  TEST  5: SPACE RECORDS
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT THE SPACE RECORDS FORWARD AND SPACE
                                ;RECORDS REVERSE POSITION COMMANDS OPERATE PROPERLY WHEN SPACING
                                ;OVER NORMAL DATA RECORDS. OPERATION WHEN SPACING OVER TAPE MARKS
                                ;IS VERIFIED IN A SUBSEQUENT TEST. THE BASIC WRITE DATA TEST
                                ;SHOULD HAVE BEEN RUN SUCCESSFULLY FOR THIS TEST TO PRODUCE MEANINGFUL
                                ;RESULTS. THIS TEST CONSISTS OF A SERIES OF SUBTESTS. IN EACH
                                ;OF THE SUBTESTS, THE TAPE IS ENTIRELY WRITTEN WITH RECORDS
                                ;OF VARYING SIZES AND DATA CONTENT; THE FIRST 4 BYTES OF EACH
                                ;RECORD INDICATE THAT RECORD'S RELATIVE POSITION ON TAPE. AFTER
                                ;EACH SPACING OPERATION, THE TAPE POSITION IS VERIFIED BY READING
                                ;THE NEXT OR PREVIOUS RECORD AND COMPARING THE POSITION DATA WITH
                                ;THE EXPECTED RESULT.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 8 SUBTESTS
                                ;


                                ;
                                ;
046466                                  BGNTST
046466                                                                  T5::
046466  012737  006446  002170          MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
046474  004737  017364                  JSR     PC,KTOFF                ;DON'T NEED LOTS OF MEMORY
046500  012700  055200                  MOV     #TST25ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
046504  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
046510  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
                                ;+
                                ;
                                ;TEST 5, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A SPACE RECORDS FORWARD COMMAND WITH
                                ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
                                ;THE VOLUME CHECK (VCK) FLAG IS SET.
                                ;
                                ;
                                ;-

046516                          T25LOOP:
046516                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
046516                                                                          T5.1:
046516  104402                                                                  TRAP    C$BSUB
046520  004737  055216                  JSR     PC,T25REST              ;SET COMMAND PACKET
046524  005037  054030                  CLR     T25CNT                  ;CLEAR THE RECORD COUNTER AREA
046530  004737  055310                  JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
046534  004737  055352                  JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
046540  012737  176750  054032          MOV     #65000.,T25DLY          ;SET UP LOOP COUNTER

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************
```

```
3965 046546  004737  016064          5$:     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3966 046552  103427                          BCS     10$                     ;BR IF INIT WAS OK
3967 046554                                   DELAY   250                     ;DELAY IF REQUIRED
     046554  012727  000250                                                          MOV     #250.,(PC)+
     046560  000000                                                                  .WORD   0
     046562  013727  002116                                                          MOV     L$DLY,(PC)+
     046566  000000                                                                  .WORD   0
     046570  005367  177772                                                          DEC     -6(PC)
     046574  001375                                                                  BNE     .-4
     046576  005367  177756                                                          DEC     -22(PC)
     046602  001367                                                                  BNE     .-20
3968 046604  005337  054032                    DEC     T25DLY                  ;DEC DELAY COUNTER
3969 046610  001356                          BNE     5$                              ;BR. IF LOOP IS REQUIRED
3970 046612  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3974 046616  016501  000002                    MOV     TSSR(R5),R1             ;CONTENTS OF TSSR REGISTER
3975 046622                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     046622  104455                                                                  TRAP    C$ERDF
     046624  000765                                                                  .WORD   501
     046626  003650                                                                  .WORD   SFIERR
     046630  012124                                                                  .WORD   SFIMSG
3976 046632                                   10$:
3977 046632  013737  002172  053700          MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
3978 046640  012704  053660                    MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3979
3980                                          ;*****************************************************************
3981                                          ;
3982                                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3983                                          ;
3984                                          ;*****************************************************************
3985
3986 046644  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3987 046650  103407                          BCS     15$                     ;BR. IF COMMAND ISSUED OK
3988 046652  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3992 046656  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3993 046660                                   ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     046660  104456                                                                  TRAP    C$ERHRD
     046662  000766                                                                  .WORD   502
     046664  005054                                                                  .WORD   WRTMSG
     046666  012124                                                                  .WORD   SFIMSG
3994
3995                                          ;*****************************************************************
3996                                          ;
3997                                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3998                                          ;
3999                                          ;*****************************************************************
4000
4001 046670                                   15$:    CKLOOP
     046670  104406                                                                  TRAP    C$CLP1
4002 046672  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4003 046676  103407                          BCS     30$                     ;BR. IF NO PROBLEM
4004 046700  010001                          MOV     R0,R1                   ;SAVE TSSR
4005 046702  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4009 046706                                   ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     046706  104456                                                                  TRAP    C$ERHRD
     046710  000767                                                                  .WORD   503
     046712  055005                                                                  .WORD   T25RWN
     046714  012136                                                                  .WORD   PKTSSR
```

```
4010 046716                        30$:    CKLOOP                          ;LOOP IF SELECTED
     046716  104406                                                                TRAP    C$CLP1
4011
4012                               ;*****************************************************************
4013                               ;
4014                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4015                               ;
4016                               ;*****************************************************************
4017
4018 046720  013701  053710              MOV     T25BFR+6,R1             ;PICK UP XSTO
4019 046724  010102                      MOV     R1,R2                   ;SET UP EXPECTED
4020 046726  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4021 046 32  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
4022 046734  001406                      BEQ     40$                     ;BR. IF EQUAL (OK)
4023 046736  005237  002212              INC     FATFLG                  ;BUMP COUNT
4027 046742                              ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     046742  104456                                                                TRAP    C$ERHRD
     046744  000770                                                                .WORD   504
     046746  054175                                                                .WORD   T25BOT
     046750  015564                                                                .WORD   EXPREC
4028 046752                        40$:    CKLOOP                          ;LOOP IF SELECTED
     046752  104406                                                                TRAP    C$CLP1
4029 046754  012703  000400              MOV     #256.,R3                ;RECORD SIZE
4030 046760  013737  003114  054002      MOV     FREE,T25RB              ;STARTING WRITE BUFFER ADDRESS
4031
4032                               ;*****************************************************************
4033                               ;
4034                               ;WRITE DATA,ACK,CVC=1 COMMAND
4035                               ;
4036                               ;*****************************************************************
4037
4038 046766  012737  140005  054000      MOV     #140005,T25PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
4039 046774  012704  054000              MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4040 047000                        65$:
4041 047000  010337  054006              MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4042 047004  013777  054030  134102      MOV     T25CNT,@FREE            ;LOAD UP RECORD COUNTER IN WRT BUFFER
4043 047012  062737  000001  054030      ADD     #1,T25CNT               ;GET READY FOR NEXT RECORD
4044 047020  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4045 047024  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4046 047030  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4047 047034  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
4048 047040  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
4049 047042  001411                      BEQ     75$                     ;BR. IF OK
4050 047044  032701  000004              BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4051 047050  001014                      BNE     120$                    ;BR. IF TSA IS SET (SUSPECT IS EOT)
4052 047052  005237  002212              INC     FATFLG                  ;BUMP COUNT
4056 047056                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     047056  104456                                                                TRAP    C$ERHRD
     047060  000771                                                                .WORD   505
     047062  005111                                                                .WORD   WRTERR
     047064  012136                                                                .WORD   PKTSSR
4057 047066                        75$:    CKLOOP                          ;LOOP IF SELECTED
     047066  104406                                                                TRAP    C$CLP1
4058 047070  005203                      INC     R3                      ;BUMP RECORD SIZE
4059 047072  022703  001000              CMP     #512.,R3                ;END OF RECORD YET
4060 047076  001340                      BNE     65$                     ;BR. IF MORE RECORDS TO WRITE
4061 047100  000415                      BR      125$                    ;ENOUGH RECORDS
```

```
4062 047102                          120$:
4063
4064                                 ;*****************************************************************
4065                                 ;
4066                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
406                                  ;
4068                                 ;*****************************************************************
4069
4070 047102  013701  053710                 MOV     T25BFR+6,R1             ;QUICK CHECK FOR EOT SET
4071 047106  010102                         MOV     R1,R2                   ;SET UP EXPECTED
4072 047110  052702  000001                 BIS     #BIT0,R2                ;SET THE EOT BIT XSTO
4073 047114  020102                         CMP     R1,R2                   ;IS THE EOT BIT SET IN XSTO
4074 047116  001406                         BEQ     125$                    ;BR, IF SET (GOOD)
4075 047120  005237  002212                 INC     FATFLG                  ;BUMP COUNT
4079 047124                                 ERRDF   ERRNO,T25NET,EXPREC     ;DEVICE FATAL NOT EOT FOUND ETC.
     047124  104455                                                                 TRAP    C$ERDF
     047126  000772                                                                 .WORD   506
     047130  054331                                                                 .WORD   T25NET
     047132  015564                                                                 .WORD   EXPREC
4080 047134                          125$:
4081
4082                                 ;*****************************************************************
4083                                 ;
4084                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4085                                 ;
4086                                 ;*****************************************************************
4087
4088 047134  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4089 047140  103407                         BCS     130$                    ;BR, IF NO PROBLEM
4090 047142  010001                         MOV     R0,R1                   ;SAVE TSSR
4091 047144  005237  002212                 INC     FATFLG                  ;BUMP COUNT
4095 047150                                 ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     047150  104456                                                                 TRAP    C$ERHRD
     047152  000773                                                                 .WORD   507
     047154  055005                                                                 .WORD   T25RWN
     047156  012136                                                                 .WORD   PKTSSR
4096 047160                          130$:  CKLOOP                          ;LOOP IF SELECTED
     047160  104406                                                                 TRAP    C$CLP1
4097 047162  012737  000007  053700         MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
4098 047170  012704  053660                 MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4099
4100                                 ;*****************************************************************
4101                                 ;
4102                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4103                                 ;
4104                                 ;*****************************************************************
4105
4106 047174  004737  010752                 JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4107 047200  103407                         BCS     140$                    ;BR, IF COMMAND ISSUED OK
4108 047202  005237  002212                 INC     FATFLG                  ;BUMP COUNT
4112 047206  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4113 047210                                 ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     047210  104456                                                                 TRAP    C$ERHRD
     047212  000774                                                                 .WORD   508
     047214  005054                                                                 .WORD   WRTMSG
     047216  012124                                                                 .WORD   SFIMSG
4114 047220                          140$:  CKLOOP                          ;SCOPE LOOP
```

TEST 5: SPACE RECORDS

```
                047220  104406                                                          TRAP    C$CLP1
4115            047222  005737  002216          TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES
4116            047226  001044                  BNE     160$                    ;BR IF SWITCH IS ON
4117
4118            047230  112737  000200  054011  MOVB    #200,T25BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
4119            047236  112737  000010  054010  MOVB    #10,T25BSO              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
4120            047244  012704  053770          MOV     #T25PK2,R4              ;WRITE SUBSYS MEM PACKET
4121            047250  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4122            047254  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
4123            047260  103407                  BCS     150$                    ;BR, IF NO ERROR
4124            047262  010001                  MOV     R0,R1                   ;ERROR, SAVE TSSR
4125            047264  005237  002212          INC     FATFLG                  ;BUMP COUNT
4129            047270                          ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
                047270  104456                                                          TRAP    C$ERHRD
                047272  000775                                                          .WORD   509
                047274  054034                                                          .WORD   T25SSR
                047276  012136                                                          .WORD   PKTSSR
4130            047300                  150$:   CKLOOP                          ;LOOP IF SELECTED
                047300  104406                                                          TRAP    C$CLP1
4131            047302  012737  000007  053700          MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
4132            047310  012704  053660          MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4133
4134                            ;*****************************************************************
4135                            ;
4136                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4137                            ;
4138                            ;*****************************************************************
4139
4140            047314  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4141            047320  103407                  BCS     160$                    ;BR, IF COMMAND ISSUED OK
4142            047322  005237  002212          INC     FATFLG                  ;BUMP COUNT
4146            047326  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4147            047330                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                047330  104456                                                          TRAP    C$ERHRD
                047332  000776                                                          .WORD   510
                047334  005054                                                          .WORD   WRTMSG
                047336  012124                                                          .WORD   SFIMSG
4148            047340                  160$:   CKLOOP                          ;SCOPE LOOP
                047340  104406                                                          TRAP    C$CLP1
4149            047342  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4150            047346  032701  000100          BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4151            047352  001006                  BNE     170$                    ;BR, IF OFFLINE (GOOD)
4152            047354  005237  002212          INC     FATFLG                  ;BUMP COUNT
4156            047360                          ERRDF   ERRNO,T25OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                047360  104455                                                          TRAP    C$ERDF
                047362  000777                                                          .WORD   511
                047364  055054                                                          .WORD   T25OFL
                047366  012124                                                          .WORD   SFIMSG
4157            047370                  170$:   CKLOOP                          ;LOOP IF SELECTED
                047370  104406                                                          TRAP    C$CLP1
4158
4159                            ;*****************************************************************
4160                            ;
4161                            ;SPACE FORWARD COMMAND IN PLACE
4162                            ;
4163                            ;*****************************************************************
4164
```

TEST 5: SPACE RECORDS

```
4165 047372  012737  140010  054000  180$:   MOV     #140010,T25PK3          ;SPACE FORWARD COMMAND IN PLACE
4166 047400  012737  000001  054002          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE
4167 047406  012704  054000                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4168 047412  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4169 047416  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4170 047422  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4171 047426  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
4172 047432  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4173 047434  001406                          BEQ     190$                    ;BR. IF OK ESP. FUNCTION REJECT
4174 047436  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4178 047442                                  ERRHRD  ERRNO,T25TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     047442  104456                                                                  TRAP    C$ERHRD
     047444  001000                                                                  .WORD   512
     047446  054242                                                                  .WORD   T25TM
     047450  012136                                                                  .WORD   PKTSSR
4179 047452                          190$:   CKLOOP                          ;LOOP IF SELECTED
     047452  104406                                                                  TRAP    C$CLP1
4180 047454                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     047454                                                                        L10072:
     047454  104403                                                                  TRAP    C$ESUB
4181 047456  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4182 047464  103402                          BLO     999$                            ;BR. IF LESS THAN 25
4183 047466  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4184 047472                          999$:
```

TEST 5: SPACE RECORDS

```
4186                                    ;*
4187                                    ;
4188                                    ;TEST 5, SUBTEST 2
4189                                    ;
4190                                    ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND WITH
4191                                    ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
4192                                    ;THE VOLUME CKECK (VCK) FLAG IS SET.
4193                                    ;
4194                                    ;
4195                                    ;
4196                                    ;
4197 047472                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>
      047472                                                                  T5.2:
      047472  104402                                                                  TRAP    C$BSJB
4198 047474  004737  055216            JSR     PC,T25REST              ;SET COMMAND PACKET
4199 047500  004737  055352            JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4200 047504  004737  055310            JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4201
4202                                    ;*****************************************************************
4203                                    ;
4204                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4205                                    ;
4206                                    ;*****************************************************************
4207
4208 047510  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4209 047514  103407                    BCS     10$                     ;BR IF INIT WAS OK
4210 047516  005237  002212            INC     FATFLG                  ;BUMP COUNT
4214 047522  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4215 047524                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      047524  104455                                                                  TRAP    C$ERDF
      047526  001001                                                                  .WORD   513
      047530  003650                                                                  .WORD   SFIERR
      047532  012124                                                                  .WORD   SFIMSG
4216 047534  012737  000007  053700  10$:    MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
4217
4218 047542  012704  053660            MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4219
4220                                    ;*****************************************************************
4221                                    ;
4222                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4223                                    ;
4224                                    ;*****************************************************************
4225
4226 047546  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4227 047552  103407                    BCS     15$                     ;BR, IF COMMAND ISSUED OK
4228 047554  005237  002212            INC     FATFLG                  ;BUMP COUNT
4232 047560  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4233 047562                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      047562  104456                                                                  TRAP    C$ERHRD
      047564  001002                                                                  .WORD   514
      047566  005054                                                                  .WORD   WRTMSG
      047570  012124                                                                  .WORD   SFIMSG
4234
4235                                    ;*****************************************************************
4236                                    ;
4237                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4238                                    ;
```

TEST 5: SPACE RECORDS

```
4239                                    ;*****************************************************************
4240
4241 047572                             15$:    CKLOOP
     047572  104406                                                                    TRAP    C$CLP1
4242 047574  004737  011104                     JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4243 047600  103407                             BCS     30$                     ;BR, IF NO PROBLEM
4244 047602  010001                             MOV     R0,R1                   ;SAVE TSSR
4245 047604  005237  002212                     INC     FATFLG                  ;BUMP COUNT
4249 047610                                     ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     047610  104456                                                                    TRAP    C$ERHRD
     047612  001003                                                                    .WORD   515
     047614  055005                                                                    .WORD   T25RWN
     047616  012136                                                                    .WORD   PKTSSR
4250 047620                             30$:    CKLOOP                          ;LOOP IF SELECTED
     047620  104406                                                                    TRAP    C$CLP1
4251 047622  005737  002216             140$:   TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
4252 047626  001044                             BNE     160$                    ;BR IF SWITCH IS ON
4253
4254 047630  112737  000200  054011             MOVB    #200,T25BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
4255 047636  112737  000010  054010             MOVB    #10,T25BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
4256 047644  012704  053770                     MOV     #T25PK2,R4              ;WRITE SUBSYS MEM PACKET
4257 047650  010465  000000                     MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4258 047654  004737  016426                     JSR     PC,CHKTSSR              ;WAIT FOR SSR
4259 047660  103407                             BCS     150$                    ;BR, IF NO ERROR
4260 047662  010001                             MOV     R0,R1                   ;ERROR, SAVE TSSR
4261 047664  005237  002212                     INC     FATFLG                  ;BUMP COUNT
4265 047670                                     ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     047670  104456                                                                    TRAP    C$ERHRD
     047672  001004                                                                    .WORD   516
     047674  054034                                                                    .WORD   T25SSR
     047676  012136                                                                    .WORD   PKTSSR
4266 047700                             150$:   CKLOOP                          ;LOOP IF SELECTED
     047700  104406                                                                    TRAP    C$CLP1
4267 047702  012737  000007  053700             MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
4268 047710  012704  053660                     MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4269
4270                                    ;*****************************************************************
4271                                    ;
4272                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4273                                    ;
4274                                    ;*****************************************************************
4275
4276 047714  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4277 047720  103407                             BCS     160$                    ;BR, IF COMMAND ISSUED OK
4278 047722  005237  002212                     INC     FATFLG                  ;BUMP COUNT
4282 047726  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4283 047730                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     047730  104456                                                                    TRAP    C$ERHRD
     047732  001005                                                                    .WORD   517
     047734  005054                                                                    .WORD   WRTMSG
     047736  012124                                                                    .WORD   SFIMSG
4284 047740                             160$:   CKLOOP                          ;SCOPE LOOP
     047740  104406                                                                    TRAP    C$CLP1
4285 047742  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4286 047746  032701  000100                     BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4287 047752  001006                             BNE     170$                    ;BR, IF OFFLINE (GOOD)
4288 047754  005237  002212                     INC     FATFLG                  ;BUMP COUNT
```

TEST 5: SPACE RECORDS

```
4292 047760                                ERRDF   ERRNO,T25OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     047760  104455                                                                TRAP    C$ERDF
     047762  001006                                                                .WORD   518
     047764  055054                                                                .WORD   T25OFL
     047766  012124                                                                .WORD   SFIMSG
4293 047770                        170$:   CKLOOP                          ;LOOP IF SELECTED
     047770  104406                                                                TRAP    C$CLP1
4294
4295                               ;*************************************************************************
4296                               ;
4297                               ;SPACE REVERSE COMMAND IN PLACE
4298                               ;
4299                               ;*************************************************************************
4300
4301 047772  012737  100410  054000  180$:   MOV     #100410,T25PK3          ;SPACE REVERSE COMMAND IN PLACE
4302 050000  012737  000001  054002          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE
4303 050006  012704  054000                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4304 050012  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4305 050016  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4306 050022  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4307 050026  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
4308 050032  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4309 050034  001406                          BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
4310 050036  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4314 050042                                  ERRHRD  ERRNO,T25TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     050042  104456                                                                TRAP    C$ERHRD
     050044  001007                                                                .WORD   519
     050046  054242                                                                .WORD   T25TM
     050050  012136                                                                .WORD   PKTSSR
4315 050052                        190$:   CKLOOP                          ;LOOP IF SELECTED
     050052  104406                                                                TRAP    C$CLP1
4316 050054                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     050054                                                                     L10073:
     050054  104403                                                                TRAP    C$ESUB
4317 050056  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4318 050064  103402                          BLO     999$                            ;BR, IF LESS THAN 25
4319 050066  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4320 050072                        999$:
```

TEST 5: SPACE RECORDS

```
4322                                    ;-
4323                                    ;
4324                                    ;TEST 5, SUBTEST 3
4325                                    ;
4326                                    ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE
4327                                    ;RECORD OFF BOT AND CAUSES BOT STATUS TO BE CLEARED.
4328                                    ;
4329                                    ;
4330                                    ;
4331                                    ;-
4332 050072                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      050072                                                                                    T5.3:
      050072  104402                                                                              TRAP    C$BSUB
4333 050074  004737  055216                    JSR     PC,T25REST              ;SET COMMAND PACKET
4334 050100  004737  055310                    JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4335 050104  004737  055352                    JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4336
4337                                    ;*********************************************************************
4338                                    ;
4339                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4340                                    ;
4341                                    ;*********************************************************************
4342
4343 050110  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4344 050114  103407                            BCS     10$                     ;BR IF INIT WAS OK
4345 050116  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4349 050122  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4350 050124                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      050124  104455                                                                            TRAP    C$ERDF
      050126  001010                                                                            .WORD   520
      050130  003650                                                                            .WORD   SFIERR
      050132  012124                                                                            .WORD   SFIMSG
4351 050134  013737  002172  053700  10$:      MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
4352
4353 050142  012704  053660                    MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4354
4355                                    ;*********************************************************************
4356                                    ;
4357                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4358                                    ;
4359                                    ;*********************************************************************
4360
4361 050146  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4362 050152  103407                            BCS     15$                     ;BR, IF COMMAND ISSUED OK
4363 050154  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4367 050160  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4368 050162                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      050162  104456                                                                            TRAP    C$ERHRD
      050164  001011                                                                            .WORD   521
      050166  005054                                                                            .WORD   WRTMSG
      050170  012124                                                                            .WORD   SFIMSG
4369
4370                                    ;*********************************************************************
4371                                    ;
4372                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4373                                    ;
4374                                    ;*********************************************************************
```

TEST 5: SPACE RECORDS

```
4375
4376 050172                          15$:    CKLOOP
     050172  104406                                                                  TRAP    C$CLP1
4377 050174  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4378 050200  103407                          BCS     30$                     ;BR, IF NO PROBLEM
4379 050202  010001                          MOV     R0,R1                   ;SAVE TSSR
4380 050204  005237  002212                  INC      ATFLG                  ;BUMP COUNT
4384 050210                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     050210  104456                                                                  TRAP    C$ERHRD
     050212  001012                                                                  .WORD   522
     050214  055005                                                                  .WORD   T25RWN
     050216  012136                                                                  .WORD   PKTSSR
4385 050220                          30$:    CKLOOP                          ;LOOP IF SELECTED
     050220  104406                                                                  TRAP    C$CLP1
4386
4387                                 ;*************************************************************************
4388                                 ;
4389                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4390                                 ;
4391                                 ;*************************************************************************
4392
4393 050222  013701  053710                  MOV     T25BFR+6,R1             ;PICK UP XST0
4394 050226  010102                          MOV     R1,R2                   ;SET UP EXPECTED
4395 050230  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4396 050234  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
4397 050236  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
4398 050240  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4402 050244                                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     050244  104456                                                                  TRAP    C$ERHRD
     050246  001013                                                                  .WORD   523
     050250  054175                                                                  .WORD   T25BOT
     050252  015564                                                                  .WORD   EXPREC
4403 050254                          40$:    CKLOOP                          ;LOOP IF SELECTED
     050254  104406                                                                  TRAP    C$CLP1
4404 050256  012737  000001  054002          MOV     #000001,T25RB           ;NUMBER OF RECORDS TO SPACE OVER
4405
4406                                 ;*************************************************************************
4407                                 ;
4408                                 ;SPACE FORWARD,ACK,CVC=1 COMMAND
4409                                 ;
4410                                 ;*************************************************************************
4411
4412 050264  012737  140010  054000          MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4413 050272  012704  054000                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4414 050276                          65$:
4415 050276  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4416 050302  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4417 050306  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4418 050312  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4419 050316  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4420 050320  001411                          BEQ     75$                     ;BR, IF OK
4421 050322  032701  000004                  BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4422 050326  001006                          BNE     75$                     ;BR, IF TSA IS SET (SUSPECT IS EOT)
4423 050330  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4427 050334                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     050334  104456                                                                  TRAP    C$ERHRD
     050336  001014                                                                  .WORD   524
```

```
TEST  5: SPACE RECORDS

        050340  054115                                                          .WORD   T25WDE
        050342  015564                                                          .WORD   EXPREC
   4428 050344                          75$:    CKLOOP                      ;LOOP IF SELECTED
        050344  104406                                                          TRAP    C$CLP1
   4429 050346                          120$:
   4430
   4431                                 ;*****************************************************************
   4432                                 ;
   4433                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
   4434                                 ;
   4435                                 ;*****************************************************************
   4436
   4437 050346  013701  053710                  MOV     T25BFR+6,R1             ;QUICK CHECK FOR BOT SET
   4438 050352  010102                          MOV     R1,R2                   ;SET UP EXPECTED
   4439 050354  042702  000002                  BIC     #BIT1,R2                ;CLEAR THE BOT BIT (XSTO)
   4440 050360  020102                          CMP     R1,R2                   ;IS THE EOT BIT SET IN XSTO
   4441 050362  001406                          BEQ     125$                    ;BR, IF SET (GOOD)
   4442 050364  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   4446 050370                                  ERRHRD  ERRNO,T25BNC,EXPREC     ;BOT NOT CLEARED AFTER SPACE FROM BOT
        050370  104456                                                          TRAP    C$ERHRD
        050372  001015                                                          .WORD   525
        050374  054470                                                          .WORD   T25BNC
        050376  015564                                                          .WORD   EXPREC
   4447 050400                          125$:   CKLOOP                          ;LOOP IF SELECTED
        050400  104406                                                          TRAP    C$CLP1
   4448 050402  004737  055352                  JSR     PC,T25RT3               ;CLEAN UP PACKET
   4449 050406  012737  000401  054006          MOV     #257.,T25SZ             ;SET THE CORRECT SIZE UP
   4450
   4451                                 ;*****************************************************************
   4452                                 ;
   4453                                 ;READ DATA COMMAND IN PLACE
   4454                                 ;
   4455                                 ;*****************************************************************
   4456
   4457 050414  012737  140001  054000          MOV     #140001,T25PK3          ;READ DATA COMMAND IN PLACE
   4458 050422  013737  003114  054002          MOV     FREE,T25RB              ;READ BUFFER ADDRESS TO PACKET
   4459 050430  012704  054000                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
   4460 050434  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
   4461 050440  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
   4462 050444  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
   4463 050450  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
   4464 050454  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
   4465 050456  001406                          BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
   4466 050460  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   4470 050464                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA CMD
        050464  104456                                                          TRAP    C$ERHRD
        050466  001016                                                          .WORD   526
        050470  005204                                                          .WORD   RDERR
        050472  012136                                                          .WORD   PKTSSR
   4471 050474                          190$:   CKLOOP                          ;LOOP IF SELECTED
        050474  104406                                                          TRAP    C$CLP1
   4472 050476  017701  132412                  MOV     @FREE,R1                ;GET FIRST WORD FROM BUFFER
   4473 050502  012702  000001                  MOV     #1,R2                   ;SET UP EXPECTED
   4474 050506  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED 1
   4475 050510  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
   4476 050512  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   4480 050516                                  ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
```

TEST 5: SPACE RECORDS

```
        050516  104456                                                          TRAP    C$ERHRD
        050520  001017                                                          .WORD   527
        050522  054405                                                          .WORD   T25WNG
        050524  015564                                                          .WORD   EXPREC
  4481  050526                        200$:   CKLOOP
        050526  104406                                                          TRAP    C$CLP1
  4482  050530                        ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        050530                                                                L10074:
        050530  104403                                                          TRAP    C$ESUB
  4483  050532  023727  002212  000017        CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
  4484  050540  103402                        BLO     999$                    ;BR, IF LESS THAN 25
  4485  050542  004737  017272              JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  4486  050546                        999$:
```

N15

TEST 5: SPACE RECORDS SEQ 0195

```
4488                                    ;*
4489                                    ;
4490                                    ;TEST 5, SUBTEST 4
4491                                    ;
4492                                    ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE BACK
4493                                    ;OVER THE FIRST RECORD ON TAPE.
4494                                    ;
4495                                    ;
4496                                    ;-
4497
4498 050546                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      050546                                                                                    T5.4:
      050546  104402                                                                              TRAP    C$BSUB
4499 050550  004737  055216                    JSR     PC,T25REST              ;SET COMMAND PACKET
4500 050554  004737  055310                    JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4501 050560  004737  055352                    JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4502
4503                                    ;*************************************************************************
4504                                    ;
4505                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4506                                    ;
4507                                    ;*************************************************************************
4508
4509 050564  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4510 050570  103407                            BCS     20$                     ;BR IF INIT WAS OK
4511 050572  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4515 050576  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4516 050600                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      050600  104455                                                                            TRAP    C$ERDF
      050602  001020                                                                            .WORD   528
      050604  003650                                                                            .WORD   SFIERR
      050606  012124                                                                            .WORD   SFIMSG
4517 050610  013737  002172  053700  20$:      MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
4518
4519 050616  012704  053660                    MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4520
4521                                    ;*************************************************************************
4522                                    ;
4523                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4524                                    ;
4525                                    ;*************************************************************************
4526
4527 050622  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4528 050626  103407                            BCS     25$                     ;BR, IF COMMAND ISSUED OK
4529 050630  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4533 050634  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4534 050636                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      050636  104456                                                                            TRAP    C$ERHRD
      050640  001021                                                                            .WORD   529
      050642  005054                                                                            .WORD   WRTMSG
      050644  012124                                                                            .WORD   SFIMSG
4535 050646                            25$:     CKLOOP                          ;LOOP IF SELECTED
      050646  104406                                                                            TRAP    C$CLP1
4536
4537                                    ;*************************************************************************
4538                                    ;
4539                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
```

```
                                ;
                                ;*****************************************************************
                                ;
050650  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
050654  103407                  BCS     30$                     ;BR. IF NO PROBLEM
050656  010001                  MOV     R0,R1                   ;SAVE TSSR
050660  005237  002212          INC     FATFLG                  ;BUMP COUNT
050664                          ERRHRD  ERRNO.T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
050664  104456                                                                  TRAP    C$ERHRD
050666  001022                                                                  .WORD   530
050670  055005                                                                  .WORD   T25RWN
050672  012136                                                                  .WORD   PKTSSR
050674                  30$:    CKLOOP                          ;LOOP IF SELECTED
050674  104406                                                                  TRAP    C$CLP1
                                ;
                                ;*****************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                ;
                                ;*****************************************************************
050676  013701  053710          MOV     T25BFR+6,R1             ;PICK UP XSTO
050702  010102                  MOV     R1,R2                   ;SET UP EXPECTED
050704  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
050710  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
050712  001406                  BEQ     40$                     ;BR. IF EQUAL (OK)
050714  005237  002212          INC     FATFLG                  ;BUMP COUNT
050720                          ERRHRD  ERRNO.T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
050720  104456                                                                  TRAP    C$ERHRD
050722  001023                                                                  .WORD   531
050724  054175                                                                  .WORD   T25BOT
050726  015564                                                                  .WORD   EXPREC
050730                  40$:    CKLOOP                          ;LOOP IF SELECTED
050730  104406                                                                  TRAP    C$CLP1
                                ;
                                ;*****************************************************************
                                ;
                                ;ISSUE SPACE RECORDS COMMAND   VALUE IN R3 SETS NUMBER OF RECORDS
                                ;BIT 15 SETS DIRECTION   0=FORWARD    1=REVERSE
                                ;
                                ;*****************************************************************
050732  012703  000001          MOV     #000001,R3              ;NUMBER OF RECORDS TO SPACE FORWARD
050736  004737  010556          JSR     PC,SPACE                ;CALL SPACE COMMAND
050742  103410                  BCS     50$                     ;CHECK FOP ERROR
050744  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
050750  005237  002212          INC     FATFLG                  ;BUMP COUNT
050754                          ERRHRD  ERRNO.T25WDE,SFFMSG     ;SPACE FORWARD FAILED
050754  104456                                                                  TRAP    C$ERHRD
050756  001024                                                                  .WORD   532
050760  054115                                                                  .WORD   T25WDE
050762  012172                                                                  .WORD   SFFMSG
050764                  50$:    CKLOOP                          ;LOOP IF SELECTED
050764  104406                                                                  TRAP    C$CLP1
050766  012737  000001  054002  MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
                                ;
                                ;*****************************************************************
```

```
4591                                    ;
4592                                    ;SPACE REVERSE,ACK,CVC=1 COMMAND
4593                                    ;
4594                                    ;*****************************************************************
4595
4596 050774  012757  140410  054000            MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
4597 051002  012704  054000                      MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4598 051006                              65$:
4599 051006  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4600 051012  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4601 051016  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4602 051022  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED
4603 051026  020102                              CMP     R1,R2                   ;ARE THEY EQUAL
4604 051030  001406                              BEQ     75$                     ;BR. IF OK
4605 051032  005237  002212                      INC     FATFLG                  ;BUMP COUNT
4609 051036                                      ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     051036  104456                                                                  TRAP    C$ERHRD
     051040  001025                                                                  .WORD   533
     051042  054115                                                                  .WORD   T25WDE
     051044  012136                                                                  .WORD   PKTSSR
4610 051046                              75$:    CKLOOP                          ;LOOP IF SELECTED
     051046  104406                                                                  TRAP    C$CLP1
4611 051050                              120$:
4612 051050  012703  000400                      MOV     #256.,R3                ;RECORD SIZE
4613 051054  013737  003114  054002            MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4614
4615                                    ;*****************************************************************
4616                                    ;
4617                                    ;READ DATA,ACK,CVC=1 COMMAND
4618                                    ;
4619                                    ;*****************************************************************
4620
4621 051062  012737  140001  054000            MOV     #140001,T25PK3          ;READ DATA,ACK,CVC=1 COMMAND
4622 051070  012704  054000              165$: MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4623 051074  010337  054006                      MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4624 051100  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4625 051104  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4626 051110  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4627 051114  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED
4628 051120  020102                              CMP     R1,R2                   ;ARE THEY EQUAL
4629 051122  001406                              BEQ     170$                    ;BR. IF OK
4630 051124  005237  002212                      INC     FATFLG                  ;BUMP COUNT
4634 051130                                      ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     051130  104456                                                                  TRAP    C$ERHRD
     051132  001026                                                                  .WORD   534
     051134  005204                                                                  .WORD   RDERR
     051136  012136                                                                  .WORD   PKTSSR
4635 051140                              170$.   CKLOOP                          ;LOOP IF SELECTED
     051140  104406                                                                  TRAP    C$CLP1
4636 051142  017701  131746                      MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4637 051146  012702  000000                      MOV     #0,R2                   ;SET UP EXPECTED
4638 051152  020102                              CMP     R1,R2                   ;WAS RECORD NUMBERED 1
4639 051154  001406                              BEQ     200$                    ;BR. IF CORRECT RECORD
4640 051156  005237  002212                      INC     FATFLG                  ;BUMP COUNT
4644 051162                                      ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     051162  104456                                                                  TRAP    C$ERHRD
     051164  001027                                                                  .WORD   535
```

TEST 5: SPACE RECORDS

```
        051166  054405
        051170  015564
4645    051172                          200$:   CKLOOP                                          .WORD   T25MNG
        051172  104406                                                                           .WORD   EXPREC
4646    051174                                  ENDSUB                                          TRAP    C$CIP1
        051174                                                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        051174  104403                                                                  L10075:
                                                                                        TRAP    C$ESUB
4647    051176  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4648    051204  103402                          BLO     999$                    ;BR, IF LESS THAN 25
4649    051206  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4650    051212                          999$:
```

TEST 5: SPACE RECORDS

```
                                        ;*
                                        ;
                                        ;TEST 5, SUBTEST 5
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE A
                                        ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
                                        ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE,
                                        ;WHICH EVER IS LESS.
                                        ;
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
051212                                                                                                  T5.5:
051212                                                                                                          TRAP    C$BGJB
051212  104402
051214  004737  055216                        JSR     PC,T25REST              ;SET COMMAND PACKET
051220  004737  055310                        JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
051224  004737  055352                        JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
051230  013737  054030  054026                MOV     T25CNT,T25CN2           ;HOLD NUMBER OF RECORDS
051236  162737  000002  054026                SUB     #2,T25CN2               ;ACTUAL NUMBER OF RECORDS ON TAPE
051244  013737  054030  054032                MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

051252  004737  016064                10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
051256  103427                                BCS     20$                     ;BR IF INIT WAS OK
051260                                        DELAY   250                     ;WAIT ABOUT .25 SECONDS
051260  012727  000250                                                                  MOV     #250.,(PC)+
051264  000000                                                                          .WORD   0
051266  013727  002116                                                                  MOV     L$DLY,(PC)+
051272  000000                                                                          .WORD   0
051274  005367  177772                                                                  DEC     -6(PC)
051300  001375                                                                          BNE     . 4
051302  005367  177756                                                                  DEC     -22(PC)
051306  001367                                                                          BNE     . 20
051310  005337  054032                        DEC     T25DLY                  ;DEC COUNTER
051314  001356                                BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
051316  016501  000002                        MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
051322  005237  002212                        INC     FATFLG                  ;BUMP COUNT
051326                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
051326  104455                                                                          TRAP    C$ERDF
051330  001030                                                                          .WORD   536
051332  003650                                                                          .WORD   SFIERR
051334  012124                                                                          .WORD   SFIMSG
051336                                  20$:
051336  013737  002172  053700                MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
051344  012704  053660                        MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
```

TEST 5: SPACE RECORDS

```
4698                                ;*****************************************************************
4699
4700 051350  004737  010752                PC,WRTCHR                ;ISSUE WRITE CHARACTERISTICS
4701 051354  103407                BCS     25$                      ;BR, IF COMMAND ISSUED OK
4702 051356  005237  002212        INC     FATFLG                   ;BUMP COUNT
4706 051362  010001                MOV     R0,R1                    ;SAVE CONTENTS OF TSSR
4707 051364                        ERRHRD  ERRNO,WRTMSG,SFIMSG      ;WRITE CHARACTERISTISC FAILED
     051364  104456                                                                TRAP    C$ERHRD
     051366  001031                                                                .WORD   537
     051370  005054                                                                .WORD   WRTMSG
     051372  012124                                                                .WORD   SFIMSG
4708 051374                        25$:    CKLOOP                   ;LOOP IF SELECTED
     051374  104406                                                                TRAP    C$CLP1
4709
4710                                ;*****************************************************************
4711                                ;
4712                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4713                                ;
4714                                ;*****************************************************************
4715
4716 051376  004737  011104                PC,REWIND                ;CALL TAPE REWIND COMMAND
4717 051402  103407                BCS     30$                      ;BR, IF NO PROBLEM
4718 051404  010001                MOV     R0,R1                    ;SAVE TSSR
4719 051406  005237  002212        INC     FATFLG                   ;BUMP COUNT
4723 051412                        ERRHRD  ERRNO,T25RWN,PKTSSR      ;REWIND NOT ACCEPTED
     051412  104456                                                                TRAP    C$ERHRD
     051414  001032                                                                .WORD   538
     051416  055005                                                                .WORD   T25RWN
     051420  012136                                                                .WORD   PKTSSR
4724 051422                        30$:    CKLOOP                   ;LOOP IF SELECTED
     051422  104406                                                                TRAP    C$CLP1
4725 051424  013701  054026                MOV     T25CN2,R1                ;NUMBER OF RECORDS ON TAPE
4726 051430  012702  177776                MOV     #65534.,R2               ;MAX IT CAN SPACE OVER
4727 051434  020201                CMP     R2,R1                    ;WHICH VALUE CAN WE USE
4728 051436  003002                BGT     46$                      ;BR, IF # WRITTEN > 64K
4729 051440  010103                MOV     R1,R3                    ;# WRITTEN CAN BE USED
4730 051442  000401                BR      47$                      ;MOVE ON
4731 051444  010203                46$:    MOV     R2,R3            ;USE MAX NUMBER
4732 051446  162703  000001        47$:    SUB     #1,R3            ;DON'T GO ALL THE WAY YET
4733 051452  010337  054002                MOV     R3,T25RB                 ;NUMBER OF RECORDS TO SPACE OVER
4734
4735                                ;*****************************************************************
4736                                ;
4737                                ;SPACE FORWARD,ACK,CVC=1 COMMAND
4738                                ;
4739                                ;*****************************************************************
4740
4741 051456  012737  140010  054000        MOV     #140010,T25PK3           ;SPACE FORWARD,ACK,CVC=1 COMMAND
4742 051464  012704  054000                MOV     #T25PK3,R4               ;SET UP R4 WITH PACKET ADDRESS
4743 051470                        65$:
4744 051470  013737  054026  054032        MOV     T25CN2,T25DLY            ;NUMBER OF RECORDS USED AS DELAY COUNTER
4745 051476  010465  000000                MOV     R4,TSDB(R5)              ;ISSUE COMMAND
4746 051502  004737  016340        67$:    JSR     PC,WAITF                 ;WAIT FOR SSR TO SET
4747 051506  016501  000002                MOV     TSSR(R5),R1              ;GET TSSR CONTENTS
4748 051512  012702  000200                MOV     #SSR,R2                  ;SET UP EXPECTED
4749 051516  020102                CMP     R1,R2                    ;ARE THEY EQUAL
4750 051520  001425                BEQ     75$                      ;BR, IF OK
```

TEST 5: SPACE RECORDS

```
4751 051522                                    DELAY   250                     ;DELAY .25 SECONDS
     051522  012727  000250                                                            MOV     #250,(PC)+
     051526  000000                                                                    .WORD   0
     051530  013727  002116                                                            MOV     L$DLY,(PC)+
     051534  000000                                                                    .WORD   0
     051536  005367  177772                                                            DEC      6(PC)
     051542  001375                                                                    BNE     .-4
     051544  005367  177756                                                            DEC      22(PC)
     051550  001367                                                                    BNE     .-20
4752 051552  005337  054032                    DEC     T25DLY                  ;BUMP DOWN COUNTER
4753 051556  001351                            BNE     67$                     ;BR. IF NOT AT END OF DELAY
4754 051560  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4758 051564                                    ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     051564  104456                                                                    TRAP    C$ERHRD
     051566  001033                                                                    .WORD   539
     051570  054115                                                                    .WORD   T25WDE
     051572  012136                                                                    .WORD   PKTSSR
4759 051574                            75$:    CKLOOP                          ;LOOP IF SELECTED
     051574  104406                                                                    TRAP    C$CLP1
4760 051576  012703  010000                    MOV     #4096.,R3               ;RECORD SIZE
4761 051602  013737  003114  054002            MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4762
4763                                   ;*****************************************************************
4764                                   ;
4765                                   ;READ DATA,ACK COMMAND
4766                                   ;
4767                                   ;*****************************************************************
4768
4769 051610  012737  100001  054000            MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4770 051616  012704  054000            165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4771 051622  010337  054006                    MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4772 051626  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4773 051632  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4774 051636  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4775 051642  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
4776 051646  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
4777 051650  001411                            BEQ     170$                    ;BR. IF OK
4778 051652  032701  000004                    BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4779 051656  001006                            BNE     170$                    ;IF SET ALL IS WELL
4780 051660  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4784 051664                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     051664  104456                                                                    TRAP    C$ERHRD
     051666  001034                                                                    .WORD   540
     051670  005204                                                                    .WORD   RDERR
     051672  012136                                                                    .WORD   PKTSSR
4785 051674                            170$:   CKLOOP                          ;LOOP IF SELECTED
     051674  104406                                                                    TRAP    C$CLP1
4786 051676  017701  131212                    MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4787 051702  013702  054026                    MOV     T25CN2,R2                       ;SET UP EXPECTED
4788 051706  162702  000001                    SUB     #1,R2                   ;SHOULD BE LAST RECORD
4789 051712  020102                            CMP     R1,R2                   ;WAS RECORD NUMBERED R3
4790 051714  001406                            BEQ     200$                    ;BR. IF CORRECT RECORD
4791 051716  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4795 051722                                    ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     051722  104456                                                                    TRAP    C$ERHRD
     051724  001035                                                                    .WORD   541
     051726  054405                                                                    .WORD   T25WNG
```

TEST 5: SPACE RECORDS

```
                051730  015564
4796            051732                          200$:   CKLOOP                                          .WORD   EXPREC
                051732  104406
                                                                                                         TRAP    C$CLP1
4797            051734                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                051734                                                                                   L10076:
                051734  104403
                                                                                                         TRAP    C$ESUB
4798            051736  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4799            051744  103402                                  BLO     999$                    ;BR. IF LESS THAN 25
4800            051746  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4801            051752                          999$:
```

TEST 5: SPACE RECORDS

```
                                        ;*
                                        ;
                                        ;TEST 5, SUBTEST 6
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE A
                                        ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
                                        ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE
                                        ;WHICH EVER IS LESS.
                                        ;
                                        ;
                                        ;
                                        ;-
4816 051752                             BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     051752                                                                     T5.6:
     051752  104402                                                             TRAP    C$BSJB
4817 051754  004737  055216             JSR     PC,T25REST              ;SET COMMAND PACKET
4818 051760  013737  054030  054026     MOV     T25CNT,T25CN2           ;SET UP RECORD COUNTER
4819 051766  004737  055310             JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4820 051772  004737  055352             JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4821 051776  013737  054030  054032     MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER
4822
4823                                    ;*************************************************************
4824                                    ;
4825                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4826                                    ;
4827                                    ;*************************************************************
4828
4829 052004  004737  016064     10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4830 052010  103427                     BCS     20$                     ;BR IF INIT WAS OK
4831 052012                             DELAY   250                     ;WAIT ABOUT .25 SECONDS
     052012  012727  000250                                                     MOV     #250,(PC)+
     052016  000000                                                             .WORD   0
     052020  013727  002116                                                     MOV     L$DLY,(PC)+
     052024  000000                                                             .WORD   0
     052026  005367  177772                                                     DEC     -6(PC)
     052032  001375                                                             BNE     .-4
     052034  005367  177756                                                     DEC     -22(PC)
     052040  001367                                                             BNE     .-20
4832 052042  005337  054032                 DEC     T25DLY                  ;DEC COUNTER
4833 052046  001356                         BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
4834 052050  016501  000002                 MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
4835 052054  005237  002212                 INC     FATFLG                  ;BUMP COUNT
4839 052060                                 ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     052060  104455                                                             TRAP    C$ERDF
     052062  001036                                                             .WORD   542
     052064  003650                                                             .WORD   SFIERR
     052066  012124                                                             .WORD   SFIMSG
4840 052070  013737  002172  053700 20$:    MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
4841
4842 052076  012704  053660                 MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4843
4844                                    ;*************************************************************
4845                                    ;
4846                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4847                                    ;
4848                                    ;*************************************************************
4849
```

TEST 5: SPACE RECORDS

```
4850 052102  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4851 052106  103407                        BCS     25$                     ;BR, IF COMMAND ISSUED OK
4852 052110  005237  002212                INC     FATFLG                  ;BUMP COUNT
4856 052114  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4857 052116                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     052116  104456                                                                TRAP    C$ERHRD
     052120  001037                                                                .WORD   543
     052122  005054                                                                .WORD   WRTMSG
     052124  012124                                                                .WORD   SFIMSG
4858 052126                        25$:    CKLOOP                          ;LOOP IF SELECTED
     052126  104406                                                                TRAP    C$CLP1
4859
4860                               ;*****************************************************************
4861                               ;
4862                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4863                               ;
4864                               ;*****************************************************************
4865
4866 052130  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4867 052134  103407                        BCS     30$                     ;BR, IF NO PROBLEM
4868 052136  010001                        MOV     R0,R1                   ;SAVE TSSR
4869 052140  005237  002212                INC     FATFLG                  ;BUMP COUNT
4873 052144                                ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     052144  104456                                                                TRAP    C$ERHRD
     052146  001040                                                                .WORD   544
     052150  055005                                                                .WORD   T25RWN
     052152  012136                                                                .WORD   PKTSSR
4874 052154                        30$:    CKLOOP                          ;LOOP IF SELECTED
     052154  104406                                                                TRAP    C$CLP1
4875
4876                               ;*****************************************************************
4877                               ;
4878                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4879                               ;
4880                               ;*****************************************************************
4881
4882 052156  013701  053710                MOV     T25BFR+6,R1             ;PICK UP XST0
4883 052162  010102                        MOV     R1,R2                   ;SET UP EXPECTED
4884 052164  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4885 052170  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
4886 052172  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
4887 052174  005237  002212                INC     FATFLG                  ;BUMP COUNT
4891 052200                                ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     052200  104456                                                                TRAP    C$ERHRD
     052202  001041                                                                .WORD   545
     052204  054175                                                                .WORD   T25BOT
     052206  015564                                                                .WORD   EXPREC
4892 052210                        40$:    CKLOOP                          ;LOOP IF SELECTED
     052210  104406                                                                TRAP    C$CLP1
4893 052212  013701  054026                MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
4894 052216  012702  177776                MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
4895 052222  020201                        CMP     R2,R1                   ;WHICH VALUE CAN WE USE
4896 052224  003002                        BGT     46$                     ;BR, IF # WRITTEN > 64K
4897 052226  010103                        MOV     R1,R3                   ;# WRITTEN CAN BE USED
4898 052230  000401                        BR      47$                     ;MOVE ON
4899 052232  010203                46$:    MOV     R2,R3                   ;USE MAX NUMBER
4900 052234                        47$:
```

TEST 5: SPACE RECORDS

```
4901 052234  010337  054002                  MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4902
4903                                 ;*****************************************************************
4904                                 ;
4905                                 ;SPACE FORWARD,ACK,CVC=1 COMMAND
4906                                 ;
4907                                 ;*****************************************************************
4908
4909 052240  012737  140010  054000          MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4910 052246  012704  054000                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4911 052252  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4912 052256  013737  054026  054032          MOV     T25CN2,T25DLY           ;SET UP DELAY COUNTER
4913 052264  004737  016340          48$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4914 052270  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4915 052274  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4916 052300  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4917 052302  001425                          BEQ     50$                     ;BR, IF OK
4918 052304                                  DELAY   250                     ;WAIT .25 SECONDS
     052304  012727  000250                                                          MOV     #250,(PC)+
     052310  000000                                                                  .WORD   0
     052312  013727  002116                                                          MOV     L$DLY,(PC)+
     052316  000000                                                                  .WORD   0
     052320  005367  177772                                                          DEC      6(PC)
     052324  001375                                                                  BNE     .-4
     052326  005367  177756                                                          DEC      22(PC)
     052332  001367                                                                  BNE     .-20
4919 052334  005337  054032                  DEC     T25DLY                  ;DEC THE DELAY COUNTER
4920 052340  001351                          BNE     48$                     ;BR, IF COUNTER HASN'T EXPIRED
4921 052342  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4925 052346                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     052346  104456                                                                  TRAP    C$ERHRD
     052350  001042                                                                  .WORD   546
     052352  054115                                                                  .WORD   T25WDE
     052354  015564                                                                  .WORD   EXPREC
4926 052356                          50$:    CKLOOP
     052356  104406                                                                  TRAP    C$CLP1
4927 052360  013701  054026                  MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
4928 052364  012702  177776                  MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
4929 052370  020201                          CMP     R2,R1                   ;WHICH VALUE CAN WE USE
4930 052372  003002                          BGT     55$                     ;BR, IF # WRITTEN > 64K
4931 052374  010103                          MOV     R1,R3                   ;# WRITTEN CAN BE USED
4932 052376  000401                          BR      60$                     ;MOVE ON
4933 052400  010203                  55$:    MOV     R2,R3                   ;USE MAX NUMBER
4934 052402  162703  000001          60$:    SUB     #1,R3                   ;DON'T GO ALL THE WAY YET
4935 052406  010337  054002                  MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4936
4937                                 ;*****************************************************************
4938                                 ;
4939                                 ;SPACE REVERSE,ACK,CVC=1 COMMAND
4940                                 ;
4941                                 ;*****************************************************************
4942
4943 052412  012737  140410  054000          MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
4944 052420  012704  054000                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4945 052424  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4946 052430  013737  054026  054032          MOV     T25CN2,T25DLY           ;SET UP COUNTER
4947 052436  004737  016340          70$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

TEST 5: SPACE RECORDS

```
4948 052442  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4949 052446  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4950 052452  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4951 052454  001425                          BEQ     75$                     ;BR, IF OK
4952 052456                                  DELAY   250                     ;WAIT ABOUT .25 SECONDS
     052456  012727  000250                                                          MOV     #250,(PC)+
     052462  000000                                                                  .WORD   0
     052464  013727  002116                                                          MOV     L$DLY,(PC)+
     052470  000000                                                                  .WORD   0
     052472  005367  177772                                                          DEC     6(PC)
     052476  001375                                                                  BNE     .-4
     052500  005367  177756                                                          DEC     22(PC)
     052504  001367                                                                  BNE     .-20
4953 052506  005337  054032                  DEC     T25DLY                  ;BUMP COUNTER DOWN
4954 052512  001351                          BNE     70$                     ;BR, IF COUNTER HASN'T EXPIRED
4955 052514  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4959 052520                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     052520  104456                                                                  TRAP    C$ERHRD
     052522  001043                                                                  .WORD   547
     052524  054115                                                                  .WORD   T25WDE
     052526  015564                                                                  .WORD   EXPREC
4960 052530                          75$:    CKLOOP                          ;LOOP IF SELECTED
     052530  104406                                                                  TRAP    C$CLP1
4961 052532  012703  010000                  MOV     #4096.,R3               ;RECORD SIZE
4962 052536  013737  003114  054002          MOV     FREE,T25RB              ;STARTING RFAD BUFFER ADDRESS
4963
4964                                 ;*****************************************************************
4965                                 ;
4966                                 ;READ DATA,ACK COMMAND
4967                                 ;
4968                                 ;*****************************************************************
4969
4970 052544  012737  100001  054000          MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4971 052552  012704  054000          165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4972 052556  012700  177777                  MOV     #177777,R0              ;SET ALL ONES INTO CORRECT REGISTER
4973 052562  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
4974 052566  010337  054006                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4975 052572  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4976 052576  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4977 052602  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4978 052606  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4979 052612  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4980 052614  001411                          BEQ     170$                    ;BR, IF OK
4981 052616  032701  000004                  BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4982 052622  001006                          BNE     170$                    ;BR, IF BIT SET
4983 052624  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4987 052630                                  ERRHRD  ERRNO,RDERR,EXPREC      ;TSSR INCORRECT AFTER READ DATA
     052630  104456                                                                  TRAP    C$ERHRD
     052632  001044                                                                  .WORD   548
     052634  005204                                                                  .WORD   RDERR
     052636  015564                                                                  .WORD   EXPREC
4988 052640                          170$:   CKLOOP                          ;LOOP IF SELECTED
     052640  104406                                                                  TRAP    C$CLP1
4989 052642  017701  130246                  MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4990 052646  012702  000001                  MOV     #1,R2                   ;SET UP EXPECTED
4991 052652  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED R3
4992 052654  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
```

TEST 5: SPACE RECORDS

```
4993 052656  005237  002212                INC     FATFLG                  ;BUMP COUNT
4997 052662                                ERRHRD  ERRNO,T25WNH,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     052662  104456                                                            TRAP    C$ERHRD
     052664  001045                                                            .WORD   549
     052666  054560                                                            .WORD   T25WNH
     052670  015564                                                            .WORD   EXPREC
4998 052672                        200$:   CKLOOP
     052672  104406                                                            TRAP    C$CLP!
4999 052674                                ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     052674                                                              L10077:
     052674  104403                                                            TRAP    C$ESUB
5000 052676  023727  002212  000017        CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5001 052704  103402                        BLO     999$                    ;BR. IF LESS THAN 25
5002 052706  004737  017272                JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5003 052712                        999$:
```

TEST 5: SPACE RECORDS

```
                                        ;*
                                        ;
                                        ;TEST 5, SUBTEST 7
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE THE
                                        ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
                                        ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
                                        ;
                                        ;
                                        ;
                                        ;
052712                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
052712                                                                                  T5.7:
052712  104402                                                                          TRAP    C$BSUB
052714  004737  055216                            JSR     PC,T25REST              ;SET COMMAND PACKET
052720  004737  055310                            JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
052724  004737  055352                            JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

052730  004737  016064                            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
052734  103407                                    BCS     20$                     ;BR IF INIT WAS OK
052736  005237  002212                            INC     FATFLG                  ;BUMP COUNT
052742  010001                                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
052744                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
052744  104455                                                                          TRAP    C$ERDF
052746  001046                                                                          .WORD   550
052750  003650                                                                          .WORD   SFIERR
052752  012124                                                                          .WORD   SFIMSG
052754  013737  002172  053700  20$:     MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER

052762  012704  053660                            MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

052766  004737  010752                            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
052772  103407                                    BCS     25$                     ;BR, IF COMMAND ISSUED OK
052774  005237  002212                            INC     FATFLG                  ;BUMP COUNT
053000  010001                                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
053002                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
053002  104456                                                                          TRAP    C$ERHRD
053004  001047                                                                          .WORD   551
053006  005054                                                                          .WORD   WRTMSG
053010  012124                                                                          .WORD   SFIMSG
053012                                  25$:    CKLOOP                          ;LOOP IF SELECTED
053012  104406                                                                          TRAP    C$CLP1

                                        ;*****************************************************************
                                        ;
```

TEST 5: SPACE RECORDS

```
5057                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5058                                    ;
5059                                    ;*****************************************************************
5060
5061 053014  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5062 053020  103407                            BCS     30$                     ;BR, IF NO PROBLEM
5063 053022  010001                            MOV     R0,R1                   ;SAVE TSSR
5064 053024  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5068 053030                                    ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     053030  104456                                                                    TRAP    C$ERHRD
     053032  001050                                                                    .WORD   552
     053034  055005                                                                    .WORD   T25RWN
     053036  012136                                                                    .WORD   PKTSSR
5069 053040                            30$:    CKLOOP                          ;LOOP IF SELECTED
     053040  104406                                                                    TRAP    C$CLP1
5070
5071                                    ;*****************************************************************
5072                                    ;
5073                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5074                                    ;
5075                                    ;*****************************************************************
5076
5077 053042  013701  053710                    MOV     T25BFR+6,R1             ;PICK UP XST0
5078 053046  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5079 053050  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5080 053054  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5081 053056  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5082 053060  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5086 053064                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     053064  104456                                                                    TRAP    C$ERHRD
     053066  001051                                                                    .WORD   553
     053070  054175                                                                    .WORD   T25BOT
     053072  015564                                                                    .WORD   EXPREC
5087 053074                            40$:    CKLOOP                          ;LOOP IF SELECTED
     053074  104406                                                                    TRAP    C$CLP1
5088 053076  012737  000001  054002            MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
5089
5090                                    ;*****************************************************************
5091                                    ;
5092                                    ;SPACE REVERSE,ACK COMMAND
5093                                    ;
5094                                    ;*****************************************************************
5095
5096 053104  012737  100410  054000            MOV     #100410,T25PK3          ;SPACE REVERSE,ACK COMMAND
5097 053112  012704  054000                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5098 053116                            65$:
5099 053116  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5100 053122  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5101 053126  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5102 053132  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
5103 053136  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5104 053140  001406                            BEQ     75$                     ;BR, IF OK
5105 053142  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5109 053146                                    ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     053146  104456                                                                    TRAP    C$ERHRD
     053150  001052                                                                    .WORD   554
     053152  054115                                                                    .WORD   T25WDE
```

TEST 5: SPACE RECORDS

```
        053154  012136                                                          .WORD   PKT$GR
 5110   053156                  75$:    CKLOOP                          ;LOOP IF SELECTED
        053156  104406                                                          TRAP    C$CLP1
 5111
 5112                           ;*****************************************************************
 5113                           ;
 5114                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 5115                           ;
 5116                           ;*****************************************************************
 5117
 5118   053160  013701  053710          MOV     T25BFR+6,R1             ;GET XSTO STATUS WORD
 5119   053164  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 5120   053166  052702  002000          BIS     #BIT10,R2               ;SET THE NEF BIT
 5121   053172  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 5122   053174  001406                  BEQ     170$                    ;BR. IF EQUAL (GOOD)
 5123   053176  005237  002212          INC     FATFLG                  ;BUMP COUNT
 5127   053202                          ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
        053202  104456                                                          TRAP    C$ERHRD
        053204  001053                                                          .WORD   555
        053206  054643                                                          .WORD   T25NEF
        053210  015564                                                          .WORD   EXPREC
 5128   053212                  170$:   CKLOOP
        053212  104406                                                          TRAP    C$CLP1
 5129   053214                          ENDSUB
        053214                                                          L10100:
        053214  104403                                                          TRAP    C$ESUB
 5130   053216  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 5131   053224  103402                  BLO     999$                    ;BR. IF LESS THAN 25
 5132   053226  004737  017272          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 5133   053232                  999$:
```

TEST 5: SPACE RECORDS SEQ 0211

```
5135                                    ;*
5136                                    ;
5137                                    ;TEST 5, SUBTEST 8
5138                                    ;
5139                                    ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT
5140                                    ;CUASES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT
5141                                    ;INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT
5142                                    ;TERMINATION AND SETS THE REVERSE INTO BOT (RIB)
5143                                    ;STATUS BIT
5144                                    ;
5145                                    ;
5146                                    ;
5147                                    ;
5148 053232                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      053232                                                                                    T5.8:
      053232  104402                                                                              TRAP    C$BSUB
5149 053234  004737  055216                    JSR     PC,T25REST              ;SET COMMAND PACKET
5150 053240  004737  055310                    JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
5151 053244  004737  055352                    JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
5152
5153                                    ;*****************************************************************
5154                                    ;
5155                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5156                                    ;
5157                                    ;*****************************************************************
5158
5159 053250  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5160 053254  103407                            BCS     20$                     ;BR IF INIT WAS OK
5161 053256  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5165 053262  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5166 053264                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      053264  104455                                                                            TRAP    C$ERDF
      053266  001054                                                                            .WORD   556
      053270  003650                                                                            .WORD   SFIERR
      053272  012124                                                                            .WOP    SFIMSG
5167 053274  013737  002172  053700  20$:      MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
5168
5169 053302  012704  053660                    MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5170
5171                                    ;*****************************************************************
5172                                    ;
5173                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5174                                    ;
5175                                    ;*****************************************************************
5176
5177 053306  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5178 053312  103407                            BCS     25$                     ;BR, IF COMMAND ISSUED OK
5179 053314  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5183 053320  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5184 053322                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      053322  104456                                                                            TRAP    C$ERHRD
      053324  001055                                                                            .WORD   557
      053326  005054                                                                            .WORD   WRTMSG
      053330  012124                                                                            .WORD   SFIMSG
5185 053332                            25$:      CKLOOP                          ;LOOP IF SELECTED
      053332  104406                                                                            TRAP    C$CLP1
5186
```

TEST 5: SPACE RECORDS SEQ 0212

```
5187                                    ;*****************************************************************
5188                                    ;
5189                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5190                                    ;
5191                                    ;*****************************************************************
5192
5193 053334  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5194 053340  103407                            BCS     30$                     ;BR, IF NO PROBLEM
5195 053342  010001                            MOV     R0,R1                   ;SAVE TSSR
5196 053344  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5200 053350                                    ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     053350  104456                                                                    TRAP    C$ERHRD
     053352  001056                                                                    .WORD   558
     053354  055005                                                                    .WORD   T25RWN
     053356  012136                                                                    .WORD   PKTSSR
5201 053360                            30$:    CKLOOP                          ;LOOP IF SELECTED
     053360  104406                                                                    TRAP    C$CLP1
5202
5203                                    ;*****************************************************************
5204                                    ;
5205                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5206                                    ;
5207                                    ;*****************************************************************
5208
5209 053362  013701  053710                    MOV     T25BFR+6,R1             ;PICK UP XST0
5210 053366  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5211 053370  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5212 053374  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5213 053376  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5214 053400  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5218 053404                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     053404  104456                                                                    TRAP    C$ERHRD
     053406  001057                                                                    .WORD   559
     053410  054175                                                                    .WORD   T25BOT
     053412  015564                                                                    .WORD   EXPREC
5219 053414                            40$:    CKLOOP
     053414  104406                                                                    TRAP    C$CLP1
5220 053416  012737  000001  054002            MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
5221
5222                                    ;*****************************************************************
5223                                    ;
5224                                    ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5225                                    ;
5226                                    ;*****************************************************************
5227
5228 053424  012737  140210  054000            MOV     #140210,T25PK3          ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5229 053432  012704  054000                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5230 053436  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5231 053442  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5232 053446  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5233 053452  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
5234 053456  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5235 053460  001406                            BEQ     75$                     ;BR, IF OK
5236 053462  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5240 053466                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     053466  104456                                                                    TRAP    C$ERHRD
     053470  001060                                                                    .WORD   560
```

SEQ 0213

TEST 5: SPACE RECORDS

```
        053472  054115                                                          .WORD   T25WDE
        053474  015564                                                          .WORD   EXPREC
 5241   053476                          75$:    CKLOOP                  ;LOOP IF SELECTED
        053476  104406                                                          TRAP    C$CLP1
 5242   053500  012737  000020  054002          MOV     #20,T25RB               ;NUMBER OF RECORDS TO SPACE OVER
 5243
 5244                                  ;*************************************************************
 5245                                  ;
 5246                                  ;SPACE REVERSE,IE,ACK COMMAND
 5247                                  ;
 5248                                  ;*************************************************************
 5249
 5250   053506  012737  100610  054000          MOV     #100610,T25PK3          ;SPACE REVERSE,IE,ACK COMMAND
 5251   053514  012704  054000                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 5252   053520  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 5253   053524  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 5254   053530  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 5255   053534  012702  100204                  MOV     #SSR!BIT2!SC,R2         ;SET UP EXPECTED
 5256   053540  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 5257   053542  001406                          BEQ     175$                    ;BR, IF OK
 5258   053544  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 5262   053550                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
        053550  104456                                                          TRAP    C$ERHRD
        053552  001061                                                          .WORD   561
        053554  054115                                                          .WORD   T25WDE
        053556  015564                                                          .WORD   EXPREC
 5263   053560                          175$:   CKLOOP                  ;LOOP IF SELECTED
        053560  104406                                                          TRAP    C$CLP1
 5264   053562  013701  053716                  MOV     T25BFR+14,R1            ;GET XST3 STATUS WORD
 5265   053566  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 5266   053570  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT
 5267   053574  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 5268   053576  001406                          BEQ     180$                    ;BR, IF EQUAL (GOOD)
 5269   053600  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 5273   053604                                  ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
        053604  104456                                                          TRAP    C$ERHRD
        053606  001062                                                          .WORD   562
        053610  054643                                                          .WORD   T25NEF
        053612  015564                                                          .WORD   EXPREC
 5274   053614                          180$:   CKLOOP
        053614  104406                                                          TRAP    C$CLP1
 5275   053616                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        053616                                                                  L10101:
        053616  104403                                                          TRAP    C$ESUB
 5276   053620  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 5277   053626  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
 5278   053630  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 5279   053634                          999$:
 5280                                  ;
 5281                                  ;
 5282                                  ;
 5283   053634  004737  016546                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
 5284   053640  103002                          BCC     193$                    ;BR, IF NO LOOP REQUIRED
 5285   053642  000137  046516                  JMP     T25LOOP                 ;EXECUTE AGAIN
 5286   053646                          193$:
 5287   053646                                  EXIT    TST                     ;ALL DONE THIS TEST
        053646  104432                                                          TRAP    C$EXIT
```

TEST 5: SPACE RECORDS

SEQ 0214

053650 001532 .WORD L10071 .

TEST 5: SPACE RECORDS

```
5289
5290
5291
5293            053660
5295 053660
5296 053660  100004
5297 053662  053670
5298 053664  000000
5299 053666  000010
5300 053670
5301 053670  053702
5302 053672  000000
5303 053674  000012
5304 053676  000000
5305 053700  000000
5306 053702
5307
5308
5309
5311            053770
5313 053770
5314 053770  100006
5315 053772  054010
5316 053774  000000
5317 053776  000006
5318
5322 054000
5323 054000  100005
5324 054002
5325 054002  003114
5326 054004  000000
5327 054006  000000
5328
5329
5330
5331
5332 054010
5333 054010     010
5334 054011     200
5335 054012  000000
5336 054014  000000
5337
5338
5339
5340
5341
5342 054016  100005
5343 054020  100405
5344 054022  102005
5345 054024  177777
5346
5347
```

```
;*
;LOCAL STORAGE FOR THIS TEST
;-
        .=<.+10>&177770
T25PACKET:                              ;COMMAND PACKET FOR TEST
        .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH  ACK
        .WORD   T25DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
        .WORD   0
        .WORD   8.                      ;STARTING VALUE OF BLOCK SIZE
T25DATA:                                ;CHARACTERISTICS DATA BLOCK
        .WORD   T25BFR                  ;ADDRESS OF MESSAGE BUFFER
        .WORD   0
        .WORD   10.                     ;LENGTH OF MESSAGE BUFFER
        .WORD   0
T25DSW: .WORD   0                       ;SELECT DRIVE ZERO
T25BFR: .BLKW   25.                     ;MESSAGE BUFFER
;
;WRITE SUBSYSTEM MEMORY COMMAND PACKET
;
        .=<.+10>&177770
T25PK2:
        .WORD   100006                  ;WRITE SUB SYS MEM COMMAND,  AND ACK
        .WORD   T25BF2                  ;ADDRESS OF SELECT BLOCK DATA
        .WORD   0
        .WORD   6.                      ;SIZE OF DATA PACKET

T25PK3:
        .WORD   100005                  ;READ COMMAND, AND ACK
T25RB:
T25WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
        .WORD   0
T25SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
        .EVEN
;
;
;
T25BF2:
T25BS0: .BYTE   10                      ;BSEL0 AREA
T25BS1: .BYTE   200                     ;BSEL1 AREA
T25S2:  .WORD   0                       ;SEL 2 AREA
T25S3:  .WORD   0                       ;DATA AREA
;
;
        .EVEN
;TAPE MOTION PACKET COMMAND VALUES

T25RN:  .WORD   100005                  ;READ DATA (NEXT)
T25WDR: .WORD   100405                  ;READ DATA RETRY
T25CON: .WORD   102005                  ;WRITE CONTINOUS
        .WORD   177777                  ;END OF DATA
```

TEST 5: SPACE RECORDS SEQ 0216

```
5349 054026  000000                T25CN2: .WORD   0                       ;COUNTER FOR RECORDS
5350 054030  000000                T25CNT: .WORD   0                       ;COUNTER FOR RECORDS
5351 054032  000000                T25DLY: .WORD   0                       ;COUNTER FOR RECORDS
5352
5353                               ;+
5354                               ;LOCAL TEXT MESSAGES FOR TEST
5355                               ;-
5356
5357 054034      127     122     111  T25SSR: .ASCIZ  'WRITE SUBSYSTEM Miscellaneous Read Status Failed'
5358 054115      124     123     123  T25WDE: .ASCIZ  'TSSR Not Correct After POSITION (SPACE) Command'
5359 054175      124     141     160  T25BOT: .ASCIZ   Tape Not At BOT After REWIND Command'
5360 054242      124     123     123  T25TM:  .ASCIZ  'TSSR Not Correct After POSITION (Space Command) Reject
5361 054331      127     162     151  T25NET: .ASCIZ  'Write Tape, Status Alert, But No EOT Sensed'
5362 054405      123     160     141  T25WNG: .ASCIZ  'Space Forward Failed To Position On Correct Record'
5363 054470      123     160     141  T25BNC: .ASCIZ  'Space Forward, From BOT, Failed To Clear BOT Indication
5364 054560      123     160     141  T25WNH: .ASCIZ  'Space Reverse Failed To Position On Correct Record'
5365 054643      123     160     141  T25NEF: .ASCIZ  'Space Reverse, At BOT, Failed To Set NEF (XST0)'
5366 054723      123     160     141  T25RIB: .ASCIZ  'Space Reverse, Into BOT, Failed To Set RIB (XST3)'
5367 055005      122     145     167  T25RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
5368 055054      104     162     151  T25OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
5369 055127      124     123     123  T25WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
5370 055200      123     160     141  TST25ID:        .ASCIZ  'Space Records'
5371                                        .EVEN
5372                               ;+
5373                               ;
5374                               ;ROUTINE TO RESTORE COMMAND PACKET TO START UP (DEFAULT) VALUES
5375                               ;WRITE SUBSYSTEM MEMORY COMMAND
5376                               ;
5377                               ;-
5378
5379 055216                        T25REST:
5380 055216                                SAVREG                          ;SAVE THE REGISTERS
5381 055222  012701  053660                MOV     #T25PACKET,R1           ;START OF THE PACKET
5382 055226  012721  100004                MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
5383 055232  012721  053670                MOV     #T25DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
5384 055236  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5385 055240  012721  000012                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
5386 055244  012721  053702                MOV     #T25BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
5387 055250  005021                        CLR     (R1)+
5388 055252  012721  000024                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
5389 055256  005021                        CLR     (R1)+
5390 055260  012711  000000                MOV     #0,(R1)                 ;SELECT DRIVE ZERO
5391 055264  012702  000030                MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
5392 055270  012762  177777  053702  64$:  MOV     #177777,T25BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
5393 055276  005742                        TST     -(R2)                   ;NEXT LOCATION
5394 055300  022702  000000                CMP     #0,R2                   ;IS R2 AT ZERO YET
5395 055304  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
5396 055306  000207                        RTS     PC                      ;RETURN
5397
5398 055310                        T25RT2:
5399 055310                                SAVREG                          ;SAVE THE REGISTERS
5400 055314  012701  053770                MOV     #T25PK2,R1              ;START OF THE PACKET
5401 055320  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
5402 055324  012721  054010                MOV     #T25BF2,(R1)+           ;ADDRESS OF DATA BLOCK
5403 055330  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5404 055332  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
5405 055336  005021                        CLR     (R1)+
```

TEST 5: SPACE RECORDS

```
5406 055340  012701  054010                MOV     #T25BF2,R1          ;POINT TO DATA SEL AREA
5407 055344  005021                        CLR     (R1)+
5408 055346  005011                        CLR     (R1)
5409 055350  000207                        RTS     PC                  ;RETURN
5410 055352                        T25RT3:
5411 055352                                SAVREG                      ;SAVE THE REGISTERS
5412 055356  012701  054000                MOV     #T25PK3,R1          ;START OF THE PACKET
5413 055362  012721  000000                MOV     #0,(R1)+            ;WRITE SUBSYSTEM MEM. WITH ACK,
5414 055366  012721  000000                MOV     #0,(R1)+            ;ADDRESS OF DATA BLOCK
5415 055372  005021                        CLR     (R1)+               ;EXTENDED ADDRESS
5416 055374  012721  000000                MOV     #0,(R1)+            ;SIZE OF DATA BLOCK IN BYTES
5417 055400  000207                        RTS     PC                  ;RETURN
5418 055402                                ENDTST
     055402                                                        L10071:
     055402  104401                                                    TRAP    C$ETST
```

```
                                        .SBTTL  TEST  6: REREADS
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT
                                ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
                                ;DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
                                ;SPACE IS AVAILIABLE), AND BYTE SWAP (SWP) AND OPPOSITE (OPP)
                                ;CONRTOL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON
                                ;EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD
                                ;LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES,
                                ;AND DATA BUFFERS IN NONEXISTENT MEMORY.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 15 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
055404                                  BGNTST
055404                                                                          T6::
055404  012737  006446  002170            MOV     @EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
055412  004737  017364                    JSR     PC,KTOFF                ;DON'T NEED KT11
055416  012700  074527                    MOV     #TST26ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
055422  004737  016600                    JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
055426  012737  000005  002206            MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
055434  004737  021366                    JSR     PC,MEMCK                ;CHECK FOR MEMORY
055440  005037  071776                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
                                ;+
                                ;
                                ;TEST 6, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
                                ;AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST
                                ;REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
                                ;RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
                                ;IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
                                ;TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
                                ;PREVIOUS COMMAND ISSUED. RESULTS (STATUS, DATA,
                                ;ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
                                ;PREVIOUS COMMAND IS SET TO THE LENGTH OF THE EXPECTED
                                ;RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                                ;
                                ;
                                ;-

055444                          T26LOOP:

055444                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
055444                                                                          T6.1:
055444  104402                                                                  TRAP    C$BSUB
055446  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
055452  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
055456  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
055462  012737  176750  072004            MOV     #65000.,T26DLY                  ;SET UP DELAY COUNTER

                                ;*************************************************************************
```

TEST 6: REREADS

```
5478                                    ;
5479                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
5480                                    ;
5481                                    ;*****************************************************************
5482
5483 055470  004737  016064            10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5484 055474  103426                            BCS     20$                     ;BR IF INIT WAS OK
5485 055476                             DELAY   250                             ;DELAY FOR A REWIND TO FINISH
      055476  012727  000250                                                           MOV     #250,(PC)+
      055502  000000                                                                   .WORD   0
      055504  013727  002116                                                           MOV     L$DLY,(PC)+
      055510  000000                                                                   .WORD   0
      055512  005367  177772                                                           DEC     -6(PC)
      055516  001375                                                                   BNE     .-4
      055520  005367  177756                                                           DEC     -22(PC)
      055524  001367                                                                   BNE     . 20
5486 055526  005337  072004                    DEC     T26DLY                  ;DEC COUNTER
5487 055532  001356                            BNE     10$                     ;BR, IF DELAY NOT READY
5488 055534  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5492 055540  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5493 055542                             ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
      055542  104455                                                                   TRAP    C$ERDF
      055544  001131                                                                   .WORD   601
      055546  003650                                                                   .WORD   SFIERR
      055550  012124                                                                   .WORD   SFIMSG
5494 055552                             20$:
5495 055552  013737  002172  071650            MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
5496 055560  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5497
5498                                    ;*****************************************************************
5499                                    ;
5500                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5501                                    ;
5502                                    ;*****************************************************************
5503
5504 055564  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5505 055570  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
5506 055572  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5510 055576  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5511 055600                             ERRHRD  ERRNO,WRTMSG,SFIMSG             ;WRITE CHARACTERISTISC FAILED
      055600  104456                                                                   TRAP    C$ERHRD
      055602  001132                                                                   .WORD   602
      055604  005054                                                                   .WORD   WRTMSG
      055606  012124                                                                   .WORD   SFIMSG
5512 055610                             26$:    CKLOOP                          ;LOOP IF SELECTED
      055610  104406                                                                   TRAP    C$CLP1
5513
5514                                    ;*****************************************************************
5515                                    ;
5516                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5517                                    ;
5518                                    ;*****************************************************************
5519
5520 055612  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5521 055616  103413                            BCS     30$                     ;BR, IF NO PROBLEM
5522 055620  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
5523 055624  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
```

TEST 6: REREADS SEQ 0220

```
5524 055630  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
5525 055632  005237  002212            INC     FATFLG                  ;BUMP COUNT
5529 055636                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     055636  104456                                                            TRAP    C$ERHRD
     055640  001133                                                            .WORD   603
     055642  073304                                                            .WORD   T26RWN
     055644  012136                                                            .WORD   PKTSSR
5530 055646                    30$:    CKLOOP                          ;LOOP IF SELECTED
     055646  104406                                                            TRAP    C$CLP1
5531
5532                           ;*****************************************************************
5533                           ;
5534                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5535                           ;
5536                           ;*****************************************************************
5537
5538 055650  013701  071660            MOV     T26BFR+6,R1             ;PICK UP XST0
5539 055654  010102                    MOV     R1,R2                   ;SET UP EXPECTED
5540 055656  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5541 055662  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
5542 055664  001406                    BEQ     40$                     ;BR. IF EQUAL (OK)
5543 055666  005237  002212            INC     FATFLG                  ;BUMP COUNT
5547 055672                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     055672  104456                                                            TRAP    C$ERHRD
     055674  001134                                                            .WORD   604
     055676  073015                                                            .WORD   T26BOT
     055700  015564                                                            .WORD   EXPREC
5548 055702                    40$:    CKLOOP                          ;LOOP IF SELECTED
     055702  104406                                                            TRAP    C$CLP1
5549 055704  012703  000400            MOV     #256.,R3                ;RECORD SIZE
5550 055710  013737  003114  071752    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
5551
5552                           ;*****************************************************************
5553                           ;
5554                           ;WRITE DATA,ACK,CVC=1 COMMAND
5555                           ;
5556                           ;*****************************************************************
5557
5558 055716  012737  140005  071750        MOV     #140005,T26PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
5559 055724  012704  071750                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5560 055730                    65$:
5561 055730  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5562 055732  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
5563 055736  010337  071756                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5564 055742  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5565 055746  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5566 055752  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5567 055756  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
5568 055762  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5569 055764  001406                        BEQ     75$                     ;BR. IF OK
5570 055766  005237  002212                INC     FATFLG                  ;BUMP COUNT
5574 055772                                ERRHRD  ERRNO,WRTERR,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA
     055772  104456                                                            TRAP    C$ERHRD
     055774  001135                                                            .WORD   605
     055776  005111                                                            .WORD   WRTERR
     056000  015564                                                            .WORD   EXPREC
5575 056002                    75$:    CKLOOP                          ;LOOP IF SELECTED
```

TEST 6: REREADS

```
                056002  104406                                                          TRAP    C$CLP1
5576            056004  005723                  TST     (R5)+                   ;BUMP RECORD SIZE
5577            056006  022703  000414          CMP     #268.,R3                ;END OF RECORD SET
5578            056012  001346                  BNE     65$                     ;BR. IF MORE RECORDS TO WRITE
5579            056014                  80$:    CKLOOP                          ;LOOP IF SELECTED
                056014  104406                                                          TRAP    C$CLP1
5580            056016                  120$:
5581
5582                                    ;*****************************************************************
5583                                    ;
5584                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5585                                    ;
5586                                    ;*****************************************************************
5587
5588            056016  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5589            056022  103413                  BCS     130$                    ;BR. IF NO PROBLEM
5590            056024  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
5591            056030  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5592            056034  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
5593            056036  005237  002212          INC     FATFLG                  ;BUMP COUNT
5597            056042                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                056042  104456                                                          TRAP    C$ERHRD
                056044  001136                                                          .WORD   606
                056046  073304                                                          .WORD   T26RWN
                056050  012136                                                          .WORD   PKTSSR
5598            056052                  130$:   CKLOOP                          ;LOOP IF SELECTED
                056052  104406                                                          TRAP    C$CLP1
5599
5600                                    ;*****************************************************************
5601                                    ;
5602                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5603                                    ;
5604                                    ;*****************************************************************
5605
5606            056054  013701  071660          MOV     T26FR+6,R1              ;PICK UP XST0
5607            056060  010102                  MOV     R1,R2                   ;SET UP EXPECTED
5608            056062  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5609            056066  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
5610            056070  001406                  BEQ     140$                    ;BR. IF EQUAL (OK)
5611            056072  005237  002212          INC     FATFLG                  ;BUMP COUNT
5615            056076                          ERRHRD  ERRNO,T26BOT,PKTSSR     ;TAPE NOT AT BOT AFTER REWIND
                056076  104456                                                          TRAP    C$ERHRD
                056100  001137                                                          .WORD   607
                056102  073015                                                          .WORD   T26BOT
                056104  012136                                                          .WORD   PKTSSR
5616            056106                  140$:   CKLOOP                          ;LOOP IF SELECTED
                056106  104406                                                          TRAP    C$CLP1
5617            056110  012737  000400  072002          MOV     #256.,T26RSZ            ;SET RECORD SIZE
5618
5619                                    ;*****************************************************************
5620                                    ;
5621                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5622                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
5623                                    ;
5624                                    ;*****************************************************************
5625
5626            056116  012703  000001  145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
```

TEST 6: REREADS

```
5627 056122  004737  010556                JSR     PC,SPACE                ;CALL SPACE ROUTINE
5628 056126  103412                        BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
5629 056130  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
5630 056134  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5631 056140  005237  002212                INC     FATFLG                  ;BUMP COUNT
5635 056144                                ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     056144  104456                                                            TRAP    C$ERHRD
     056146  001140                                                            .WORD   608
     056150  07241'                                                           .WORD   T26SC
     056152  015564                                                          .WORD   EXPREC
5636 056154                        150$:   CKLOOP                                  TRAP    C$CLP1
     056156  104406
5637 056156  013703  072002                MOV     T26RSZ,R3               ;RECORD SIZE
5638 056162  013737  003114  071752        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5639
5640                                       ;*****************************************************************
5641                                       ;
5642                                       ;REREREAD DATA,CVC=1,ACK COMMAND
5643                                       ;
5644                                       ;*****************************************************************
5645
5646 056170  012737  141001  071750        MOV     #141001,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
5647 056176  012704  071750        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5648 056202  010337  071756                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5649 056206  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5650 056212  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5651 056216  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5652 056222  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
5653 056226  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5654 056230  001406                        BEQ     170$                    ;BR, IF OK
5655 056232  005237  002212                INC     FATFLG                  ;BUMP COUNT
5659 056236                                ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     056236  104456                                                            TRAP    C$ERHRD
     056240  001141                                                            .WORD   609
     056242  073640                                                          .WORD   T26WDC
     056244  012136                                                          .WORD   PKTSSR
5660 056246                        170$:   CKLOOP                          ;LOOP IF SELECTED
     056246  104406                                                            TRAP    C$CLP1
5661 056250  013702  003114                MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5662 056254  010304                        MOV     R3,R4                   ;CURRENT RECORD SIZE
5663 056256  162704  000400                SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5664 056262  060204        173$:   ADD     R2,R4                   ;SET UP POINTER
5665 056264  021403                        CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5666 056266  001410                        BEQ     180$                    ;BR, IF ALL IS WELL
5667 056270  011401                        MOV     (R4),R1                 ;RECD DATA
5668 056272  010302                        MOV     R3,R2                   ;EXPECTED DATA
5669 056274  005237  002212                INC     FATFLG                  ;BUMP COUNT
5673 056300                                ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     056300  104456                                                            TRAP    C$ERHRD
     056302  001142                                                            .WORD   610
     056304  073062                                                          .WORD   T26DTA
     056306  015564                                                          .WORD   EXPREC
5674 056310                        180$:   CKLOOP                          ;LOOP IF SELECTED
     056310  104406                                                            TRAP    C$CLP1
5675 056312  005724                        TST     (R4)+                   ;BUMP TO NEXT LOCATION
5676 056314  160204                        SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
5677 056316  020403                        CMP     R4,R3                   ;END OF RECORD YET
```

TEST 6: REREADS

```
5678 056320  001360                        BNE     173$            ;BR. IF NOT AT END OF RECORD
5679 056322  005723                        TST     (R3)+           ;BUMP RECORD SIZE
5680 056324  010337  072002                MOV     R3,T26RSZ       ;RESET RECORD SIZE
5681 056330  022703  000412                CMP     #266.,R3        ;END OF RECORD YET
5682 056334  001270                        BNE     145$            ;BR. IF MORE RECORDS TO READ
5683 056336                        190$:   CKLOOP                  ;LOOP IF SELECTED
     056336  104406                                                        TRAP    C$CLP1
5684 056340                                ENDSUB          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     056340                                                     L10103:
     056340  104403                                                    TRAP    C$ESUB
5685 056342  023727  002212  000017        CMP     FATFLG,#15.     ;IS ERROR COUNT AT 25
5686 056350  103402                        BLO     999$            ;BR. IF LESS THAN 25
5687 056352  004737  017272                JSR     PC,CKDROP       ;TRY TO DROP THE UNIT
5688 056356                        999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
                                        ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
                                        ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
                                        ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
                                        ;SWAPPED BYTES.
                                        ;
                                        ;
                                        ;-
056356                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
056356                                                                                  T6.2:
056356  104402                                                                          TRAP    C$BSUB
056360  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
056364  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
056370  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

056374  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
056400  103407                            BCS     20$                     ;BR IF INIT WAS OK
056402  005237  002212                    INC     FATFLG                  ;BUMP COUNT
056406  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
056410                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
056410  104455                                                                  TRAP    C$ERDF
056412  001143                                                                  .WORD   611
056414  003650                                                                  .WORD   SFIERR
056416  012124                                                                  .WORD   SFIMSG
056420  013737  002172  071650  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

056426  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

056432  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
056436  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
056440  005237  002212                    INC     FATFLG                  ;BUMP COUNT
056444  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
056446                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
056446  104456                                                                  TRAP    C$ERHRD
056450  001144                                                                  .WORD   612
056452  005054                                                                  .WORD   WRTMSG
056454  012124                                                                  .WORD   SFIMSG
056456                          26$:    CKLOOP                          ;LOOP IF SELECTED
056456  104406                                                                  TRAP    C$CLP1
```

```
                        ;*****************************************************************
                        ;
                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                        ;
                        ;*****************************************************************

056460  004737  011104        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
056464  103413                BCS     30$                     ;BR, IF NO PROBLEM
056466  016501  000002        MOV     TSSR(R5),R1             ;GET TSSR
056472  012702  000200        MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
056476  010004                MOV     R0,R4                   ;PACKET ADDRESS SET UP
056500  005237  002212        INC     FATFLG                  ;BUMP COUNT
056504                        ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
056504  104456                                                          TRAP    C$ERHRD
056506  001145                                                          .WORD   613
056510  073304                                                          .WORD   T26RWN
056512  012136                                                          .WORD   PKTSSR
056514                  30$:    CKLOOP                          ;LOOP IF SELECTED
056514  104406                                                          TRAP    C$CLP1

                        ;*****************************************************************
                        ;
                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                        ;
                        ;*****************************************************************

056516  013701  071660        MOV     T26BFR+6,R1             ;PICK UP XST0
056522  010102                MOV     R1,R2                   ;SET UP EXPECTED
056524  052702  000002        BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
056530  020102                CMP     R1,R2                   ;DOES EXP = REC'D
056532  001406                BEQ     40$                     ;BR, IF EQUAL (OK)
056534  005237  002212        INC     FATFLG                  ;BUMP COUNT
056540                        ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
056540  104456                                                          TRAP    C$ERHRD
056542  001146                                                          .WORD   614
056544  073015                                                          .WORD   T26BOT
056546  015564                                                          .WORD   EXPREC
056550                  40$:    CKLOOP                          ;LOOP IF SELECTED
056550  104406                                                          TRAP    C$CLP1
056552  012703  000400        MOV     #256.,R3                ;RECORD SIZE
056556  013737  003114  071752        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

                        ;*****************************************************************
                        ;
                        ;WRITE DATA,ACK,SWB COMMAND
                        ;
                        ;*****************************************************************

056564  012737  110005  071750        MOV     #110005,T26PK3          ;WRITE DATA,ACK,SWB COMMAND
056572  012704  071750        MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
056576                  65$:
056576  010300                MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
056600  004737  017512        JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
056604  010337  071756        MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
056610  010465  000000        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
056614  004737  016340        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
056620  016501  000002        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

SEQ 0226

TEST 6: REREADS

```
5795 056624  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
5796 056630  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5797 056632  001406                        BEQ     75$                     ;BR, IF OK
5798 056634  005237  002212                INC     FATFLG                  ;BUMP COUNT
5802 056640                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     056640  104456                                                            TRAP    C$ERHRD
     056642  001147                                                            .WORD   615
     056644  005111                                                            .WORD   WRTERR
     056646  012136                                                            .WORD   PKTSSR
5803 056650                        75$:    CKLOOP                          ;LOOP IF SELECTED
     056650  104406                                                            TRAP    C$CLP1
5804 056652  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
5805 056654  022703  000414                CMP     #268.,R3                ;END OF RECORD YET
5806 056660  001346                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
5807 056662                        80$:    CKLOOP                          ;LOOP IF SELECTED
     056662  104406                                                            TRAP    C$CLP1
5808 056664                        120$:
5809
5810                               ;*****************************************************************
5811                               ;
5812                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5813                               ;
5814                               ;*****************************************************************
5815
5816 056664  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5817 056670  103413                        BCS     130$                    ;BR, IF NO PROBLEM
5818 056672  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
5819 056676  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5820 056702  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
5821 056704  005237  002212                INC     FATFLG                  ;BUMP COUNT
5825 056710                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     056710  104456                                                            TRAP    C$ERHRD
     056712  001150                                                            .WORD   616
     056714  073304                                                            .WORD   T26RWN
     056716  012136                                                            .WORD   PKTSSR
5826 056720                        130$:   CKLOOP                          ;LOOP IF SELECTED
     056720  104406                                                            TRAP    C$CLP1
5827
5828                               ;*****************************************************************
5829                               ;
5830                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5831                               ;
5832                               ;*****************************************************************
5833
5834 056722  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XST0
5835 056726  010102                        MOV     R1,R2                   ;SET UP EXPECTED
5836 056730  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5837 056734  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
5838 056736  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
5839 056740  005237  002212                INC     FATFLG                  ;BUMP COUNT
5843 056744                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     056744  104456                                                            TRAP    C$ERHRD
     056746  001151                                                            .WORD   617
     056750  073015                                                            .WORD   T26BOT
     056752  015564                                                            .WORD   EXPREC
5844 056754                        140$:   CKLOOP                          ;LOOP IF SELECTED
     056754  104406                                                            TRAP    C$CLP1
```

```
5845 056756  012737  000400  072002          MOV     #256.,T26RSZ            ;SET UP RECORD SIZE
5846
5847                                 ;*************************************************************
5848                                 ;
5849                                 ;ISSUE SPACE RECORDS COMMAND   VALUE IN R3 SETS NUMBER OF RECORDS
5850                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
5851                                 ;
5852                                 ;*************************************************************
5853
5854 056764  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
5855 056770  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
5856 056774  103412                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
5857 056776  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
5858 057002  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5859 057006  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5863 057012                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     057012  104456                                                                  TRAP    C$ERHRD
     057014  001152                                                                  .WORD   618
     057016  072417                                                                  .WORD   T26SC
     057020  015564                                                                  .WORD   EXPREC
5864 057022                          150$:   CKLOOP
     057022  104406                                                                  TRAP    C$CLP1
5865 057024  013703  072002                  MOV     T26RSZ,R3               ;RECORD SIZE
5866 057030  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5867
5868                                 ;*************************************************************
5869                                 ;
5870                                 ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5871                                 ;
5872                                 ;*************************************************************
5873
5874 057036  012737  151001  071750          MOV     #151001,T26PK3          ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5875 057044  012704  071750          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5876 057050  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5877 057054  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5878 057060  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5879 057064  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5880 057070  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5881 057074  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5882 057076  001406                          BEQ     170$                    ;BR, IF OK
5883 057100  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5887 057104                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     057104  104456                                                                  TRAP    C$ERHRD
     057106  001153                                                                  .WORD   619
     057110  073640                                                                  .WORD   T26WDC
     057112  012136                                                                  .WORD   PKTSSR
5888 057114                          170$:   CKLOOP                          ;LOOP IF SELECTED
     057114  104406                                                                  TRAP    C$CLP1
5889 057116  013702  003114                  MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5890 057122  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
5891 057124  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5892 057130  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
5893 057132  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5894 057134  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
5895 057136  011401                          MOV     (R4),R1                 ;RECD DATA
5896 057140  010302                          MOV     R3,R2                   ;EXPECTED DATA
5897 057142  005237  002212                  INC     FATFLG                  ;BUMP COUNT
```

SEQ 0228

TEST 6: REREADS

```
5901 057146                                    ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     057146  104456                                                                    TRAP    C$ERHRD
     057150  001154                                                                    .WORD   620
     057152  073062                                                                    .WORD   T26DTA
     057154  015564                                                                    .WORD   EXPREC
5902 057156                            180$:   CKLOOP                          ;LOOP IF SELECTED
     057156  104406                                                                    TRAP    C$CLP1
5903 057160  005724                            TST     (R4)+                   ;BUMP TO NEXT LOCATION
5904 057162  160204                            SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
5905 057164  020403                            CMP     R4,R3                   ;END OF RECORD YET
5906 057166  001360                            BNE     173$                    ;BR, IF NOT AT END OF RECORD
5907 057170  005723                            TST     (R3)+                   ;BUMP RECORD SIZE
5908 057172  010337  072002                    MOV     R3,T26RSZ               ;STORE RECORD SIZE
5909 057176  022703  000412                    CMP     #266.,R3                ;END OF RECORD YET
5910 057202  001270                            BNE     145$                    ;BR, IF MORE RECORDS TO READ
5911 057204                            190$:   CKLOOP                          ;LOOP IF SELECTED
     057204  104406                                                                    TRAP    C$CLP1
5912 057206                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     057206                                                                         L10104:
     057206  104403                                                                    TRAP    C$ESUB
5913 057210  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
5914 057216  103402                            BLO     999$                            ;BR, IF LESS THAN 25
5915 057220  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5916 057224                            999$:
```

```
5918                                    ;*
5919                                    ;
5920                                    ;TEST 6, SUBTEST 3
5921                                    ;
5922                                    ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
5923                                    ;(READ REVERSE, SPACE FORWARD) AND SWB=0 OPERATES
5924                                    ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
5925                                    ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
5926                                    ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
5927                                    ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
5928                                    ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
5929                                    ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
5930                                    ;
5931                                    ;1.     THE REREAD PREVIOUS COMMAND WITH OPP=1 IS ISSUED
5932                                    ;       AND THE RESULTS CHECKED
5933                                    ;
5934                                    ;2.     A READ FORWARD COMMAND IS THEN ISSUED AND THE
5935                                    ;       DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
5936                                    ;       POSITIONED PROPERLY AFTER THE REREAD PREVIOUS
5937                                    ;       COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
5938                                    ;       POSITIONED AT THE START OF THE TEST RECORD). THE
5939                                    ;       READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
5940                                    ;       PROPERLY AT THE START OF THE NEXT TEST RECORD.
5941                                    ;
5942                                    ;THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET
5943                                    ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
5944                                    ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
5945                                    ;
5946                                    ;
5947                                    ;
5948                                    ;
5949                                    ;
5950
5951 057224                             BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
    057224                                                                      T6.3:
    057224  104402                                                              TRAP    C$BSUB
5952 057226  004737  074540             JSR     PC,T26REST              ;SET COMMAND PACKET
5953 057232  005037  071776             CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
5954 057236  004737  074632             JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
5955 057242  004737  074674             JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
5956
5957                                    ;*****************************************************************
5958                                    ;
5959                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5960                                    ;
5961                                    ;*****************************************************************
5962
5963 057246  004737  016064             JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5964 057252  103407                     BCS     20$                     ;BR IF INIT WAS OK
5965 057254  005237  002212             INC     FATFLG                  ;BUMP COUNT
5969 057260  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5970 057262                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
    057262  104455                                                              TRAP    C$ERDF
    057264  001155                                                              .WORD   621
    057266  003650                                                              .WORD   SFIERR
    057270  012124                                                              .WORD   SFIMSG
5971 057272  013737  002172  071650  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
```

TEST 6: REREADS

```
5972
5973 057300  012704  071630                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5974
5975                                 ;*************************************************************************
5976                                 ;
5977                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5978                                 ;
5979                                 ;*************************************************************************
5980
5981 057304  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5982 057310  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
5983 057312  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5987 057316  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5988 057320                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     057320  104456                                                                  TRAP    C$ERHRD
     057322  001156                                                                  .WORD   622
     057324  005054                                                                  .WORD   WRTMSG
     057326  012124                                                                  .WORD   SFIMSG
5989 057330                          26$:    CKLOOP                          ;LOOP IF SELECTED
     057330  104406                                                                  TRAP    C$CLP1
5990
5991                                 ;*************************************************************************
5992                                 ;
5993                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5994                                 ;
5995                                 ;*************************************************************************
5996
5997 057332  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5998 057336  103413                          BCS     30$                     ;BR, IF NO PROBLEM
5999 057340  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
6000 057344  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6001 057350  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6002 057352  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6006 057356                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     057356  104456                                                                  TRAP    C$ERHRD
     057360  001157                                                                  .WORD   623
     057362  073304                                                                  .WORD   T26RWN
     057364  012136                                                                  .WORD   PKTSSR
6007 057366                          30$:    CKLOOP                          ;LOOP IF SELECTED
     057366  104406                                                                  TRAP    C$CLP1
6008
6009                                 ;*************************************************************************
6010                                 ;
6011                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6012                                 ;
6013                                 ;*************************************************************************
6014
6015 057370  013701  071660                  MOV     T26BFR+6,R1             ;PICK UP XST0
6016 057374  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6017 057376  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6018 057402  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6019 057404  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
6020 057406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6024 057412                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     057412  104456                                                                  TRAP    C$ERHRD
     057414  001160                                                                  .WORD   624
     057416  073015                                                                  .WORD   T26BOT
```

TEST 6: REREADS

```
      057420  015564                                                        .WORD   EXPREC
 6025 057422                          40$:    CKLOOP                      ;LOOP IF SELECTED
      057422  104406                                                        TRAP    C$CLP1
 6026 057424  012703  000400                  MOV     #256.,R3            ;RECORD SIZE
 6027 057430  013737  003114  071752          MOV     FREE,T26RB          ;STARTING WRITE BUFFER ADDRESS
 6028
 6029                                 ;*************************************************************************
 6030                                 ;
 6031                                 ;WRITE DATA,CVC=1,ACK COMMAND
 6032                                 ;
 6033                                 ;*************************************************************************
 6034
 6035 057436  012737  140005  071750          MOV     #140005,T26PK3      ;WRITE DATA,CVC=1,ACK COMMAND
 6036 057444  012704  071750                  MOV     #T26PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
 6037 057450                          65$:
 6038 057450  010300                          MOV     R3,R0               ;SET PATTERN IN CORRECT REGISTER
 6039 057452  004737  017512                  JSR     PC,FILLMEM          ;FILL MEMORY WITH RECORD SIZE
 6040 057456  010337  071756                  MOV     R3,T26SZ            ;SET UP RECORD SIZE IN PACKET
 6041 057462  013777  071776  123424          MOV     T26CNT,@FREE        ;MOVE TAPE RECORD NUMBER TO BUFFER
 6042 057470  062737  000001  071776          ADD     #1,T26CNT           ;NUMBER READY FOR NEXT RECORD
 6043 057476  010465  000000                  MOV     R4,TSDB(R5)         ;ISSUE COMMAND
 6044 057502  004737  016340                  JSR     PC,WAITF            ;WAIT FOR SSR TO SET
 6045 057506  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
 6046 057512  012702  000200                  MOV     #SSR,R2             ;SET UP EXPECTED
 6047 057516  020102                          CMP     R1,R2               ;ARE THEY EQUAL
 6048 057520  001406                          BEQ     75$                 ;BR, IF OK
 6049 057522  005237  002212                  INC     FATFLG              ;BUMP COUNT
 6053 057526                                  ERRHRD  ERRNO,WRTERR,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
      057526  104456                                                        TRAP    C$ERHRD
      057530  001161                                                        .WORD   625
      057532  005111                                                        .WORD   WRTERR
      057534  012136                                                        .WORD   PKTSSR
 6054 057536                          75$:    CKLOOP                      ;LOOP IF SELECTED
      057536  104406                                                        TRAP    C$CLP1
 6055 057540  005723                          TST     (R3)+               ;BUMP THE RECORD SIZE
 6056 057542  022703  000414                  CMP     #268.,R3            ;MAXIMUM SIZE YET
 6057 057546  001401                          BEQ     120$                ;BR, IF AT END OF WRITE SEQUENCE
 6058 057550  000737                          BR      65$                 ;WRITE MORE RECORDS
 6059 057552                          120$:
 6060 057552  005037  071776                  CLR     T26CNT              ;SET RECORD COUNTER BACK TO ZERO
 6061
 6062                                 ;*************************************************************************
 6063                                 ;
 6064                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 6065                                 ;
 6066                                 ;*************************************************************************
 6067
 6068 057556  004737  011104                  JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
 6069 057562  103413                          BCS     130$                ;BR, IF NO PROBLEM
 6070 057564  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR
 6071 057570  012702  000200                  MOV     #SSR,R2             ;SET UP EXPECTED TSSR
 6072 057574  010004                          MOV     R0,R4               ;PACKET ADDRESS SET UP
 6073 057576  005237  002212                  INC     FATFLG              ;BUMP COUNT
 6077 057602                                  ERRHRD  ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
      057602  104456                                                        TRAP    C$ERHRD
      057604  001162                                                        .WORD   626
      057606  073304                                                        .WORD   T26RWN
```

TEST 6: REREADS

```
      057610  012136                                                                .WORD   PKTSSR
 6078 057612                  130$:   CKLOOP                          ;LOOP IF SELECTED
      057612  104406                                                                TRAP    C$CLP1
 6079
 6080                         ;*************************************************************************
 6081                         ;
 6082                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 6083                         ;
 6084                         ;*************************************************************************
 6085
 6086 057614  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XST0
 6087 057620  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 6088 057622  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 6089 057626  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
 6090 057630  001406                  BEQ     140$                    ;BR, IF EQUAL (OK)
 6091 057632  005237  002212          INC     FATFLG                  ;BUMP COUNT
 6095 057636                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      057636  104456                                                                TRAP    C$ERHRD
      057640  001163                                                                .WORD   627
      057642  073015                                                                .WORD   T26BOT
      057644  015564                                                                .WORD   EXPREC
 6096 057646                  140$:   CKLOOP                          ;LOOP IF SELECTED
      057646  104406                                                                TRAP    C$CLP1
 6097
 6098                         ;*************************************************************************
 6099                         ;
 6100                         ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 6101                         ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 6102                         ;
 6103                         ;*************************************************************************
 6104
 6105 057650  012703  000001          MOV     #1,R3                   ;SPACE 1 RECORD FORWARD
 6106 057654  004737  010556          JSR     PC,SPACE                ;SPACE CALL
 6107 057660  012703  000400          MOV     #256.,R3                ;RECORD SIZE
 6108 057664  013737  003114  071752  150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 6109
 6110                         ;*************************************************************************
 6111                         ;
 6112                         ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6113                         ;
 6114                         ;*************************************************************************
 6115
 6116 057672  012737  161001  071750          MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6117 057700  012704  071750  165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6118 057704  010337  071756          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6119 057710  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6120 057714  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6121 057720  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6122 057724  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
 6123 057730  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 6124 057732  001406                  BEQ     170$                    ;BR, IF OK
 6125 057734  005237  002212          INC     FATFLG                  ;BUMP COUNT
 6129 057740                          ERRHRD  ERRNO,T26RRG,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      057740  104456                                                                TRAP    C$ERHRD
      057742  001164                                                                .WORD   628
      057744  072322                                                                .WORD   T26RRG
      057746  012136                                                                .WORD   PKTSSR
```

TEST 6: REREADS SEQ 0233

```
6130 057750                          170$:  CKLOOP                          ;LOOP IF SELECTED
     057750  104406                                                                 TRAP    C$CLP1
6131 057752  005723                         TST     (R3)+                   ;BUMP RECORD SIZE
6132 057754  062737  000001  071776        ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
6133
6134                                 ;*************************************************************************
6135                                 ;
6136                                 ;READ DATA, CVC=1, ACK COMMAND
6137                                 ;
6138                                 ;*************************************************************************
6139
6140 057762  012737  140001  071750        MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
6141 057770  010337  071756                 MOV     R3,T26SZ                ;SET SIZE INTO PACKET
6142 057774  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
6143 060000  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR
6144 060004  016501  000002                 MOV     TSSR(R5),R1             ;PICK UP THE TSSR
6145 060010  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
6146 060014  020102                         CMP     R1,R2                   ;IS THE TSSR OK
6147 060016  001406                         BEQ     195$                    ;BR, IF TSSR OK (GOOD)
6148 060020  005237  002212                 INC     FATFLG                  ;BUMP COUNT
6152 060024                                 ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
     060024  104456                                                                 TRAP    C$ERHRD
     060026  001165                                                                 .WORD   629
     060030  005204                                                                 .WORD   RDERR
     060032  012136                                                                 .WORD   PKTSSR
6153 060034                          195$:  CKLOOP                          ;LOOP IF SELECTED
     060034  104406                                                                 TRAP    C$CLP1
6154 060036  017701  123052                 MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
6155 060042  013702  071776                 MOV     T26CNT,R2               ;SET UP EXPECTED
6156 060046  020102                         CMP     R1,R2                   ;IS TAPE POSITION CORRECT
6157 060050  001406                         BEQ     197$                    ;KEEP GOING POSITION OK
6158 060052  005237  002212                 INC     FATFLG                  ;BUMP COUNT
6162 060056                                 ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     060056  104456                                                                 TRAP    C$ERHRD
     060060  001166                                                                 .WORD   630
     060062  072006                                                                 .WORD   T26WNG
     060064  015564                                                                 .WORD   EXPREC
6163 060066                          197$:  CKLOOP
     060066  104406                                                                 TRAP    C$CLP1
6164 060070  022703  000412                 CMP     #266.,R3                ;AT MAX SIZE YET
6165 060074  001401                         BEQ     200$                    ;BR, IF AT END OF THE SUBTEST
6166 060076  000672                         BR      150$                    ;KEEP GOING MORE RECORDS
6167 060100                          200$:
6168 060100                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     060100                                                                         L10105:
     060100  104403                                                                 TRAP    C$ESUB
6169 060102  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
6170 060110  103402                         BLO     999$                            ;BR, IF LESS THAN 25
6171 060112  004737  017272                 JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
6172 060116                          999$:
```

TEST 6: REREADS

SE2 0234

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 4
                                        ;
                                        ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
                                        ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
                                        ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
                                        ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
                                        ;SWAPPED BYTES.
                                        ;
                                        ;
                                        ;
                                        ;

060116                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
060116                                                                                          T6.4:
060116  104402                                                                                    TRAP    C$BSJB
060120  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
060124  005037  071776                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
060130  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
060134  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

060140  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
060144  103407                            BCS     20$                     ;BR IF INIT WAS OK
060146  005237  002212                    INC     FATFLG                  ;BUMP COUNT
060152  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
060154                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
060154  104455                                                                                    TRAP    C$ERDF
060156  001167                                                                                  .WORD   631
060160  003650                                                                                  .WORD   SFIERR
060162  012124                                                                                  .WORD   SFIMSG
060164  013737  0C2172  071650  20$:       MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

060172  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

060176  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
060202  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
060204  005237  002212                    INC     FATFLG                  ;BUMP COUNT
060210  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
060212                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
060212  104456                                                                                    TRAP    C$ERHRD
060214  001170                                                                                  .WORD   632
060216  005054                                                                                  .WORD   WRTMSG
060220  012124                                                                                  .WORD   SFIMSG
```

TEST 6: REREADS

```
6227 060222                        26$:    CKLOOP                          ;LOOP IF SELECTED
     060222  104406                                                                TRAP    C$CLP1
6228
6229                               ;*****************************************************************
6230                               ;
6231                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6232                               ;
6233                               ;*****************************************************************
6234
6235 060224  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6236 060230  103413                        BCS     50$                     ;BR. IF NO PROBLEM
6237 060232  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
6238 060236  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6239 060242  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
6240 060244  005237  002212                INC     FATFLG                  ;BUMP COUNT
6244 060250                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     060250  104456                                                                TRAP    C$ERHRD
     060252  001171                                                                .WORD   633
     060254  073304                                                                .WORD   T26RWN
     060256  012136                                                                .WORD   PKTSSR
6245 060260                        30$:    CKLOOP                          ;LOOP IF SELECTED
     060260  104406                                                                TRAP    C$CLP1
6246
6247                               ;*****************************************************************
6248                               ;
6249                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6250                               ;
6251                               ;*****************************************************************
6252
6253 060262  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XSTO
6254 060266  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6255 060270  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6256 060274  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
6257 060276  001406                        BEQ     40$                     ;BR. IF EQUAL (OK)
6258 060300  005237  002212                INC     FATFLG                  ;BUMP COUNT
6262 060304                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     060304  104456                                                                TRAP    C$ERHRD
     060306  001172                                                                .WORD   634
     060310  073015                                                                .WORD   T26BOT
     060312  015564                                                                .WORD   EXPREC
6263 060314                        40$:    CKLOOP                          ;LOOP IF SELECTED
     060314  104406                                                                TRAP    C$CLP1
6264 060316  012703  000400                MOV     #256.,R3                ;RECORD SIZE
6265 060322  013737  003114  071752        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6266
6267                               ;*****************************************************************
6268                               ;
6269                               ;WRITE DATA,CVC=1,ACK COMMAND
6270                               ;
6271                               ;*****************************************************************
6272
6273 060330  012737  140005  071750        MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6274 060336  012704  071750                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6275 060342                        65$:
6276 060342  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6277 060344  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6278 060350  010337  071756                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
```

TEST 6: REREADS

```
6279 060354  013777  071776  122532          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
6280 060362  062737  000001  071776          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
6281 060370  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6282 060374  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6283 060400  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6284 060404  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
6285 060410  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6286 060412  001406                          BEQ     75$                     ;BR. IF OK
6287 060414  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6291 060420                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     060420  104456                                                                  TRAP    C$EPHRD
     060422  001173                                                                  .WORD   635
     060424  005111                                                                  .WORD   WRTERR
     060426  012136                                                                  .WORD   PKTSSR
6292 060430                          75$:    CKLOOP                          ;LOOP IF SELECTED
     060430  104406                                                                  TRAP    C$CLP1
6293 060432  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
6294 060434  022703  000412                  CMP     #266.,R3                ;MAXIMUM SIZE YET
6295 060440  001401                          BEQ     120$                    ;BR. IF AT END OF WRITE SEQUENCE
6296 060442  000737                          BR      65$                     ;WRITE MORE RECORDS
6297 060444                          120$:
6298 060444  005037  071776                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
6299
6300                                 ;*****************************************************************
6301                                 ;
6302                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6303                                 ;
6304                                 ;*****************************************************************
6305
6306 060450  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6307 060454  103413                          BCS     130$                    ;BR. IF NO PROBLEM
6308 060456  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
6309 060462  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6310 060466  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6311 060470  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6315 060474                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     060474  104456                                                                  TRAP    C$ERHRD
     060476  001174                                                                  .WORD   636
     060500  073304                                                                  .WORD   T26RWN
     060502  012136                                                                  .WORD   PKTSSR
6316 060504                          130$:   CKLOOP                          ;LOOP IF SELECTED
     060504  104406                                                                  TRAP    C$CLP1
6317
6318                                 ;*****************************************************************
6319                                 ;
6320                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6321                                 ;
6322                                 ;*****************************************************************
6323
6324 060506  013701  071660                  MOV     T26BFR+6,R1             ;PICK UP XSTO
6325 060512  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6326 060514  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6327 060520  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6328 060522  001406                          BEQ     140$                    ;BR. IF EQUAL (OK)
6329 060524  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6333 060530                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     060530  104456                                                                  TRAP    C$ERHRD
```

TEST 6: REREADS

```
                060532  001175                                                          .WORD   637
                060534  073015                                                          .WORD   T26BOT
                060536  015564                                                          .WORD   EXPREC
 6334           060540                          140$:   CKLOOP                  ;LOOP IF SELECTED
                060540  104406                                                          TRAP    C$CLP1
 6335
 6336                                           ;*****************************************************************
 6337                                           ;
 6338                                           ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 6339                                           ;BIT 15 SETS DIRECTION   0=FORWARD    1=REVERSE
 6340                                           ;
 6341                                           ;*****************************************************************
 6342
 6343 060542    012703  000001                          MOV     #1,R3                   ;SET UP SPACE FORWARD 1
 6344 060546    004737  010556                          JSR     PC,SPACE                ;ISSUE SPACE COMMAND
 6345 060552    012703  000400                          MOV     #256.,R3                ;RECORD SIZE
 6346 060556    013737  003114  071752          150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 6347
 6348                                           ;*****************************************************************
 6349                                           ;
 6350                                           ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6351                                           ;
 6352                                           ;*****************************************************************
 6353
 6354 060564    012737  171001  071750                  MOV     #171001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6355 060572    012704  071750          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6356 060576    010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6357 060602    010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6358 060606    004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6359 060612    016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6360 060616    012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 6361 060622    020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 6362 060624    001406                          BEQ     170$                    ;BR, IF OK
 6363 060626    005237  002212                  INC     FATFLG                  ;BUMP COUNT
 6367 060632                                    ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
                060632  104456                                                          TRAP    C$ERHRD
                060634  001176                                                          .WORD   638
                060636  072225                                                          .WORD   T26RRF
                060640  012136                                                          .WORD   PKTSSR
 6368 060642                            170$:   CKLOOP                  ;LOOP IF SELECTED
                060642  104406                                                          TRAP    C$CLP1
 6369 060644    017701  122244                  MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
 6370 060650    013702  071776                  MOV     T26CNT,R2               ;SET UP EXPECTED
 6371 060654    000302                          SWAB    R2                      ;SWAP BYTES IN EXPECTED
 6372 060656    020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
 6373 060660    001406                          BEQ     190$                    ;KEEP GOING POSITION OK
 6374 060662    005237  002212                  INC     FATFLG                  ;BUMP COUNT
 6378 060666                                    ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
                060666  104456                                                          TRAP    C$ERHRD
                060670  001177                                                          .WORD   639
                060672  072006                                                          .WORD   T26WNG
                060674  015564                                                          .WORD   EXPREC
 6379 060676                            190$:   CKLOOP
                060676  104406                                                          TRAP    C$CLP1
 6380 060700    005723                          TST     (R3)+                   ;NEXT RECORD SIZE
 6381 060702    062737  000001  071776          ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
 6382
```

TEST 6: REREADS

```
6383                                    ;*************************************************************************
6384                                    ;
6385                                    ;READ DATA, CVC=1, ACK COMMAND
6386                                    ;
6387                                    ;*************************************************************************
6388
6389 060710  012737  140001  071750            MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
6390 060716  010337  071756                    MOV     R3,T26SZ                ;SET SIZE INTO PACKET
6391 060722  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
6392 060726  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR
6393 060732  016501  000002                    MOV     TSSR(R5),R1             ;PICK UP THE TSSR
6394 060736  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6395 060742  020102                            CMP     R1,R2                   ;IS THE TSSR OK
6396 060744  001406                            BEQ     215$                    ;BR, IF TSSR OK (GOOD)
6397 060746  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6401 060752                                    ERRHRD  ERRNO,T26RDF,PKTSSR     ;READ DATA COMMAND FAILED
     060752  104456                                                                    TRAP    C$ERHRD
     060754  001200                                                                    .WORD   640
     060756  072156                                                                    .WORD   T26RDF
     060760  012136                                                                    .WORD   PKTSSR
6402 060762                            215$:   CKLOOP                          ;LOOP IF SELECTED
     060762  104406                                                                    TRAP    C$CLP1
6403 060764  017701  122124                    MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
6404 060770  013702  071776                    MOV     T26CNT,R2               ;SET UP EXPECTED
6405 060774  020102                            CMP     R1,R2                   ;IS TAPE POSITION CORRECT
6406 060776  001406                            BEQ     217$                    ;KEEP GOING POSITION OK
6407 061000  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6411 061004                                    ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     061004  104456                                                                    TRAP    C$ERHRD
     061006  001201                                                                    .WORD   641
     061010  072006                                                                    .WORD   T26WNG
     061012  015564                                                                    .WORD   EXPREC
6412 061014                            217$:   CKLOOP
     061014  104406                                                                    TRAP    C$CLP1
6413 061016  022703  000410                    CMP     #264.,R3                ;AT MAX SIZE YET
6414 061022  001401                            BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
6415 061024  000654                            BR      150$                    ;KEEP GOING MORE RECORDS
6416 061026                            220$:
6417 061026                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     061026                                                                    L10106:
     061026  104403                                                                    TRAP    C$ESUB
6418 061030  023727  002212  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
6419 061036  103402                            BLO     999$                    ;BR, IF LESS THAN 25
6420 061040  004737  017272                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
6421 061044                            999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 5
                                        ;
                                        ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
                                        ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;-

061044                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
061044                                                                                          T6.5:
061044  104402                                                                                  TRAP    C$BSUB
061046  004737  074540                  JSR     PC,T26REST                      ;SET COMMAND PACKET
061052  004737  074632                  JSR     PC,T26RT2                       ;SET UP OTHER COMMAND PACKET
061056  004737  074674                  JSR     PC,T26RT3                       ;SET UP OTHER COMMAND PACKET

                                        ;*********************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*********************************************************************

061062  004737  016064                  JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
061066  103407                          BCS     20$                             ;BR IF INIT WAS OK
061070  005237  002212                  INC     FATFLG                          ;BUMP COUNT
061074  010001                          MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
061076                                  ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
061076  104455                                                                                  TRAP    C$ERDF
061100  001202                                                                                  .WORD   642
061102  003650                                                                                  .WORD   SFIERR
061104  012124                                                                                  .WORD   SFIMSG
061106  013737  002172  071650  20$:     MOV     UNITN,T26DSW                    ;SET UP UNIT NUMBER

061114  012704  071630                  MOV     #T26PACKET,R4                   ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*********************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*********************************************************************

061120  004737  010752                  JSR     PC,WRTCHR                       ;ISSUE WRITE CHARACTERISTICS
061124  103407                          BCS     26$                             ;BR, IF COMMAND ISSUED OK
061126  005237  002212                  INC     FATFLG                          ;BUMP COUNT
061132  010001                          MOV     R0,R1                           ;SAVE CONTENTS OF TSSR
061134                                  ERRHRD  ERRNO,WRTMSG,SFIMSG             ;WRITE CHARACTERISTISC FAILED
061134  104456                                                                                  TRAP    C$ERHRD
061136  001203                                                                                  .WORD   643
061140  005054                                                                                  .WORD   WRTMSG
061142  012124                                                                                  .WORD   SFIMSG
061144                          26$:    CKLOOP                                  ;LOOP IF SELECTED
```

TEST 6: REREADS

```
      061144  104406                                                                  TRAP    C$CLP1
6476
6477                          ;*************************************************************************
6478                          ;
6479                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6480                          ;
6481                          ;*************************************************************************
6482
6483 061146  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6484 061152  103413                  BCS     30$                     ;BR, IF NO PROBLEM
6485 061154  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
6486 061160  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6487 061164  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
6488 061166  005237  002212          INC     FATFLG                  ;BUMP COUNT
6492 061172                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      061172  104456                                                                  TRAP    C$ERHRD
      061174  001204                                                                  .WORD   644
      061176  073304                                                                  .WORD   T26RWN
      061200  012136                                                                  .WORD   PKTSSR
6493 061202                   30$:   CKLOOP                          ;LOOP IF SELECTED
      061202  104406                                                                  TRAP    C$CLP1
6494
6495                          ;*************************************************************************
6496                          ;
6497                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6498                          ;
6499                          ;*************************************************************************
6500
6501 061204  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XSTO
6502 061210  010102                  MOV     R1,R2                   ;SET UP EXPECTED
6503 061212  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6504 061216  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
6505 061220  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
6506 061222  005237  002212          INC     FATFLG                  ;BUMP COUNT
6510 061226                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      061226  104456                                                                  TRAP    C$ERHRD
      061230  001205                                                                  .WORD   645
      061232  073015                                                                  .WORD   T26BOT
      061234  015564                                                                  .WORD   EXPREC
6511 061236                   40$:   CKLOOP                          ;LOOP IF SELECTED
      061236  104406                                                                  TRAP    C$CLP1
6512 061240  012703  001000          MOV     #512.,R3                ;RECORD SIZE
6513 061244  013737  003114  071752  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6514
6515                          ;*************************************************************************
6516                          ;
6517                          ;WRITE DATA,CVC=1,ACK COMMAND
6518                          ;
6519                          ;*************************************************************************
6520
6521 061252  012737  140005  071750  MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6522 061260  012704  071750          MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6523 061264                   65$:
6524 061264  010337  071756          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6525 061270  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6526 061274  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6527 061300  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

TEST 6: REREADS

```
6528 061304  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
6529 061310  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6530 061312  001406                      BEQ     75$                     ;BR, IF OK
6531 061314  005237  002212              INC     FATFLG                  ;BUMP COUNT
6535 061320                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     061320  104456                                                              TRAP    C$ERHRD
     061322  001206                                                              .WORD   646
     061324  005111                                                              .WORD   WRTERR
     061326  012136                                                              .WORD   PKTSSR
6536 061330                      75$:    CKLOOP                          ;LOOP IF SELECTED
     061330  104406                                                              TRAP    C$CLP1
6537 061332  005303                      DEC     R3                      ;SET RECORD SIZE TO 511.
6538 061334  013737  003114  071752      MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6539
6540                             ;*****************************************************************
6541                             ;
6542                             ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6543                             ;
6544                             ;*****************************************************************
6545
6546 061342  012737  161001  071750      MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6547 061350  012704  071750      165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6548 061354  010337  071756              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6549 061360  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6550 061364  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6551 061370  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6552 061374  012702  100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6553 061400  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6554 061402  001406                      BEQ     170$                    ;BR, IF OK
6555 061404  005237  002212              INC     FATFLG                  ;BUMP COUNT
6559 061410                              ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     061410  104456                                                              TRAP    C$ERHRD
     061412  001207                                                              .WORD   647
     061414  074362                                                              .WORD   T26TRL
     061416  012136                                                              .WORD   PKTSSR
6560 061420                      170$:   CKLOOP                          ;LOOP IF SELECTED
     061420  104406                                                              TRAP    C$CLP1
6561
6562                             ;*****************************************************************
6563                             ;
6564                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6565                             ;
6566                             ;*****************************************************************
6567
6568 061422  013701  071660              MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6569 061426  010102                      MOV     R1,R2                   ;SET UP EXPECTED
6570 061430  052702  010000              BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
6571 061434  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6572 061436  001406                      BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6573 061440  005237  002212              INC     FATFLG                  ;BUMP COUNT
6577 061444                              ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     061444  104456                                                              TRAP    C$ERHRD
     061446  001210                                                              .WORD   648
     061450  074130                                                              .WORD   T26LON
     061452  015564                                                              .WORD   EXPREC
6578 061454                      180$:   CKLOOP                          ;LOOP IF SELECTED
     061454  104406                                                              TRAP    C$CLP1
```

TEST 6: REREADS

```
6579 061456  012703  000777                MOV     #511.,R3                ;SET RECORD SIZE
6580 061462  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6581
6582                                ;*************************************************************
6583                                ;
6584                                ;REREAD DATA,CVC=1,ACK COMMAND
6585                                ;
6586                                ;*************************************************************
6587
6588 061470  012737  141001  071750          MOV     #141001,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
6589 061476  012704  071750          365$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6590 061502  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6591 061506  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6592 061512  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6593 061516  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6594 061522  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6595 061526  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6596 061530  001406                          BEQ     370$                    ;BR, IF OK
6597 061532  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6601 061536                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     061536  104456                                                                  TRAP    C$ERHRD
     061540  001211                                                                  .WORD   649
     061542  074362                                                                  .WORD   T26TRL
     061544  012136                                                                  .WORD   PKTSSR
6602 061546                          370$:   CKLOOP                          ;LOOP IF SELECTED
     061546  104406                                                                  TRAP    C$CLP1
6603
6604                                ;*************************************************************
6605                                ;
6606                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6607                                ;
6608                                ;*************************************************************
6609
6610 061550  013701  071660                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6611 061554  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6612 061556  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
6613 061562  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6614 061564  001406                          BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
6615 061566  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6619 061572                                  ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     061572  104456                                                                  TRAP    C$ERHRD
     061574  001212                                                                  .WORD   650
     061576  074130                                                                  .WORD   T26LON
     061600  015564                                                                  .WORD   EXPREC
6620 061602                          380$:   CKLOOP
     061602  104406                                                                  TRAP    C$CLP1
6621 061604                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     061604                                                                       L10107:
     061604  104403                                                                  TRAP    C$ESUB
6622 061606  023727  002212  000017                  CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
6623 061614  103402                                  BLO     999$                        ;BR, IF LESS THAN 25
6624 061616  004737  017272                          JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
6625 061622                          999$:
```

TEST 6: REREADS

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 6
                                        ;
                                        ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
                                        ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
                                        ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
                                        ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
                                        ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
                                        ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;
                                        ;
061622                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T6.6:
061622  104402                                                                                  TRAP    C$BSUB
061624  004737  074540                          JSR     PC,T26REST              ;SET COMMAND PACKET
061630  004737  074632                          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
061634  004737  074674                          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************

061640  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
061644  103407                                  BCS     20$                     ;BR IF INIT WAS OK
061646  005237  002212                          INC     FATFLG                  ;BUMP COUNT
061652  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
061654                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
061654  104455                                                                                  TRAP    C$ERDF
061656  001213                                                                                  .WORD   651
061660  003650                                                                                  .WORD   SFIERR
061662  012124                                                                                  .WORD   SFIMSG
061664  013737  002172  071650  20$:           MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

061672  012704  071630                          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*************************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************************

061676  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
061702  103407                                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
061704  005237  002212                          INC     FATFLG                  ;BUMP COUNT
061710  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
061712                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
061712  104456                                                                                  TRAP    C$ERHRD
061714  001214                                                                                  .WORD   652
061716  005054                                                                                  .WORD   WRTMSG
```

TEST 6: REREADS

```
      061720  012124                                                                  .WORD   SFIMSG
6681  061722                          26$:    CKLOOP                          ;LOOP IF SELECTED
      061722  104406                                                                  TRAP    C$CLP1
6682
6683                                  ;*************************************************************************
6684                                  ;
6685                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6686                                  ;
6687                                  ;*************************************************************************
6688
6689  061724  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6690  061730  103413                         BCS     30$                     ;BR, IF NO PROBLEM
6691  061732  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR
6692  061736  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6693  061742  010004                         MOV     R0,R4                   ;PACKET ADDRESS SET UP
6694  061744  005237  002212                 INC     FATFLG                  ;BUMP COUNT
6698  061750                                 ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      061750  104456                                                                  TRAP    C$ERHRD
      061752  001215                                                                  .WORD   653
      061754  073304                                                                  .WORD   T26RWN
      061756  012136                                                                  .WORD   PKTSSR
6699  061760                          30$:    CKLOOP                          ;LOOP IF SELECTED
      061760  104406                                                                  TRAP    C$CLP1
6700
6701                                  ;*************************************************************************
6702                                  ;
6703                                  ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6704                                  ;
6705                                  ;*************************************************************************
6706
6707  061762  013701  071660                 MOV     T26BFR+6,R1             ;PICK UP XST0
6708  061766  010102                         MOV     R1,R2                   ;SET UP EXPECTED
6709  061770  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6710  061774  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
6711  061776  001406                         BEQ     40$                     ;BR, IF EQUAL (OK)
6712  062000  005237  002212                 INC     FATFLG                  ;BUMP COUNT
6716  062004                                 ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      062004  104456                                                                  TRAP    C$ERHRD
      062006  001216                                                                  .WORD   654
      062010  073015                                                                  .WORD   T26BOT
      062012  015564                                                                  .WORD   EXPREC
6717  062014                          40$:    CKLOOP                          ;LOOP IF SELECTED
      062014  104406                                                                  TRAP    C$CLP1
6718  062016  012703  000400                 MOV     #256.,R3                ;RECORD SIZE
6719  062022  013737  003114  071752         MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6720
6721                                  ;*************************************************************************
6722                                  ;
6723                                  ;WRITE DATA,CVC=1,ACK COMMAND
6724                                  ;
6725                                  ;*************************************************************************
6726
6727  062030  012737  140005  071750         MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6728  062036  012704  071750                 MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6729  062042                          65$:
6730  062042  010337  071756                 MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6731  062046  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

TEST 6: REREADS

```
6732 062052  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6733 062056  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6734 062062  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
6735 062066  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6736 062070  001406                        BEQ     75$                     ;BR, IF OK
6737 062072  005237  002212                INC     FATFLG                  ;BUMP COUNT
6741 062076                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     062076  104456                                                                TRAP    C$ERHRD
     062100  001217                                                                .WORD   655
     062102  005111                                                                .WORD   WRTERR
     062104  012136                                                                .WORD   PKTSSR
6742 062106                        75$:    CKLOOP                          ;LOOP IF SELECTED
     062106  104406                                                                TRAP    C$CLP1
6743 062110  012703  001000                MOV     #512.,R3                ;RECORD SIZE
6744 062114  013737  003114  071752        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6745
6746                               ;*************************************************************************
6747                               ;
6748                               ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
6749                               ;
6750                               ;*************************************************************************
6751
6752 062122  012737  161001  071750        MOV     #161001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
6753 062130  012704  071750        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6754 062134  010337  071756                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6755 062140  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6756 062144  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6757 062150  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6758 062154  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6759 062160  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6760 062162  001406                        BEQ     170$                    ;BR, IF OK
6761 062164  005237  002212                INC     FATFLG                  ;BUMP COUNT
6765 062170                                ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     062170  104456                                                                TRAP    C$ERHRD
     062172  001220                                                                .WORD   656
     062174  074362                                                                .WORD   T26TRL
     062176  012136                                                                .WORD   PKTSSR
6766 062200                        170$:   CKLOOP                          ;LOOP IF SELECTED
     062200  104406                                                                TRAP    C$CLP1
6767
6768                               ;*************************************************************************
6769                               ;
6770                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6771                               ;
6772                               ;*************************************************************************
6773
6774 062202  013701  071660                MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6775 062206  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6776 062210  052702  040000                BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
6777 062214  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6778 062216  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6779 062220  005237  002212                INC     FATFLG                  ;BUMP COUNT
6783 062224                                ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     062224  104456                                                                TRAP    C$ERHRD
     062226  001221                                                                .WORD   657
     062230  074212                                                                .WORD   T26LOP
     062232  015564                                                                .WORD   EXPREC
```

TEST 6: REREADS

```
6784 062234                          180$:   CKLOOP
     062234  104406                                                          TRAP    C$CLP1
6785 062236  013701  071656                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
6786 062242  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
6787 062246  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
6788 062250  001406                          BEQ     190$                    ;BR, IF CORRECT
6789 062252  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6793 062256                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     062256  104456                                                          TRAP    C$ERHRD
     062260  001222                                                          .WORD   658
     062262  074274                                                          .WORD   T26PBP
     062264  015564                                                          .WORD   EXPREC
6794 062266                          190$:   CKLOOP                          ;LOOP IF SELECTED
     062266  104406                                                          TRAP    C$CLP1
6795 062270  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
6796 062274  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6797
6798                                 ;*************************************************************************
6799                                 ;
6800                                 ;REREAD PREVIOUS,ACK,CVC=1,CMP=0
6801                                 ;
6802                                 ;*************************************************************************
6803
6804 062302  012737  141001  071750          MOV     #141001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
6805 062310  012704  071750                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6806 062314  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6807 062320  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6808 062324  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6809 062330  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6810 062334  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6811 062340  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6812 062342  001406                          BEQ     270$                    ;BR, IF OK
6813 062344  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6817 062350                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     062350  104456                                                          TRAP    C$ERHRD
     062352  001223                                                          .WORD   659
     062354  074362                                                          .WORD   T26TRL
     062356  012136                                                          .WORD   PKTSSR
6818 062360                          270$:   CKLOOP                          ;LOOP IF SELECTED
     062360  104406                                                          TRAP    C$CLP1
6819
6820                                 ;*************************************************************************
6821                                 ;
6822                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6823                                 ;
6824                                 ;*************************************************************************
6825
6826 062362  013701  071660                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6827 062366  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6828 062370  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
6829 062374  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6830 062376  001406                          BEQ     280$                    ;BR, IF EQUAL (ALL IS WELL)
6831 062400  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6835 062404                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     062404  104456                                                          TRAP    C$ERHRD
     062406  001224                                                          .WORD   660
     062410  074212                                                          .WORD   T26LOP
```

```
      062412  015564                                                                    .WORD   EXPREC
6836  062414                        280$:   CKLOOP
      062414  104406                                                                    TRAP    C$CKLP
6837  062416  013701  071656                MOV     T26BFR+4,R1         ;PICK UP RESIDUAL BYTE COUNTER
6838  062422  012702  000400                MOV     #256.,R2            ;THIS SHOULD BE THE DIFFERENCE
6839  062426  020102                        CMP     R1,R2               ;IS THE DIFFERENCE CORRECT
6840  062430  001405                        BEQ     290$                ;BR, IF CORRECT
6844  062434                                ERRHRD  ERRNO,T26PBP,EXPREC ;RBPCR NOT CORRECT
      062434  104456                                                                    TRAP    C$ERHRD
      062436  001224                                                                    .WORD   660
      062440  074274                                                                    .WORD   T26PBP
      062442  015564                                                                    .WORD   EXPREC
6845  062444                        290$:   CKLOOP                      ;LOOP IF SELECTED
      062444  104406                                                                    TRAP    C$CLP;
6846  062446                                ENDSUB                      ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      062446                                                                        L10110:
      062446  104403                                                                    TRAP    C$ESJB
6847  062450  023727  002212  000017        CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
6848  062456  103402                        BLO     999$                        ;BR, IF LESS THAN 25
6849  062460  004737  017272                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
6850  062464                        999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 7
                                        ;
                                        ;
                                        ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0
                                        ;AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST
                                        ;REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
                                        ;RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
                                        ;IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
                                        ;TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
                                        ;NEXT COMMAND ISSUED. RESULTS (STATUS, DATA,
                                        ;ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
                                        ;NEXT COMMAND IS SET TO THE LENGTH OF THE EXPECTED
                                        ;RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                                        ;
                                        ;
                                        ;

062464                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T6.7:
062464  104402                                                                                  TRAP    C$BSUB
062466  004737  074540                        JSR     PC,T26REST                  ;SET COMMAND PACKET
062472  004737  074632                        JSR     PC,T26RT2                   ;SET UP OTHER COMMAND PACKET
062476  004737  074674                        JSR     PC,T26RT3                   ;SET UP OTHER COMMAND PACKET

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*******************************************************************

062502  004737  016064                        JSR     PC,SOFINIT                  ;DO INITIALIZE ON CONTROLLER
062506  103407                                BCS     20$                         ;BR IF INIT WAS OK
062510  005237  002212                        INC     FATFLG                      ;BUMP COUNT
062514  010001                                MOV     R0,R1                       ;CONTENTS OF TSSR REGISTER
062516                                          ERRDF   ERRNO,SFIERR,SFIMSG         ;FATAL ERROR TSSR WAS NOT OK
062516  104455                                                                                  TRAP    C$ERDF
062520  001225                                                                                  .WORD   661
062522  003650                                                                                  .WORD   SFIERR
062524  012124                                                                                  .WORD   SFIMSG
062526  013737  002172  071650  20$:           MOV     UNITN,T26DSW                ;SET UP UNIT NUMBER

062534  012704  071630                        MOV     #T26PACKET,R4               ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*******************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*******************************************************************

062540  004737  010752                        JSR     PC,WRTCHR                   ;ISSUE WRITE CHARACTERISTICS
062544  103407                                BCS     26$                         ;BR, IF COMMAND ISSUED OK
062546  005237  002212                        INC     FATFLG                      ;BUMP COUNT
062552  010001                                MOV     R0,R1                       ;SAVE CONTENTS OF TSSR
062554                                          ERRHRD  ERRNO,WRTMSG,SFIMSG         ;WRITE CHARACTERISTISC FAILED
```

TEST 6: REREADS

```
        062554  104456                                                          TRAP    C$ERHRD
        062556  001226                                                          .WORD   662
        062560  005054                                                          .WORD   WRTMSG
        062562  012124                                                          .WORD   SFIMSG
 6909   062564                  26$:    CKLOOP                  ;LOOP IF SELECTED
        062564  104406                                                          TRAP    C$CLP1
 6910
 6911                           ;*****************************************************************
 6912                           ;
 6913                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 6914                           ;
 6915                           ;*****************************************************************
 6916
 6917   062566  004737  011104        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 6918   062572  103413                BCS     30$                     ;BR, IF NO PROBLEM
 6919   062574  016501  000002        MOV     TSSR(R5),R1             ;GET TSSR
 6920   062600  012702  000200        MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 6921   062604  010004                MOV     R0,R4                   ;PACKET ADDRESS SET UP
 6922   062606  005237  002212        INC     FATFLG                  ;BUMP COUNT
 6926   062612                        ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
        062612  104456                                                          TRAP    C$ERHRD
        062614  001227                                                          .WORD   663
        062616  073304                                                          .WORD   T26RWN
        062620  012136                                                          .WORD   PKTSSR
 6927   062622                  30$:    CKLOOP                  ;LOOP IF SELECTED
        062622  104406                                                          TRAP    C$CLP1
 6928
 6929                           ;*****************************************************************
 6930                           ;
 6931                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 6932                           ;
 6933                           ;*****************************************************************
 6934
 6935   062624  013701  071660        MOV     T26BFR+6,R1             ;PICK UP XSTO
 6936   062630  010102                MOV     R1,R2                   ;SET UP EXPECTED
 6937   062632  052702  000002        BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 6938   062636  020102                CMP     R1,R2                   ;DOES EXP = REC'D
 6939   062640  001406                BEQ     40$                     ;BR, IF EQUAL (OK)
 6940   062642  005237  002212        INC     FATFLG                  ;BUMP COUNT
 6944   062646                        ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        062646  104456                                                          TRAP    C$ERHRD
        062650  001230                                                          .WORD   664
        062652  073015                                                          .WORD   T26BOT
        062654  015564                                                          .WORD   EXPREC
 6945   062656                  40$:    CKLOOP                  ;LOOP IF SELECTED
        062656  104406                                                          TRAP    C$CLP1
 6946   062660  012703  000400        MOV     #256.,R3                ;RECORD SIZE
 6947   062664  013737  003114  071752        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
 6948
 6949                           ;*****************************************************************
 6950                           ;
 6951                           ;WRITE DATA,CVC=1,ACK COMMAND
 6952                           ;
 6953                           ;*****************************************************************
 6954
 6955   062672  012737  140005  071750        MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 6956   062700  012704  071750        MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

TEST 6: REREADS

```
6957 062704                        65$:
6958 062704  010300                      MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6959 062706  004737  017512              JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6960 062712  010337  071756              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6961 062716  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6962 062722  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6963 062726  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6964 062732  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
6965 062736  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6966 062740  001406                      BEQ     75$                     ;BR, IF OK
6967 062742  005237  002212              INC     FATFLG                  ;BUMP COUNT
6971 062746                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     062746  104456                                                              TRAP    C$ERHRD
     062750  001231                                                              .WORD   665
     062752  005111                                                              .WORD   WRTERR
     062754  012136                                                              .WORD   PKTSSR
6972 062756                        75$:  CKLOOP                          ;LOOP IF SELECTED
     062756  104406                                                              TRAP    C$CLP1
6973 062760  005723                      TST     (R3)+                   ;BUMP RECORD SIZE
6974 062762  022703  000414              CMP     #268.,R3                ;END OF RECORD YET
6975 062766  001346                      BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
6976 062770                        80$:  CKLOOP                          ;LOOP IF SELECTED
     062770  104406                                                              TRAP    C$CLP1
6977 062772                        120$:
6978
6979                               ;*****************************************************************
6980                               ;
6981                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6982                               ;
6983                               ;*****************************************************************
6984
6985 062772  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6986 062776  103413                      BCS     130$                    ;BR, IF NO PROBLEM
6987 063000  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
6988 063004  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6989 063010  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
6990 063012  005237  002212              INC     FATFLG                  ;BUMP COUNT
6994 063016                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     063016  104456                                                              TRAP    C$ERHRD
     063020  001232                                                              .WORD   666
     063022  073304                                                              .WORD   T26RWN
     063024  012136                                                              .WORD   PKTSSR
6995 063026                        130$: CKLOOP                          ;LOOP IF SELECTED
     063026  104406                                                              TRAP    C$CLP1
6996
6997                               ;*****************************************************************
6998                               ;
6999                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7000                               ;
7001                               ;*****************************************************************
7002
7003 063030  013701  071660              MOV     T26BFR+6,R1             ;PICK UP XSTO
7004 063034  010102                      MOV     R1,R2                   ;SET UP EXPECTED
7005 063036  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7006 063042  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
7007 063044  001406                      BEQ     140$                    ;BR, IF EQUAL (OK)
7008 063046  005237  002212              INC     FATFLG                  ;BUMP COUNT
```

TEST 6: REREADS

```
7012 063052                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063052  104456                                                          TRAP    C$ERHRD
     063054  001233                                                          .WORD   667
     063056  073015                                                          .WORD   T26BOT
     063060  015564                                                          .WORD   EXPREC
7013 063062                     140$:   CKLOOP                          ;LOOP IF SELECTED
     063062  104406                                                          TRAP    C$CLP1
7014 063064  012737  000400  072002          MOV     #256.,T26RSZ        ;STORE START RECORD SIZE
7015 063072  000420                          BR      150$                ;SKIP THE SAPCE THIS TIME
7016
7017                            ;*****************************************************************
7018                            ;
7019                            ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7020                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7021                            ;
7022                            ;*****************************************************************
7023
7024 063074  012703  000001     145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
7025 063100  004737  010556             JSR     PC,SPACE                ;CALL SPACE ROUTINE
7026 063104  103413                     BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
7027 063106  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR
7028 063112  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7029 063116  010004                     MOV     R0,R4                   ;PACKET ADDRESS SET UP
7030 063120  005237  002212             INC     FATFLG                  ;BUMP COUNT
7034 063124                             ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     063124  104456                                                          TRAP    C$ERHRD
     063126  001234                                                          .WORD   668
     063130  072417                                                          .WORD   T26SC
     063132  015564                                                          .WORD   EXPREC
7035 063134                     150$:   CKLOOP                          ;LOOP IF SELECTED
     063134  104406                                                          TRAP    C$CLP1
7036 063136  013703  072002             MOV     T26RSZ,R3               ;RECORD SIZE
7037 063142  013737  003114  071752     MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7038
7039                            ;*****************************************************************
7040                            ;
7041                            ;REREREAD DATA,CVC=1,ACK COMMAND
7042                            ;
7043                            ;*****************************************************************
7044
7045 063150  012737  141401  071750          MOV     #141401,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
7046 063156  012704  071750     165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7047 063162  010337  071756             MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7048 063166  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7049 063172  004737  016340             JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7050 063176  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7051 063202  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED
7052 063206  020102                     CMP     R1,R2                   ;ARE THEY EQUAL
7053 063210  001406                     BEQ     170$                    ;BR, IF OK
7054 063212  005237  002212             INC     FATFLG                  ;BUMP COUNT
7058 063216                             ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     063216  104456                                                          TRAP    C$ERHRD
     063220  001235                                                          .WORD   669
     063222  073640                                                          .WORD   T26WDC
     063224  012136                                                          .WORD   PKTSSR
7059 063226                     170$:   CKLOOP                          ;LOOP IF SELECTED
     063226  104406                                                          TRAP    C$CLP1
```

TEST 6: REREADS

```
7060 063230  013702  003114              MOV     FREE,R2          ;CURRENT BUFFER ADDRESS TO R2
7061 063234  010304                      MOV     R3,R4                    ;CURRENT RECORD SIZE
7062 063236  162704  000400              SUB     #256.,R4                 ;FIRST LOCATION IN BUFFER
7063 063242  060204              173$:   ADD     R2,R4                    ;SET UP POINTER
7064 063244  021403                      CMP     (R4),R3                  ;CHECK DATA READ (R3=DATA ALSO)
7065 063246  001410                      BEQ     180$                     ;BR, IF ALL IS WELL
7066 063250  011401                      MOV     (R4),R1                  ;RECD DATA
7067 063252  010302                      MOV     R3,R2                    ;EXPECTED DATA
7068 063254  005237  002212              INC     FATFLG                   ;BUMP COUNT
7072 063260                              ERRHRD  ERRNO,T26DTA,EXPREC      ;DATA READ NOT - WRITTEN
     063260  104456                                                               TRAP    C$ERHRD
     063262  001236                                                               .WORD   670
     063264  073062                                                               .WORD   T26DTA
     063266  015564                                                               .WORD   EXPREC
7073 063270              180$:   CKLOOP                                   ;LOOP IF SELECTED
     063270  104406                                                               TRAP    C$CLP1
7074 063272  005724                      TST     (R4)+                    ;BUMP TO NEXT LOCATION
7075 063274  160204                      SUB     R2,R4                    ;CORRECT RECORDS SIZE VALUE
7076 063276  020403                      CMP     R4,R3                    ;END OF RECORD YET
7077 063300  001360                      BNE     173$                     ;BR, IF NOT AT END OF RECORD
7078 063302  005723                      TST     (R3)+                    ;BUMP RECORD SIZE
7079 063304  010337  072002              MOV     R3,T26RSZ                ;STORE PRESENT RECORD SIZE
7080 063310  022703  000410              CMP     #264.,R3                 ;END OF RECORD YET
7081 063314  001267                      BNE     145$                     ;BR, IF MORE RECORDS TO READ
7082 063316              190$:   CKLOOP                                   ;LOOP IF SELECTED
     063316  104406                                                               TRAP    C$CLP1
7083 063320                              ENDSUB                   ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     063320                                                                 L10111:
     063320  104403                                                               TRAP    C$ESUB
7084 063322  023727  002212  000017              CMP     FATFLG,#15.                      ;IS ERROR COUNT AT 25
7085 063330  103402                              BLO     999$                             ;BR, IF LESS THAN 25
7086 063332  004737  017272                      JSR     PC,CKDROP                        ;TRY TO DROP THE UNIT
7087 063336                      999$:
```

```
7089                                    ;*
7090                                    ;
7091                                    ;TEST 6, SUBTEST 8
7092                                    ;
7093                                    ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP 0
7094                                    ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
7095                                    ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
7096                                    ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
7097                                    ;SWAPPED BYTES.
7098                                    ;
7099                                    ;
7100                                    ;
7101                                    ;-
7102 063336                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      063336                                                                                T6.8:
      063336  104402                                                                          TRAP    C$BSUB
7103 063340  004737  074540                     JSR     PC,T26REST              ;SET COMMAND PACKET
7104 063344  004737  074632                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7105 063350  004737  074674                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7106
7107                                    ;*********************************************************************
7108                                    ;
7109                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7110                                    ;
7111                                    ;*********************************************************************
7112
7113 063354  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7114 063360  103407                             BCS     20$                     ;BR IF INIT WAS OK
7115 063362  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7119 063366  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7120 063370                                     ERRDF   ERRNO.SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      063370  104455                                                                       TRAP    C$ERDF
      063372  001237                                                                      .WORD   671
      063374  003650                                                                      .WORD   SFIERR
      063376  012124                                                                      .WORD   SFIMSG
7121 063400  013737  002172  071650  20$:       MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
7122
7123 063406  012704  071630                     MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7124
7125                                    ;*********************************************************************
7126                                    ;
7127                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7128                                    ;
7129                                    ;*********************************************************************
7130
7131 063412  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7132 063416  103407                             BCS     26$                     ;BR, IF COMMAND ISSUED OK
7133 063420  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7137 063424  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7138 063426                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      063426  104456                                                                       TRAP    C$ERHRD
      063430  001240                                                                      .WORD   672
      063432  005054                                                                      .WORD   WRTMSG
      063434  012124                                                                      .WORD   SFIMSG
7139 063436                             26$:    CKLOOP                          ;LOOP IF SELECTED
      063436  104406                                                                       TRAP    C$CLP1
7140
```

TEST 6: REREADS

```
                                ;*****************************************************************
                                ;
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                ;
                                ;*****************************************************************

063440  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
063444  103413                    BCS     30$                     ;BR, IF NO PROBLEM
063446  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
063452  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
063456  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
063460  005237  002212            INC     FATFLG                  ;BUMP COUNT
063464                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
063464  104456                                                                    TRAP    C$ERHRD
063466  001241                                                                    .WORD   673
063470  073304                                                                    .WORD   T26RWN
063472  012136                                                                    .WORD   PKTSSR
063474                          3C$:    CKLOOP                  ;LOOP IF SELECTED
063474  104406                                                                    TRAP    C$CLP1

                                ;*****************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
                                ;
                                ;*****************************************************************

063476  013701  071660            MOV     T26BFR+6,R1             ;PICK UP XSTO
063502  010102                    MOV     R1,R2                   ;SET UP EXPECTED
063504  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
063510  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
063512  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
063514  005237  002212            INC     FATFLG                  ;BUMP COUNT
063520                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
063520  104456                                                                    TRAP    C$ERHRD
063522  001242                                                                    .WORD   674
063524  073015                                                                    .WORD   T26BOT
063526  015564                                                                    .WORD   EXPREC
063530                          40$:    CKLOOP                  ;LOOP IF SELECTED
063530  104406                                                                    TRAP    C$CLP1
063532  012703  000400            MOV     #256.,R3                ;RECORD SIZE
063536  013737  003114  071752    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

                                ;*****************************************************************
                                ;
                                ;WRITE DATA,CVC=1,ACK,SWB COMMAND
                                ;
                                ;*****************************************************************

063544  012737  150005  071750    MOV     #150005,T26PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
063552  012704  071750            MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
063556                          65$:
063556  010300                    MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
063560  004737  017512            JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
063564  010337  071756            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
063570  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
063574  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
063600  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
7194 063604  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
7195 063610  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
7196 063612  001406                  BEQ     75$                     ;BR, IF OK
7197 063614  005237  002212          INC     FATFLG                  ;BUMP COUNT
7201 063620                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     063620  104456                                                          TRAP    C$ERHRD
     063622  001243                                                          .WORD   675
     063624  005111                                                          .WORD   WRTERR
     063626  012136                                                          .WORD   PKTSSR
7202 063630                  75$:    CKLOOP                          ;LOOP IF SELECTED
     063630  104406                                                          TRAP    C$CLP1
7203 063632  005723                  TST     (R3)+                   ;BUMP RECORD SIZE
7204 063634  022703  000414          CMP     #268.,R3                ;END OF RECORD YET
7205 063640  001346                  BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
7206 063642                  80$:    CKLOOP                          ;LOOP IF SELECTED
     063642  104406                                                          TRAP    C$CLP1
7207 063644                  120$:
7208
7209                         ;*************************************************************************
7210                         ;
7211                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7212                         ;
7213                         ;*************************************************************************
7214
7215 063644  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7216 063650  103413                  BCS     130$                    ;BR, IF NO PROBLEM
7217 063652  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
7218 063656  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7219 063662  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
7220 063664  005237  002212          INC     FATFLG                  ;BUMP COUNT
7224 063670                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     063670  104456                                                          TRAP    C$ERHRD
     063672  001244                                                          .WORD   676
     063674  073304                                                          .WORD   T26RWN
     063676  012136                                                          .WORD   PKTSSR
7225 063700                  130$:   CKLOOP                          ;LOOP IF SELECTED
     063700  104406                                                          TRAP    C$CLP1
7226
7227                         ;*************************************************************************
7228                         ;
7229                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7230                         ;
7231                         ;*************************************************************************
7232
7233 063702  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XST0
7234 063706  010102                  MOV     R1,R2                   ;SET UP EXPECTED
7235 063710  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7236 063714  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
7237 063716  001406                  BEQ     140$                    ;BR, IF EQUAL (OK)
7238 063720  005237  002212          INC     FATFLG                  ;BUMP COUNT
7242 063724                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063724  104456                                                          TRAP    C$ERHRD
     063726  001245                                                          .WORD   677
     063730  073015                                                          .WORD   T26BOT
     063732  015564                                                          .WORD   EXPREC
7243 063734                  140$:   CKLOOP                          ;LOOP IF SELECTED
     063734  104406                                                          TRAP    C$CLP1
```

TEST 6: REREADS

```
7244 063736  012737  000400  072002          MOV     #256.,T26RSZ            ;START RECORD SIZE
7245 063744  000420                          BR      150$                    ;SKIP SAPCE THIS TIME
7246
7247                                 ;*********************************************************************
7248                                 ;
7249                                 ;ISSUE SPACE RECORDS COMMAND   VALUE IN R3 SETS NUMBER OF RECORDS
7250                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7251                                 ;
7252                                 ;*********************************************************************
7253
7254 063746  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
7255 063752  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
7256 063756  103413                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
7257 063760  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7258 063764  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7259 063770  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7260 063772  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7264 063776                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     063776  104456                                                                  TRAP    C$ERHRD
     064000  001246                                                                  .WORD   678
     064002  072417                                                                  .WORD   T26SC
     064004  015564                                                                  .WORD   EXPREC
7265 064006                          150$:   CKLOOP
     064006  104406                                                                  TRAP    C$CLP1
7266 064010  013703  072002                  MOV     T26RSZ,R3               ;RECORD SIZF
7267 064014  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7268
7269                                 ;*********************************************************************
7270                                 ;
7271                                 ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7272                                 ;
7273                                 ;*********************************************************************
7274
7275 064022  012737  151401  071750          MOV     #151401,T26PK3          ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7276 064030  012704  071750          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7277 064034  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7278 064040  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7279 064044  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7280 064050  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7281 064054  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
7282 064060  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7283 064062  001406                          BEQ     170$                    ;BR, IF OK
7284 064064  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7288 064070                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     064070  104456                                                                  TRAP    C$ERHRD
     064072  001247                                                                  .WORD   679
     064074  073640                                                                  .WORD   T26WDC
     064076  012136                                                                  .WORD   PKTSSR
7289 064100                          170$:   CKLOOP                          ;LOOP IF SELECTED
     064100  104406                                                                  TRAP    C$CLP1
7290 064102  013702  003114                  MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
7291 064106  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
7292 064110  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
7293 064114  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
7294 064116  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
7295 064120  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
7296 064122  011401                          MOV     (R4),R1                 ;RECD DATA
```

TEST 6: REREADS

```
7297 064124  010302                    MOV     R3,R2                   ;EXPECTED DATA
7298 064126  005237  002212              INC     FATFLG                  ;BUMP COUNT
7302 064132                             ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     064132  104456                                                            TRAP    C$ERHRD
     064134  001250                                                            .WORD   680
     064136  073062                                                            .WORD   T26DTA
     064140  015564                                                            .WORD   EXPREC
7303 064142                     180$:   CKLOOP                          ;LOOP IF SELECTED
     064142  104406                                                            TRAP    C$CLP1
7304 064144  005724                    TST     (R4)+                   ;BUMP TO NEXT LOCATION
7305 064146  160204                    SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
7306 064150  020403                    CMP     R4,R3                   ;END OF RECORD YET
7307 064152  001360                    BNE     173$                    ;BR. IF NOT AT END OF RECORD
7308 064154  005723                    TST     (R3)+                   ;BUMP RECORD SIZE
7309 064156  010337  072002              MOV     R3,T26RSZ               ;STORE RECORD SIZE
7310 064162  022703  000410              CMP     #264.,R3                ;END OF RECORD YET
7311 064166  001267                    BNE     145$                    ;BR. IF MORE RECORDS TO WRITE
7312 064170                     190$:   CKLOOP                          ;LOOP IF SELECTED
     064170  104406                                                            TRAP    C$CLP1
7313 064172                             ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     064172                                                                 L10112:
     064172  104403                                                            TRAP    C$ESUB
7314 064174  023727  002212  000017              CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
7315 064202  103402                              BLO     999$                    ;BR. IF LESS THAN 25
7316 064204  004737  017272                      JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
7317 064210                     999$:
```

TEST 6: REREADS

```
7319                                    ;*
7320                                    ;
7321                                    ;TEST 6, SUBTEST 9
7322                                    ;
7323                                    ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP-1
7324                                    ;(READ FORWARD, SPACE REVERSE) AND SWB=0 OPERATES
7325                                    ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
7326                                    ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
7327                                    ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
7328                                    ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
7329                                    ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
7330                                    ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
7331                                    ;
7332                                    ;1.     THE REREAD NEXT COMMAND WITH OPP=1 IS ISSUED
7333                                    ;       AND THE RESULTS CHECKED
7334                                    ;
7335                                    ;2.     A READ FORWARD COMMAND IS THEN ISSUED AND THE
7336                                    ;       DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
7337                                    ;       POSITIONED PROPERLY AFTER THE REREAD NEXT
7338                                    ;       COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
7339                                    ;       POSITIONED AT THE START OF THE TEST RECORD). THE
7340                                    ;       READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
7341                                    ;       PROPERLY AT THE START OF THE NEXT TEST RECORD.
7342                                    ;
7343                                    ;THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET
7344                                    ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
7345                                    ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
7346                                    ;
7347                                    ;
7348                                    ;
7349                                    ;
7350                                    ;-
7351
7352 064210                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     064210                                                                                    T6.9:
     064210  104402                                                                          TRAP    C$BSUB
7353 064212  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
7354 064216  005037  071776                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
7355 064222  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7356 064226  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7357
7358                                    ;*************************************************************************
7359                                    ;
7360                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7361                                    ;
7362                                    ;*************************************************************************
7363
7364 064232  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7365 064236  103407                    BCS     20$                     ;BR IF INIT WAS OK
7366 064240  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7370 064244  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7371 064246                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     064246  104455                                                                          TRAP    C$ERDF
     064250  001251                                                                          .WORD   681
     064252  003650                                                                          .WORD   SFIERR
     064254  012124                                                                          .WORD   SFIMSG
7372 064256  013737  002172  071650  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
```

TEST 6: REREADS

```
7373
7374 064264  012704  071630                MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7375
7376                                ;*************************************************************************
7377                                ;
7378                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7379                                ;
7380                                ;*************************************************************************
7381
7382 064270  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7383 064274  103407                        BCS     26$                     ;BR, IF COMMAND ISSUED OK
7384 064276  005237  002212                INC     FATFLG                  ;BUMP COUNT
7388 064302  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7389 064304                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     064304  104456                                                            TRAP    C$ERHRD
     064306  001252                                                            .WORD   682
     064310  005054                                                            .WORD   WRTMSG
     064312  012124                                                            .WORD   SFIMSG
7390 064314                        26$:    CKLOOP                          ;LOOP IF SELECTED
     064314  104406                                                            TRAP    C$CLP1
7391
7392                                ;*************************************************************************
7393                                ;
7394                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7395                                ;
7396                                ;*************************************************************************
7397
7398 064316  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7399 064322  103413                        BCS     30$                     ;BR, IF NO PROBLEM
7400 064324  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
7401 064330  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7402 064334  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
7403 064336  005237  002212                INC     FATFLG                  ;BUMP COUNT
7407 064342                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     064342  104456                                                            TRAP    C$ERHRD
     064344  001253                                                            .WORD   683
     064346  073304                                                            .WORD   T26RWN
     064350  012136                                                            .WORD   PKTSSR
7408 064352                        30$:    CKLOOP                          ;LOOP IF SELECTED
     064352  104406                                                            TRAP    C$CLP1
7409
7410                                ;*************************************************************************
7411                                ;
7412                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7413                                ;
7414                                ;*************************************************************************
7415
7416 064354  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XST0
7417 064360  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7418 064362  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7419 064366  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7420 064370  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
7421 064372  005237  002212                INC     FATFLG                  ;BUMP COUNT
7425 064376                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     064376  104456                                                            TRAP    C$ERHRD
     064400  001254                                                            .WORD   684
     064402  073015                                                            .WORD   T26BOT
```

TEST 6: REREADS

```
                064404  015564                                                          .WORD   EXPRFC
7426            064406                          40$:    CKLOOP                          ;LOOP IF SELECTED
                064406  104406                                                          TRAP    C$CLP1
7427            064410  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
7428            064414  013737  003114  071752          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7429
7430                                                    ;***************************************************************
7431                                                    ;
7432                                                    ;WRITE DATA,CYC-1,ACK COMMAND
7433                                                    ;
7434                                                    ;***************************************************************
7435
7436            064422  012737  140005  071750          MOV     #140005,T26PK3          ;WRITE DATA,CYC-1,ACK COMMAND
7437            064430  012704  071750                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7438            064434                          65$:
7439            064434  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7440            064440  013777  071776  116446          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
7441            064446  062737  000001  071776          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
7442            064454  010465  000000                  MOV     R4,TSD8(R5)             ;ISSUE COMMAND
7443            064460  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7444            064464  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7445            064470  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
7446            064474  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7447            064476  001406                          BEQ     75$                     ;BR, IF OK
7448            064500  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7452            064504                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
                C64504  104456                                                          TRAP    C$ERHRD
                064506  001255                                                          .WORD   685
                064510  005111                                                          .WORD   WRTERR
                064512  012136                                                          .WORD   PKTSSR
7453            064514                          75$:    CKLOOP                          ;LOOP IF SELECTED
                064514  104406                                                          TRAP    C$CLP1
7454            064516  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
7455            064520  022703  000414                  CMP     #268.,R3                ;MAXIMUM SIZE YET
7456            064524  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
7457            064526  000742                          BR      65$                     ;WRITE MORE RECORDS
7458            064530                          120$:
7459            064530  005037  071776                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
7460
7461                                                    ;***************************************************************
7462                                                    ;
7463                                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7464                                                    ;
7465                                                    ;***************************************************************
7466
7467            064534  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7468            064540  103411                          BCS     130$                    ;BR, IF NO PROBLEM
7469            064542  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7470            064546  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7471            064550  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7475            064554                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                064554  104456                                                          TRAP    C$ERHRD
                064556  001256                                                          .WORD   686
                064560  073304                                                          .WORD   T26RWN
                064562  012136                                                          .WORD   PKTSSR
7476            064564                          130$:   CKLOOP                          ;LOOP IF SELECTED
                064564  104406                                                          TRAP    C$CLP1
```

```
7477
7478                                    ;*****************************************************************
7479                                    ;
7480                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7481                                    ;
7482                                    ;*****************************************************************
7483
7484 064566  013701  071660                    MOV     T26BFR+6,R1             ;PICK UP XSTO
7485 064572  010102                            MOV     R1,R2                   ;SET UP EXPECTED
7486 064574  052?02  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7487 064600  020102                            CMP     R1,R2                   ;DOES EXP - REC'D
7488 064602  001406                            BEQ     135$                    ;BR, IF EQUAL (OK)
7489 064604  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7493 064610                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     064610  104456                                                                    TRAP    C$ERHRD
     064612  001257                                                                    .WORD   687
     064614  073015                                                                    .WORD   T26BOT
     064616  015564                                                                    .WORD   EXPREC
7494 064620                            135$:   CKLOOP                                  ;LOOP IF SELECTED
     064620  104406                                                                    TRAP    C$CLP:
7495 064622  012737  000400  072002            MOV     #256.,T26RSZ            ;STARTING RECORD SIZE
7496 064630  000420                            BR      140$                    ;SKIP OVER THE SAPCE THIS TIME
7497
7498                                    ;*****************************************************************
7499                                    ;
7500                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7501                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7502                                    ;
7503                                    ;*****************************************************************
7504
7505 064632  012703  000001    132$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
7506 064636  004737  010556            JSR     PC,SPACE                ;CALL SPACE ROUTINE
7507 064642  103413                    BCS     140$                    ;BR, IF NO TROUBLE
7508 064644  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
7509 064650  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7510 064654  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
7511 064656  005237  002212            INC     FATFLG                  ;BUMP COUNT
7515 064662                            ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
     064662  104456                                                                    TRAP    C$ERHRD
     064664  001260                                                                    .WORD   688
     064666  072417                                                                    .WORD   T26SC
     064670  012136                                                                    .WORD   PKTSSR
7516 064672                            140$:   CKLOOP                          ;LOOP IF SELECTED
     064672  104406                                                                    TRAP    C$CLP1
7517 064674  013703  072002            MOV     T26RSZ,R3               ;RECORD SIZE
7518 064700  013737  003114  071752    150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7519
7520                                    ;*****************************************************************
7521                                    ;
7522                                    ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7523                                    ;
7524                                    ;*****************************************************************
7525
7526 064706  012737  161401  071750            MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7527 064714  012704  071750    165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7528 064720  010337  071756            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7529 064724  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

TEST 6: REREADS SEQ 0252

```
7530 064730  004737  016340                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
7531 064734  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
7532 064740  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
7533 064744  020102                          CMP     R1,R2           ;ARE THEY EQUAL
7534 064746  001406                          BEQ     170$            ;BR, IF OK
7535 064750  005237  002212                  INC     FATFLG          ;BUMP COUNT
7539 064754                                  ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     064754  104456                                                          TRAP    C$ERHRD
     064756  001261                                                          .WORD   689
     064760  072225                                                          .WORD   T26RRF
     064762  012136                                                          .WORD   PKTSSR
7540 064764                          170$:   CKLOOP                  ;LOOP IF SELECTED
     064764  104406                                                          TRAP    C$CLP1
7541 064766  017701  116122                  MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
7542 064772  013702  071776                  MOV     T26CNT,R2       ;SET UP EXPECTED
7543 064776  020102                          CMP     R1,R2           ;IS TAPE POSITION CORRECT
7544 065000  001406                          BEQ     190$            ;KEEP GOING POSITION OK
7545 065002  005237  002212                  INC     FATFLG          ;BUMP COUNT
7549 065006                                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     065006  104456                                                          TRAP    C$ERHRD
     065010  001262                                                          .WORD   690
     065012  072006                                                          .WORD   T26WNG
     065014  015564                                                          .WORD   EXPREC
7550 065016                          190$:   CKLOOP
     065016  104406                                                          TRAP    C$CLP1
7551 065020  062737  000001  071776          ADD     #1,T26CNT       ;BUMP TAPE RECORD COUNTER
7552 065026  005723                          TST     (R3)+           ;NEXT RECORD SIZE
7553 065030  010337  072002                  MOV     R3,T26RSZ       ;STORE RECORD SIZE
7554 065034  022703  000412                  CMP     #266.,R3        ;AT MAX SIZE YET
7555 065040  001402                          BEQ     200$            ;BR, IF AT END OF THE SUBTEST
7556 065042  000137  064632                  JMP     132$            ;KEEP GOING MORE RECORDS
7557 065046                          200$:
7558 065046                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     065046                                                                  L10113:
     065046  104403                                                          TRAP    C$ESUB
7559 065050  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
7560 065056  103402                          BLO     999$                    ;BR, IF LESS THAN 25
7561 065060  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
7562 065064                          999$:
```

TEST 6: REREADS

```
7564                                    ;*
7565                                    ;
7566                                    ;TEST 6, SUBTEST 10
7567                                    ;
7568                                    ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP-1
7569                                    ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
7570                                    ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
7571                                    ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
7572                                    ;SWAPPED BYTES.
7573                                    ;
7574                                    ;
7575                                    ;
7576                                    ;
7577                                    ;-
7578
7579 065064                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      065064                                                                                    T6.10:
      065064  104402                                                                                      TRAP    C$BSUB
7580 065066  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
7581 065072  005037  071776                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
7582 065076  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7583 065102  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7584
7585                                    ;*****************************************************************
7586                                    ;
7587                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7588                                    ;
7589                                    ;*****************************************************************
7590
7591 065106  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7592 065112  103407                            BCS     20$                     ;BR IF INIT WAS OK
7593 065114  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7597 065120  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7598 065122                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      065122  104455                                                                            TRAP    C$ERDF
      065124  001263                                                                           .WORD   691
      065126  003650                                                                           .WORD   SFIERR
      065130  012124                                                                           .WORD   SFIMSG
7599 065132  013737  002172  071650  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
7600
7601 065140  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7602
7603                                    ;*****************************************************************
7604                                    ;
7605                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7606                                    ;
7607                                    ;*****************************************************************
7608
7609 065144  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7610 065150  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
7611 065152  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7615 065156  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7616 065160                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      065160  104456                                                                            TRAP    C$ERHRD
      065162  001264                                                                           .WORD   692
      065164  005054                                                                           .WORD   WRTMSG
      065166  012124                                                                           .WORD   SFIMSG
```

TEST 6: REREADS

```
7617 065170                    26$:    CKLOOP                          ;LOOP IF SELECTED
     065170  104406                                                                    TRAP    C$CLP1
7618
7619                           ;*****************************************************************
7620                           ;
7621                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7622                           ;
7623                           ;*****************************************************************
7624
7625 065172  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7626 065176  016501  000002            MOV     TSGR(R5),R1             ;GET TSSR
7627 065202  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7628 065206  103407                    BCS     30$                     ;BR. IF NO PROBLEM
7629 065210  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
7630 065212  005237  002212            INC     FATFLG                  ;BUMP COUNT
7634 065216                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     065216  104456                                                                    TRAP    C$ERHRD
     065220  001265                                                                    .WORD   693
     065222  073304                                                                    .WORD   T26RWN
     065224  012136                                                                    .WORD   PKTSSR
7635 065226                    30$:    CKLOOP                          ;LOOP IF SELECTED
     065226  104406                                                                    TRAP    C$CLP1
7636
7637                           ;*****************************************************************
7638                           ;
7639                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7640                           ;
7641                           ;*****************************************************************
7642
7643 065230  013701  071660            MOV     T26BFR+6,R1             ;PICK UP XST0
7644 065234  010102                    MOV     R1,R2                   ;SET UP EXPECTED
7645 065236  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7646 065242  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
7647 065244  001406                    BEQ     40$                     ;BR. IF EQUAL (OK)
7648 065246  005237  002212            INC     FATFLG                  ;BUMP COUNT
7652 065252                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     065252  104456                                                                    TRAP    C$ERHRD
     065254  001266                                                                    .WORD   694
     065256  073015                                                                    .WORD   T26BOT
     065260  015564                                                                    .WORD   EXPREC
7653 065262                    40$:    CKLOOP                          ;LOOP IF SELECTED
     065262  104406                                                                    TRAP    C$CLP1
7654 065264  012703  000400            MOV     #256.,R3                ;RECORD SIZE
7655 065270  013737  003114  071752    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7656
7657                           ;*****************************************************************
7658                           ;
7659                           ;WRITE DATA,CVC=1,ACK COMMAND
7660                           ;
7661                           ;*****************************************************************
7662
7663 065276  012737  140005  071750    MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
7664 065304  012704  071750            MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7665 065310                    65$:
7666 065310  010337  071756            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7667 065314  013777  071776  115572    MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
7668 065322  062737  000001  071776    ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
```

TEST 6: REREADS

```
7669 065330  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7670 065334  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7671 065340  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7672 065344  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
7673 065350  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
7674 065352  001406                        BEQ     75$                     ;BR, IF OK
7675 065354  005237  002212                INC     FATFLG                  ;BUMP COUNT
7679 065360                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     065360  104456                                                                TRAP    C$ERHRD
     065362  001267                                                                .WORD   695
     065364  005111                                                                .WORD   WRTERR
     065366  012136                                                                .WORD   PKTSSR
7680 065370                        75$:    CKLOOP                          ;LOOP IF SELECTED
     065370  104406                                                                TRAP    C$CLP1
7681 065372  005723                        TST     (R3)+                   ;BUMP THE RECORD SIZE
7682 065374  022703  000414                CMP     #268.,R3                ;MAXIMUM SIZE YET
7683 065400  001401                        BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
7684 065402  000742                        BR      65$                     ;WRITE MORE RECORDS
7685 065404                        120$:
7686 065404  005037  071776                CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
7687
7688                               ;*****************************************************************
7689                               ;
7690                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7691                               ;
7692                               ;*****************************************************************
7693
7694 065410  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7695 065414  103411                        BCS     130$                    ;BR, IF NO PROBLEM
7696 065416  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
7697 065422  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
7698 065424  005237  002212                INC     FATFLG                  ;BUMP COUNT
7702 065430                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     065430  104456                                                                TRAP    C$ERHRD
     065432  001270                                                                .WORD   696
     065434  073304                                                                .WORD   T26RWN
     065436  012136                                                                .WORD   PKTSSR
7703 065440                        130$:   CKLOOP                          ;LOOP IF SELECTED
     065440  104406                                                                TRAP    C$CLP1
7704
7705                               ;*****************************************************************
7706                               ;
7707                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7708                               ;
7709                               ;*****************************************************************
7710
7711 065442  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XST0
7712 065446  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7713 065450  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7714 065454  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7715 065456  001406                        BEQ     135$                    ;BR, IF EQUAL (OK)
7716 065460  005237  002212                INC     FATFLG                  ;BUMP COUNT
7720 065464                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     065464  104456                                                                TRAP    C$ERHRD
     065466  001271                                                                .WORD   697
     065470  073015                                                                .WORD   T26BOT
     065472  015564                                                                .WORD   EXPREC
```

SEQ 0266

TEST 6: REREADS

```
7721 065474                                135$:   CKLOOP                                  ;LOOP IF SELECTED
     065474  104406                                                                                TRAP    C$CLP1
7722 065476  012737  000400  072002                MOV     #256.,T26RSZ                ;START RECORD SIZE
7723 065504  000420                                BR      140$                        ;SKIP OVER SPACE
7724
7725                                       ;*****************************************************************
7726                                       ;
7727                                       ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7728                                       ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7729                                       ;
7730                                       ;*****************************************************************
7731
7732 065506  012703  000001                136$:   MOV     #000001,R3                  ;SET UP SPACE COMMAND (1 FORWARD)
7733 065512  004737  010556                        JSR     PC,SPACE                    ;CALL SPACE ROUTINE
7734 065516  103413                                BCS     140$                        ;BR, IF NO TROUBLE
7735 065520  016501  000002                        MOV     TSSR(R5),R1                 ;GET TSSR
7736 065524  012702  000200                        MOV     #SSR,R2                     ;SET UP EXPECTED TSSR
7737 065530  010004                                MOV     R0,R4                       ;PACKET ADDRESS SET UP
7738 065532  005237  002212                        INC     FATFLG                      ;BUMP COUNT
7742 065536                                        ERRHRD  ERRNO,T26SC,PKTSSR          ;SPACE (FORWARD) FAILED
     065536  104456                                                                            TRAP    C$ERHRD
     065540  001272                                                                            .WORD   698
     065542  072417                                                                            .WORD   T26SC
     065544  012136                                                                            .WORD   PKTSSR
7743 065546                                140$:   CKLOOP                                  ;LOOP IF SELECTED
     065546  104406                                                                                TRAP    C$CLP1
7744 065550  013703  072002                        MOV     T26RSZ,R3                   ;RECORD SIZE
7745 065554  013737  003114  071752        150$:   MOV     FREE,T26RB                  ;STARTING READ BUFFER ADDRESS
7746
7747                                       ;*****************************************************************
7748                                       ;
7749                                       ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7750                                       ;
7751                                       ;*****************************************************************
7752
7753 065562  012737  161401  071750                MOV     #161401,T26PK3              ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7754 065570  012704  071750                165$:   MOV     #T26PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
7755 065574  010337  071756                        MOV     R3,T26SZ                    ;SET UP RECORD SIZE IN PACKET
7756 065600  010465  000000                        MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
7757 065604  004737  016340                        JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
7758 065610  016501  000002                        MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
7759 065614  012702  000200                        MOV     #SSR,R2                     ;SET UP EXPECTED
7760 065620  020102                                CMP     R1,R2                       ;ARE THEY EQUAL
7761 065622  001406                                BEQ     170$                        ;BR, IF OK
7762 065624  005237  002212                        INC     FATFLG                      ;BUMP COUNT
7766 065630                                        ERRHRD  ERRNO,T26RRF,PKTSSR         ;TSSR INCORRECT AFTER REREAD DATA
     065630  104456                                                                            TRAP    C$ERHRD
     065632  001273                                                                            .WORD   699
     065634  072225                                                                            .WORD   T26RRF
     065636  012136                                                                            .WORD   PKTSSR
7767 065640                                170$:   CKLOOP                                  ;LOOP IF SELECTED
     065640  104406                                                                                TRAP    C$CLP1
7768 065642  017701  115246                        MOV     @FREE,R1                            ;FIRST WORD FROM READ BUFFER
7769 065646  013702  071776                        MOV     T26CNT,R2                   ;SET UP EXPECTED
7770 065652  020102                                CMP     R1,R2                       ;IS TAPE POSITION CORRECT
7771 065654  001406                                BEQ     190$                        ;KEEP GOING POSITION OK
7772 065656  005237  002212                        INC     FATFLG                      ;BUMP COUNT
```

TEST 6: REREADS

```
7776 065662                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     065662  104456                                                                TRAP    C$ERHRD
     065664  001274                                                                .WORD   700
     065666  072006                                                                .WORD   T26WNG
     065670  015564                                                                .WORD   EXPREC
7777 065672                          190$:  CKLOOP                                 
     065672  104406                                                                TRAP    C$CLP1
7778 065674  062737  000001  071776        ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
7779 065702  005723                        TST     (R3)+                   ;NEXT RECORD SIZE
7780 065704  010337  072002                MOV     R3,T26RSZ               ;STORE RECORD SIZE
7781 065710  022703  000412                CMP     #266.,R3                ;AT MAX SIZE YET
7782 065714  001402                        BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
7783 065716  000137  065506                JMP     136$                    ;KEEP GOING MORE RECORDS
7784 065722                          220$:
7785 065722                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     065722                                                                     L10114:
     065722  104403                                                                TRAP    C$ESJ8
7786 065724  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
7787 065732  103402                        BLO     999$                            ;BR, IF LESS THAN 25
7788 065734  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7789 065740                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 11
                                        ;
                                        ;VERIFIES THAT A REREAD NEXT COMMAND READING A
                                        ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;
                                        ;

065740                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
065740                                                                                  T6.11:
065740  104402                                                                                  TRAP    C$BSUB
065742  004737  074540                        JSR     PC,T26REST                  ;SET COMMAND PACKET
065746  004737  074632                        JSR     PC,T26RT2                   ;SET UP OTHER COMMAND PACKET
065752  004737  074674                        JSR     PC,T26RT3                   ;SET UP OTHER COMMAND PACKET

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

065756  004737  016064                        JSR     PC,SOFINIT                  ;DO INITIALIZE ON CONTROLLER
065762  103407                                BCS     20$                         ;BR IF INIT WAS OK
065764  005237  002212                        INC     FATFLG                      ;BUMP COUNT
065770  010001                                MOV     R0,R1                       ;CONTENTS OF TSSR REGISTER
065772                                          ERRDF   ERRNO,SFIERR,SFIMSG         ;FATAL ERROR TSSR WAS NOT OK
065772  104455                                                                                  TRAP    C$ERDF
065774  001275                                                                                  .WORD   701
065776  003650                                                                                  .WORD   SFIERR
066000  012124                                                                                  .WORD   SFIMSG
066002  013737  002172  071650  20$:     MOV     UNITN,T26DSW                ;SET UP UNIT NUMBER

066010  012704  071630                        MOV     #T26PACKET,R4               ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

066014  004737  010752                        JSR     PC,WRTCHR                   ;ISSUE WRITE CHARACTERISTICS
066020  103407                                BCS     26$                         ;BR, IF COMMAND ISSUED OK
066022  005237  002212                        INC     FATFLG                      ;BUMP COUNT
066026  010001                                MOV     R0,R1                       ;SAVE CONTENTS OF TSSR
066030                                          ERRHRD  ERRNO,WRTMSG,SFIMSG         ;WRITE CHARACTERISTISC FAILED
066030  104456                                                                                  TRAP    C$ERHRD
066032  001276                                                                                  .WORD   702
066034  005054                                                                                  .WORD   WRTMSG
066036  012124                                                                                  .WORD   SFIMSG
066040                                  26$:    CKLOOP                          ;LOOP IF SELECTED
```

TEST 6: REREADS

```
      066040  104406                                                                  TRAP    C$CLP1
 7844
 7845                                ;*************************************************************************
 7846                                ;
 7847                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 7848                                ;
 7849                                ;*************************************************************************
 7850
 7851 066042  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 7852 066046  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
 7853 066052  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 7854 066056  103407                        BCS     30$                     ;BR. IF NO PROBLEM
 7855 066060  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
 7856 066062  005237  002212                INC     FATFLG                  ;BUMP COUNT
 7860 066066                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      066066  104456                                                          TRAP    C$ERHRD
      066070  001277                                                          .WORD   703
      066072  073304                                                          .WORD   T26RWN
      066074  012136                                                          .WORD   PKTSSR
 7861 066076                        30$:    CKLOOP                          ;LOOP IF SELECTED
      066076  104406                                                          TRAP    C$CLP1
 7862
 7863                                ;*************************************************************************
 7864                                ;
 7865                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 7866                                ;
 7867                                ;*************************************************************************
 7868
 7869 066100  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XST0
 7870 066104  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 7871 066106  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 7872 066112  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 7873 066114  001406                        BEQ     40$                     ;BR. IF EQUAL (OK)
 7874 066116  005237  002212                INC     FATFLG                  ;BUMP COUNT
 7878 066122                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      066122  104456                                                          TRAP    C$ERHRD
      066124  001300                                                          .WORD   704
      066126  073015                                                          .WORD   T26BOT
      066130  015564                                                          .WORD   EXPREC
 7879 066132                        40$:    CKLOOP                          ;LOOP IF SELECTED
      066132  104406                                                          TRAP    C$CLP1
 7880 066134  012703  001000                MOV     #512.,R3                ;RECORD SIZE
 7881 066140  013737  003114  071752        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
 7882
 7883                                ;*************************************************************************
 7884                                ;
 7885                                ;WRITE DATA,CVC=1,ACK COMMAND
 7886                                ;
 7887                                ;*************************************************************************
 7888
 7889 066146  012737  140005  071750        MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 7890 066154  012704  071750                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 7891 066160                        65$:
 7892 066160  010337  071756                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 7893 066164  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 7894 066170  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 7895 066174  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
TEST  6: REREADS

 7896 066200  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 7897 066204  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 7898 066206  001406                        BEQ     75$                     ;BR, IF OK
 7899 066210  005237  002212                INC     FATFLG                  ;BUMP COUNT
 7903 066214                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      066214  104456                                                                TRAP    C$ERHRD
      066216  001301                                                                .WORD   705
      066220  005111                                                                .WORD   WRTERR
      066222  012136                                                                .WORD   PKTSSR
 7904 066224                        75$.    CKLOOP                          ;LOOP IF SELECTED
      066224  104406                                                                TRAP    C$CLP1
 7905
 7906                                ;*****************************************************************
 7907                                ;
 7908                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 7909                                ;
 7910                                ;*****************************************************************
 7911
 7912 066226  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 7913 066232  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
 7914 066236  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 7915 066242  103407                        BCS     130$                    ;BR, IF NO PROBLEM
 7916 066244  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
 7917 066246  005237  002212                INC     FATFLG                  ;BUMP COUNT
 7921 066252                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      066252  104456                                                                TRAP    C$ERHRD
      066254  001302                                                                .WORD   706
      066256  073304                                                                .WORD   T26RWN
      066260  012136                                                                .WORD   PKTSSR
 7922 066262                        130$:   CKLOOP                          ;LOOP IF SELECTED
      066262  104406                                                                TRAP    C$CLP1
 7923
 7924                                ;*****************************************************************
 7925                                ;
 7926                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 7927                                ;
 7928                                ;*****************************************************************
 7929
 7930 066264  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XSTO
 7931 066270  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 7932 066272  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 7933 066276  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 7934 066300  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
 7935 066302  005237  002212                INC     FATFLG                  ;BUMP COUNT
 7939 066306                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      066306  104456                                                                TRAP    C$ERHRD
      066310  001303                                                                .WORD   707
      066312  073015                                                                .WORD   T26BOT
      066314  015564                                                                .WORD   EXPREC
 7940 066316                        140$:   CKLOOP                          ;LOOP IF SELECTED
      066316  104406                                                                TRAP    C$CLP1
 7941 066320  005303                        DEC     R3                      ;SET RECORD SIZE TO 511.
 7942 066322  013737  003114  071752        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 7943
 7944                                ;*****************************************************************
 7945                                ;
 7946                                ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
```

TEST 6: REREADS

```
7947                                    ;
7948                                    ;*************************************************************************
7949
7950 066330  012737  161401  071750          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
7951 066336  012704  071750          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7952 066342  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7953 066346  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7954 066352  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7955 066356  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7956 066362  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
7957 066366  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7958 066370  001406                          BEQ     170$                    ;BR, IF OK
7959 066372  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7963 066376                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     066376  104456                                                                  TRAP    C$ERHRD
     066400  001304                                                                  .WORD   708
     066402  074362                                                                  .WORD   T26TRL
     066404  012136                                                                  .WORD   PKTSSR
7964 066406                          170$:   CKLOOP                          ;LOOP IF SELECTED
     066406  104406                                                                  TRAP    C$CLP1
7965
7966                                    ;*************************************************************************
7967                                    ;
7968                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7969                                    ;
7970                                    ;*************************************************************************
7971
7972 066410  013701  071660                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
7973 066414  010102                          MOV     R1,R2                   ;SET UP EXPECTED
7974 066416  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
7975 066422  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7976 066424  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
7977 066426  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7981 066432                                  ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     066432  104456                                                                  TRAP    C$ERHRD
     066434  001305                                                                  .WORD   709
     066436  074130                                                                  .WORD   T26LON
     066440  015564                                                                  .WORD   EXPREC
7982 066442                          180$:   CKLOOP
     066442  104406                                                                  TRAP    C$CLP1
7983 066444  012703  000777                  MOV     #511.,R3                ;SET UP SIZE OF RECORD
7984 066450  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7985
7986                                    ;*************************************************************************
7987                                    ;
7988                                    ;REREAD DATA,CVC=1,ACK COMMAND
7989                                    ;
7990                                    ;*************************************************************************
7991
7992 066456  012737  141401  071750          MOV     #141401,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
7993 066464  012704  071750          365$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7994 066470  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7995 066474  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7996 066500  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7997 066504  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7998 066510  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
7999 066514  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
```

TEST 6: REREADS

```
8000 066516  001406                    BEQ     370$                    ;BR, IF OK
8001 066520  005237  002212             INC     FATFLG                  ;BUMP COUNT
8005 066524                             ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     066524  104456                                                                TRAP    C$ERHRD
     066526  001306                                                                .WORD   710
     066530  074362                                                                .WORD   T26TRL
     066532  012136                                                                .WORD   PKTSSR
8006 066534                     370$:   CKLOOP                          ;LOOP IF SELECTED
     066534  104406                                                                TRAP    C$CLP1
8007
8008                            ;*****************************************************************
8009                            ;
8010                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8011                            ;
8012                            ;*****************************************************************
8013
8014 066536  013701  071660             MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8015 066542  010102                     MOV     R1,R2                   ;SET UP EXPECTED
8016 066544  052702  010000             BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
8017 066550  020102                     CMP     R1,R2                   ;ARE THEY EQUAL
8018 066552  001406                     BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
8019 066554  005237  002212             INC     FATFLG                  ;BUMP COUNT
8023 066560                             ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     066560  104456                                                                TRAP    C$ERHRD
     066562  001307                                                                .WORD   711
     066564  074130                                                                .WORD   T26LON
     066566  015564                                                                .WORD   EXPREC
8024 066570                     380$:   CKLOOP
     066570  104406                                                                TRAP    C$CLP1
8025 066572                             ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     066572                                                                     L10115:
     066572  104403                                                                TRAP    C$ESUB
8026 066574  023727  002212  000017             CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
8027 066602  103402                             BLO     999$                    ;BR, IF LESS THAN 25
8028 066604  004737  017272                     JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
8029 066610                     999$:
```

TEST 6: REREADS

SE2 0273

```
8031                                    ;*
8032                                    ;
8033                                    ;TEST 6, SUBTEST 12
8034                                    ;
8035                                    ;VERIFIES THAT A REREAD NEXT COMMAND READING A
8036                                    ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
8037                                    ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
8038                                    ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
8039                                    ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
8040                                    ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
8041                                    ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
8042                                    ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
8043                                    ;STATES OF OPP (0 AND 1).
8044                                    ;
8045                                    ;
8046                                    ;
8047                                    ;-
8048 066610                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>
     066610                                                                                       T6.12:
     066610  104402                                                                                 TRAP    C$BSUB
8049 066612  004737  074540                     JSR     PC,T26REST              ;SET COMMAND PACKET
8050 066616  004737  074632                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8051 066622  004737  074674                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8052
8053                                    ;*****************************************************************
8054                                    ;
8055                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
8056                                    ;
8057                                    ;*****************************************************************
8058
8059 066626  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8060 066632  103407                             BCS     20$                     ;BR IF INIT WAS OK
8061 066634  005237  002212                     INC     FATFLG                  ;BUMP COUNT
8065 066640  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8066 066642                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     066642  104455                                                                               TRAP    C$ERDF
     066644  001310                                                                               .WORD   712
     066646  003650                                                                               .WORD   SFIERR
     066650  012124                                                                               .WORD   SFIMSG
8067 066652  013737  002172  071650  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
8068
8069 066660  012704  071630                     MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8070
8071                                    ;*****************************************************************
8072                                    ;
8073                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8074                                    ;
8075                                    ;*****************************************************************
8076
8077 066664  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8078 066670  103407                             BCS     26$                     ;BR, IF COMMAND ISSUED OK
8079 066672  005237  002212                     INC     FATFLG                  ;BUMP COUNT
8083 066676  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8084 066700                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     066700  104456                                                                               TRAP    C$ERHRD
     066702  001311                                                                               .WORD   713
     066704  005054                                                                               .WORD   WRTMSG
```

TEST 6: REREADS

```
                066706  012124
8085            066710                  26$:    CKLOOP                          ;LOOP IF SELECTED
                066710  104406                                                  TRAP    C$CLP1
8086
8087                    ;*****************************************************************
8088                    ;
8089                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8090                    ;
8091                    ;*****************************************************************
8092
8093 066712  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8094 066716  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
8095 066722  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8096 066726  103407                            BCS     30$                     ;BR, IF NO PROBLEM
8097 066730  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
8098 066732  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8102 066736                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                066736  104456                                                  TRAP    C$ERHRD
                066740  001312                                                  .WORD   714
                066742  073304                                                  .WORD   T26RWN
                066744  012136                                                  .WORD   PKTSSR
8103            066746                  30$:    CKLOOP                          ;LOOP IF SELECTED
                066746  104406                                                  TRAP    C$CLP1
8104
8105                    ;*****************************************************************
8106                    ;
8107                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8108                    ;
8109                    ;*****************************************************************
8110
8111 066750  013701  071660                    MOV     T26BFR+6,R1             ;PICK UP XST0
8112 066754  010102                            MOV     R1,R2                   ;SET UP EXPECTED
8113 066756  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8114 066762  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
8115 066764  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
8116 066766  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8120 066772                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                066772  104456                                                  TRAP    C$ERHRD
                066774  001313                                                  .WORD   715
                066776  073015                                                  .WORD   T26BOT
                067000  015564                                                  .WORD   EXPREC
8121            067002                  40$:    CKLOOP                          ;LOOP IF SELECTED
                067002  104406                                                  TRAP    C$CLP1
8122 067004  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
8123 067010  013737  003114  071752            MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8124
8125                    ;*****************************************************************
8126                    ;
8127                    ;WRITE DATA,CVC=1,ACK COMMAND
8128                    ;
8129                    ;*****************************************************************
8130
8131 067016  012737  140005  071750            MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
8132 067024  012704  071750                    MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8133 067030                             65$:
8134 067030  010337  071756                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8135 067034  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

D1,

SEQ 0215

TEST 6: REREADS

```
8136 067040  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8137 067044  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8138 067050  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
8139 067054  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8140 067056  001406                          BEQ     75$                     ;BR, IF OK
8141 067060  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8145 067064                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     067064  104456                                                                  TRAP    C$ERHRD
     067066  001314                                                                  .WORD   716
     067070  005111                                                                  .WORD   WRTERR
     067072  012136                                                                  .WORD   PKTSSR
8146 067074                          75$:    CKLOOP                          ;LOOP IF SELECTED
     067074  104406                                                                  TRAP    C$CLP1
8147 067076                          120$:
8148
8149                                 ;*****************************************************************
8150                                 ;
8151                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8152                                 ;
8153                                 ;*****************************************************************
8154
8155 067076  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8156 067102  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
8157 067106  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8158 067112  103407                          BCS     130$                    ;BR, IF NO PROBLEM
8159 067114  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
8160 067116  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8164 067122                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     067122  104456                                                                  TRAP    C$ERHRD
     067124  001315                                                                  .WORD   717
     067126  073304                                                                  .WORD   T26RWN
     067130  012136                                                                  .WORD   PKTSSR
8165 067132                          130$:   CKLOOP                          ;LOOP IF SELECTED
     067132  104406                                                                  TRAP    C$CLP1
8166
8167                                 ;*****************************************************************
8168                                 ;
8169                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8170                                 ;
8171                                 ;*****************************************************************
8172
8173 067134  013701  071660                  MOV     T26BFR+6,R1             ;PICK UP XST0
8174 067140  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8175 067142  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8176 067146  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
8177 067150  001406                          BEQ     135$                    ;BR, IF EQUAL (OK)
8178 067152  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8182 067156                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     067156  104456                                                                  TRAP    C$ERHRD
     067160  001316                                                                  .WORD   718
     067162  073015                                                                  .WORD   T26BOT
     067164  015564                                                                  .WORD   EXPREC
8183 067166                          135$:   CKLOOP                          ;LOOP IF SELECTED
     067166  104406                                                                  TRAP    C$CLP1
8184 067170  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
8185 067174  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
8186
```

TEST 6: REREADS

```
8187                                    ;*****************************************************************
8188                                    ;
8189                                    ;REREAD NEXT,ACK,CVC=1,OPP=1
8190                                    ;
8191                                    ;*****************************************************************
8192
8193 067202  012737  161401  071750          MOV     #161401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=1
8194 067210  012704  071750          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8195 067214  010337  071756                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8196 067220  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8197 067224  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8198 067230  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8199 067234  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8200 067240  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8201 067242  001406                          BEQ     170$                    ;BR, IF OK
8202 067244  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8206 067250                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     067250  104456                                                                  TRAP    C$ERHRD
     067252  001317                                                                  .WORD   719
     067254  074362                                                                  .WORD   T26TRL
     067256  012136                                                                  .WORD   PKTSSR
8207 067260                          170$:   CKLOOP                          ;LOOP IF SELECTED
     067260  104406                                                                  TRAP    C$CLP1
8208
8209                                    ;*****************************************************************
8210                                    ;
8211                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8212                                    ;
8213                                    ;*****************************************************************
8214
8215 067262  013701  071660                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8216 067266  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8217 067270  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8218 067274  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8219 067276  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
8220 067300  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8224 067304                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     067304  104456                                                                  TRAP    C$ERHRD
     067306  001320                                                                  .WORD   720
     067310  074212                                                                  .WORD   T26LOP
     067312  015564                                                                  .WORD   EXPREC
8225 067314                          180$:   CKLOOP
     067314  104406                                                                  TRAP    C$CLP1
8226 067316  013701  071656                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8227 067322  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8228 067326  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8229 067330  001405                          BEQ     190$                    ;BR, IF CORRECT
8233 067334                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     067334  104456                                                                  TRAP    C$ERHRD
     067336  001320                                                                  .WORD   720
     067340  074274                                                                  .WORD   T26PBP
     067342  015564                                                                  .WORD   EXPREC
8234 067344                          190$:   CKLOOP                          ;LOOP IF SELECTED
     067344  104406                                                                  TRAP    C$CLP1
8235 067346  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
8236 067352  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
8237
```

TEST 6: REREADS

```
8238                                    ;*****************************************************************
8239                                    ;
8240                                    ;REREAD NEXT,ACK,CVC=1,OPP=0
8241                                    ;
8242                                    ;*****************************************************************
8243
8244 067360  012737  141401  071750            MOV     #141401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=0
8245 067366  012704  071750                    MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8246 067372  010337  071756                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8247 067376  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8248 067402  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8249 067406  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8250 067412  012702  100204                    MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8251 067416  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
8252 067420  001406                            BEQ     270$                    ;BR, IF OK
8253 067422  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8257 067426                                    ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     067426  104456                                                                    TRAP    C$ERHRD
     067430  001321                                                                    .WORD   721
     067432  074362                                                                    .WORD   T26TRL
     067434  012136                                                                    .WORD   PKTSSR
8258 067436                            270$:   CKLOOP                          ;LOOP IF SELECTED
     067436  104406                                                                    TRAP    C$CLP1
8259
8260                                    ;*****************************************************************
8261                                    ;
8262                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8263                                    ;
8264                                    ;*****************************************************************
8265
8266 067440  013701  071660                    MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8267 067444  010102                            MOV     R1,R2                   ;SET UP EXPECTED
8268 067446  052702  040000                    BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8269 067452  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
8270 067454  001406                            BEQ     280$                    ;BR, IF EQUAL (ALL IS WELL)
8271 067456  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8275 067462                                    ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     067462  104456                                                                    TRAP    C$ERHRD
     067464  001322                                                                    .WORD   722
     067466  074212                                                                    .WORD   T26LOP
     067470  015564                                                                    .WORD   EXPREC
8276 067472                            280$:   CKLOOP
     067472  104406                                                                    TRAP    C$CLP1
8277 067474  013701  071656                    MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8278 067500  012702  000400                    MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8279 067504  020102                            CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8280 067506  001405                            BEQ     290$                    ;BR, IF CORRECT
8284 067512                                    ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     067512  104456                                                                    TRAP    C$ERHRD
     067514  001322                                                                    .WORD   722
     067516  074274                                                                    .WORD   T26PBP
     067520  015564                                                                    .WORD   EXPREC
8285 067522                            290$:   CKLOOP                          ;LOOP IF SELECTED
     067522  104406                                                                    TRAP    C$CLP1
8286 067524                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     067524                                                                         L10116:
     067524  104403                                                                    TRAP    C$ESUB
```

TEST 6: REREADS

```
8287 067526  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
8288 067534  103402                          BLO     999$                    ;BR, IF LESS THAN 25
8289 067536  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
8290 067542                          999$:
```

TEST 6: REREADS

```
8292                                    ;*
8293                                    ;
8294                                    ;TEST 6, SUBTEST 13
8295                                    ;
8296                                    ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
8297                                    ;NONEXISTENT MEMORY CAUSES RECOVERABLE ERROR
8298                                    ;TERMINATION (TC=4 OR 5) WITH NXM=1 AND THAT THE TAPE
8299                                    ;IS ULTIMATELY POSITIONED PROPERLY. ALL COMBINATIONS
8300                                    ;OF REREAD PREVIOUS/NEXT AND OPP=0/1 ARE TESTED.
8301                                    ;       ************************************************************************
8302                                    ;                                CAUTION
8303                                    ;
8304                                    ;               The LSI BUS drivers for all available address lines(16 21)
8305                                    ;       are only checked when running on a 11/238 system with more than
8306                                    ;       128K words of memory!
8307                                    ;       ************************************************************************
8308                                    ;-
8309
8310 067542                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      067542                                                                                    T6.13:
      067542  104402                                                                                    TRAP    C$BSUB
8311 067544  005737  003126                    TST     NXMFLG                  ;DO WE HAVE IT?
8312 067550  001002                            BNE     10$                     ;BR, IF  ENOUGH
8313 067552  000137  070534                    JMP     200$                    ;SKIP THIS TEST IF NOT
8314 067556  004737  074540            10$:    JSR     PC,T26REST              ;SET COMMAND PACKET
8315 067562  005037  071776                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
8316 067566  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8317 067572  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8318
8319                                    ;************************************************************************
8320                                    ;
8321                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8322                                    ;
8323                                    ;************************************************************************
8324
8325 067576  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8326 067602  103407                            BCS     20$                     ;BR IF INIT WAS OK
8327 067604  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8331 067610  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8332 067612                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      067612  104455                                                                           TRAP    C$ERDF
      067614  001323                                                                          .WORD   723
      067616  003650                                                                          .WORD   SFIERR
      067620  012124                                                                          .WORD   SFIMSG
8333 067622  013737  002172  071650    20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
8334
8335 067630  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8336
8337                                    ;************************************************************************
8338                                    ;
8339                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8340                                    ;
8341                                    ;************************************************************************
8342
8343 067634  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8344 067640  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
8345 067642  005237  002212                    INC     FATFLG                  ;BUMP COUNT
```

SEQ 0280

TEST 6: REREADS

```
8349 067646  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8350 067650                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     067650  104456                                                            TRAP    C$ERHRD
     067652  001324                                                            .WORD   724
     067654  005054                                                            .WORD   WRTMSG
     067656  012124                                                            .WORD   SFIMSG
8351 067660                    26$:    CKLOOP                          ;LOOP IF SELECTED
     067660  104406                                                            TRAP    C$CLP1
8352
8353                           ;*****************************************************************
8354                           ;
8355                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8356                           ;
8357                           ;*****************************************************************
8358
8359 067662  004737  021276            JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
8360 067666  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8361 067672  103411                    BCS     30$                     ;BR, IF NO PROBLEM
8362 067674  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
8363 067700  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
8364 067702  005237  002212            INC     FATFLG                  ;BUMP COUNT
8368 067706                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     067706  104456                                                            TRAP    C$ERHRD
     067710  001325                                                            .WORD   725
     067712  073304                                                            .WORD   T26RWN
     067714  012136                                                            .WORD   PKTSSR
8369 067716                    30$:    CKLOOP                          ;LOOP IF SELECTED
     067716  104406                                                            TRAP    C$CLP1
8370
8371                           ;*****************************************************************
8372                           ;
8373                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8374                           ;
8375                           ;*****************************************************************
8376
8377 067720  013701  071660            MOV     T26BFR+6,R1             ;PICK UP XSTO
8378 067724  010102                    MOV     R1,R2                   ;SET UP EXPECTED
8379 067726  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8380 067732  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
8381 067734  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
8382 067736  005237  002212            INC     FATFLG                  ;BUMP COUNT
8386 067742                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     067742  104456                                                            TRAP    C$ERHRD
     067744  001326                                                            .WORD   726
     067746  073015                                                            .WORD   T26BOT
     067750  015564                                                            .WORD   EXPREC
8387 067752                    40$:    CKLOOP                          ;LOOP IF SELECTED
     067752  104406                                                            TRAP    C$CLP1
8388 067754  013737  003114  071752    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8389
8390                           ;*****************************************************************
8391                           ;
8392                           ;WRITE DATA,CVC=1,ACK COMMAND
8393                           ;
8394                           ;*****************************************************************
8395
8396 067762  012737  140005  071750    MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
```

TEST 6: REREADS

```
8397 067770  012704  071750                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8398 067774  012737  000400  071756  65$:   MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8399 070002  013777  071776  113104        MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
8400 070010  062737  000001  071776        ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
8401 070016  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8402 070022  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8403 070026  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8404 070032  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
8405 070036  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
8406 070040  001406                        BEQ     75$                     ;BR, IF OK
8407 070042  005237  002212                INC     FATFLG                  ;BUMP COUNT
8411 070046                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     070046  104456                                                                TRAP    C$ERHRD
     070050  001327                                                                .WORD   727
     070052  005111                                                                .WORD   WRTERR
     070054  012136                                                                .WORD   PKTSSR
8412 070056                        75$:    CKLOOP                          ;LOOP IF SELECTED
     070056  104406                                                                TRAP    C$CLP1
8413 070060  022737  000013  071776        CMP     #11.,T26CNT             ;CHECK NUMBER OF RECORDS WRITTEN
8414 070066  001401                        BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
8415 070070  000741                        BR      65$                     ;WRITE MORE RECORDS
8416 070072                        120$:
8417 070072  005037  071776                CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
8418
8419                               ;*****************************************************************
8420                               ;
8421                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8422                               ;
8423                               ;*****************************************************************
8424
8425 070076  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8426 070102  103411                        BCS     130$                    ;BR, IF NO PROBLEM
8427 070104  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
8428 070110  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
8429 070112  005237  002212                INC     FATFLG                  ;BUMP COUNT
8433 070116                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     070116  104456                                                                TRAP    C$ERHRD
     070120  001330                                                                .WORD   728
     070122  073304                                                                .WORD   T26RWN
     070124  012136                                                                .WORD   PKTSSR
8434 070126                        130$:   CKLOOP                          ;LOOP IF SELECTED
     070126  104406                                                                TRAP    C$CLP1
8435
8436                               ;*****************************************************************
8437                               ;
8438                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8439                               ;
8440                               ;*****************************************************************
8441
8442 070130  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XST0
8443 070134  010102                        MOV     R1,R2                   ;SET UP EXPECTED
8444 070136  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8445 070142  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
8446 070144  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
8447 070146  005237  002212                INC     FATFLG                  ;BUMP COUNT
8451 070152                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     070152  104456                                                                TRAP    C$ERHRD
```

TEST 6: REREADS

```
        070154  001331                                                          .WORD   729
        070156  073015                                                          .WORD   T26BOT
        070160  015564                                                          .WORD   EXPREC
 8452   070162                          140$:   CKLOOP                          ;LOOP IF SELECTED
        070162  104406                                                          TRAP    C$CLP1
 8453   070164  012703  071766                  MOV     #T26RN,R3               ;COMMAND BUFFER ADDRESS
 8454   070170  013737  003130  071752  150$:   MOV     NXMLO,T26RB             ;STARTING READ BUFFER ADDRESS
 8455   070176  013737  003132  071754          MOV     NXMHI,T26RB+2           ;SET UP HIGH ORDER ADDRESS BITS
 8456
 8457                          ;*****************************************************************
 8458                          ;
 8459                          ;REREAD DATA,IE,ACK, OPP COMMAND
 8460                          ;
 8461                          ;*****************************************************************
 8462
 8463   070204  011337  071750          MOV     (R3),T26PK3             ;REREAD DATA,IE,ACK, OPP COMMAND
 8464   070210  012704  071750  165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 8465   070214  012737  000400  071756          MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
 8466   070222  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 8467   070226  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 8468   070232  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8469   070236  012702  104210                  MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
 8470   070242  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 8471   070244  001414                          BEQ     170$                    ;BR, IF OK
 8472   070246  031327  001000                  BIT     (R3),#BIT9              ;CHECK FOR A READ COMMAND
 8473   070252  001403                          BEQ     168$                    ;BR, IF IT WAS A READ COMMAND
 8474   070254  030127  000002                  BIT     R1,#BIT1                ;WAS BIT1 SET
 8475   070260  001006                          BNE     170$                    ;BR, IF REREAD AND BIT1 SET
 8476   070262                          168$:
 8477   070262  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 8481   070266                                  ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
        070266  104456                                                          TRAP    C$ERHRD
        070270  001332                                                          .WORD   730
        070272  072225                                                          .WORD   T26RRF
        070274  012136                                                          .WORD   PKTSSR
 8482   070276                          170$:   CKLOOP                          ;LOOP IF SELECTED
        070276  104406                                                          TRAP    C$CLP1
 8483
 8484                          ;*****************************************************************
 8485                          ;
 8486                          ;READ DATA, ACK,CVC=1 COMMAND
 8487                          ;
 8488                          ;*****************************************************************
 8489
 8490   070300  012737  140001  071750          MOV     #140001,T26PK3          ;READ DATA, ACK,CVC=1 COMMAND
 8491   070306  012737  000400  071756          MOV     #256.,T26SZ             ;SET SIZE INTO PACKET
 8492   070314  005037  071754                  CLR     T26RB+2                 ;CLEAR OUT HIGH ADDRESS BITS
 8493   070320  013737  003114  071752          MOV     FREE,T26RB              ;GIVE READ A GOOD BUFFER
 8494   070326  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
 8495   070332  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR
 8496   070336  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP THE TSSR
 8497   070342  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 8498   070346  020102                          CMP     R1,R2                   ;IS THE TSSR OK
 8499   070350  001406                          BEQ     180$                    ;BR, IF TSSR OK (GOOD)
 8500   070352  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 8504   070356                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
        070356  104456                                                          TRAP    C$ERHRD
```

TEST 6: REREADS

```
                070360  001333                                                          .WORD   731
                070362  005204                                                          .WORD   RDERR
                070364  012136                                                          .WORD   PKTSSR
8505            070366                  180$:   CKLOOP                  ;LOOP IF SELECTED
                070366  104406                                                          TRAP    C$CLP1
8506            070370  017701  112520          MOV     @FREE,R1        ;FIRST WORD FROM READ BUFFER
8507            070374  012702  000001          MOV     #1,R2           ;SET UP EXPECTED
8508            070400  020102                  CMP     R1,R2           ;IS TAPE POSITION CORRECT
8509            070402  001406                  BEQ     190$            ;KEEP GOING POSITION OK
8510            070404  005237  002212          INC     FATFLG          ;BUMP COUNT
8514            070410                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
                070410  104456                                                          TRAP    C$ERHRD
                070412  001334                                                          .WORD   732
                070414  072006                                                          .WORD   T26WNG
                070416  015564                                                          .WORD   EXPREC
8515            070420                  190$:   CKLOOP
                070420  104406                                                          TRAP    C$CLP1
8516
8517                                    ;*****************************************************************
8518                                    ;
8519                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8520                                    ;
8521                                    ;*****************************************************************
8522
8523            070422  004737  011104          JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
8524            070426  103411                  BCS     194$            ;BR, IF NO PROBLEM
8525            070430  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR
8526            070434  010004                  MOV     R0,R4           ;PACKET ADDRESS SET UP
8527            070436  005237  002212          INC     FATFLG          ;BUMP COUNT
8531            070442                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                070442  104456                                                          TRAP    C$ERHRD
                070444  001335                                                          .WORD   733
                070446  073304                                                          .WORD   T26RWN
                070450  012136                                                          .WORD   PKTSSR
8532            070452                  194$:   CKLOOP                  ;LOOP IF SELECTED
                070452  104406                                                          TRAP    C$CLP1
8533
8534                                    ;*****************************************************************
8535                                    ;
8536                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8537                                    ;
8538                                    ;*****************************************************************
8539
8540            070454  013701  071660          MOV     T26BFR+6,R1     ;PICK UP XSTO
8541            070460  010102                  MOV     R1,R2           ;SET UP EXPECTED
8542            070462  052702  000002          BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
8543            070466  020102                  CMP     R1,R2           ;DOES EXP = REC'D
8544            070470  001406                  BEQ     196$            ;BR, IF EQUAL (OK)
8545            070472  005237  002212          INC     FATFLG          ;BUMP COUNT
8549            070476                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                070476  104456                                                          TRAP    C$ERHRD
                070500  001336                                                          .WORD   734
                070502  073015                                                          .WORD   T26BOT
                070504  015564                                                          .WORD   EXPREC
8550            070506                  196$:   CKLOOP                  ;LOOP IF SELECTED
                070506  104406                                                          TRAP    C$CLP1
8551            070510  010302                  MOV     R3,R2                   ;SAVE R3 FOR A MOMENT
```

TEST 6: REREADS

```
8552
8553                                    ;*****************************************************************
8554                                    ;
8555                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
8556                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
8557                                    ;
8558                                    ;*****************************************************************
8559
8560 070512  012703  000001                    MOV     #1,R3                   ;SPACE ONE RECORD
8561 070516  004737  010556                    JSR     PC,SPACE                        ;CALL SPACE ROUTINE
8562 070522  010203                            MOV     R2,R3                           ;RESTORE R3
8563 070524  005723                            TST     (R3)+                   ;BUMP COUNTER
8564 070526  021327  177777                    CMP     (R3),#177777            ;END OF COMMAND BUFFER YET
8565 070532  001216                            BNE     150$                    ;MORE COMMANDS KEEP GOING
8566 070534                             200$:
8567 070534                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     070534                                                                            L10117:
     070534  104403                                                                              TRAP    C$ESJB
8568 070536  023727  002212  000017                    CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
8569 070544  103402                                    BLO     999$                            ;BR. IF LESS THAN 25
8570 070546  004737  017272                            JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
8571 070552                             999$:
```

TEST 6: REREADS

```
8573                                    ;*
8574                                    ;
8575                                    ;TEST 6, SUBTEST 14
8576                                    ;
8577                                    ;VERIFIES THAT REREAD PREVIOUS WITH OPP=0 (SPACE
8578                                    ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP-1
8579                                    ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
8580                                    ;POSITIONED AT BOT CAUSE FUNCTION REJECT TERMINATION
8581                                    ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
8582                                    ;
8583                                    ;
8584                                    ;
8585                                    ;-
8586 070552                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      070552                                                                                T6.14:
      070552  104402                                                                          TRAP    C$BSUB
8587 070554  005003                             CLR     R3                      ;CLEAR TEST COUNTER
8588 070556  004737  074540                     JSR     PC,T26REST              ;SET COMMAND PACKET
8589 070562  004737  074632                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8590 070566  004737  074674                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8591
8592                                    ;*************************************************************************
8593                                    ;
8594                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8595                                    ;
8596                                    ;*************************************************************************
8597
8598 070572  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8599 070576  103407                             BCS     20$                     ;BR IF INIT WAS OK
8600 070600  005237  002212                     INC     FATFLG                  ;BUMP COUNT
8604 070604  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8605 070606                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      070606  104455                                                                         TRAP    C$ERDF
      070610  001337                                                                         .WORD   735
      070612  003650                                                                         .WORD   SFIERR
      070614  012124                                                                         .WORD   SFIMSG
8606 070616  013737  002172  071650  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
8607
8608 070624  012704  071630                     MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8609
8610                                    ;*************************************************************************
8611                                    ;
8612                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8613                                    ;
8614                                    ;*************************************************************************
8615
8616 070630  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8617 070634  103407                             BCS     25$                     ;BR, IF COMMAND ISSUED OK
8618 070636  005237  002212                     INC     FATFLG                  ;BUMP COUNT
8622 070642  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8623 070644                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      070644  104456                                                                         TRAP    C$ERHRD
      070646  001340                                                                         .WORD   736
      070650  005054                                                                         .WORD   WRTMSG
      070652  012124                                                                         .WORD   SFIMSG
8624 070654                             25$:    CKLOOP                          ;LOOP IF SELECTED
      070654  104406                                                                         TRAP    C$CLP1
```

```
8625
8626                                    ;*****************************************************************
8627                                    ;
8628                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8629                                    ;
8630                                    ;*****************************************************************
8631
8632 070656  004737  011104            26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8633 070662  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
8634 070666  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8635 070672  103407                            BCS     30$                     ;BR, IF NO PROBLEM
8636 070674  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
8637 070676  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8641 070702                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     070702  104456                                                                    TRAP    C$ERHRD
     070704  001341                                                                    .WORD   737
     070706  073304                                                                    .WORD   T26RWN
     070710  012136                                                                    .WORD   PKTSSR
8642 070712                            30$:    CKLOOP                          ;LOOP IF SELECTED
     070712  104406                                                                    TRAP    C$CLP1
8643
8644                                    ;*****************************************************************
8645                                    ;
8646                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8647                                    ;
8648                                    ;*****************************************************************
8649
8650 070714  013701  071660                    MOV     T26BFR+6,R1             ;PICK UP XST0
8651 070720  010102                            MOV     R1,R2                   ;SET UP EXPECTED
8652 070722  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8653 070726  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
8654 070730  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
8655 070732  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8659 070736                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     070736  104456                                                                    TRAP    C$ERHRD
     070740  001342                                                                    .WORD   738
     070742  073015                                                                    .WORD   T26BOT
     070744  015564                                                                    .WORD   EXPREC
8660 070746                            40$:    CKLOOP                          ;LOOP IF SELECTED
     070746  104406                                                                    TRAP    C$CLP1
8661 070750  012737  000400  071756            MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8662 070756  013737  003114  071752            MOV     FREE,T26RB              ;ADDRESS OF READ BUFFER
8663 070764  005703                            TST     R3                      ;CHECK NUMBER OF TIMES THROUGH HERE
8664 070766  001404                            BEQ     50$                     ;BR, IF FIRST TIME THROUGH HERE
8665
8666                                    ;*****************************************************************
8667                                    ;
8668                                    ;REREAD,CVC=1,ACK COMMAND
8669                                    ;
8670                                    ;*****************************************************************
8671
8672 070770  012737  161001  071750            MOV     #161001,T26PK3          ;REREAD,CVC=1,ACK COMMAND
8673 070776  000403                            BR      55$                     ;SKIP NEXT COMMAND
8674
8675                                    ;*****************************************************************
8676                                    ;
8677                                    ;REREAD,ACK COMMAND
```

TEST 6: REREADS

```
8678                                        ;
8679                                        ;*************************************************************
8680
8681 071000  012737  141001  071750  50$:    MOV     #141001,T26PK3          ;REREAD,ACK COMMAND
8682 071006                                 55$:
8683 071006  012704  071750                 MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8684 071012                                 65$:
8685 071012  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8686 071016  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8687 071022  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8688 071026  012702  100206                 MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
8689 071032  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
8690 071034  001406                         BEQ     75$                     ;BR, IF OK
8691 071036  005237  002212                 INC     FATFLG                  ;BUMP COUNT
8695 071042                                 ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     071042  104456                                                                 TRAP    C$ERHRD
     071044  001343                                                                 .WORD   739
     071046  072743                                                                 .WORD   T26WDE
     071050  012136                                                                 .WORD   PKTSSR
8696 071052                                 75$:    CKLOOP                  ;LOOP IF SELECTED
     071052  104406                                                                 TRAP    C$CLP1
8697
8698                                        ;*************************************************************
8699                                        ;
8700                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8701                                        ;
8702                                        ;*************************************************************
8703
8704 071054  013701  071660                 MOV     T26BFR+6,R1             ;GET XST0 STATUS WORD
8705 071060  010102                         MOV     R1,R2                   ;SET UP EXPECTED
8706 071062  052702  002000                 BIS     #BIT10,R2               ;SET THE NEF BIT
8707 071066  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
8708 071070  001406                         BEQ     170$                    ;BR, IF EQUAL (GOOD)
8709 071072  005237  002212                 INC     FATFLG                  ;BUMP COUNT
8713 071076                                 ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
     071076  104456                                                                 TRAP    C$ERHRD
     071100  001344                                                                 .WORD   740
     071102  072074                                                                 .WORD   T26NEF
     071104  015564                                                                 .WORD   EXPREC
8714 071106                                 170$:   CKLOOP
     071106  104406                                                                 TRAP    C$CLP1
8715 071110  005103                         COM     R3                      ;RESET THE SWITCH
8716 071112  001261                         BNE     26$                     ;BR, IF FIRST TIME THROUGH HERE
8717 071114                                 ENDSUB
     071114                                                                     L10120:
     071114  104403                                                                 TRAP    C$ESUB
8718 071116  023727  002212  000017                 CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
8719 071124  103402                         BLO     999$                    ;BR, IF LESS THAN 25
8720 071126  004737  017272                 JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
8721 071132                                 999$:
```

TEST 6: REREADS

```
8723                                    ;*
8724                                    ;
8725                                    ;TEST 6, SUBTEST 15
8726                                    ;
8727                                    ;VERIFIES THAT REREAD PREVIOUS WITH OPP=1 (SPACE
8728                                    ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
8729                                    ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
8730                                    ;POSITIONED JUST BEFORE THE FIRST RECORD ON TAPE (BUT
8731                                    ;NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION WITH
8732                                    ;THE REVERSE INTO BOT (RIB) STATUS BIT SET.
8733                                    ;
8734                                    ;
8735                                    ;
8736                                    ;-
8737 071132                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      071132                                                                                    T6.15:
      071132  104402                                                                                      TRAP    C$BSUB
8738 071134  005037  072000                    CLR     T26CNU                  ;CLEAR OUT COUNTER
8739 071140  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
8740 071144  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8741 071150  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8742                                    ;*****************************************************************
8743                                    ;
8744                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8745                                    ;
8746                                    ;*****************************************************************
8747
8748
8749 071154  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8750 071160  103407                            BCS     20$                     ;BR IF INIT WAS OK
8751 071162  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8755 071166  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8756 071170                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      071170  104455                                                                            TRAP    C$ERDF
      071172  001345                                                                           .WORD   741
      071174  003650                                                                           .WORD   SFIERR
      071176  012124                                                                           .WORD   SFIMSG
8757 071200  013737  002172  071650  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
8758
8759 071206  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8760
8761                                    ;*****************************************************************
8762                                    ;
8763                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8764                                    ;
8765                                    ;*****************************************************************
8766
8767 071212  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8768 071216  103407                            BCS     25$                     ;BR. IF COMMAND ISSUED OK
8769 071220  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8773 071224  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8774 071226                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      071226  104456                                                                            TRAP    C$ERHRD
      071230  001346                                                                           .WORD   742
      071232  005054                                                                           .WORD   WRTMSG
      071234  012124                                                                           .WORD   SFIMSG
8775 071236                            25$:     CKLOOP                          ;LOOP IF SELECTED
```

TEST 6: REREADS

```
      071236  104406                                                                  TRAP    C$CLP1
8776
8777                          ;*************************************************************************
8778                          ;
8779                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8780                          ;
8781                          ;*************************************************************************
8782
8783 071240  004737  011104  26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8784 071244  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
8785 071250  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8786 071254  103407                  BCS     30$                     ;BR. IF NO PROBLEM
8787 071256  010004                  MOV     R0,R4                   ;PACKET ADDRESS SFT UP
8788 071260  005237  002212          INC     FATFLG                  ;BUMP COUNT
8792 071264                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      071264  104456                                                                  TRAP    C$ERHRD
      071266  001347                                                                  .WORD   743
      071270  073304                                                                  .WORD   T26RWN
      071272  012136                                                                  .WORD   PKTSSR
8793 071274  30$:    CKLOOP                  ;LOOP IF SELECTED
      071274  104406                                                                  TRAP    C$CLP1
8794
8795                          ;*************************************************************************
8796                          ;
8797                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8798                          ;
8799                          ;*************************************************************************
8800
8801 071276  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XST0
8802 071302  010102                  MOV     R1,R2                   ;SET UP EXPECTED
8803 071304  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8804 071310  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
8805 071312  001406                  BEQ     40$                     ;BR. IF EQUAL (OK)
8806 071314  005237  002212          INC     FATFLG                  ;BUMP COUNT
8810 071320                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      071320  104456                                                                  TRAP    C$ERHRD
      071322  001350                                                                  .WORD   744
      071324  073015                                                                  .WORD   T26BOT
      071326  015564                                                                  .WORD   EXPREC
8811 071330  40$:    CKLOOP
      071330  104406                                                                  TRAP    C$CLP1
8812
8813                          ;*************************************************************************
8814                          ;
8815                          ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
8816                          ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
8817                          ;
8818                          ;*************************************************************************
8819
8820 071332  012703  000001          MOV     #000001,R3              ;SET UP SPACE FORWARD 1 RECORD
8821 071336  004737  010556          JSR     PC,SPACE                ;ISSUE SPACE COMMAND
8822 071342  103411                  BCS     75$                     ;BR. IF OK
8823 071344  016501  000002          MOV     TSSR(R5),R1             ;GET STATUS DATA
8824 071350  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
8825 071352  005237  002212          INC     FATFLG                  ;BUMP COUNT
8829 071356                          ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      071356  104456                                                                  TRAP    C$ERHRD
```

TEST 6: REREADS

```
        071360  001351                                                          .WORD   745
        071362  072743                                                          .WORD   T26WDE
        071364  012136                                                          .WORD   PKTSSR
 8830   071366                          75$:    CKLOOP                          ;LOOP IF SELECTED
        071366  104406                                                          TRAP    C$CLP1
 8831
 8832                                   ;*****************************************************************
 8833                                   ;
 8834                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 8835                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 8836                                   ;
 8837                                   ;*****************************************************************
 8838
 8839   071370  012703  100001                 MOV     #10000!,R3              ;SET SPACE REVERSE 1 RECORD
 8840   071374  004737  010556                 JSR     PC,SPACE                ;ISSUE COMMAND
 8841   071400  103411                          BCS     175$                    ;GO ON IF ALL IS WELL
 8842   071402  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8843   071406  010004                          MOV     R0,R4                   ;SET UP EXPECTED (PACKET CONTENTS)
 8844   071410  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 8848   071414                                 ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        071414  104456                                                          TRAP    C$ERHRD
        071416  001352                                                          .WORD   746
        071420  072743                                                          .WORD   T26WDE
        071422  012136                                                          .WORD   PKTSSR
 8849   071424                          175$:   CKLOOP                          ;LOOP IF SELECTED
        071424  104406                                                          TRAP    C$CLP1
 8850   071426  013737  003114  071752          MOV     FREE,T26RB              ;ADDRESS OF BUFFER
 8851   071434  005737  072000                 TST     T26CNU                  ;CHECK FOR TIMES THROUGH HERE
 8852   071440  001404                          BEQ     176$                    ;BR, IF FIRST TIME THROUGH
 8853
 8854                                   ;*****************************************************************
 8855                                   ;
 8856                                   ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
 8857                                   ;
 8858                                   ;*****************************************************************
 8859
 8860   071442  012737  161001  071750          MOV     #161001,T26PK3          ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
 8861   071450  000403                          BR      178$                    ;SKIP NEXT COMMAND
 8862
 8863                                   ;*****************************************************************
 8864                                   ;
 8865                                   ;REREAD ,ACK,OPP=1 COMMAND
 8866                                   ;
 8867                                   ;*****************************************************************
 8868
 8869   071452  012737  141001  071750  176$:   MOV     #141001,T26PK3          ;REREAD ,ACK,OPP=1 COMMAND
 8870   071460                          178$:
 8871   071460  012704  071750                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 8872   071464  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 8873   071470  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 8874   071474  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8875   071500  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 8876   071504  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 8877   071506  001406                          BEQ     180$                    ;BR, IF OK
 8878   071510  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 8882   071514                                 ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        071514  104456                                                          TRAP    C$ERHRD
```

TEST 6: REREADS

```
      071516  001353                                                          .WORD   747
      071520  072743                                                          .WORD   T26WDE
      071522  012136                                                          .WORD   PKTSSR
 8883 071524                          180$:   CKLOOP                         ;LOOP IF SELECTED
      071524  104406                                                          TRAP    C$CLP1
 8884 071526  013701  071666                  MOV     T26BFR+14,R1           ;GET XST3 STATUS WORD
 8885 071532  010102                          MOV     R1,R2                  ;SET UP EXPECTED
 8886 071534  052702  000001                  BIS     #BIT0,R2               ;SET THE NEF BIT
 8887 071540  020102                          CMP     R1,R2                  ;ARE THEY EQUAL
 8888 071542  001406                          BEQ     190$                   ;BR. IF EQUAL (GOOD)
 8889 071544  005237  002212                  INC     FATFLG                 ;BUMP COUNT
 8893 071550                                  ERRHRD  ERRNO.T26NEF.EXPREC    ;NEF SHOULD BE SET
      071550  104456                                                          TRAP    C$ERHRD
      071552  001354                                                          .WORD   748
      071554  072074                                                          .WORD   T26NEF
      071556  015564                                                          .WORD   EXPREC
 8894 071560                          190$:   CKLOOP
      071560  104406                                                          TRAP    C$CLP1
 8895 071562  005137  072000                  COM     T26CNU                 ;SET SWITCH THE OTHER WAY
 8896 071566  001224                          BNE     26$                    ;BR. IF FIRST TIME THROUGH
 8897 071570                                  ENDSUB                         ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      071570                                                                          L10121:
      071570  104403                                                          TRAP    C$ESUB
 8898 071572  023727  002212  000017          CMP     FATFLG,#15.                    ;IS ERROR COUNT AT 25
 8899 071600  103402                          BLO     999$                           ;BR. IF LESS THAN 25
 8900 071602  004737  017272                  JSR     PC,CKDROP                      ;TRY TO DROP THE UNIT
 8901 071606                          999$:
 8902                                 ;
 8903                                 ;
 8904                                 ;
 8905 071606  004737  016546                  JSR     PC,TSTLOOP             ;DO WE NEED TO ITERATE TEST
 8906 071612  103002                          BCC     163$                   ;BR. IF NO LOOP REQUIRED
 8907 071614  000137  055444                  JMP     T26LOOP                ;EXECUTE AGAIN
 8908 071620                          163$:
 8909 071620                                  EXIT    TST                    ;ALL DONE THIS TEST
      071620  104432                                                          TRAP    C$EXIT
      071622  003102                                                          .WORD   L10102-.
```

```
8911
8912
8913
8915                    071630
8917 071630
8913 071630  014004
8919 071632  071640
8920 071634  000000
8921 071636  000012
8922 071640
8923 071640  071652
8924 071642  000000
8925 071644  000024
8926 071646  000000
8927 071650  000000
8928 071652
8929
8930
8931
8933                    071740
8935 071740
8936 071740  100006
8937 071742  071760
8938 071744  000000
8939 071746  000006
8940
8944 071750
8945 071750  140005
8946 071752
8947 071752  003114
8948 071754  000000
8949 071756  000000
8950
8951
8952
8953
8954 071760
8955 071760      010
8956 071761      200
8957 071762  000000
8958 071764  000000
8959
8960
8961
8962
8963
8964 071766  140001
8965 071770  141401
8966 071772  161401
8967 071774  177777
8968
8969
8970 071776  000000
8971 072000  000000
8972
8973 072002  000000
8974
```

```
;*
;LOCAL STORAGE FOR THIS TEST
;-
        .=<.+10>&177770
T26PACKET:
        .WORD   14004           ;COMMAND PACKET FOR TEST
        .WORD   T26DATA         ;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
        .WORD   0               ;ADDRESS OF CHARACTERISTICS BLOCK
        .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
T26DATA:                        ;CHARACTERISTICS DATA BLOCK
        .WORD   T26BFR          ;ADDRESS OF MESSAGE BUFFER
        .WORD   0
        .WORD   20.             ;LENGTH OF MESSAGE BUFFER
        .WORD   0
T26DSW: .WORD   0               ;SELECT DRIVE 0
T26BFR: .BLKW   25.             ;MESSAGE BUFFER
;
;WRITE SUBSYSTEM MEMORY COMMAND PACKET
;
        .=<.+10>&177770
T26PK2:
        .WORD   100006          ;WRITE SUB SYS MEM COMMAND, AND ACK
        .WORD   T26BF2          ;ADDRESS OF SELECT BLOCK DATA
        .WORD   0
        .WORD   6.              ;SIZE OF DATA PACKET

T26PK3:
        .WORD   140005          ;REREAD COMMAND, CVC=1 AND ACK
T26RB:
T26WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
        .WORD   0
T26SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
        .EVEN
;
;
;
T26BF2:
T26BS0: .BYTE   10              ;BSEL0 AREA
T26BS1: .BYTE   200             ;BSEL1 AREA
T26S2:  .WORD   0               ;SEL 2 AREA
T26S3:  .WORD   0               ;DATA AREA
;
;
        .EVEN
;TAPE MOTION PACKET COMMAND VALUES

T26RN:  .WORD   140001          ;READ DATA
        .WORD   141401          ;REREAD NEXT OPP=0
        .WORD   161401          ;REREAD NEXT OPP=1
        .WORD   177777          ;END OF DATA

;
T26CNT: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA
T26CNU: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA

T26RSZ: .WORD   0               ;RECORD STORAGE SIZE  AREA
```

TEST 6: REREADS

```
8975 072004  000000          T26DLY: .WORD   0          ;DELAY COUNTER AREA
8976
```

TEST 6: REREADS

```
8978
8979                                    ;+
8980                                    ;LOCAL TEXT MESSAGES FOR TEST
8981                                    ;-
8982
8983
8984 072006      124     141     160    T26WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
8985 072074      122     105     122    T26NEF: .ASCIZ  'REREAD PREVIOUS, At BOT, Failed To Set NEF (XSTO)'
8986 072156      124     123     123    T26RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
8987 072225      122     105     122    T26RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed
8988 072322      122     105     122    T26RRG: .ASCIZ  'REREAD Previous (Read Reverse, Space Forward) Command Failed
8989 072417      120     117     123    T26SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct
8990 072501      122     111     102    T26LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
8991 072551      124     123     123    T26WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
8992 072626      111     154     154    T26LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
8993 072707      122     105     122    T26SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
8994 072743      124     123     123    T26WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
8995 073015      124     141     160    T26BOT: .ASCIZ  'Tape Not At BOT After REWIND Command
8996 073062      104     141     164    T26DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape
8997 073150      122     105     122    T26EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT
8998 073227      124     123     123    T26TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
8999 073304      122     145     167    T26RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
9000 073353      122     101     115    T26RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
9001 073426      124     123     123    T26AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
9002 073475      104     162     151    T26OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
9003 073550      124     123     123    T26WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
9004 073640      124     123     123    T26WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
9005 073713      103     126     103    T26VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
9006 073766      124     123     102    T26BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
9007 074041      127     122     111    T26WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
9008 074130      122     145     141    T26LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
9009 074212      122     145     141    T26LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
9010 074274      122     145     163    T26PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
9011 074362      122     145     141    T26TRL: .ASCIZ  'Reading Long Record  Failed To G've Tape Status Alert
9012 074450      104     141     164    T26NEQ: .ASCIZ  'Data REREAD From Tape Not Correct, After SWB=1'
9013 074527      122     145     162    TST26ID:        .ASCIZ  'Rereads'
9014                                            .EVEN
9015                                    ;+
9016                                    ;
9017                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START UP (DEFAULT) VALUES
9018                                    ;WRITE SUBSYSTEM MEMORY COMMAND
9019                                    ;
9020                                    ;
9021
9022 074540                              T26REST:
9023 074540                                      SAVREG                          ;SAVE THE REGISTERS
9024 074544  012701  071630                       MOV     #T26PACKET,R1           ;START OF THE PACKET
9025 074550  012721  140004                       MOV     #140004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, CVC=1
9026 074554  012721  071640                       MOV     #T26DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
9027 074560  005021                               CLR     (R1)+                   ;EXTENDED ADDRESS
9028 074562  012721  000012                       MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
9029 074566  012721  071652                       MOV     #T26BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
9030 074572  005021                               CLR     (R1)+
9031 074574  012721  000024                       MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
9032 074600  005021                               CLR     (R1)+
9033 074602  012711  000000                       MOV     #0,(R1)                 ;SELECT DRIVE ZERO (0)
9034 074606  012702  000030                       MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
```

TEST 6: REREADS

```
 9035 074612  012762  177777  071652  64$:    MOV     #177777,T26BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
 9036 074620  005742                          TST     (R2)                    ;NEXT LOCATION
 9037 074622  020227  000000                  CMP     R2,#0                   ;CHECK FOR END OF LOOP
 9038 074626  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
 9039 074630  000207                          RTS     PC                      ;RETURN
 9040
 9041
 9042 074632                          T26RT2:
 9043 074632                                  SAVREG                          ;SAVE THE REGISTERS
 9044 074636  012701  071740                  MOV     #T26PK2,R1              ;START OF THE PACKET
 9045 074642  012721  140006                  MOV     #140006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,CVC-1,
 9046 074646  012721  071760                  MOV     #T26BF2,(R1)+           ;ADDRESS OF DATA BLOCK
 9047 074652  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 9048 074654  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
 9049 074660  005021                          CLR     (R1)+
 9050 074662  012701  071760                  MOV     #T26BF2,R1              ;POINT TO DATA SEL AREA
 9051 074666  005021                          CLR     (R1)+
 9052 074670  005011                          CLR     (R1)
 9053 074672  000207                          RTS     PC                      ;RETURN
 9054 074674                          T26RT3:
 9055 074674                                  SAVREG                          ;SAVE THE REGISTERS
 9056 074700  012701  071750                  MOV     #T26PK3,R1              ;START OF THE PACKET
 9057 074704  012721  000000                  MOV     #0,(R1)+                ;WRITE SUBSYSTEM MEM. WITH ACK,
 9058 074710  012721  000000                  MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
 9059 074714  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 9060 074716  012711  000000                  MOV     #0,(R1)         ;SIZE OF DATA BLOCK IN BYTES
 9061 074722  000207                          RTS     PC                      ;RETURN
 9062 074724                                  ENDTST
      074724                                                                          L10102:
      074724  104401                                                                          TRAP    C$ETST
```

```
                                        .SBTTL  TEST  7: WRITE DATA RETRY
                                ;+
                                ;
                                ;THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY
                                ;COMMAND (SPACE REVERSE, ERASE, WRITE DATA)
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 5 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
074726                                  BGNTST
074726                                                                  T7::
074726  012737  006446  002170          MOV     @EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
074734  005037  003124                  CLR     KTENABLE                ;TURN OFF KT11
074740  004737  017364                  JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
074744  012700  104543                  MOV     @TST27ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
074750  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
074754  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
074762  005037  101606                  CLR     T27CNT                  ;CLEAR TAPE RECORD COUNTER
                                ;+
                                ;
                                ;TEST 7, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE
                                ;THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT
                                ;TERMINATION, WITH THE NON-EXECUTABLE FUNCTION (NEF)
                                ;ERROR BIT SET.
                                ;
                                ;
                                ;-
074766                  T27LOOP:
074766                          BGNSUB                                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
074766                                                                          T7.1:
074766  104402                                                                  TRAP    C$BSUB
074770  004737  104564                  JSR     PC,T27REST              ;SET COMMAND PACKET
074774  004737  104656                  JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
075000  004737  104720                  JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
075004  012737  176750  101612          MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
075012  005037  101606                  CLR     T27CNT                  ;CLEAR COUNTER

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************

075016  004737  016064          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
075022  103426                          BCS     20$                     ;BR IF INIT WAS OK
075024                                  DELAY   250                     ;DELAY ABOUT .25 SEC
075024  012727  000250                                                          MOV     #250.,(PC)+
075030  000000                                                                  .WORD   0
075032  013727  002116                                                          MOV     L$DLY,(PC)+
075036  000000                                                                  .WORD   0
```

TEST 7: WRITE DATA RETRY

```
        075040  005367  177772                                                          DEC     -6(PC)
        075044  001375                                                                  BNE     . 4
        075046  005367  177756                                                          DEC     -22(PC)
        075052  001367                                                                  BNE     . 20
 9118   075054  005337  101612          DEC     T27DLY                  ;BUMP COUNTER
 9119   075060  001356                  BNE     10$                     ;BR, IF COUNTER NOT DONE
 9120   075062  005237  002212          INC     FATFLG                  ;BUMP COUNT
 9124   075066  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 9125   075070                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        075070  104455                                                                  TRAP    C$ERDF
        075072  001275                                                                  .WORD   701
        075074  003650                                                                  .WORD   SFIERR
        075076  012124                                                                  .WORD   SFIMSG
 9126   075100  013737  002172  101460  20$:    MOV     UNITN,T27DSW            ;SET UP DRIVE NUMBER
 9127   075106  012704  101440          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 9128
 9129                                   ;*************************************************************************
 9130                                   ;
 9131                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 9132                                   ;
 9133                                   ;*************************************************************************
 9134
 9135   075112  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 9136   075116  103407                  BCS     25$                     ;BR, IF COMMAND ISSUED OK
 9137   075120  005237  002212          INC     FATFLG                  ;BUMP COUNT
 9141   075124  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 9142   075126                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        075126  104456                                                                  TRAP    C$ERHRD
        075130  001276                                                                  .WORD   702
        075132  005054                                                                  .WORD   WRTMSG
        075134  012124                                                                  .WORD   SFIMSG
 9143   075136                  25$:    CKLOOP                          ;LOOP IF SELECTED
        075136  104406                                                                  TRAP    C$CLP1
 9144
 9145                                   ;*************************************************************************
 9146                                   ;
 9147                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9148                                   ;
 9149                                   ;*************************************************************************
 9150
 9151   075140  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9152   075144  103407                  BCS     30$                     ;BR, IF NO PROBLEM
 9153   075146  010004                  MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9154   075150  005237  002212          INC     FATFLG                  ;BUMP COUNT
 9158   075154                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
        075154  104456                                                                  TRAP    C$ERHRD
        075156  001277                                                                  .WORD   703
        075160  102765                                                                  .WORD   T27RWN
        075162  012136                                                                  .WORD   PKTSSR
 9159   075164                  30$:    CKLOOP                          ;LOOP IF SELECTED
        075164  104406                                                                  TRAP    C$CLP1
 9160
 9161                                   ;*************************************************************************
 9162                                   ;
 9163                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9164                                   ;
 9165                                   ;*************************************************************************
```

TEST 7: WRITE DATA RETRY

```
9166
9167 075166  013701  101470          MOV     T27BFR+6,R1             ;PICK UP XSTO
9168 075172  010102                  MOV     R1,R2                   ;SET UP EXPECTED
9169 075174  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9170 075200  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
9171 075202  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
9172 075204  005237  002212          INC     FATFLG                  ;BUMP COUNT
9176 075210                          ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     075210  104456                                                          TRAP    C$ERHRD
     075212  001300                                                          .WORD   704
     075214  102461                                                          .WORD   T27BOT
     075216  015564                                                          .WORD   EXPREC
9177 075220                  40$:    CKLOOP                          ;LOOP IF SELECTED
     075220  104406                                                          TRAP    C$CLP1
9178 075222  012737  000400  101566  MOV     #256.,T27SZ             ;SET UP RECORD SIZE
9179 075230  013737  003114  101562  MOV     FREE,T27WB              ;ADDRESS OF WRITE BUFFER
9180
9181                         ;*****************************************************************
9182                         ;
9183                         ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
9184                         ;
9185                         ;*****************************************************************
9186
9187 075236  012737  141005  101560  MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
9188 075244  012704  101560          MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9189 075250  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9190 075254  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9191 075260  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9192 075264  012702  100206          MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
9193 075270  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
9194 075272  001406                  BEQ     75$                     ;BR, IF OK
9195 075274  005237  002212          INC     FATFLG                  ;BUMP COUNT
9199 075300                          ERRHRD  ERRNO,T27WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     075300  104456                                                          TRAP    C$ERHRD
     075302  001301                                                          .WORD   705
     075304  102372                                                          .WORD   T27WDE
     075306  012136                                                          .WORD   PKTSSR
9200 075310                  75$:    CKLOOP                          ;LOOP IF SELECTED
     075310  104406                                                          TRAP    C$CLP1
9201
9202                         ;*****************************************************************
9203                         ;
9204                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9205                         ;
9206                         ;*****************************************************************
9207
9208 075312  013701  101470          MOV     T27BFR+6,R1             ;GET XSTO STATUS WORD
9209 075316  010102                  MOV     R1,R2                   ;SET UP EXPECTED
9210 075320  052702  002000          BIS     #BIT10,R2               ;SET THE NEF BIT
9211 075324  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
9212 075326  001406                  BEQ     170$                    ;BR, IF EQUAL (GOOD)
9213 075330  005237  002212          INC     FATFLG                  ;BUMP COUNT
9217 075334                          ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
     075334  104456                                                          TRAP    C$ERHRD
     075336  001302                                                          .WORD   706
     075340  104131                                                          .WORD   T27NEF
     075342  015564                                                          .WORD   EXPREC
```

TEST 7: WRITE DATA RETRY

```
 9218 075344                            1$08:   CKLOOP
      075344  104406                                                          TRAP    C$CLP1
 9219 075346                                    ENDSUB
      075346                                                          L10123:
      075346  104403                                                         TRAP    C$ESUB
 9220 075350  023727  002212  000017          CMP     FATFLG,#15.       ;IS ERROR COUNT AT 25
 9221 075356  103402                            BLO     9998              ;BR. IF LESS THAN 25
 9222 075360  004737  017272                    JSR     PC,CKDROP         ;TRY TO DROP THE UNIT
 9223 075364                            9998:
```

TEST 7: WRITE DATA RETRY

```
                                        ;+
                                        ;
                                        ;TEST 7, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT WRITE DATA RETRY COMMAND ISSUED WHILE
                                        ;THE TAPE IS POSITIONED BEFORE THE FIRST RECORD ON
                                        ;TAPE (BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT
                                        ;TERMINATION, WITH THE REVERSE INTO BOT (RIB) STATUS
                                        ;ERROR BIT SET.
                                        ;
                                        ;
                                        ;
075364                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
075364                                                                                  T7.2:
075364  104402                                                                          TRAP    C$BSUB
075366  004737  104564                        JSR     PC,T27REST              ;SET COMMAND PACKET
075372  004737  104656                        JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
075376  004737  104720                        JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

075402  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
075406  103407                              BCS     20$                     ;BR IF INIT WAS OK
075410  005237  002212                        INC     FATFLG                  ;BUMP COUNT
075414  010001                              MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
075416                                      ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
075416  104455                                                                          TRAP    C$ERDF
075420  001303                                                                          .WORD   707
075422  003650                                                                          .WORD   SFIERR
075424  012124                                                                          .WORD   SFIMSG
075426  013737  002172  101460  20$:     MOV     UNITN,T27DSW            ;SET UP DRIVE NUMBER
075434  012704  101440                    MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

075440  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
075444  103407                              BCS     25$                     ;BR, IF COMMAND ISSUED OK
075446  005237  002212                        INC     FATFLG                  ;BUMP COUNT
075452  010001                              MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
075454                                      ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
075454  104456                                                                          TRAP    C$ERHRD
075456  001304                                                                          .WORD   708
075460  005054                                                                          .WORD   WRTMSG
075462  012124                                                                          .WORD   SFIMSG
075464                          25$:    CKLOOP                          ;LOOP IF SELECTED
075464  104406                                                                          TRAP    C$CLP1

                                        ;*****************************************************************
```

TEST 7: WRITE DATA RETRY

```
9277                                    ;
9278                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9279                                    ;
9280                                    ;*****************************************************************
9281
9282 075466  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9283 075472  103411                            BCS     26$                     ;BR, IF NO PROBLEM
9284 075474  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9285 075476  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9286 075502  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9290 075506                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     075506  104456                                                                    TRAP    C$ERHRD
     075510  001305                                                                    .WORD   709
     075512  102765                                                                    .WORD   T27RWN
     075514  012136                                                                    .WORD   PKTSSR
9291 075516                            26$:    CKLOOP                          ;LOOP IF SELECTED
     075516  104406                                                                    TRAP    C$CLP1
9292 075520  012703  000400                    MOV     #256.,R3                        ;STARTING RECORD SIZE
9293 075524  013737  003114  101562            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
9294
9295                                    ;*****************************************************************
9296                                    ;
9297                                    ;WRITE DATA,CVC=1,ACK COMMAND
9298                                    ;
9299                                    ;*****************************************************************
9300
9301 075532  012737  140005  101560            MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
9302 075540  012704  101560                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9303 075544  010337  101566                    MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9304 075550  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9305 075554  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9306 075560  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9307 075564  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9308 075570  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9309 075572  001406                            BEQ     28$                     ;BR, IF OK
9310 075574  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9314 075600                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     075600  104456                                                                    TRAP    C$ERHRD
     075602  001306                                                                    .WORD   710
     075604  005111                                                                    .WORD   WRTERR
     075606  012136                                                                    .WORD   PKTSSR
9315 075610                            28$:    CKLOOP                          ;LOOP IF SELECTED
     075610  104406                                                                    TRAP    C$CLP1
9316
9317                                    ;*****************************************************************
9318                                    ;
9319                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9320                                    ;
9321                                    ;*****************************************************************
9322
9323 075612  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9324 075616  103411                            BCS     30$                     ;BR, IF NO PROBLEM
9325 075620  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9326 075624  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9327 075626  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9331 075632                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     075632  104456                                                                    TRAP    C$ERHRD
```

TEST 7: WRITE DATA RETRY

```
        075634  001307                                                          .WORD   711
        075636  102765                                                          .WORD   T27RWN
        075640  012136                                                          .WORD   PKTSSR
   9332 075642                          30$:    CKLOOP                      ;LOOP IF SELECTED
        075642  104406                                                          TRAP    C$CLP1
   9333
   9334                                 ;*****************************************************************
   9335                                 ;
   9336                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
   9337                                 ;
   9338                                 ;*****************************************************************
   9339
   9340 075644  013701  101470                  MOV     T27BFR+6,R1         ;PICK UP XST0
   9341 075650  010102                          MOV     R1,R2               ;SET UP EXPECTED
   9342 075652  052702  000002                  BIS     #BIT1,R2            ;SET BOT BIT IN EXPECTED
   9343 075656  020102                          CMP     R1,R2               ;DOES EXP = REC'D
   9344 075660  001406                          BEQ     40$                 ;BR, IF EQUAL (OK)
   9345 075662  005237  002212                  INC     FATFLG              ;BUMP COUNT
   9349 075666                                  ERRHRD  ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
        075666  104456                                                          TRAP    C$ERHRD
        075670  001310                                                          .WORD   712
        075672  102461                                                          .WORD   T27BOT
        075674  015564                                                          .WORD   EXPREC
   9350 075676                          40$:    CKLOOP                      ;LOOP IF SELECTED
        075676  104406                                                          TRAP    C$CLP1
   9351
   9352                                 ;*****************************************************************
   9353                                 ;
   9354                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
   9355                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
   9356                                 ;
   9357                                 ;*****************************************************************
   9358
   9359 075700  012703  000001                  MOV     #1,R3               ;PARAMETER SPACE FORWARD 1 RECORD
   9360 075704  004737  010556                  JSR     PC,SPACE            ;CALL SPACE RECORDS ROUTINE
   9361 075710  103413                          BCS     50$                 ;BR, IF NO ERRORS
   9362 075712  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
   9363 075716  012702  000200                  MOV     #SSR,R2             ;SET UP EXPECTED
   9364 075722  010004                          MOV     R0,R4               ;SET UP REWIND PACKET ADDRESS
   9365 075724  005237  002212                  INC     FATFLG              ;BUMP COUNT
   9369 075730                                  ERRHRD  ERRNO,T27SCF,PKTSSR ;SPACE RECORDS COMMAND FAILED
        075730  104456                                                          TRAP    C$ERHRD
        075732  001311                                                          .WORD   713
        075734  104227                                                          .WORD   T27SCF
        075736  012136                                                          .WORD   PKTSSR
   9370 075740                          50$:    CKLOOP                      ;LOOP IF SELECTED
        075740  104406                                                          TRAP    C$CLP1
   9371
   9372                                 ;*****************************************************************
   9373                                 ;
   9374                                 ;ISSUE SPACE RECORDS COMMAND   VALUE IN R3 SETS NUMBER OF RECORDS
   9375                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
   9376                                 ;
   9377                                 ;*****************************************************************
   9378
   9379 075742  012703  100001                  MOV     #100001,R3          ;PARAMETER SPACE REVERSE 1 RECORD
   9380 075746  004737  010556                  JSR     PC,SPACE            ;CALL SPACE RECORDS ROUTINE
```

TEST 7: WRITE DATA RETRY

```
 9381 075752  103413                        BCS     60$                     ;BR, IF NO ERRORS
 9382 075754  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9383 075760  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 9384 075764  010004                        MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9385 075766  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9389 075772                                ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
      075772  104456                                                                TRAP    C$ERHRD
      075774  001312                                                                .WORD   714
      075776  104227                                                                .WORD   T27SCF
      076000  012136                                                                .WORD   PKTSSR
 9390 076002                        60$:    CKLOOP                          ;LOOP IF SELECTED
      076002  104406                                                                TRAP    C$CLP1
 9391 076004  013737  003114  101562        MOV     FREE,T27RB              ;ADDRESS OF BUFFER
 9392
 9393                                ;*************************************************************************
 9394                                ;
 9395                                ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9396                                ;
 9397                                ;*************************************************************************
 9398
 9399 076012  012737  141005  101560        MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9400 076020  012737  000400  101566        MOV     #256.,T27SZ             ;SET UP THE SIZE OF RECORD
 9401 076026  012704  101560                MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9402 076032  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9403 076036  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9404 076042  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9405 076046  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED TAPE STATUS ALERT
 9406 076052  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 9407 076054  001406                        BEQ     180$                    ;BR, IF OK
 9408 076056  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9412 076062                                ERRHRD  ERRNO,T27TSA,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      076062  104456                                                                TRAP    C$ERHRD
      076064  001313                                                                .WORD   715
      076066  104304                                                                .WORD   T27TSA
      076070  012136                                                                .WORD   PKTSSR
 9413 076072                        180$:   CKLOOP                          ;LOOP IF SELECTED
      076072  104406                                                                TRAP    C$CLP1
 9414 076074  013701  101476                MOV     T27BFR+14,R1            ;GET XST3 STATUS WORD
 9415 076100  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 9416 076102  052702  000001                BIS     #BIT0,R2                ;SET THE RIB BIT
 9417 076106  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 9418 076110  001406                        BEQ     190$                    ;BR, IF EQUAL (GOOD)
 9419 076112  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9423 076116                                ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
      076116  104456                                                                TRAP    C$ERHRD
      076120  001314                                                                .WORD   716
      076122  104131                                                                .WORD   T27NEF
      076124  015564                                                                .WORD   EXPREC
 9424 076126                        190$:   CKLOOP
      076126  104406                                                                TRAP    C$CLP1
 9425 076130                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      076130                                                                  L10124:
      076130  104403                                                                TRAP    C$ESUB
 9426 076132  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 9427 076140  103402                        BLO     999$                            ;BR, IF LESS THAN 25
 9428 076142  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 9429 076146                        999$:
```

TEST 7: WRITE DATA RETRY

```
9431                                    ;*
9432                                    ;
9433                                    ;TEST 7, SUBTEST 3
9434                                    ;
9435                                    ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=0
9436                                    ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
9437                                    ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
9438                                    ;BYTE COUNTS AND DATA PATTERNS ARE USED.
9439                                    ;
9440                                    ;
9441                                    ;
9442                                    ;-
9443 076146                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     076146                                                                                    T7.3:
     076146  104402                                                                              TRAP    C$BSUB
9444 076150  004737  104564                    JSR     PC,T27REST              ;SET COMMAND PACKET
9445 076154  004737  104656                    JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
9446 076160  004737  104720                    JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
9447
9448                                    ;*********************************************************************
9449                                    ;
9450                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
9451                                    ;
9452                                    ;*********************************************************************
9453
9454 076164  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9455 076170  103407                            BCS     20$                     ;BR IF INIT WAS OK
9456 076172  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9460 076176  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
9461 076200                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     076200  104455                                                                            TRAP    C$ERDF
     076202  001315                                                                           .WORD   717
     076204  003650                                                                           .WORD   SFIERR
     076206  012124                                                                           .WORD   SFIMSG
9462 076210  013737  002172  101460  20$:      MOV     UNITN,T27DSW            ;SET UP UNIT NUMBER IN PACKET
9463 076216  012704  101440                    MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
9464
9465                                    ;*********************************************************************
9466                                    ;
9467                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
9468                                    ;
9469                                    ;*********************************************************************
9470
9471 076222  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
9472 076226  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
9473 076230  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9477 076234  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
9478 076236                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     076236  104456                                                                            TRAP    C$ERHRD
     076240  001316                                                                           .WORD   718
     076242  005054                                                                           .WORD   WRTMSG
     076244  012124                                                                           .WORD   SFIMSG
9479 076246                                    23$:    CKLOOP                  ;LOOP IF SELECTED
     076246  104406                                                                            TRAP    C$CLP1
9480
9481                                    ;*********************************************************************
9482                                    ;
```

```
 9483                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9484                                   ;
 9485                                   ;*****************************************************************
 9486
 9487 076250  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9488 076254  103407                            BCS     30$                     ;BR, IF NO PROBLEM
 9489 076256  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9490 076260  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 9494 076264                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      076264  104456                                                                    TRAP    C$ERHRD
      076266  001317                                                                   .WORD   719
      076270  102765                                                                   .WORD   T27RWN
      076272  012136                                                                   .WORD   PKTSSR
 9495 076274                            30$:    CKLOOP                          ;LOOP IF SELECTED
      076274  104406                                                                   TRAP    C$CLP1
 9496
 9497                                   ;*****************************************************************
 9498                                   ;
 9499                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9500                                   ;
 9501                                   ;*****************************************************************
 9502
 9503 076276  013701  101470                    MOV     T27BFR+6,R1             ;PICK UP XST0
 9504 076302  010102                            MOV     R1,R2                   ;SET UP EXPECTED
 9505 076304  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9506 076310  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
 9507 076312  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
 9508 076314  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 9512 076320                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      076320  104456                                                                   TRAP    C$ERHRD
      076322  001320                                                                   .WORD   720
      076324  102461                                                                   .WORD   T27BOT
      076326  015564                                                                   .WORD   EXPREC
 9513 076330                            40$:    CKLOOP                          ;LOOP IF SELECTED
      076330  104406                                                                   TRAP    C$CLP1
 9514 076332  012703  000024                    MOV     #20.,R3                 ;STARTING RECORD SIZE
 9515 076336  013737  003114  101562            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 9516
 9517                                   ;*****************************************************************
 9518                                   ;
 9519                                   ;WRITE DATA,CVC=1,ACK COMMAND
 9520                                   ;
 9521                                   ;*****************************************************************
 9522
 9523 076344  012737  140005  101560  65$:    MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 9524 076352  012704  101560                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9525 076356  010300                            MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 9526 076360  004737  017512                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 9527 076364  010337  101566                    MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9528 076370  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9529 076374  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9530 076400  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9531 076404  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
 9532 076410  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
 9533 076412  001406                            BEQ     80$                     ;BR, IF OK
 9534 076414  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 9538 076420                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
```

TEST 7: WRITE DATA RETRY

```
        076420  104456                                                                  TRAP    C$ERHRD
        076422  001321                                                                  .WORD   721
        076424  005111                                                                  .WORD   WRTERR
        076426  012136                                                                  .WORD   PKTSSR
  9539  076430                          80$:    CKLOOP                          ;LOOP IF SELECTED
        076430  104406                                                                  TRAP    C$CLP1
  9540
  9541                                  ;*****************************************************************
  9542                                  ;
  9543                                  ;WRITE DATA RETRY,CVC=1,ACK COMMAND
  9544                                  ;
  9545                                  ;*****************************************************************
  9546
  9547  076432  012737  141005  101560          MOV     #141005,T27PK3          ;WRITE DATA RETRY,CVC=1,ACK COMMAND
  9548  076440  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
  9549  076444  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
  9550  076450  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
  9551  076454  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
  9552  076460  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
  9553  076462  001406                          BEQ     90$                     ;BR, IF OK
  9554  076464  005237  002212                  INC     FATFLG                  ;BUMP COUNT
  9558  076470                                  ERRHRD  ERRNO,T27WRF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA RETRY
        076470  104456                                                                  TRAP    C$ERHRD
        076472  001322                                                                  .WORD   722
        076474  104366                                                                  .WORD   T27WRF
        076476  012136                                                                  .WORD   PKTSSR
  9559  076500                          90$:    CKLOOP                          ;LOOP IF SELECTED
        076500  104406                                                                  TRAP    C$CLP1
  9560  076502  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
  9561  076504  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
  9562  076510  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
  9563
  9564                                  ;*****************************************************************
  9565                                  ;
  9566                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  9567                                  ;
  9568                                  ;*****************************************************************
  9569
  9570  076512  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  9571  076516  103407                          BCS     230$                    ;BR, IF NO PROBLEM
  9572  076520  010001                          MOV     R0,R1                   ;SAVE TSSR
  9573  076522  005237  002212                  INC     FATFLG                  ;BUMP COUNT
  9577  076526                                  ERRHRD  ERRNO,T27RWN,EXPREC     ;REWIND NOT ACCEPTED
        076526  104456                                                                  TRAP    C$ERHRD
        076530  001323                                                                  .WORD   723
        076532  102765                                                                  .WORD   T27RWN
        076534  015564                                                                  .WORD   EXPREC
  9578  076536                        230$:   CKLOOP                          ;LOOP IF SELECTED
        076536  104406                                                                  TRAP    C$CLP1
  9579
  9580                                  ;*****************************************************************
  9581                                  ;
  9582                                  ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
  9583                                  ;
  9584                                  ;*****************************************************************
  9585
  9586  076540  013701  101470                  MOV     T27BFR+6,R1             ;PICK UP XST0
```

TEST 7: WRITE DATA RETRI

```
 9587 076544  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 9588 076546  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9589 076552  020102                        CMP     R1,R2                   ;DOES EXP - REC'D
 9590 076554  001406                        BEQ     240$                    ;BR, IF EQUAL (OK)
 9591 076556  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9595 076562                                ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      076562  104456                                                            TRAP    C$ERHRD
      076564  001324                                                            .WORD   724
      076566  102461                                                            .WORD   T27BOT
      076570  015564                                                            .WORD   EXPREC
 9596 076572                        240$:   CKLOOP                          ;LOOP IF SELECTED
      076572  104406                                                            TRAP    C$CLP1
 9597 076574  012703  000024                MOV     #20.,R3                 ;STARTING RECORD SIZE
 9598 076600  013737  003114  101562        MOV     FREE,T27RB              ;STARTING READ BUFFER ADDRESS
 9599
 9600                               ;*****************************************************************
 9601                               ;
 9602                               ;READ DATA,ACK COMMAND
 9603                               ;
 9604                               ;*****************************************************************
 9605
 9606 076606  012737  100001  101560  265$:   MOV     #100001,T2?PK3          ;READ DATA,ACK COMMAND
 9607 076614  012704  101560                MOV     #T2/PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9608 076620  010337  101566                MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9609 076624  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9610 076630  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9611 076634  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9612 076640  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 9613 076644  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 9614 076646  001406                        BEQ     280$                    ;BR, IF OK
 9615 076650  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9619 076654                                ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
      076654  104456                                                            TRAP    C$ERHRD
      076656  001325                                                            .WORD   725
      076660  005204                                                            .WORD   RDERR
      076662  012136                                                            .WORD   PKTSSR
 9620 076664                        280$:   CKLOOP                          ;LOOP IF SELECTED
      076664  104406                                                            TRAP    C$CLP1
 9621 076666  013702  003114                MOV     FREE,R2                 ;GET BUFFER ADDRESS
 9622 076672  010304                        MOV     R3,R4                   ;GET RECORD SIZE
 9623 076674  162704  000024                SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
 9624 076700  060204                285$:   ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
 9625 076702  021403                        CMP     (R4),R3                 ;DATA WRITTEN = READ
 9626 076704  001410                        BEQ     290$                    ;BR, IF DATA OK (GOOD)
 9627 076706  011401                        MOV     (R4),R1                 ;PICK UP BAD DATA
 9628 076710  010302                        MOV     R3,R2                   ;SET UP EXPECTED
 9629 076712  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9633 076716                                ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
      076716  104456                                                            TRAP    C$ERHRD
      076720  001326                                                            .WORD   726
      076722  104446                                                            .WORD   T27DTA
      076724  015564                                                            .WORD   EXPREC
 9634 076726                        290$:   CKLOOP                          ;LOOP IF SELECTED
      076726  104406                                                            TRAP    C$CLP1
 9635 076730  005724                        TST     (R4)+                   ;BUMP TO NEXT ADDRESS
 9636 076732  160204                        SUB     R2,R4                   ;BACK TO RECORD SIZE
 9637 076734  020403                        CMP     R4,R3                   ;AT END OF RECORD YET
```

;

TEST 7: WRITE DATA RETRY

```
9638 076736  001360                        BNE     285$                ;BR, IF MORE DATA TO CHECK
9639 076740  005723                        TST     (R3)+               ;BUMP RECORD SIZE
9640 076742  020327  000050                CMP     R3,#40.             ;DONE YET
9641 076746  001317                        BNE     265$                ;BR, IF NOT DONE YET (MORE READS)
9642 076750                        300$:   CKLOOP                      ;LOOP IF SELECTED
     076750  104406                                                            TRAP    C$CLP1
9643 076752                        330$:
9644 076752                        ENDSUB                      ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     076752                                                          L10125:
     076752  104403                                                          TRAP    C$ENDSUB
9645 076754  023727  002212  000017        CMP     FATFLG,#15.                 ;IS ERROR OCCURRENCE AT 25
9646 076762  103402                        BLO     999$                        ;OR, IF LESS THAN 25
9647 076764  004737  017272                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
9648 076770                        999$:
```

TEST 7: WRITE DATA RETRY

```
                                        ;*
                                        ;
                                        ;TEST 7, SUBTEST 4
                                        ;
                                        ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=1
                                        ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
                                        ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
                                        ;BYTE COUNTS AND DATA PATTERNS ARE USED.
                                        ;
                                        ;
                                        ;
                                        ;-
076770                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
076770                                                                                          T7.4:
076770  104402                                                                                  TRAP    C$BSJB
076772  004737  104564                          JSR     PC,T27REST              ;SET COMMAND PACKET
076776  004737  104656                          JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
077002  004737  104720                          JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
077006  012737  176750  101612                  MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER

                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

077014  004737  016064                  10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
077020  103426                                  BCS     20$                     ;BR IF INIT WAS OK
077022                                          DELAY   250                     ;DELAY ABOUT .25 SEC
077022  012727  000250                                                                  MOV     #250,(PC)+
077026  000000                                                                          .WORD   0
077030  013727  002116                                                                  MOV     L$DLY,(PC)+
077034  000000                                                                          .WORD   0
077036  005367  177772                                                                  DEC      6(PC)
077042  001375                                                                          BNE     .-4
077044  005367  177756                                                                  DEC     -22(PC)
077050  001367                                                                          BNE     .-20
                                                DEC     T27DLY                  ;BUMP COUNTER
                                                BNE     10$                     ;BR, IF COUNTER NOT DONE
                                                INC     FATFLG                  ;BUMP COUNT
                                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
077066  104455                                                                          TRAP    C$ERDF
077070  001327                                                                          .WORD   727
077072  003650                                                                          .WORD   SFIERR
077074  012124                                                                          .WORD   SFIMSG
077076  013737  002172  101460          20$:    MOV     UNITN,T27DSW            ;SET UP UNIT (DRIVE) NUMBER
077104  012704  101440                          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

077110  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
077114  103407                                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
```

TEST 7: WRITE DATA RETRY

```
9696 077116  005237  002212              INC     FATFLG                  ;BUMP COUNT
9700 077122  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
9701 077124                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     077124  104456                                                              TRAP    C$ERHRD
     077126  001330                                                              .WORD   728
     077130  005054                                                              .WORD   WRTMSG
     077132  012124                                                              .WORD   SFIMSG
9702 077134                      23$:    CKLOOP                          ;LOOP IF SELECTED
     077134  104406                                                              TRAP    C$CLP1
9703
9704                             ;*****************************************************************
9705                             ;
9706                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9707                             ;
9708                             ;*****************************************************************
9709
9710 077136  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9711 077142  103411                      BCS     30$                     ;BR, IF NO PROBLEM
9712 077144  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9713 077150  010004                      MOV     R0,R4                   ;GET PACKET ADDRESS
9714 077152  005237  002212              INC     FATFLG                  ;BUMP COUNT
9718 077156                              ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     077156  104456                                                              TRAP    C$ERHRD
     077160  001331                                                              .WORD   729
     077162  102765                                                              .WORD   T27RWN
     077164  012136                                                              .WORD   PKTSSR
9719 077166                      30$:    CKLOOP                          ;LOOP IF SELECTED
     077166  104406                                                              TRAP    C$CLP1
9720
9721                             ;*****************************************************************
9722                             ;
9723                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9724                             ;
9725                             ;*****************************************************************
9726
9727 077170  013701  101470              MOV     T27BFR+6,R1             ;PICK UP XST0
9728 077174  010102                      MOV     R1,R2                   ;SET UP EXPECTED
9729 077176  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9730 077202  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
9731 077204  001406                      BEQ     40$                     ;BR, IF EQUAL (OK)
9732 077206  005237  002212              INC     FATFLG                  ;BUMP COUNT
9736 077212                              ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     077212  104456                                                              TRAP    C$ERHRD
     077214  001332                                                              .WORD   730
     077216  102461                                                              .WORD   T27BOT
     077220  015564                                                              .WORD   EXPREC
9737 077222                      40$:    CKLOOP                          ;LOOP IF SELECTED
     077222  104406                                                              TRAP    C$CLP1
9738 077224  012703  000024              MOV     #20.,R3                 ;STARTING RECORD SIZE
9739 077230  013737  003114  101562      MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
9740
9741                             ;*****************************************************************
9742                             ;
9743                             ;WRITE DATA,CVC=1,ACK COMMAND
9744                             ;
9745                             ;*****************************************************************
9746
```

TEST 7: WRITE DATA RETRY

```
9747 077236  012737  140005  101560  65$:    MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
9748 077244  012704  101560                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9749 077250  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
9750 077252  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
9751 077256  010337  101566                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9752 077262  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9753 077266  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9754 077272  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9755 077276  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
9756 077302  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
9757 077304  001406                          BEQ     80$                     ;BR, IF OK
9758 077306  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9762 077312                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     077312  104456                                                              TRAP    C$ERHRD
     077314  001333                                                              .WORD   731
     077316  005111                                                              .WORD   WRTERR
     077320  012136                                                              .WORD   PKTSSR
9763 077322                          80$:    CKLOOP                          ;LOOP IF SELECTED
     077322  104406                                                              TRAP    C$CLP1
9764
9765                                 ;*****************************************************************
9766                                 ;
9767                                 ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
9768                                 ;
9769                                 ;*****************************************************************
9770
9771 077324  012737  111005  101560          MOV     #111005,T27PK3          ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
9772 077332  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9773 077336  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9774 077342  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9775 077346  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
9776 077352  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
9777 077354  001406                          BEQ     90$                     ;BR, IF OK
9778 077356  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9782 077362                                  ERRHRD  ERRNO,T27WRF,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA RETRY
     077362  104456                                                              TRAP    C$ERHRD
     077364  001334                                                              .WORD   732
     077366  104366                                                              .WORD   T27WRF
     077370  015564                                                              .WORD   EXPREC
9783 077372                          90$:    CKLOOP                          ;LOOP IF SELECTED
     077372  104406                                                              TRAP    C$CLP1
9784 077374  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
9785 077376  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
9786 077402  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
9787
9788                                 ;*****************************************************************
9789                                 ;
9790                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9791                                 ;
9792                                 ;*****************************************************************
9793
9794 077404  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9795 077410  103411                          BCS     230$                    ;BR, IF NO PROBLEM
9796 077412  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9797 077416  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
9798 077420  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9802 077424                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
```

```
                077424  104456                                                          TRAP    C$ERHRD
                077426  001335                                                          .WORD   733
                077430  102765                                                          .WORD   T27RWR
                077432  012136                                                          .WORD   PKTSSR
 9803           077434                          230$:   CKLOOP                          ;LOOP IF SELECTED
                077434  104406                                                          TRAP    C$CLP1
 9804
 9805                                           ;*****************************************************************
 9806                                           ;
 9807                                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 9808                                           ;
 9809                                           ;*****************************************************************
 9810
 9811 077436    013701  101470                  MOV     T27BFR+6,R1             ;PICK UP XSTO
 9812 077442    010102                          MOV     R1,R2                   ;SET UP EXPECTED
 9813 077444    052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9814 077450    020102                          CMP     R1,R2                   ;DOES EXP = REC D
 9815 077452    001406                          BEQ     240$                    ;BR, IF EQUAL (OK)
 9816 077454    005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9820 077460                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                077460  104456                                                          TRAP    C$ERHRD
                077462  001336                                                          .WORD   734
                077464  102461                                                          .WORD   T27BOT
                077466  015564                                                          .WORD   EXPREC
 9821 077470                    240$:   CKLOOP                                  ;LOOP IF SELECTED
                077470  104406                                                          TRAP    C$CLP1
 9822 077472    012703  000024                  MOV     #20.,R3                 ;STARTING RECORD SIZE
 9823 077476    013737  003114  101562          MOV     FREE,T27RB              ;STARTING READ BUFFER ADDRESS
 9824
 9825                                           ;*****************************************************************
 9826                                           ;
 9827                                           ;READ DATA,ACK COMMAND
 9828                                           ;
 9829                                           ;*****************************************************************
 9830
 9831 077504    012737  100001  101560  265$:   MOV     #100001,T27PK3          ;READ DATA,ACK COMMAND
 9832 077512    012704  101560                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9833 077516    010337  101566                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9834 077522    010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9835 077526    004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9836 077532    016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9837 077536    012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9838 077542    020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9839 077544    001406                          BEQ     280$                    ;BR, IF OK
 9840 077546    005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9844 077552                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
                077552  104456                                                          TRAP    C$ERHRD
                077554  001337                                                          .WORD   735
                077556  005204                                                          .WORD   RDERR
                077560  012136                                                          .WORD   PKTSSR
 9845 077562                    280$:   CKLOOP                                  ;LOOP IF SELECTED
                077562  104406                                                          TRAP    C$CLP1
 9846 077564    013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
 9847 077570    010304                          MOV     R3,R4                   ;GET RECORD SIZE
 9848 077572    162704  000024                  SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
 9849 077576    060204                  285$:   ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
 9850 077600    000303                          SWAB    R3                      ;SWAP BYTES SWB=1 ETC.
```

TEST 7: WRITE DATA RETRY

```
9851 077602  021403                    CMP     (R4),R3                 ;DATA WRITTEN = READ
9852 077604  001410                    BEQ     290$                    ;BR, IF DATA OK (GOOD)
9853 077606  011401                    MOV     (R4),R1                 ;PICK UP BAD DATA
9854 077610  010302                    MOV     R3,R2                   ;SET UP EXPECTED
9855 077612  005237  002212            INC     FATFLG                  ;BUMP COUNT
9859 077616                            ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
     077616  104456                                                            TRAP    C$ERHRD
     077620  001340                                                            .WORD   736
     077622  104446                                                            .WORD   T27DTA
     077624  015564                                                            .WORD   EXPREC
9860 077626                    290$:   CKLOOP                          ;LOOP IF SELECTED
     077626  104406                                                            TRAP    C$CLP1
9861 077630  005724                    TST     (R4)+                   ;BUMP TO NEXT ADDRESS
9862 077632  160204                    SUB     R2,R4                   ;BACK TO RECORD SIZE
9863 077634  000303                    SWAB    R3                      ;PUT R3 BACK INTO SHAPE
9864 077636  020403                    CMP     R4,R3                   ;AT END OF RECORD YET
9865 077640  001356                    BNE     285$                    ;BR, IF MORE DATA TO CHECK
9866 077642  005723                    TST     (R3)+                   ;BUMP RECORD SIZE
9867 077644  020327  000046            CMP     R3,#38.                 ;DONE YET
9868 077650  001315                    BNE     265$                    ;BR, IF NOT DONE YET (MORE READS)
9869 077652                    300$:   CKLOOP                          ;LOOP IF SELECTED
     077652  104406                                                            TRAP    C$CLP1
9870 077654                            ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     077654                                                                 L10126:
     077654  104403                                                            TRAP    C$ESUB
9871 077656  023727  002212  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
9872 077664  103402                            BLO     999$                    ;BR, IF LESS THAN 25
9873 077666  004737  017272                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
9874 077672                    999$:
```

```
9876                                    ;
9877                                    ;
9878                                    ;TEST 7, SUBTEST 5
9879                                    ;
9880                                    ;VERIFIES THAT A WRITE DATA RETRY COMMAND IS
9881                                    ;PERFORMING THE "ERASE" PART OF THE OPERATION BY
9882                                    ;PERFORMING THE FOLLOWING SERIES OF STEPS.
9883                                    ;
9884                                    ;1.     THE TAPE IS REWOUND AND A SERIES OF RECORDS ARE
9885                                    ;       WRITTEN WITH THE NORMAL WRITE DATA COMMAND. THIS
9886                                    ;       SHOULD RESULT IN RECORDS SEPARATED BY THE
9887                                    ;       STANDARD INTERRECORD GAP.
9888                                    ;
9889                                    ;2.     A PROGRAM TIMING VALUE IS CALIBRATED BY REWINDING
9890                                    ;       THE TAPE AND THEN COUNTING THE NUMBER OF CYCLES
9891                                    ;       THROUGH A PROGRAMMED LOOP REQUIRED TO SPACE OVER
9892                                    ;       THE SERIES OF RECORDS WRITTEN IN PREVIOUS
9893                                    ;       STEP
9894                                    ;
9895                                    ;3.     THE TAPE IS AGAIN REWOUND AND THE SAME SERIES OF
9896                                    ;       RECORDS WRITTEN AGAIN, THIS TIME USING THE WRITE
9897                                    ;       DATA RETRY COMMAND. THIS SHOULD RESULT IN
9898                                    ;       RECORDS SEPARATED BY A LONG INTERRECORD GAP.
9899                                    ;
9900                                    ;4.     THE TAPE IS AGAIN REWOUND, THE SPACING COMMAND
9901                                    ;       ISSUED, AND THE NUMBER OF TIMMING LOOP CYCLES
9902                                    ;       COUNTED TO COMPLETE THE OPERATION.
9903                                    ;
9904                                    ;5.     THE TWO LOOP COUNTS ARE COMPARED, CHECKING TO SEE
9905                                    ;       THAT THEY DIFFER BY A SIGNIFICANT AMOUNT.
9906                                    ;
9907                                    ;
9908                                    ;
9909                                    ;
9910                                    ;
9911                                    ;
9912 077672                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      077672                                                                            T7.5:
      077672  104402                                                                        TRAP    C$BSUB
9913 077674  005037  002214                     CLR     INTRECV                 ;INTERRUPT INDICATOR
9914 077700  005037  101606                     CLR     T27CNT                  ;TIMER FOR WRITE DATA SPACING
9915 077704  005037  101610                     CLR     T27CNU                  ;TIMER FOR WRITE DATA RETRY SPACING
9916 077710  004737  104564                     JSR     PC,T27REST              ;SET COMMAND PACKET
9917 077714  004737  104656                     JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
9918 077720  004737  104720                     JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
9919 077724  012737  176750  101612             MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
9920
9921                                    ;*****************************************************************
9922                                    ;
9923                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9924                                    ;
9925                                    ;*****************************************************************
9926
9927 077732  004737  016064             10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9928 077736  103426                             BCS     20$                     ;BR IF INIT WAS OK
9929 077740                                     DELAY   250                     ;DELAY ABOUT .25 SEC
      077740  012727  000250                                                           MOV     #250,(PC)+
```

TEST 7: WRITE DATA RETRY

```
                077744  000000                                                          .WORD   0
                077746  013727  002116                                                  MOV     C$DLY,(PC)+
                077752  000000                                                          .WORD   0
                077754  005367  177772                                                  DEC     -6(PC)
                077760  001375                                                          BNE     . 4
                077762  005367  177756                                                  DEC      22(PC)
                077766  001367                                                          BNE     . 20
   9930 077770  005337  101612          DEC     T27DLY                  ;BUMP COUNTER
   9931 077774  001356                  BNE     10$                     ;BR, IF COUNTER NOT DONE
   9932 077776  005237  002212          INC     FATFLG                  ;BUMP COUNT
   9936 100002  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
   9937 100004                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        100004  104455                                                          TRAP    C$ERDF
        100006  001341                                                          .WORD   737
        100010  003650                                                          .WORD   SFIERR
        100012  012124                                                          .WORD   SFIMSG
   9938 100014  013737  002172  101460  20$:    MOV     UNITN,T27DSW            ;SET UP UNIT NUMBER
   9939
   9940 100022  012704  101440          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
   9941
   9942                         ;*************************************************************
   9943                         ;
   9944                         ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
   9945                         ;
   9946                         ;*************************************************************
   9947
   9948 100026  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
   9949 100032  103407                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
   9950 100034  005237  002212          INC     FATFLG                  ;BUMP COUNT
   9954 100040  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
   9955 100042                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        100042  104456                                                          TRAP    C$ERHRD
        100044  001342                                                          .WORD   738
        100046  005054                                                          .WORD   WRTMSG
        100050  012124                                                          .WORD   SFIMSG
   9956 100052                  23$:    CKLOOP                          ;LOOP IF SELECTED
        100052  104406                                                          TRAP    C$CLP1
   9957
   9958                         ;*************************************************************
   9959                         ;
   9960                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
   9961                         ;
   9962                         ;*************************************************************
   9963
   9964 100054  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
   9965 100060  103411                  BCS     30$                     ;BR, IF NO PROBLEM
   9966 100062  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
   9967 100066  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
   9968 100070  005237  002212          INC     FATFLG                  ;BUMP COUNT
   9972 100074                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
        100074  104456                                                          TRAP    C$ERHRD
        100076  001343                                                          .WORD   739
        100100  102765                                                          .WORD   T27RWN
        100102  012136                                                          .WORD   PKTSSR
   9973 100104                  30$:    CKLOOP                          ;LOOP IF SELECTED
        100104  104406                                                          TRAP    C$CLP1
   9974
```

```
 9975                                   ;*****************************************************************
 9976                                   ;
 9977                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9978                                   ;
 9979                                   ;*****************************************************************
 9980
 9981 100106  013701  101470                    MOV     T27BFR+6,R1             ;PICK UP XST0
 9982 100112  010102                            MOV     R1,R2                   ;SET UP EXPECTED
 9983 100114  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9984 100120  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
 9985 100122  001406                            BEQ     40$                     ;BR. IF EQUAL (OK)
 9986 100124  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 9990 100130                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100130  104456                                                                    TRAP    C$ERHRD
      100132  001344                                                                    .WORD   740
      100134  102461                                                                    .WORD   T27BOT
      100136  015564                                                                    .WORD   EXPREC
 9991 100140                            4C$:    CKLOOP                          ;LOOP IF SELECTED
      100140  104406                                                                    TRAP    C$CLP1
 9992 100142  012703  000144                    MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
 9993 100146  013737  003114  101562            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 9994
 9995                                   ;*****************************************************************
 9996                                   ;
 9997                                   ;WRITE DATA,ACK,CVC=1 COMMAND
 9998                                   ;
 9999                                   ;*****************************************************************
10000
10001 100154  012737  140005  101560    65$:    MOV     #140005,T27PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
10002 100162  012704  101560                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10003 100166  012737  000024  101566            MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10004 100174  010465  000000                    MOV     R4,6(R5)                ;ISSUE COMMAND
10005 100200  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10006 100204  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10007 100210  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
10008 100214  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
10009 100216  001406                            BEQ     70$                     ;BR. IF OK
10010 100220  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10014 100224                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      100224  104456                                                                    TRAP    C$ERHRD
      100226  001345                                                                    .WORD   741
      100230  005111                                                                    .WORD   WRTERR
      100232  012136                                                                    .WORD   PKTSSR
10015 100234                            70$:    CKLOOP                          ;LOOP IF SELECTED
      100234  104406                                                                    TRAP    C$CLP1
10016 100236  005303                            DEC     R3                      ;DEC RECORD COUNTER
10017 100240  001345                            BNE     65$                     ;BR. IF MORE RECORDS TO WRITE
10018
10019                                   ;*****************************************************************
10020                                   ;
10021                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10022                                   ;
10023                                   ;*****************************************************************
10024
10025 100242  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10026 100246  103411                            BCS     130$                    ;BR. IF NO PROBLEM
10027 100250  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

TEST 7: WRITE DATA RETRY

```
10028 100254  010004                        MOV     R0,R4                   ;GET PACKET ADDRESS
10029 100256  005237  002212                INC     FATFLG                  ;BUMP COUNT
10033 100262                                ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100262  104456                                                        TRAP    C$ERHRD
      100264  001346                                                        .WORD   742
      100266  102765                                                        .WORD   T27RWN
      100270  012136                                                        .WORD   PKTSSR
10034 100272                        130$:   CKLOOP                          ;LOOP IF SELECTED
      100272  104406                                                        TRAP    C$CLP1
10035
10036                               ;*****************************************************************
10037                               ;
10038                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10039                               ;
10040                               ;*****************************************************************
10041
10042 100274  013701  101470                MOV     T27BFR+6,R1             ;PICK UP XST0
10043 100300  010102                        MOV     R1,R2                   ;SET UP EXPECTED
10044 100302  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10045 100306  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
10046 100310  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
10047 100312  005237  002212                INC     FATFLG                  ;BUMP COUNT
10051 100316                                ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100316  104456                                                        TRAP    C$ERHRD
      100320  001347                                                        .WORD   743
      100322  102461                                                        .WORD   T27BOT
      100324  015564                                                        .WORD   EXPREC
10052 100326                        140$:   CKLOOP                          ;LOOP IF SELECTED
      100326  104406                                                        TRAP    C$CLP1
10053 100330  012704  101560                MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10054 100334  012737  000010  101562        MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10055
10056                               ;*****************************************************************
10057                               ;
10058                               ;ACK,CVC=1,SPACE FORWARD COMMAND
10059                               ;
10060                               ;*****************************************************************
10061
10062 100342  012737  140010  101560        MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10063 100350  010465  000000        150$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10064 100354  005237  101606        152$:   INC     T27CNT                  ;BUMP TIMER
10065 100360                                DELAY   1                       ;DELAY ABOUT 100US
      100360  012727  000001                                                MOV     #1,(PC)+
      100364  000000                                                        .WORD   0
      100366  013727  002116                                                MOV     L$DLY,(PC)+
      100372  000000                                                        .WORD   0
      100374  005367  177772                                                DEC      6(PC)
      100400  001375                                                        BNE     . 4
      100402  005367  177756                                                DEC     -22(PC)
      100406  001367                                                        BNE     . 20
10066 100410  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
10067 100414  032701  000200                BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10068 100420  001755                        BEQ     152$                    ;KEEP COUNTING UNTIL SET
10069 100422  016501  000002                MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10070 100426  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
10071 100432  020201                        CMP     R2,R1                   ;WAS EVERYTHING OK
10072 100434  001406                        BEQ     160$                    ;BR, IF ALL IS WELL
```

TEST 7: WRITE DATA RETRY

```
10073 100436  005237  002212          INC     FATFLG                  ;BUMP COUNT
10077 100442                          ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      100442  104456                                                          TRAP    C$ERHRD
      100444  001350                                                          .WORD   744
      100446  104227                                                          .WORD   T27SCF
      100450  012136                                                          .WORD   PKTSSR
10078 100452                    160$:   CKLOOP                          ;LOOP IF SELECTED
      100452  104406                                                          TRAP    C$CLP1
10079
10080                           ;*****************************************************************
10081                           ;
10082                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10083                           ;
10084                           ;*****************************************************************
10085
10086 100454  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10087 100460  004737  016426          JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
10088 100464  103407                  BCS     170$                    ;BR, IF NO PROBLEM
10089 100466  010001                  MOV     R0,R1                   ;SAVE TSSR
10090 100470  005237  002212          INC     FATFLG                  ;BUMP COUNT
10094 100474                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100474  104456                                                          TRAP    C$ERHRD
      100476  001351                                                          .WORD   745
      100500  102765                                                          .WORD   T27RWN
      100502  012136                                                          .WORD   PKTSSR
10095 100504                    170$:   CKLOOP                          ;LOOP IF SELECTED
      100504  104406                                                          TRAP    C$CLP1
10096
10097                           ;*****************************************************************
10098                           ;
10099                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10100                           ;
10101                           ;*****************************************************************
10102
10103 100506  013701  101470          MOV     T27BFR+6,R1             ;PICK UP XST0
10104 100512  010102                  MOV     R1,R2                   ;SET UP EXPECTED
10105 100514  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10106 100520  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
10107 100522  001406                  BEQ     175$                    ;BR, IF EQUAL (OK)
10108 100524  005237  002212          INC     FATFLG                  ;BUMP COUNT
10112 100530                          ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER RFWIND
      100530  104456                                                          TRAP    C$ERHRD
      100532  001352                                                          .WORD   746
      100534  102461                                                          .WORD   T27BOT
      100536  015564                                                          .WORD   EXPREC
10113 100540                    175$:   CKLOOP                          ;LOOP IF SELECTED
      100540  104406                                                          TRAP    C$CLP1
10114 100542  012703  000144          MOV     #100.,R3                ;STARTING RECORD SIZE
10115 100546  013737  003114  101562  177$:   MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10116
10117                           ;*****************************************************************
10118                           ;
10119                           ;WRITE DATA,CVC=1,ACK COMMAND
10120                           ;
10121                           ;*****************************************************************
10122
10123 100554  012737  140005  101560          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
```

TEST 7: WRITE DATA RETRY

```
10124 100562  012704  101560                MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10125 100566  012737  000024  101566        MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10126 100574  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10127 100600  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10128 100604  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10129 100610  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
10130 100614  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10131 100616  001406                        BEQ     180$                    ;BR. IF OK
10132 100620  005237  002212                INC     FATFLG                  ;BUMP COUNT
10136 100624                                ERRHRD  ERRNO.WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      100624  104456                                                            TRAP    C$ERHRD
      100626  001353                                                            .WORD   747
      100630  005111                                                            .WORD   WRTERR
      100632  012136                                                            .WORD   PKTSSR
10137 100634                        180$:   CKLOOP                          ;LOOP IF SELECTED
      100634  104406                                                            TRAP    C$CLP1
10138 100636  005303                        DEC     R3                      ;COUNT NUMBER OF RECORDS
10139 100640  001342                        BNE     177$                    ;BR. IF MORE RECORDS TO WRITE
10140
10141                               ;*****************************************************************
10142                               ;
10143                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10144                               ;
10145                               ;*****************************************************************
10146
10147 100642  004737  011104                JSR     PC,REWIND               ;ISSUE REWIND
10148 100646  103411                        BCS     182$                    ;BR. IF ALL IS WELL
10149 100650  010004                        MOV     R0,R4                   ;GET PACKET ADDRESS
10150 100652  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10151 100656  005237  002212                INC     FATFLG                  ;BUMP COUNT
10155 100662                                ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND FAILED
      100662  104456                                                            TRAP    C$ERHRD
      100664  001354                                                            .WORD   748
      100666  102765                                                            .WORD   T27RWN
      100670  012136                                                            .WORD   PKTSSR
10156 100672                        182$:   CKLOOP                          ;SELECT LOOP MAYBE
      100672  104406                                                            TRAP    C$CLP1
10157
10158                               ;*****************************************************************
10159                               ;
10160                               ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
10161                               ;BIT 15 SETS DIRECTION   0=FORWARD    1=REVERSE
10162                               ;
10163                               ;*****************************************************************
10164
10165 100674  012703  000001                MOV     #1.,R3                  ;SPACE 1 RECORD FORWARD
10166 100700  004737  010556                JSR     PC,SPACE                ;ISSUE SPACE COMMAND
10167 100704  103411                        BCS     185$                    ;BR. IF COMMAND OK
10168 100706  010004                        MOV     R0,R4                   ;GET PACKET ADDRESS
10169 100710  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR STATUS
10170 100714  005237  002212                INC     FATFLG                  ;BUMP COUNT
10174 100720                                ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD COMMAND FAILED
      100720  104456                                                            TRAP    C$ERHRD
      100722  001355                                                            .WORD   749
      100724  104227                                                            .WORD   T27SCF
      100726  012136                                                            .WORD   PKTSSR
10175 100730                        185$:   CKLOOP                          ;LOOP IF SELECTED
```

TEST 7: WRITE DATA RETRY

```
                100730  104406                                                                  TRAP    C$CLP1
 10176  100732  012703  000144                  MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
 10177  100736  013737  003114  101562          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 10178
 10179                                  ;*****************************************************************
 10180                                  ;
 10181                                  ;WRITE DATA RETRY,ACK COMMAND
 10182                                  ;
 10183                                  ;*****************************************************************
 10184
 10185  100744  012737  101005  101560  190$:   MOV     #101005,T27PK3          ;WRITE DATA RETRY,ACK COMMAND
 10186  100752  012704  101560          MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 10187  100756  012737  000024  101566  MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
 10188  100764  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 10189  100770  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 10190  100774  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 10191  101000  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
 10192  101004  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 10193  101006  001406                  BEQ     200$                    ;BR, IF OK
 10194  101010  005237  002212          INC     FATFLG                  ;BUMP COUNT
 10198  101014                          ERRHRD  ERRNO,T27WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        101014  104456                                                                  TRAP    C$ERHRD
        101016  001356                                                                  .WORD   750
        101020  103321                                                                  .WORD   T27WDC
        101022  012136                                                                  .WORD   PKTSSR
 10199  101024                  200$:   CKLOOP                          ;LOOP IF SELECTED
        101024  104406                                                                  TRAP    C$CLP1
 10200  101026  013737  003114  101562          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 10201
 10202                                  ;*****************************************************************
 10203                                  ;
 10204                                  ;WRITE DATA,CVC=1,ACK COMMAND
 10205                                  ;
 10206                                  ;*****************************************************************
 10207
 10208  101034  012737  140005  101560          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 10209  101042  012704  101560          MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 10210  101046  012737  000024  101566  MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
 10211  101054  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 10212  101060  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 10213  101064  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 10214  101070  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
 10215  101074  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 10216  101076  001406                  BEQ     210$                    ;BR, IF OK
 10217  101100  005237  002212          INC     FATFLG                  ;BUMP COUNT
 10221  101104                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        101104  104456                                                                  TRAP    C$ERHRD
        101106  001357                                                                  .WORD   751
        101110  005111                                                                  .WORD   WRTERR
        101112  012136                                                                  .WORD   PKTSSR
 10222  101114                  210$:   CKLOOP                          ;LOOP IF SELECTED
        101114  104406                                                                  TRAP    C$CLP1
 10223  101116  005303                  DEC     R3                      ;BUMP DOWN RECORD COUNTER
 10224  101120  001311                  BNE     190$                    ;BR, IF MORE RECORDS TO WRITE RETRY
 10225
 10226                                  ;*****************************************************************
 10227                                  ;
```

TEST 7: WRITE DATA RETRY

```
10228                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10229                                   ;
10230                                   ;*****************************************************************
10231
10232 101122  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10233 101126  103411                            BCS     230$                    ;BR, IF NO PROBLEM
10234 101130  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10235 101134  010004                            MOV     R0,R4                   ;GET PACKET ADDRESS
10236 101136  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10240 101142                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
       101142  104456                                                                    TRAP    C$ERHRD
       101144  001360                                                                    .WORD   752
       101146  102765                                                                    .WORD   T27RWN
       101150  012136                                                                    .WORD   PKTSSR
10241 101152                            230$:   CKLOOP                          ;LOOP IF SELECTED
       101152  104406                                                                    TRAP    C$CLP1
10242
10243                                   ;*****************************************************************
10244                                   ;
10245                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10246                                   ;
10247                                   ;*****************************************************************
10248
10249 101154  013701  101470                    MOV     T27BFR+6,R1             ;PICK UP XST0
10250 101160  010102                            MOV     R1,R2                   ;SET UP EXPECTED
10251 101162  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10252 101166  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
10253 101170  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
10254 101172  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10258 101176                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
       101176  104456                                                                    TRAP    C$ERHRD
       101200  001361                                                                    .WORD   753
       101202  102461                                                                    .WORD   T27BOT
       101204  015564                                                                    .WORD   EXPREC
10259 101206                            240$:   CKLOOP                          ;LOOP IF SELECTED
       101206  104406                                                                    TRAP    C$CLP1
10260 101210  012704  101560                    MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10261 101214  012737  000010  101562            MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10262
10263                                   ;*****************************************************************
10264                                   ;
10265                                   ;ACK,CVC=1,SPACE FORWARD COMMAND
10266                                   ;
10267                                   ;*****************************************************************
10268
10269 101222  012737  140010  101560            MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10270 101230  010465  000000            250$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10271 101234  005237  101610            252$:   INC     T27CNU                  ;BUMP TIMER
10272 101240                                    DELAY   1                       ;DELAY ABOUT 100US
       101240  012727  000001                                                            MOV     #1,(PC)+
       101244  000000                                                                    .WORD   0
       101246  013727  002116                                                            MOV     L$DLY,(PC)+
       101252  000000                                                                    .WORD   0
       101254  005367  177772                                                            DEC     -6(PC)
       101260  001375                                                                    BNE     .-4
       101262  005367  177756                                                            DEC     -22(PC)
       101266  001367                                                                    BNE     .-20
```

TEST 7: WRITE DATA RETRY

```
10273 101270  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
10274 101274  032701  000200                  BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10275 101300  001755                          BEQ     252$                    ;KEEP COUNTING UNTIL SET
10276 101302  016501  000002                  MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10277 101306  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10278 101312  020201                          CMP     R2,R1                   ;WAS EVERYTHING OK
10279 101314  001406                          BEQ     260$                    ;BR, IF ALL IS WELL
10280 101316  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10284 101322                                  ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      101322  104456                                                                  TRAP    C$ERHRD
      101324  001362                                                                  .WORD   754
      101326  104227                                                                  .WORD   T27SCF
      101330  012136                                                                  .WORD   PKTSSR
10285 101332                          260$:   CKLOOP                          ;LOOP IF SELECTED
      101332  104406                                                                  TRAP    C$CLP1
10286 101334  013701  101606                  MOV     T27CNT,R1               ;TIME FOR WRITE SPACING
10287 101340  013702  101610                  MOV     T27CNU,R2               ;TIME FOR WRITE RETRY SPACING
10288 101344  160102                          SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10289 101346  160102                          SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10290 101350  160102                          SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10291 101352  042702  000077                  BIC     #77,R2                  ;CLEAR LOW 6 BITS
10292 101356  042701  000777                  BIC     #000777,R1              ;SETTING UP CONSTANTS
10293 101362  020102                          CMP     R1,R2                   ;CHECK FOR DIFFERENCE
10294 101364  001406                          BEQ     300$                    ;BR, IF GOOD @@@@ CHECK @@@@
10295 101366  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10299 101372                                  ERRHRD  ERRNO,T27TIM,EXPREC     ;TIME WAS NOT DIFFERENT ENOUGH
      101372  104456                                                                  TRAP    C$ERHRD
      101374  001363                                                                  .WORD   755
      101376  102554                                                                  .WORD   T27TIM
      101400  015564                                                                  .WORD   EXPREC
10300 101402                          300$:   CKLOOP                          ;LOOP IF SELECTED
      101402  104406                                                                  TRAP    C$CLP1
10301 101404                                  ENDSUB                          ;<<<<<<<<<<<< END SUBTEST >>>>>>>>>>>>
      101404                                                                  L10127:
      101404  104403                                                                  TRAP    C$ESUB
10302 101406  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
10303 101414  103402                          BLO     999$                    ;BR, IF LESS THAN 25
10304 101416  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10305 101422                          999$:
10306                                 ;
10307                                 ;
10308                                 ;
10309 101422  004737  016546                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
10310 101426  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
10311 101430  000137  074766                  JMP     T27LOOP                 ;EXECUTE AGAIN
10312 101434                          163$:
10313 101434                                  EXIT    TST                     ;ALL DONE THIS TEST
      101434  104432                                                                  TRAP    C$EXIT
      101436  003304                                                                  .WORD   L10122-.
```

TEST 7: WRITE DATA RETRY

```
10315                                   ;+
10316                                   ;LOCAL STORAGE FOR THIS TEST
10317                                   ;-
10321 101440                            T27PACKET:                      ;COMMAND PACKET FOR TEST
10322 101440  100004                            .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
10323 101442  101450                            .WORD   T27DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
10324 101444  000000                            .WORD   0
10325 101446  000012                            .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
10326 101450                            T27DATA:                        ;CHARACTERISTICS DATA BLOCK
10327 101450  101462                            .WORD   T27BFR          ;ADDRESS OF MESSAGE BUFFER
10328 101452  000000                            .WORD   0
10329 101454  000024                            .WORD   20.             ;LENGTH OF MESSAGE BUFFER
10330 101456  000000                            .WORD   0
10331 101460  000000                    T27DSW: .WORD   0               ;SELECT DRIVE 0
10332 101462                            T27BFR: .BLKW   25.             ;MESSAGE BUFFER
10333                                   ;
10334                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
10335                                   ;
10337         101550                            .=<.+10>&177770
10339 101550                            T27PK2:
10340 101550  100006                            .WORD   100006          ;WRITE SUB SYS MEM COMMAND,  AND ACK
10341 101552  101570                            .WORD   T27BF2          ;ADDRESS OF SELECT BLOCK DATA
10342 101554  000000                            .WORD   0
10343 101556  000006                            .WORD   6.              ;SIZE OF DATA PACKET
10344
10348 101560                            T27PK3:
10349 101560  100005                            .WORD   100005          ;REREAD COMMAND, AND ACK
10350 101562                            T27RB:
10351 101562  003114                    T27WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
10352 101564  000000                            .WORD   0
10353 101566  000000                    T27SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
10354                                           .EVEN
10355                                   ;
10356                                   ;
10357                                   ;
10358 101570                            T27BF2:
10359 101570     010                    T27BS0: .BYTE   10              ;BSEL0 AREA
10360 101571     200                    T27BS1: .BYTE   200             ;BSEL1 AREA
10361 101572  000000                    T27S2:  .WORD   0               ;SEL 2 AREA
10362 101574  000000                    T27S3:  .WORD   0               ;DATA AREA
10363                                   ;
10364                                   ;
10365                                           .EVEN
10366                                   ;TAPE MOTION PACKET COMMAND VALUES
10367
10368 101576  100205                    T27RN:  .WORD   100205          ;REREAD DATA (NEXT)
10369 101600  100605                    T27WDR: .WORD   100605          ;REREAD DATA RETRY
10370 101602  102205                    T27CON: .WORD   102205          ;WRITE CONTINOUS
10371 101604  177777                            .WORD   177777          ;END OF DATA
10372
10373                                   ;
10374 101606  000000                    T27CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10375 101610  000000                    T27CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10376 101612  000000                    T27DLY: .WORD   0               ;DELAY COUNTER
10377
```

```
10379
10380                                   ;+
10381                                   ;LOCAL TEXT MESSAGES FOR TEST
10382                                   ;-
10383
10384
10385 101614      124     141     160   T27WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
10386 101702      124     123     123   T27RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
10387 101751      122     105     122   T27RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
10388 102046      120     117     123   T27SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
10389 102130      122     111     102   T27LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
10390 102200      124     123     123   T27WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
10391 102255      111     154     154   T27LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
10392 102336      122     105     122   T27SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
10393 102372      124     123     123   T27WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command,At BOT'
10394 102461      124     141     160   T27BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XST0)'
10395 102554      127     122     111   T27TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
10396 102631      122     105     122   T27EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
10397 102710      124     123     123   T27TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
10398 102765      122     145     167   T27RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
10399 103034      122     101     115   T27RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
10400 103107      124     123     123   T27AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
10401 103156      104     162     151   T27OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
10402 103231      124     123     123   T27WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
10403 103321      124     123     123   T27WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
10404 103374      103     126     103   T27VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
10405 103447      124     123     102   T27BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
10406 103522      127     122     111   T27WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
10407 103611      122     145     141   T27LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
10408 103673      122     145     141   T27LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
10409 103755      122     145     163   T27PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
10410 104043      122     145     141   T27TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
10411 104131      127     122     111   T27NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
10412 104227      124     123     123   T27SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
10413 104304      124     123     123   T27TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
10414 104366      124     123     123   T27WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
10415 104446      104     141     164   T27DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
10416 104543      127     162     151   TST27ID:        .ASCIZ  'Write Data Retry'
10417                                           .EVEN
10418                                   ;+
10419                                   ;
10420                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
10421                                   ;WRITE SUBSYSTEM MEMORY COMMAND
10422                                   ;
10423                                   ;-
10424
10425 104564                           T27REST:
10426 104564                                   SAVREG                          ;SAVE THE REGISTERS
10427 104570  012701  101440                   MOV     #T27PACKET,R1           ;START OF THE PACKET
10428 104574  012721  100004                   MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
10429 104600  012721  101450                   MOV     #T27DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
10430 104604  005021                           CLR     (R1)+                   ;EXTENDED ADDRESS
10431 104606  012721  000012                   MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
10432 104612  012721  101462                   MOV     #T27BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
10433 104616  005021                           CLR     (R1)+
10434 104620  012721  000024                   MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
10435 104624  005021                           CLR     (R1)+
```

TEST 7: WRITE DATA RETRY

```
10436 104626  012711  000000                    MOV     #0,(R1)                 ;SELECT DRIVE ZERO
10437 104632  012702  000030                    MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
10438 104636  012762  177777  101462  64$:      MOV     #177777,T27BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
10439 104644  005742                            TST     (R2)                    ;NEXT LOCATION
10440 104646  022702  000000                    CMP     #0,R2                   ;AT END OF LOOP YET
10441 104652  001371                            BNE     64$                     ;KEEP GOING UNTIL DONE
10442 104654  000207                            RTS     PC                      ;RETURN
10443
10444
10445 104656                          T27RT2:
10446 104656                                    SAVREG                          ;SAVE THE REGISTERS
10447 104662  012701  101550                    MOV     #T27PK2,R1              ;START OF THE PACKET
10448 104666  012721  100006                    MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
10449 104672  012721  101570                    MOV     #T27BF2,(R1)+           ;ADDRESS OF DATA BLOCK
10450 104676  005021                            CLR     (R1)+                   ;EXTENDED ADDRESS
10451 104700  012721  000006                    MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
10452 104704  005021                            CLR     (R1)+
10453 104706  012701  101570                    MOV     #T27BF2,R1              ;POINT TO DATA SEL AREA
10454 104712  005021                            CLR     (R1)+
10455 104714  005011                            CLR     (R1)
10456 104716  000207                            RTS     PC                      ;RETURN
10457 104720                          T27RT3:
10458 104720                                    SAVREG                          ;SAVE REGISTERS
10459 104724  012701  101560                    MOV     #T27PK3,R1              ;SET UP POINTER ADDRESS
10460 104730  005021                            CLR     (R1)+                   ;COMMAND SPACE
10461 104732  005021                            CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
10462 104734  005021                            CLR     (R1)+                   ;EXTENDED ADDRESS
10463 104736  005011                            CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
10464 104740  000207                            RTS     PC                      ;RETURN
10465 104742                                    ENDTST
      104742
      104742  104401                                                  L10122:
                                                                              TRAP    C$ETST
```

TEST 8: WRITE/READ TAPE MARK

```
                                        .SBTTL  TEST 8: WRITE/READ TAPE MARK
                                ;*
                                ;
                                ;THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES
                                ;PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE
                                ;BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE
                                ;TAPE MARK. IN addition, SINCE WRITE TAPE MARK IS THE FIRST
                                ;SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED
                                ;THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT
                                ;FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 3 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
                                        BGNTST
                                                                                T8::
                                MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
                                CLR     KTENABLE                ;TURN KT11 OFF
                                JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
                                MOV     #TST28ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
                                JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
                                MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
                                ;*
                                ;
                                ;TEST 8, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A FORMAT COMMAND (WITH ANY LEGAL MODE
                                ;CODE) WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS
                                ;REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL
                                ;VALID MODE CODES ARE CHECKED.
                                ;
                                ;
                                ;-

T28LOOP:
                                        BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T8.1:
                                                                                TRAP    C$BSUB
                                JSR     PC,T28REST              ;SET COMMAND PACKET
                                JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
                                JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
                                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                BCS     20$                     ;BR IF INIT WAS OK
                                INC     FATFLG                  ;BUMP COUNT
                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                        TRAP    C$ERDF
                                                                        .WORD   801
                                                                        .WORD   SFIERR
                                                                        .WORD   SFIMSG
20$:    MOV     #7,T28DSW               ;SET UP DRIVE NUMBER
        MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

TEST 8: WRITE/READ TAPE MARK

```
10524 105060  103407                        BCS     24$                     ;BR, IF COMMAND ISSUED OK
10525 105062  005237  002212                INC     FATFLG                  ;BUMP COUNT
10529 105066  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10530 105070                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      105070  104456                                                                TRAP    C$ERHRD
      105072  001442                                                                .WORD   802
      105074  005054                                                                .WORD   WRTMSG
      105076  012124                                                                .WORD   SFIMSG
10531 105100                        24$:    CKLOOP
      105100  104406                                                                TRAP    C$CLP1
10532 105102  005737  002216                TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
10533 105106  001044                        BNE     50$                     ;BR IF SWITCH IS ON
10534
10535 105110  112737  000200  110261        MOVB    #200,T28BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
10536 105116  112737  000010  110260        MOVB    #10,T28BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
10537 105124  012704  110240                MOV     #T28PK2,R4              ;WRITE SUBSYS MEM PACKET
10538 105130  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10539 105134  004737  016426                JSR     PC,CHKTSSR              ;WAIT FOR SSR
10540 105140  103407                        BCS     30$                     ;BR, IF NO ERROR
10541 105142  010001                        MOV     R0,R1                   ;ERROR, SAVE TSSR
10542 105144  005237  002212                INC     FATFLG                  ;BUMP COUNT
10546 105150                                ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
      105150  104456                                                                TRAP    C$ERHRD
      105152  001443                                                                .WORD   803
      105154  110755                                                                .WORD   T28SSR
      105156  012136                                                                .WORD   PKTSSR
10547 105160                        30$:    CKLOOP                          ;LOOP IF SELECTED
      105160  104406                                                                TRAP    C$CLP1
10548 105162  012704  110130                MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10549 105166  012737  000007  110150        MOV     #7,T28DSW               ;SELECT DRIVE 7
10550 105174  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10551 105200  103407                        BCS     50$                     ;BR, IF COMMAND ISSUED OK
10552 105202  005237  002212                INC     FATFLG                  ;BUMP COUNT
10556 105206  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10557 105210                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      105210  104456                                                                TRAP    C$ERHRD
      105212  001444                                                                .WORD   804
      105214  005054                                                                .WORD   WRTMSG
      105216  012124                                                                .WORD   SFIMSG
10558 105220                        50$:    CKLOOP                          ;SCOPE LOOP
      105220  104406                                                                TRAP    C$CLP1
10559 105222  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10560 105226  032701  000100                BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
10561 105232  001006                        BNE     60$                     ;BR, IF OFFLINE (GOOD)
10562 105234  005237  002212                INC     FATFLG                  ;BUMP COUNT
10566 105240                                ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
      105240  104455                                                                TRAP    C$ERDF
      105242  001445                                                                .WORD   805
      105244  111310                                                                .WORD   T28OFL
      105246  012124                                                                .WORD   SFIMSG
10567 105250                        60$:    CKLOOP                          ;LOOP IF SELECTED
      105250  104406                                                                TRAP    C$CLP1
10568 105252  012703  110276                MOV     #T28RN,R3               ;POINTER FOR COMMANDS
10569 105256  011337  110250        65$:    MOV     (R3),T28PK3             ;TAPE READ COMMAND IN PLACE
10570 105262  012704  110250                MOV     #T28PK3,R4              ;R4 = POINTER TO PACKET
10571 105266  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10572 105272  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

SEQ 0328

TEST 8: WRITE/READ TAPE MARK

```
10573 105276  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10574 105302  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
10575 105306  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10576 105310  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
10577 105312  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10581 105316                                  ERRHRD  ERRNO,T28TM,PKTSSR      ;TSSR INCORRECT AFTER FORMAT CMD
      105316  104456                                                                  TRAP    C$ERHRD
      105320  001446                                                                  .WORD   806
      105322  111164                                                                  .WORD   T28TM
      105324  012136                                                                  .WORD   PKTSSR
10582 105326                          80$:    CKLOOP                          ;LOOP IF SELECTED
      105326  104406                                                                  TRAP    C$CLP1
10583 105330  005723                          TST     (R3)+           ;POINT TO NEXT COMMAND
10584 105332  022713  177777                  CMP     #177777,(R3)            ;END OF THE COMMANDS YET
10585 105336  001401                          BEQ     90$                     ;BR, IF DONE
10586 105340  000746                          BR      65$                     ;MORE COMMAND(S) TO GO
10587 105342                          90$:
10588 105342                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      105342                                                                        L10131:
      105342  104403                                                                  TRAP    C$ESUB
10589 105344  023727  002212  000017                  CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
10590 105352  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
10591 105354  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10592 105360                          999$:
```

TEST 8: WRITE/READ TAPE MARK

```
10594                                   ;*
10595                                   ;
10596                                   ;TEST 8, SUBTEST 2
10597                                   ;
10598                                   ;VERIFIES THAT A FORMAT COMMAND WITH AN ILLEGAL MODE
10599                                   ;CODE CAUSES FUNCTION REJECT TERMINATION WITH THE
10600                                   ;ILLEGAL COMMAND (ILC) ERROR BIT SET. ALL ILLEGAL
10601                                   ;MODE CODES ARE CHECKED.
10602                                   ;
10603                                   ;
10604                                   ;
10605                                   ;-
10606 105360                                   BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
       105360                                                                                   T8.2:
       105360  104402                                                                             TRAP    C$BSUB
10607 105362  004737  112206                   JSR     PC,T28REST              ;SET COMMAND PACKET
10608 105366  004737  112300                   JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10609 105372  004737  112342                   JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10610 105376  004737  016064                   JSR     PC,SUFINIT              ;DO INITIALIZE ON CONTROLLER
10611 105402  103407                           BCS     20$                     ;BR IF INIT WAS OK
10612 105404  005237  002212                   INC     FATFLG                  ;BUMP COUNT
10616 105410  010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10617 105412                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       105412  104455                                                                           TRAP    C$ERDF
       105414  001447                                                                           .WORD   807
       105416  003650                                                                           .WORD   SFIERR
       105420  012124                                                                           .WORD   SFIMSG
10618 105422  013737  002172  110150  20$:      MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
10619 105430  012704  110130                   MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10620 105434  004737  010752                   JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10621 105440  103407                           BCS     24$                     ;BR, IF COMMAND ISSUED OK
10622 105442  005237  002212                   INC     FATFLG                  ;BUMP COUNT
10626 105446  010001                           MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10627 105450                                   ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       105450  104456                                                                           TRAP    C$ERHRD
       105452  001450                                                                           .WORD   808
       105454  005054                                                                           .WORD   WRTMSG
       105456  012124                                                                           .WORD   SFIMSG
10628 105460                           24$:     CKLOOP                          ;LOOP IF SELECTED
       105460  104406                                                                           TRAP    C$CLP1
10629 105462  012703  110266                   MOV     #T28IMV,R3              ;SET POINTER FOR COMMANDS
10630 105466  011337  110250           30$:     MOV     (R3),T28PK3             ;SET UP NEXT COMMAND
10631 105472  013737  003114  110252           MOV     FREE,T28RB              ;STARTING WRITE BUFFER ADDRESS
10632 105500  012704  110250                   MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10633 105504  012737  000400  110256           MOV     #256.,T28SZ             ;SET UP RECORD SIZE IN PACKET
10634 105512  010465  000000                   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10635 105516  004737  016340                   JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
10636 105522  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10637 105526  012702  100206                   MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
10638 105532  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
10639 105534  001406                           BEQ     75$                     ;BR, IF OK
10640 105536  005237  002212                   INC     FATFLG                  ;BUMP COUNT
10644 105542                                   ERRHRD  ERRNO,T28WDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
       105542  104456                                                                           TRAP    C$ERHRD
       105544  001451                                                                           .WORD   809
       105546  110617                                                                           .WORD   T28WDF
       105550  012136                                                                           .WORD   PKTSSR
```

TEST 8: WRITE/READ TAPE MARK

```
10645 105552                          '5$:    CKLOOP                                  ;LOOP IF SELECTED
      105552  104406                                                                                  TRAP    C$CLP1
10646 105554  013701  110160                  MOV     T28BFR+6,R1                     ;GET MESSAGE BUFFER
10647 105560  010102                          MOV     R1,R2                           ;SET UP EXPECTED
10648 105562  052702  001000                  BIS     #BIT9,R2                        ;SET THE ILC BIT IN EXPECTED
10649 105566  020102                          CMP     R1,R2                           ;ARE THEY EQUAL
10650 105570  001406                          BEQ     180$                            ;BR, IF EQUAL (ALL IS WELL)
10651 105572  005237  002212                  INC     FATFLG                          ;BUMP COUNT
10655 105576                                  ERRHRD  ERRNO,T28LOQ,EXPREC             ;THE ILC BIT WAS NOT SET IN XSTO
      105576  104456                                                                                  TRAP    C$ERHRD
      105600  001452                                                                                  .WORD   810
      105602  110674                                                                                  .WORD   T28LOQ
      105604  015564                                                                                  .WORD   EXPREC
10656 105606                          180$:   CKLOOP
      105606  104406                                                                                  TRAP    C$CLP1
10657 105610  005723                          TST     (R3)+                   ;BUMP TO NEXT ADDRESS (COMMAND)
10658 105612  021327  177777                  CMP     (R3),#177777                    ;CHECK FOR END OF COMMAND BUFFER
10659 105616  001323                          BNE     30$                             ;BR, IF MORE COMMANDS TO TRY
10660 105620                          190$:   CKLOOP                                  ;LOOP IF SELECTED
      105620  104406                                                                                  TRAP    C$CLP1
10661 105622                                  ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      105622                                                                                    L10132:
      105622  104403                                                                                  TRAP    C$ESUB
10662 105624  023727  002212  000017                  CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
10663 105632  103402                                  BLO     999$                            ;BR, IF LESS THAN 25
10664 105634  004737  017272                          JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
10665 105640                          999$:
```

TEST 8: WRITE/READ TAPE MARK

```
10667                                   ;
10668                                   ;
10669                                   ;TEST 8, SUBTEST 3
10670                                   ;
10671                                   ;VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE
10672                                   ;PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED
10673                                   ;TO DETECT THE WRITTEN TAPE MARKS TERMINATE WITH TAPE
10674                                   ;STATUS ALERT WITH THE TAPE MARK DETECTED (TMK) STATUS
10675                                   ;BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED.
10676                                   ;
10677                                   ;1.     THE CONTROLLER IS INITIALIZED AND TAPE REWOUND.
10678                                   ;       THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
10679                                   ;
10680                                   ;2.     A WRITE TAPE MARK COMMAND WITH CVC=1 IS ISSUED
10681                                   ;       AND PROPER TERMINATION AND STATUS IS VERIFIED
10682                                   ;       (I.E. VCK=0 AND TMK=1).
10683                                   ;
10684                                   ;3.     SEVERAL MORE WRITE TAPE MARK COMMANDS, THESE WITH
10685                                   ;       CVC=0 ARE ISSUED AND PROPER TERMINATION (NORMAL)
10686                                   ;       AND STATUS (TMK) VERIFIED.
10687                                   ;
10688                                   ;4.     A READ REVERSE COMMAND IS ISSUED AND PROPER
10689                                   ;       TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK)
10690                                   ;       VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS
10691                                   ;       TRANSFERRED INTO MEMORY.
10692                                   ;
10693                                   ;5.     A SPACE RECORDS REVERSE COMMAND IS ISSUED AND
10694                                   ;       PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS
10695                                   ;       (TMK) VERIFIED.
10696                                   ;
10697                                   ;6.     THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS
10698                                   ;       ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT)
10699                                   ;       AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED
10700                                   ;       THAT NO DATA IS TRANSFERRED INTO MEMORY.
10701                                   ;
10702                                   ;7.     A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A
10703                                   ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10704                                   ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
10705                                   ;       OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL
10706                                   ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
10707                                   ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
10708                                   ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
10709                                   ;       TO BE PREMATUPELY TERMINATED. THIS SHOULD LEAVE
10710                                   ;       THE POSITION JUST BEFORE THE FIRST RECORD ON
10711                                   ;       TAPE.
10712                                   ;
10713                                   ;8.     TAPE POSITION IS VERIFIED BY ISSUING ANOTHER
10714                                   ;       SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT
10715                                   ;       TAPE STATUS ALERT TERMINATION OCCURS, WITH THE
10716                                   ;       REVERSE INTO BOT (RIB) STATUS ERROR BIT SET.
10717                                   ;
10718                                   ;9.     A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A
10719                                   ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10720                                   ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
10721                                   ;       OCCURED, TMK=1, AND THAT RBPCR (RESIDUAL
10722                                   ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
10723                                   ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
```

TEST 8: WRITE/READ TAPE MARK

```
                                        ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
                                        ;       TO BE PREMATURELY TERMINATED.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;-
                                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T8.3:
                                                                                TRAP    C$BGSUB
                                        JSR     PC,T28REST              ;SET COMMAND PACKET
                                        JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
                                        JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
                                        MOV     #10000.,T28DLY          ;SET UP DELAY ROUTINE
                                10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                        BCS     20$                     ;BR IF INIT WAS OK
                                        DELAY   250                     ;DELAY ABOUT .25 SECONDS
                                                                                MOV     #250.,(PC)+
                                                                                .WORD   0
                                                                                MOV     L$DLY,(PC)+
                                                                                .WORD   0
                                                                                DEC      6(PC)
                                                                                BNE     .-4
                                                                                DEC     -22(PC)
                                                                                BNE     . 20
                                        DEC     T28DLY                  ;BUMP DELAY ROUTINE DOWN
                                        BNE     10$                     ;BR, IF MORE DELAY TIME LEFT
                                        INC     FATFLG                  ;BUMP COUNT
                                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                                TRAP    C$ERDF
                                                                                .WORD   811
                                                                                .WORD   SFIERR
                                                                                .WORD   SFIMSG
                                20$:    MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
                                        MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                        BCS     23$                     ;BR, IF COMMAND ISSUED OK
                                        INC     FATFLG                  ;BUMP COUNT
                                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
                                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                                                                                TRAP    C$ERHRD
                                                                                .WORD   812
                                                                                .WORD   WRTMSG
                                                                                .WORD   SFIMSG
                                23$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1
                                        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
                                        BCS     30$                     ;BR, IF NO PROBLEM
                                        MOV     TSSR(R5),R1             ;GET TSSR
                                        MOV     R0,R4                   ;SAVE PACKET ADDRESS
                                        INC     FATFLG                  ;BUMP COUNT
                                        ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
                                                                                TRAP    C$ERHRD
                                                                                .WORD   813
```

TEST 8: WRITE/READ TAPE MARK

```
                106032  111241                                                                  .WORD   T28RWN
                106034  012136                                                                  .WORD   PKTSSR
  10769         106036                          30$:    CKLOOP                  ;LOOP IF SELECTED
                106036  104406                                                                  TRAP    C$CLP1
  10770         106040  013701  110160                  MOV     T28BFR+6,R1     ;PICK UP XSTO
  10771         106044  010102                  MOV     R1,R2                   ;SET UP EXPECTED
  10772         106046  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
  10773         106052  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
  10774         106054  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
  10775         106056  005237  002212          INC     FATFLG                  ;BUMP COUNT
  10779         106062                          ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                106062  104456                                                                  TRAP    C$ERHRD
                106064  001456                                                                  .WORD   814
                106066  111117                                                                  .WORD   T28BOT
                106070  015564                                                                  .WORD   EXPREC
  10780         106072                          40$:    CKLOOP                  ;LOOP IF SELECTED
                106072  104406                                                                  TRAP    C$CLP1
  10781         106074  005737  002216          42$:    TST     EXTFEA          ;CHECK FOR EXTENDED FEATURES SW SWITCH
  10782         106100  001024                  BNC     50$                     ;BR IF SWITCH IS ON
  10783         106102  112737  000200  110261          MOVB    #200,T28BS1     ;WRITE MISCELLANEOUS CONT/READ STATUS
  10784         106110  112737  000010  110260          MOVB    #10,T28BS0      ;FUNC. SEL. BIT (TURN ON EXTFEA SWITCH)
  10785         106116  012704  110240                  MOV     #T28PK2,R4      ;WRITE SUBSYS MEM PACKET
  10786         106122  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
  10787         106126  004737  016426                  JSR     PC,CHKTSSR      ;WAIT FOR SSR
  10788         106132  103407                  BCS     50$                     ;BR, IF NO ERROR
  10789         106134  010001                  MOV     R0,R1                   ;ERROR, SAVE TSSR
  10790         106136  005237  002212          INC     FATFLG                  ;BUMP COUNT
  10794         106142                          ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
                106142  104456                                                                  TRAP    C$ERHRD
                106144  001457                                                                  .WORD   815
                106146  110755                                                                  .WORD   T28SSR
                106150  012136                                                                  .WORD   PKTSSR
  10795         106152                          50$:    CKLOOP                  ;LOOP IF SELECTED
                106152  104406                                                                  TRAP    C$CLP1
  10796         106154  012737  000007  110150          MOV     #7,T28DSW       ;SET UP DRIVE NUMBER
  10797         106162  012704  110130                  MOV     #T28PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
  10798         106166  004737  010752                  JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
  10799         106172  103407                  BCS     60$                     ;BR, IF COMMAND ISSUED OK
  10800         106174  005237  002212          INC     FATFLG                  ;BUMP COUNT
  10804         106200  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
  10805         106202                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                106202  104456                                                                  TRAP    C$ERHRD
                106204  001460                                                                  .WORD   816
                106206  005054                                                                  .WORD   WRTMSG
                106210  012124                                                                  .WORD   SFIMSG
  10806         106212                          60$:    CKLOOP                  ;SCOPE LOOP
                106212  104406                                                                  TRAP    C$CLP1
  10807         106214  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
  10808         106220  032701  000100                  BIT     #OFL,R1         ;CHECK FOR THE OFFLINE BIT SET
  10809         106224  001006                  BNE     65$                     ;BR, IF OFFLINE (GOOD)
  10810         106226  005237  002212          INC     FATFLG                  ;BUMP COUNT
  10814         106232                          ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                106232  104455                                                                  TRAP    C$ERDF
                106234  001461                                                                  .WORD   817
                106236  111310                                                                  .WORD   T28OFL
                106240  012124                                                                  .WORD   SFIMSG
  10815         106242                          65$:    CKLOOP                  ;LOOP IF SELECTED
```

TEST 8: WRITE/READ TAPE MARK

```
                106242  104406                                                          TRAP    C$CLP1
 10816          106244  013737  002172  110150          MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
 10817          106252  012704  110130                  MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 10818          106256  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 10819          106262  103407                          BCS     68$                     ;BR, IF COMMAND ISSUED OK
 10820          106264  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 10824          106270  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 10825          106272                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                106272  104456                                                          TRAP    C$ERHRD
                106274  001462                                                          .WORD   818
                106276  005054                                                          .WORD   WRTMSG
                106300  012124                                                          .WORD   SFIMSG
 10826          106302                          68$:    CKLOOP                          ;LOOP IF SELECTED
                106302  104406                                                          TRAP    C$CLP1
 10827          106304  012737  140011  110250          MOV     #140011,T28PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
 10828          106312  012704  110250                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 10829          106316  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 10830          106322  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 10831          106326  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 10832          106332  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 10833          106336  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 10834          106340  001406                          BEQ     70$                     ;BR, IF OK
 10835          106342  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 10839          106346                                  ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE TAPE MARK
                106346  104456                                                          TRAP    C$ERHRD
                106350  001463                                                          .WORD   819
                106352  111363                                                          .WORD   T28WDC
                106354  012136                                                          .WORD   PKTSSR
 10840          106356                          70$:    CKLOOP                          ;LOOP IF SELECTED
                106356  104406                                                          TRAP    C$CLP1
 10841          106360  013701  110160                  MOV     T28BFR+6,R1             ;PICK UP XSTO (VCK CHECK)
 10842          106364  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 10843          106366  042702  000020                  BIC     #BIT4,R2                ;VCK SHOULD BE 0
 10844          106372  020102                          CMP     R1,R2                   ;IS VCK SET CORRECTLY
 10845          106374  001406                          BEQ     80$                     ;BR, IF VCK IS CLEAR
 10846          106376  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 10850          106402                                  ERRHRD  ERRNO,T28VCK,EXPREC     ;VCK WAS NOT CLEAR AFTER CVC=1
                106402  104456                                                          TRAP    C$ERHRD
                106404  001464                                                          .WORD   820
                106406  111442                                                          .WORD   T28VCK
                106410  015564                                                          .WORD   EXPREC
 10851          106412                          80$:    CKLOOP                          ;LOOP IF SELECTED
                106412  104406                                                          TRAP    C$CLP1
 10852          106414  013701  110160                  MOV     T28BFR+6,R1             ;PICK UP XSTO (CHECK TMK)
 10853          106420  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 10854          106422  052702  100000                  BIS     #BIT15,R2               ;TMK SHOULD BE SET
 10855          106426  020102                          CMP     R1,R2                   ;WAS TMK SET
 10856          106430  001406                          BEQ     90$                     ;BR, IF TMK WAS SET
 10857          106432  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 10861          106436                                  ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK WAS NOT SET AFTER WRT TAPE MARK
                106436  104456                                                          TRAP    C$ERHRD
                106440  001465                                                          .WORD   821
                106442  111515                                                          .WORD   T28TMK
                106444  015564                                                          .WORD   EXPREC
 10862          106446                          90$:    CKLOOP                          ;LOOP IF SELECTED
                106446  104406                                                          TRAP    C$CLP1
 10863          106450  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
```

TEST 8: WRITE/READ TAPE MARK

```
10864 106454  103411                    BCS     130$                    ;BR, IF NO PROBLEM
10865 106456  010004                    MOV     R0,R4                   ;SAVE PACKET ADDRESS
10866 106460  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR STATUS
10867 106464  005237  002212            INC     FATFLG                  ;BUMP COUNT
10871 106470                            ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
      106470  104456                                                            TRAP    C$ERHRD
      106472  001466                                                            .WORD   822
      106474  111241                                                            .WORD   T28RWN
      106476  012136                                                            .WORD   PKTSSR
10872 106500                    130$:   CKLOOP                          ;LOOP IF SELECTED
      106500  104406                                                            TRAP    C$CLP1
10873 106502  013701  110160            MOV     T28BFR+6,R1             ;PICK UP XSTO
10874 106506  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10875 106510  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10876 106514  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10877 106516  001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
10878 106520  005237  002212            INC     FATFLG                  ;BUMP COUNT
10882 106524                            ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      106524  104456                                                            TRAP    C$ERHRD
      106526  001467                                                            .WORD   823
      106530  111117                                                            .WORD   T28BOT
      106532  015564                                                            .WORD   EXPREC
10883 106534                    140$:   CKLOOP                          ;LOOP IF SELECTED
      106534  104406                                                            TRAP    C$CLP1
10884 106536  012703  000012      150$:   MOV     #10.,R3                 ;NUMBER OF RECORDS TO WRITE TM
10885 106542  012737  140011  110250    MOV     #140011,T28PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
10886 106550  012704  110250            MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10887 106554  010465  000000      155$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10888 106560  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10889 106564  016501  000002            MOV     TSSR(R5),R1             ;PICK UP TSSR
10890 106570  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
10891 106574  020102                    CMP     R1,R2                   ;WAS STATUS GOOD
10892 106576  001406                    BEQ     165$                    ;BR, IF TERMINATION WAS GOOD
10893 106600  005237  002212            INC     FATFLG                  ;BUMP COUNT
10897 106604                            ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
      106604  104456                                                            TRAP    C$ERHRD
      106606  001470                                                            .WORD   824
      106610  111363                                                            .WORD   T28WDC
      106612  012136                                                            .WORD   PKTSSR
10898 106614                    165$:   CKLOOP                          ;LOOP IF SELECTED
      106614  104406                                                            TRAP    C$CLP1
10899 106616  013701  110160            MOV     T28BFR+6,R1             ;PICK UP XSTO
10900 106622  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10901 106624  052702  100000            BIS     #BIT15,R2               ;SET TMK BIT IN EXPECTED
10902 106630  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10903 106632  001406                    BEQ     180$                    ;BR, IF EQUAL (OK)
10904 106634  005237  002212            INC     FATFLG                  ;BUMP COUNT
10908 106640                            ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK NOT SET AFTER WRT TAPE MARK
      106640  104456                                                            TRAP    C$ERHRD
      106642  001471                                                            .WORD   825
      106644  111515                                                            .WORD   T28TMK
      106646  015564                                                            .WORD   EXPREC
10909 106650                    180$:   CKLOOP                          ;LOOP IF SELECTED
      106650  104406                                                            TRAP    C$CLP1
10910 106652  005303                    DEC     R3                      ;BUMP COUNTER DOWN
10911 106654  001337                    BNE     155$                    ;BR, IF LESS THAN 10 TAPE MARKS
10912 106656  012700  177777            MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
```

TEST 8: WRITE/READ TAPE MARK

```
10913 106662  004737  017512                    JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
10914 106666  013737  003114  110252            MOV     FREE,T28WB              ;STARTING READ BUFFER ADDRESS
10915 106674  012737  140401  110250            MOV     #140401,T28PK3          ;READ REVERSE,ACK, COMMAND
10916 106702  012704  110250                    MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10917 106706  013737  000024  110256            MOV     20.,T28SZ               ;SET UP RECORD SIZE IN PACKET
10918 106714  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10919 106720  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10920 106724  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10921 106730  012702  100204                    MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10922 106734  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
10923 106736  001406                            BEQ     200$                    ;BR, IF OK
10924 106740  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10928 106744                                    ERRHRD  ERRNO,T28RDF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      106744  104456                                                            TRAP    C$ERHRD
      106746  001472                                                            .WORD   826
      106750  110454                                                            .WORD   T28RDF
      106752  012136                                                            .WORD   PKTSSR
10929 106754                          200$:     CKLOOP                          ;LOOP IF SELECTED
      106754  104406                                                            TRAP    C$CLP1
10930 106756  013701  110160                    MOV     T28FR+6,R1              ;PICK UP XSTO
10931 106762  010102                            MOV     R1,R2                   ;SET UP EXPECTED
10932 106764  052702  100000                    BIS     #BIT15,R2               ;TMK SHOULD BE SET
10933 106770  020102                            CMP     R1,R2                   ;IS TMK SET
10934 106772  001406                            BEQ     210$                    ;BR, IF TMK WAS SET (GOOD)
10935 106774  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10939 107000                                    ERRHRD  ERRNO,T28RRM,EXPREC     ;TMK NOT SET AFTER READ REV
      107000  104456                                                            TRAP    C$ERHRD
      107002  001473                                                            .WORD   827
      107004  111567                                                            .WORD   T28RRM
      107006  015564                                                            .WORD   EXPREC
10940 107010                          210$:     CKLOOP                          ;LOOP IF SELECTED
      107010  104406                                                            TRAP    C$CLP1
10941 107012  017701  074076                    MOV     @FREE,R1                ;FIRST LOC IN READ BUFFER
10942 107016  012702  177777                    MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
10943 107022  020102                            CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
10944 107024  001406                            BEQ     220$                    ;BR, IF NO DATA TRANS (GOOD)
10945 107026  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10949 107032                                    ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
      107032  104456                                                            TRAP    C$ERHRD
      107034  001474                                                            .WORD   828
      107036  112002                                                            .WORD   T28DTR
      107040  015564                                                            .WORD   EXPREC
10950 107042                          220$:     CKLOOP                          ;LOOP IF SELECTED
      107042  104406                                                            TRAP    C$CLP1
10951 107044  012737  100410  110250            MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
10952 107052  012737  000001  110252            MOV     #1,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
10953 107060  012704  110250                    MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10954 107064  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10955 107070  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10956 107074  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10957 107100  012702  100204                    MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10958 107104  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
10959 107106  001406                            BEQ     222$                    ;BR, IF OK
10960 107110  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10964 107114                                    ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
      107114  104456                                                            TRAP    C$ERHRD
      107116  001475                                                            .WORD   829
```

TEST 8: WRITE/READ TAPE MARK

```
                                                                                .WORD   T28RDG
                                                                                .WORD   PKTSSR
10965 107124                            222$:   CKLOOP                          ;LOOP IF SELECTED
      107124  104406                                                           TRAP    C$CLP1
10966 107126  013701  110160                      MOV     T28BFR+6,R1           ;PICK UP XSTO
10967 107132  010102                              MOV     R1,R2                 ;SET UP EXPECTED
10968 107134  052702  100000                      BIS     #BIT15,R2             ;TMK SHOULD BE SET
10969 107140  020102                              CMP     R1,R2                 ;IS TMK SET
10970 107142  001406                              BEQ     226$                  ;BR, IF TMK WAS SET (GOOD)
10971 107144  005237  002212                      INC     FATFLG                ;BUMP COUNT
10975 107150                                      ERRHRD  ERRNO,T28RRN,EXPREC   ;TMK NOT SET AFTER SPACE REV
      107150  104456                                                           TRAP    C$ERHRD
      107152  001476                                                           .WORD   830
      107154  111645                                                           .WORD   T28RRN
      107156  015564                                                           .WORD   EXPREC
10976 107160                            226$:   CKLOOP                          ;LOOP IF SELECTED
      107160  104406                                                           TRAP    C$CLP1
10977 107162  004737  011104                      JSR     PC,REWIND             ;CALL TAPE REWIND COMMAND
10978 107166  103411                              BCS     230$                  ;BR, IF NO PROBLEM
10979 107170  010004                              MOV     R0,R4                 ;SAVE PACKET ADDRESS
10980 107172  016501  000002                      MOV     TSSR(R5),R1           ;GET TSSR
10981 107176  005237  002212                      INC     FATFLG                ;BUMP COUNT
10985 107202                                      ERRHRD  ERRNO,T28RWN,PKTSSR   ;REWIND NOT ACCEPTED
      107202  104456                                                           TRAP    C$ERHRD
      107204  001477                                                           .WORD   831
      107206  111241                                                           .WORD   T28RWN
      107210  012136                                                           .WORD   PKTSSR
10986 107212                            230$:   CKLOOP                          ;LOOP IF SELECTED
      107212  104406                                                           TRAP    C$CLP1
10987 107214  013701  110160                      MOV     T28BFR+6,R1           ;PICK UP XSTO
10988 107220  010102                              MOV     R1,R2                 ;SET UP EXPECTED
10989 107222  052702  000002                      BIS     #BIT1,R2              ;SET BOT BIT IN EXPECTED
10990 107226  020102                              CMP     R1,R2                 ;DOES EXP = REC'D
10991 107230  001406                              BEQ     240$                  ;BR, IF EQUAL (OK)
10992 107232  005237  002212                      INC     FATFLG                ;BUMP COUNT
10996 107236                                      ERRHRD  ERRNO,T28BOT,EXPREC   ;TAPE NOT AT BOT AFTER REWIND
      107236  104456                                                           TRAP    C$ERHRD
      107240  001500                                                           .WORD   832
      107242  111117                                                           .WORD   T28BOT
      107244  015564                                                           .WORD   EXPREC
10997 107246                            240$:   CKLOOP                          ;LOOP IF SELECTED
      107246  104406                                                           TRAP    C$CLP1
10998 107250  012700  177777                      MOV     #177777,R0            ;VALUE TO WRITTEN TO MEMORY
10999 107254  004737  017512                      JSR     PC,FILLMEM            ;FILL MEM WITH ALL ONES
11000 107260  013737  003114  110252              MOV     FREE,T28RB            ;STARTING READ BUFFER ADDRESS
11001 107266  012737  100001  110250              MOV     #100001,T28PK3        ;READ FORWARD,ACK, COMMAND
11002 107274  012704  110250                      MOV     #T28PK3,R4            ;SET UP R4 WITH PACKET ADDRESS
11003 107300  013737  000024  110256              MOV     20.,T28SZ             ;SET UP RECORD SIZE IN PACKET
11004 107306  010465  000000                      MOV     R4,TSDB(R5)           ;ISSUE COMMAND
11005 107312  004737  016340                      JSR     PC,WAITF              ;WAIT FOR SSR TO SET
11006 107316  016501  000002                      MOV     TSSR(R5),R1           ;GET TSSR CONTENTS
11007 107322  012702  100204                      MOV     #SSR!SC!BIT2,R2       ;SET UP EXPECTED
11008 107326  020102                              CMP     R1,R2                 ;ARE THEY EQUAL
11009 107330  001406                              BEQ     245$                  ;BR, IF OK
11010 107332  005237  002212                      INC     FATFLG                ;BUMP COUNT
11014 107336                                      ERRHRD  ERRNO,T28WDE,PKTSSR   ;TSSR INCORRECT AFTER WRITE DATA
      107336  104456                                                           TRAP    C$ERHRD
```

TEST 8: WRITE/READ TAPE MARK

```
                                                                                .WORD   833
                                                                                .WORD   T28WDE
                                                                                .WORD   PKTSSR
11015 107346                            245$:   CKLOOP                          ;LOOP IF SELECTED
      107346    104406                                                          TRAP    C$CLP1
11016 107350    013701  110160                 MOV     T28BFR+6,R1             ;PICK UP XSTO
11017 107354    010102                  MOV     R1,R2                           ;SET UP EXPECTED
11018 107356    052702  100000                 BIS     #BIT15,R2               ;TMK SHOULD BE SET
11019 107362    020102                  CMP     R1,R2                           ;IS TMK SET
11020 107364    001406                  BEQ     247$                            ;BR, IF TMK WAS SET (GOOD)
11021 107366    005237  002212                 INC     FATFLG                  ;BUMP COUNT
11025 107372                            ERRHRD  ERRNO,T28RRP,EXPREC             ;TMK NOT SET AFTER READ REV
      107372    104456                                                          TRAP    C$ERHRD
      107374    001502                                                          .WORD   834
      107376    111724                                                          .WORD   T28RRP
      107400    015564                                                          .WORD   EXPREC
11026 107402                            247$:   CKLOOP                          ;LOOP IF SELECTED
      107402    104406                                                          TRAP    C$CLP1
11027 107404    017701  073504                 MOV     @FREE,R1                        ;FIRST LOC IN READ BUFFER
11028 107410    012702  177777                 MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
11029 107414    020102                  CMP     R1,R2                           ;DID ANY DATA GET TRANSFERRED
11030 107416    001406                  BEQ     250$                            ;BR, IF NO DATA TRANS (GOOD)
11031 107420    005237  002212                 INC     FATFLG                  ;BUMP COUNT
11035 107424                            ERRHRD  ERRNO,T28DTR,EXPREC             ;DATA TRANSFERRED ON READ TAPE MARK
      107424    104456                                                          TRAP    C$ERHRD
      107426    001503                                                          .WORD   835
      107430    112002                                                          .WORD   T28DTR
      107432    015564                                                          .WORD   EXPREC
11036 107434                            250$:   CKLOOP                          ;LOOP IF SELECTED
      107434    104406                                                          TRAP    C$CLP1
11037 107436    012737  100410  110250         MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
11038 107444    012737  000005  110252         MOV     #5,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
11039 107452    012704  110250                 MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11040 107456    010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11041 107462    004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11042 107466    016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11043 107472    012702  100204                 MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11044 107476    020102                  CMP     R1,R2                           ;ARE THEY EQUAL
11045 107500    001406                  BEQ     260$                            ;BR, IF OK
11046 107502    005237  002212                 INC     FATFLG                  ;BUMP COUNT
11050 107506                            ERRHRD  ERRNO,T28RDG,PKTSSR             ;TSSR INCORRECT AFTER SPACE REV CMD.
      107506    104456                                                          TRAP    C$ERHRD
      107510    001504                                                          .WORD   836
      107512    110535                                                          .WORD   T28RDG
      107514    012136                                                          .WORD   PKTSSR
11051 107516                            260$:   CKLOOP                          ;LOOP IF SELECTED
      107516    104406                                                          TRAP    C$CLP1
11052 107520    013701  110160                 MOV     T28BFR+6,R1             ;PICK UP XSTO
11053 107524    010102                  MOV     R1,R2                           ;SET UP EXPECTED
11054 107526    052702  100000                 BIS     #BIT15,R2               ;TMK SHOULD BE SET
11055 107532    020102                  CMP     R1,R2                           ;IS TMK SET
11056 107534    001406                  BEQ     270$                            ;BR, IF TMK WAS SET (GOOD)
11057 107536    005237  002212                 INC     FATFLG                  ;BUMP COUNT
11061 107542                            ERRHRD  ERRNO,T28RRN,EXPREC             ;TMK NOT SET AFTER READ REV
      107542    104456                                                          TRAP    C$ERHRD
      107544    001505                                                          .WORD   837
      107546    111645                                                          .WORD   T28RRN
```

TEST 8: WRITE/READ TAPE MARK

```
                107550  015564                                                          .WORD   EXPREC
11062           107552                          270$:   CKLOOP                         ;LOOP IF SELECTED
                107552  104406                                                          TRAP    C$CLP1
11063           107554  013701  110156                  MOV     T28BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
11064           107560  012702  000004                  MOV     #4.,R2                  ;SHOULD BE THE DIFFERENCE
11065           107564  020102                          CMP     R1,R2                   ;IS COUNTER CORRECT
11066           107566  001406                          BEQ     280$                    ;BR. IF COUNTER CORRECT
11067           107570  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11071           107574                                  ERRHRD  ERRNO,T28PBP,EXPREC     ;RESIDUAL BYTE COUNTER NOT CORRECT
                107574  104456                                                          TRAP    C$ERHRD
                107576  001506                                                          .WORD   838
                107600  110371                                                          .WORD   T28PBP
                107602  015564                                                          .WORD   EXPREC
11072           107604                          280$:   CKLOOP                         ;LOOP IF SELECTED
                107604  104406                                                          TRAP    C$CLP1
11073           107606  012737  100410  110250          MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
11074           107614  012737  000001  110252          MOV     #1,T28R8                ;NUMBER OF RECORDS TO SPACE BACK
11075           107622  012704  110250                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11076           107626  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11077           107632  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11078           107636  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11079           107642  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11080           107646  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11081           107650  001406                          BEQ     290$                    ;BR. IF OK
11082           107652  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11086           107656                                  ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
                107656  104456                                                          TRAP    C$ERHRD
                107660  001507                                                          .WORD   839
                107662  110535                                                          .WORD   T28RDG
                107664  012136                                                          .WORD   PKTSSR
11087           107666                          290$:   CKLOOP                         ;LOOP IF SELECTED
                107666  104406                                                          TRAP    C$CLP1
11088           107670  013701  110166                  MOV     T28BFR+14,R1            ;PICK UP XST3
11089           107674  010102                          MOV     R1,R2                   ;SET UP EXPECTED
11090           107676  C52702  000001                  BIS     #BIT0,R2                ;RIB SHOULD BE SET
11091           107702  020102                          CMP     R1,R2                   ;IS RIB SET
11092           107704  001406                          BEQ     300$                    ;BR. IF RIB WAS SET (GOOD)
11093           107706  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11097           107712                                  ERRHRD  ERRNO,T28RIB,EXPREC     ;RIB NOT SET AFTER READ REV
                107712  104456                                                          TRAP    C$ERHRD
                107714  001510                                                          .WORD   840
                107716  110314                                                          .WORD   T28RIB
                107720  015564                                                          .WORD   EXPREC
11098           107722                          300$:   CKLOOP                         ;LOOP IF SELECTED
                107722  104406                                                          TRAP    C$CLP1
11099           107724  012737  100010  110250          MOV     #100010,T28PK3          ;SPACE FORWARD,ACK, COMMAND
11100           107732  012737  000005  110252          MOV     #5,T28R8                ;NUMBER OF RECORDS TO SPACE FORW.
11101           107740  012704  110250                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11102           107744  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11103           107750  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11104           107754  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11105           107760  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11106           107764  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11107           107766  001406                          BEQ     310$                    ;BR. IF OK
11108           107770  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11112           107774                                  ERRHRD  ERRNO,T28RDF,EXPREC     ;TSSR INCORRECT AFTER SPACE CMD.
                107774  104456                                                          TRAP    C$ERHRD
```

TEST 8: WRITE/READ TAPE MARK

```
        107776  001511                                                          .WORD   841
        110000  110454                                                          .WORD   T28RDF
        110002  015564                                                          .WORD   EXPREC
  11113 110004                          310$:   CKLOOP                        ;LOOP IF SELECTED
        110004  104406                                                          TRAP    C$CLP1
  11114 110006  013701  110160                  MOV     T28BFR+6,R1             ;PICK UP XSTO
  11115 110012  010102                          MOV     R1,R2                   ;SET UP EXPECTED
  11116 110014  052702  100000                  BIS     #BIT15,R2               ;TMK SHOULD BE SET
  11117 110020  020102                          CMP     R1,R2                   ;IS TMK SET
  11118 110022  001406                          BEQ     320$                    ;BR, IF TMK WAS SET (GOOD)
  11119 110024  005237  002212                  INC     FATFLG                  ;BUMP COUNT
  11123 110030                                  ERRHRD  ERRNO,T28RRP,EXPREC     ;TMK NOT SET AFTER READ REV
        110030  104456                                                          TRAP    C$ERHRD
        110032  001512                                                          .WORD   842
        110034  111724                                                          .WORD   T28RRP
        110036  015564                                                          .WORD   EXPREC
  11124 110040                          320$:   CKLOOP                        ;LOOP IF SELECTED
        110040  104406                                                          TRAP    C$CLP1
  11125 110042  013701  110156                  MOV     T28BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
  11126 110046  012702  000004                  MOV     #4.,R2                  ;SHOULD BE THE DIFFERENCE
  11127 110052  020102                          CMP     R1,R2                   ;IS COUNTER CORRECT
  11128 110054  001406                          BEQ     330$                    ;BR, IF COUNTER CORRECT
  11129 110056  005237  002212                  INC     FATFLG                  ;BUMP COUNT
  11133 110062                                  ERRHRD  ERRNO,T28PBP,EXPREC     ;RESIDUAL BYTE COUNTER NOT CORRECT
        110062  104456                                                          TRAP    C$ERHRD
        110064  001513                                                          .WORD   843
        110066  110371                                                          .WORD   T28PBP
        110070  015564                                                          .WORD   EXPREC
  11134 110072                          330$:   CKLOOP                        ;LOOP IF SELECTED
        110072  104406                                                          TRAP    C$CLP1
  11135 110074                                  ENDSUB                        ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
        110074                                                                  L10133:
        110074  104403                                                          TRAP    C$ESUB
  11136 110076  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
  11137 110104  103402                          BLO     999$                    ;BR, IF LESS THAN 25
  11138 110106  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  11139 110112                          999$:
  11140                                 ;
  11141                                 ;
  11142                                 ;
  11143 110112  004737  016546                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
  11144 110116  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
  11145 110120  000137  105000                  JMP     T28LOOP                 ;EXECUTE AGAIN
  11146 110124                          163$:
  11147 110124                                  EXIT    TST                     ;ALL DONE THIS TEST
        110124  104432                                                          TRAP    C$EXIT
        110126  002236                                                          .WORD   L10130 .
```

TEST 8: WRITE/READ TAPE MARK

```
11149                                   ;+
11150                                   ;LOCAL STORAGE FOR THIS TEST
11151                                   ;-
11155 110130                            T28PACKET:                      ;COMMAND PACKET FOR TEST
11156 110130  100004                            .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
11157 110132  110140                            .WORD   T28DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
11158 110134  000000                            .WORD   0
11159 110136  000012                            .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
11160 110140                            T28DATA:                        ;CHARACTERISTICS DATA BLOCK
11161 110140  110152                            .WORD   T28BFR          ;ADDRESS OF MESSAGE BUFFER
11162 110142  000000                            .WORD   0
11163 110144  000024                            .WORD   20.             ;LENGTH OF MESSAGE BUFFER
11164 110146  000000                            .WORD   0
11165 110150  000000                    T28DSW: .WORD   0               ;SELECT DRIVE 0
11166 110152                            T28BFR: .BLKW   25.             ;MESSAGE BUFFER
11167                                   ;
11168                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
11169                                   ;
11171         110240                            .=<.+10>&177770
11173 110240                            T28PK2:
11174 110240  100006                            .WORD   100006          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
11175 110242  110260                            .WORD   T28BF2          ;ADDRESS OF SELECT BLOCK DATA
11176 110244  000000                            .WORD   0
11177 110246  000006                            .WORD   6.              ;SIZE OF DATA PACKET
11178
11182 110250                            T28PK3:
11183 110250  100005                            .WORD   100005          ;REREAD COMMAND,  AND ACK
11184 110252                            T28RB:
11185 110252  003114                    T28WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
11186 110254  000000                            .WORD   0
11187 110256  000000                    T28SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
11188                                           .EVEN
11189                                   ;
11190                                   ;
11191                                   ;
11192 110260                            T28BF2:
11193 110260     010                    T28BS0: .BYTE   10              ;BSELO AREA
11194 110261     200                    T28BS1: .BYTE   200             ;BSEL1 AREA
11195 110262  000000                    T28S2:  .WORD   0               ;SEL 2 AREA
11196 110264  000000                    T28S3:  .WORD   0               ;DATA AREA
11197                                   ;
11198                                   ;
11199                                           .EVEN
11200                                   ;TAPE MOTION PACKET COMMAND VALUES
11201
11202 110266                            T28IMV:
11203 110266  101411                            .WORD   101411          ;ILLEGAL MODE BITS TEST DATA
11204 110270  102011                            .WORD   102011
11205 110272  103411                            .WORD   103411
11206 110274  177777                            .WORD   177777
11207 110276  100011                    T28RN:  .WORD   100011          ;WRITE TAPE MARK COMMAND
11208 110300  100411                    T28WDR: .WORD   100411          ;ERASE COMMAND
11209 110302  101011                    T28CON: .WORD   101011          ;WRITE TAPE MARK RETRY
11210 110304  177777                            .WORD   177777          ;END OF DATA
11211
11212                                   ;
11213 110306  000000                    T28CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
```

TEST 8: WRITE/READ TAPE MARK

```
11214 110310  000000                T28CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
11215 110312  000000                T28DLY: .WORD   0               ;DELAY COUNTER
11216                                       .EVEN
11217
```

TEST 8: WRITE/READ TAPE MARK

```
11219
11220                                   ;*
11221                                   ;LOCAL TEXT MESSAGES FOR TEST
11222                                   ;-
11223
11224
11225 110314      124     141     160   T28RIB: .ASCIZ   'Tape Position Not Correct, RIB Should Be Set'
11226 110371      122     145     163   T28PBP: .ASCIZ   'Residual Byte Counter Register (RBPCR) Not Correct
11227 110454      124     123     123   T28RDF: .ASCIZ   'TSSR Incorrect After READ REVERSE Into TAPE MARK'
11228 110535      124     123     123   T28RDG: .ASCIZ   'TSSR Incorrect After SPACE Command Into TAPE MARK'
11229 110617      124     123     123   T28WDF: .ASCIZ   'TSSR Not Correct After Illegal Mode Bits Set'
11230 110674      111     154     154   T28LOG: .ASCIZ   'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
11231 110755      127     122     111   T28SSR: .ASCIZ   'WRITE MISCELLANEOUS Command Not Accepted'
11232 111026      124     123     123   T28WDE: .ASCIZ   'TSSR Not Correct After READ DATA Command, Into TAPE MARK'
11233 111117      124     141     160   T28BOT: .ASCIZ   'Tape Not At BOT After REWIND Command'
11234 111164      124     123     123   T28TM:  .ASCIZ   'TSSR Not Correct After FORMAT Command Reject
11235 111241      122     145     167   T28RWN: .ASCIZ   'Rewind (POSITION) Command Not Accepted'
11236 111310      104     162     151   T28OFL: .ASCIZ   'Drive 7 Select Failed To Set "OFL" In TSSR
11237 111363      124     123     123   T28WDC: .ASCIZ   'TSSR Not Correct After WRITE TAPE MARK Command'
11238 111442      103     126     103   T28VCK: .ASCIZ   'CVC Set, Didn''t Reset VCK In Message Buffer'
11239 111515      124     115     113   T28TMK: .ASCIZ   'TMK Not Set After WRITE TAPE MARK Command'
11240 111567      124     115     113   T28RRM: .ASCIZ   'TMK Not Set After READ REVERSE Into TAPE MARK'
11241 111645      124     115     113   T28RRN: .ASCIZ   'TMK Not Set After SPACE REVERSE Into TAPE MARK
11242 111724      124     115     113   T28RRP: .ASCIZ   'TMK Not Set After READ FORWARD Into TAPE MARK
11243 112002      104     141     164   T28DTR: .ASCIZ   'Data Transferred On READ REVERSE Into A TAPE MARK
11244 112064      104     141     164   T28DTA: .ASCIZ   'Data Compare Error, Data Read From Tape Not Equal To Written'
11245 112161      127     162     151   TST28ID:        .ASCIZ  'Write/Read Tape Mark'
11246                                           .EVEN
11247                                   ;*
11248                                   ;
11249                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START UP (DEFAULT) VALUES
11250                                   ;WRITE SUBSYSTEM MEMORY COMMAND
11251                                   ;
11252                                   ;-
11253
11254 112206                           T28REST:
11255 112206                                   SAVREG                          ;SAVE THE REGISTERS
11256 112212  012701  110130                   MOV     #T28PACKET,R1           ;START OF THE PACKET
11257 112216  012721  100004                   MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
11258 112222  012721  110140                   MOV     #T28DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
11259 112226  005021                           CLR     (R1)+                   ;EXTENDED ADDRESS
11260 112230  012721  000012                   MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
11261 112234  012721  110152                   MOV     #T28BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
11262 112240  005021                           CLR     (R1)+
11263 112242  012721  000024                   MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
11264 112246  005021                           CLR     (R1)+
11265 112250  012711  000000                   MOV     #0,(R1)                 ;SELECT DRIVE ZERO
11266 112254  012702  000030                   MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
11267 112260  012762  177777  110152  64$:     MOV     #177777,T28BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
11268 112266  005742                           TST     -(R2)                   ;NEXT LOCATION
11269 112270  020227  000000                   CMP     R2,#0                   ;CHECK FOR END
11270 112274  001371                           BNE     64$                     ;KEEP GOING UNTIL DONE
11271 112276  000207                           RTS     PC                      ;RETURN
11272
11273
11274 112300                           T28RT2:
11275 112300                                   SAVREG                          ;SAVE THE REGISTERS
```

TEST 8: WRITE/READ TAPE MARK

```
11276 112304  012701  110240                  MOV     #T28PK2,R1              ;START OF THE PACKET
11277 112310  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
11278 112314  012721  110260                  MOV     #T28BF2,(R1)+           ;ADDRESS OF DATA BLOCK
11279 112320  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
11280 112322  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
11281 112326  005021                          CLR     (R1)+
11282 112330  012701  110260                  MOV     #T28BF2,R1              ;POINT TO DATA SEL AREA
11283 112334  005021                          CLR     (R1)+
11284 112336  005011                          CLR     (R1)
11285 112340  000207                          RTS     PC                      ;RETURN
11286 112342                          T28RT3:
11287 112342                                  SAVREG
11288 112346  012701  110250                  MOV     #T28PK3,R1              ;GET PACKET ADDRESS
11289 112352  005021                          CLR     (R1)+                   ;CLEAR COMMAND AREA
11290 112354  005021                          CLR     (R1)+                   ;CLEAR ADDRESS AREA
11291 112356  005021                          CLR     (R1)+                   ;CLEAR EXTENDED ADDRESS AREA
11292 112360  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER
11293 112362  000207                          RTS     PC                              ;RETURN
11294 112364                                  ENDTST
      112364                                                                          L10130:
      112364  104401                                                                          TRAP    C$ETST
11295 112366                                  ENDMOD
```

```
                                        .TITLE  TSV6 - PARAMETER CODING
                                        BGNMOD  TSV6
                                TSV6::
                                        .SBTTL  HARDWARE PARAMETER CODING SECTION
                                ;++
                                ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;--
                                        BGNHRD
112366  000010                          .WORD L10134 L$HARD/2
112370                          L$HARD::
                                        GPRMA   HPM1,0,0,160010,177776,YES      ;GET TSBA/TSDB REGISTER ADDRESS.
112370  000031                          .WORD   T$CODE
112372  112410                          .WORD   HPM1
112374  160010                          .WORD   T$LOLIM
112376  177776                          .WORD   T$HILIM
112400                                  GPRMA   HPM2,2,0,0,776,YES              ;GET VECTOR ADDRESS.
112400  001031                          .WORD   T$CODE
112402  112444                          .WORD   HPM2
112404  000000                          .WORD   T$LOLIM
112406  000776                          .WORD   T$HILIM
                                        ;GPRMD  HPM3,4,0,340,0,7,YES            ;GET INTERRUPT PRIORITY.
112410                                  ENDHRD
                                        .EVEN
112410                          L10134:
112410  104     105     126     HPM1:   .ASCIZ  'DEVICE ADDRESS (TSBA/TSDB) '
112444  111     116     124     HPM2:   .ASCIZ  'INTERRUPT VECTOR    '
112470  111     116     124     HPM3:   .ASCIZ  'INTERRUPT PRIORITY      '
                                        .EVEN
```

```
                                        .SBTTL  SOFTWARE PARAMETER CODING SECTION

                                ;++
                                ; THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ; -
112520                                  BGNSFT
112520  000003                          .WORD L10135-L$SOFT/2
112522                          L$SOFT::
                                ;       GPRML   SPM1,0, 1,YES                   ; GET TRANSPORT TEST FLAG.
112522                                  GPRML   SPM4,2,-1,YES                   ; GET ITERATION CONTROL.
112522  001130                          .WORD   T$CODE
112524  112560                          .WORD   SPM4
112526  177777                          .WORD   -1
                                ;       GPRMD   SPM6,4,D,7777,0,7777,YES        ; GET LOCAL ERROR LIMIT
                                ;       GPRMD   SPM7,6,D,7777,0,7777,YES        ; GET GLOBAL ERROR LIMIT
112530                                  ENDSFT
                                        .EVEN
112530                          L10135:

112530      105     116     101 SPM1:   .ASCIZ  'ENABLE TRANSPORT TESTS '
112560      111     116     110 SPM4:   .ASCIZ  'INHIBIT ITERATIONS     '
112610      120     105     122 SPM6:   .ASCIZ  'PER TEST ERROR LIMIT   '
112640      120     105     122 SPM7:   .ASCIZ  'PER UNIT ERROR LIMIT   '
                                        .SBTTL  PATCH AREA

                                ;
                                ; FINALLY A GENEROUS PATCH AREA.
                                ;
                                ; AND AN ADJUSTMENT TO ACCOUNT FOR THE "LASTAD BIT7" HACK
                                ; DESCRIBED IN "SUPPRG.MEM" (FOR REV C).
                                ;
112670                          PATCH::

                                        .BLKW   32.

                    113000              .=.!377+1
113000                                  LASTAD          ;SET LAST USED ADDRESS.
                                        .EVEN
113000  000000                          .WORD   0
113002  000000                          .WORD   0
113004                          L$LAST::
113004                                  ENDMOD
                    000001              .END
```

K11

SYMBOL TABLE

```
ADDSSR  012216 G        C$AU  = 000052        DEVDRO  023514        FREE    003114 G        INCERK  017134
ADR     = 000020 G      C$AUTO= 000061        DEVNRD  023433        FREEHI  003120         INTCPC  016240
AMBTSS  006725          C$BRK = 000022        DEVNXR  023351        FRESIZ  003116 G       INTFLA  016235
ASSEMB= 000010          C$BSEG= 000004        DEVONL  023301        FUSI    004115         INTMAS  016234
A1716 = 000003          C$BSUB= 000002        DEVSUM  023244        F$AU  = 000015         INTR    016306 G
BADDAT  003146 G        C$CEFG= 000045        DFPTBL  002146 G      F$AUTO= 000020         INTREC  002214 G
BADSSR  015770 G        C$CLCK= 000062        DIAGMC= 000000        F$BGN = 000040         INTVEC  016236
BDVPCR= 177520 G        C$CLEA= 000012        DICEC = 000001        F$CLEA= 000007         INTX    004276
BENBSW  002220 G        C$CLOS= 000035        DSBINT  016274        F$DU  = 000016         INVERT  021276 G
BIE     = 040000        C$CLP1= 000006        DUAD12  004641        F$END = 000041         IOKCKI= 000200
BIT0    = 000001 G      C$CVEC= 000036        DUFLG   003102 G      F$HARD= 000004         IOKSTP= 000001
BIT00   = 000001 G      C$DCLN= 000044        DUMMY   003052        F$HW  = 000013         IPRI    002202 G
BIT01   = 000002 G      C$DODU= 000051        EF.CON= 000036 G      F$INIT= 000006         ISR     = 000100 G
BIT02   = 000004 G      C$DRPT= 000024        EF.NEW= 000035 G      F$JMP = 000050         IVEC    002200 G
BIT03   = 000010 G      C$DU  = 000053        EF.PWR= 000034 G      F$MOD = 000000         IXE     = 004000 G
BIT04   = 000020 G      C$EDIT= 000003        EF.RES= 000037 G      F$MSG = 000011         I$AU  = 000041
BIT05   = 000040 G      C$ERDF= 000055        EF.STA= 000040 G      F$PROT= 000021         I$AUTO= 000041
BIT06   = 000100 G      C$ERHR= 000056        EMAXDU  017067        F$PWR = 000017         I$CLN = 000041
BIT07   = 000200 G      C$ERRO= 000060        EN      = 000000        F$RPT = 000012         I$DU  = 000041
BIT08   = 000400 G      C$ERSF= 000054        ENAINT  016242        F$SEG = 000003         I$HRD = 000041
BIT09   = 001000 G      C$ERSO= 000057        ENVIRN  020720        F$SOFT= 000005         I$INIT= 000041
BIT1    = 000002 G      C$ESCA= 000010        EPRTSW  002170 G      F$SRV = 000010         I$MOD = 000041
BIT10   = 002000 G      C$ESEG= 000005        EPRT1   006356        F$SUB = 000002         I$MSG = 000041
BIT11   = 004000 G      C$ESUB= 000003        EPRT2   006446        F$SW  = 000014         I$PROT= 000040
BIT12   = 010000 G      C$ETST= 000001        ERCM    012023        F$TEST= 000001         I$PTAB= 000041
BIT13   = 020000 G      C$EXIT= 000032        ERRHI   002226 G      GDDAT   003150 G       I$PWR = 000041
BIT14   = 040000 G      C$GETB= 000026        ERRK    017046        GERRMA  002164 G       I$RPT = 000041
BIT15   = 100000 G      C$GETW= 000027        ERRLO   002230 G      GETPAT  020264 G       I$SEG = 000041
BIT2    = 000004 G      C$GMAN= 000043        ERRNO = 001513        GETSEL  020346 G       I$SETU= 000041
BIT3    = 000010 G      C$GPHR= 000042        ERRVEC= 000004 G      G$CNTO= 000200         I$SFT = 000041
BIT4    = 000020 G      C$GPLO= 000030        ERTABE  003366        G$DELM= 000372         I$SRV = 000041
BIT5    = 000040 G      C$GPRI= 000040        ERTABL  003166        G$DISP= 000003         I$SUB = 000041
BIT6    = 000100 G      C$INIT= 000011        ESUM    017050        G$EXCP= 000400         I$TST = 000041
BIT7    = 000200 G      C$INLP= 000020        EVL   = 000004 G      G$HILI= 000002         J$JMP = 000167
BIT8    = 000400 G      C$MANI= 000050        EXBCNT= 000010        G$LOLI= 000001         KIPAR0= 172340
BIT9    = 001000 G      C$MEM = 000031        EXIT    034224        G$NO  = 000000         KIPAR1= 172342
BOE     = 000400 G      C$MSG = 000023        EXPBRE  015572 G      G$OFFS= 000400         KIPAR2= 172344
BRINIT  004455          C$OPEN= 000034        EXPD    002222 G      G$OFSI= 000376         KIPAR3= 172346
BSEL0 = 000000          C$PNTB= 000014        EXPGOT  004531        G$PRMA= 000001         KIPAR4= 172350
BSEL1 = 000001          C$PNTF= 000017        EXPGT2  004565        G$PRMD= 000002         KIPAR5= 172352
CHKAMB  016134          C$PNTS= 000016        EXPMSG  002312 G      G$PRML= 000000         KIPAR6= 172354
CHKMAN  020570 G        C$PNTX= 000015        EXPREC  015564 G      G$RADA= 000140         KIPAR7= 172356
CHKTSS  016426          C$QIO = 000377        EXTA    005770        G$RADB= 000000         KIPDR0= 172300
CKDROP  017272          C$RDBU= 000007        EXTEND  005766        G$RADD= 000040         KIPDR1= 172302
CKEMAX  017172          C$REFG= 000047        EXTFEA  002216 G      G$RADL= 000120         KIPDR2= 172304
CKMSG   011450 G        C$RESE= 000033        E$END = 002100        G$RADO= 000020         KIPDR3= 172306
CKMSG2  011570 G        C$REVI= 000003        E$LOAD= 000035        G$XFER= 000004         KIPDR4= 172310
CKRAM   011204 G        C$RFLA= 000021        FATAL   034324        G$YES = 000010         KIPDR5= 172312
CKRAM2  011314 G        C$RPT = 000025        FATERR= 000060        HIADDR= 001400         KIPDR6= 172314
CMDPKT  021350 G        C$SEFG= 000046        FATFLG  002212 G      HOE   = 100000 G       KIPDR7= 172316
CMPMEM  017750          C$SPRI= 000041        FERCM   012012        HPM1    112410         KTENAB  003124 G
CONFIG  017340          C$SVEC= 000037        FIFEXP  012260 G      HPM2    112444         KTFLG   003122 G
COUNT   002300 G        C$TPRI= 000013        FIF1MS  012332        HPM3    112470         KTINIT  021144
CSRADD  002176 G        DATA    002302 G      FIF2MS  012401        IBE   = 010000 G       KTOFF   017364
CTAB    003154 G        DATASC  020322        FILLME  017512        IDU   = 000040 G       KTON    017346
CTABE   003166 G        DEBUGM  011722        FNOINT  004213        IER   = 020000 G       LERRMA  002162 G
CTABM   003154 G        DEVCNT  002210 G      FORCER  002166 G      IFAULT  004254         LISTAL= 000001
```

SYMBOL TABLE

```
LOE    = 040000 G      L$UNIT  002012 G      L10071  055402      M8189   005643      PRBEXP  015560
LOOPCN  002206 G       L10000  002154        L10072  047454      NBA    = 002000     PRBMSG  015426
LOOPCO  013216         L10001  002166        L10073  050054      NEWPAS  022126      PRBREC  015562
LOOPFL  003152 G       L10002  005764        L10074  050530      NODEV   003104 G    PRBTOT  015513
LOT    = 000010 G      L10003  012134        L10075  051174      NOINIT  004333      PRBYTE  015212 G
L$ACP   002110 G       L10004  012152        L10076  051734      NOINTR  004217      PRI    = 002000 G
L$APT   002036 G       L10005  012170        L10077  052674      NOITS   002160 G    PRIADD  010250
L$AU    022470 G       L10006  012176        L10100  053214      NOMAN   020624      PRIAO   010320
L$AUT   002070 G       L10007  012214        L10101  053616      NOMEM   005456      PRIBXO  007702 G
L$AUTO  022674 G       L10010  012232        L10102  074724      NP.IR  = 000200     PRIEQU  010150
L$CCP   002106 G       L10011  012256        L10103  056340      NP.LOO= 000040      PRIPKT  007460 G
L$CLEA  022754 G       L10012  012330        L10104  057206      NP.OUT= 000100      PRIRAM  010156
L$CO    002032 G       L10013  012500        L10105  060100      NP.WRP= 000020      PRITAD  010364
L$DEPO  002011 G       L10014  013214        L10106  061026      NSI     004150      PRITSS  006022
L$DESC  003400 G       L10015  014042        L10107  061604      NSINIT  004405      PRITO   010446
L$DESP  002076 G       L10016  014064        L10110  062446      NUL     004525      PRIT1   010511
L$DEVP  002060 G       L10017  015570        L10111  063320      NULCR   004526      PRIXOR  010032 G
L$DISP  002124 G       L10020  015576        L10112  064172      NXM    = 004000     PRIO0  = 000000 G
L$DLY   002116 G       L10021  015604        L10113  065046      NXMFLG  003126 G    PRIO1  = 000040 G
L$DTP   002040 G       L10022  015616        L10114  065722      NXMHI   003132 G    PRIO2  = 000100 G
L$DTYP  002034 G       L10023  015640        L10115  066572      NXMLO   003130 G    PRIO3  = 000140 G
L$DU    022566 G       L10024  015666        L10116  067524      NXMTST  021542      PRIO4  = 000200 G
L$DUT   002072 G       L10025  016026        L10117  070534      NXR     003736      PRIO5  = 000240 G
L$DVTY  003372 G       L10026  016336        L10120  071114      NXRERR  005734 G    PRIO6  = 000300 G
L$EF    002052 G       L10030  022420        L10121  071570      NXRX    003775      PRIO7  = 000340 G
L$ENVI  002044 G       L10031  022564        L10122  104742      NXTU    022140      PRMESS  014332
L$ETP   002102 G       L10032  022672        L10123  075346      OFL    = 000100     PRMNO   002310 G
L$EXP1  002046 G       L10033  022752        L10124  076130      ONEFIL= 000000      PRMSGE  014642 G
L$EXP4  002064 G       L10034  023000        L10125  076752      O$APTS= 000000      PRMSGO  015022
L$EXP5  002066 G       L10035  023242        L10126  077654      O$AU   = 000001     PRMSG1  015067
L$HARD  112370 G       L10036  024700        L10127  101404      O$BGNR= 000001      PRMSG2  015125
L$HIME  002120 G       L10037  027360        L10130  112364      O$BGNS= 000001      PROASC  014510
L$HPCP  002016 G       L10040  025306        L10131  105342      O$DU   = 000001     PR1ASC  014555
L$HPTP  002022 G       L10041  025630        L10132  105622      O$ERRT= 000000      PST32W  003142 G
L$HW    002146 G       L10042  026210        L10133  110074      O$GNSW= 000001      PUNIT   022422
L$ICP   002104 G       L10043  034350        L10134  112410      O$POIN= 000001      PW.D11= 000021
L$INIT  021646 G       L10044  027762        L10135  112530      O$SETU= 000000      PW.D13= 000022
L$LADP  002026 G       L10045  030632        MEMADD  014044 G    PASRPT  022172      PW.D22= 000020
L$LAST  113004 G       L10046  031452        MEMCK   021366 G    PATCH   112670 G    PW.NOP= 000000
L$LOAD  002100 G       L10047  031666        MENASC  020537      PATDAT  020320      PW.NO1= 000023
L$LUN   002074 G       L10050  032120        MENERR  020464      PC.ERA= 002400      PW.RDE= 000024
L$MREV  002050 G       L10051  032432        MENRES  020566      PC.IER= 002000      PW.RDR= 000001
L$NAME  002000 G       L10052  046464        MMVEC  = 000250     PC.NOO= 001000      PW.RDS= 000005
L$PRIO  002042 G       L10053  035016        MSA.FR= 000006      PC.REL= 000000      PW.RFI= 000003
L$PROT  021636 G       L10054  035576        MSA.NO= 000000      PC.REW= 000400      PW.WCT= 000006
L$PRT   002112 G       L10055  036352        MSA.NR= 000004      PKBCNT= 000006      PW.WFI= 000004
L$REPP  002062 G       L10056  037054        MSA.VO= 000002      PKHI   = 000004     PW.WFM= 000007
L$REV   002010 G       L10057  037520        MSGEXP  012234 G    PKLOW  = 000002     PW.WMI= 000010
L$RPT   023002 G       L10060  040154        MSGLOO  013154 G    PKTADD  007644      PW.WNP= 000011
L$SOFT  112522 G       L10061  040610        MSGSTA  012440 G    PKTFRM  007606      PW.WTR= 000002
L$SPC   002056 G       L10062  041202        MSGSUB  014032 G    PKTGET  012154 G    P.ACK  = 100000
L$SPCP  002020 G       L10063  041620        MS.ATT= 000006      PKTMES  012200 G    P.CMD  = 000037
L$SPTP  002024 G       L10064  042064        MS.EXT= 000200      PKTRAM  004743 G    P.CONT= 000012
L$STA   002030 G       L10065  042336        MS.RSD= 000001      PKTSSR  012136 G    P.CVC  = 040000
L$SW    002156 G       L10066  042572        MS.RSF= 000020      PNT    = 001000 G    P.FMT  = 000140
L$TEST  002114 G       L10067  043072        MS.RST= 000010      PRAMPK  014066      P.FORM= 000011
L$TIML  002014 G       L10070  043556        M8186   005552      PRASC   014613      P.GETS= 000017
```

SYMBOL TABLE

```
P.IE   = 000200          SPM6     112610          TSREJ = 000006          T$$CLE= 010034          T22WRT  026400
P.INIT= 000013          SPM7     112640          TSSDEF  006676          T$$DU  = 010032          T23A    003134 G
P.MODE= 007400          SR0    = 177572          TSSR   = 000002 G        T$$HAR= 010134          T23AM3  033240
P.OPP  = 020000          SR1    = 177574          TSSRBI  003500 G        T$$HW  = 010000          T23B    003136 G
P.POSI= 000010          SR2    = 177576          TSSRFO  006505          T$$INI= 010030          T23BA   033625
P.READ= 000001          SR3    = 172516          TSSRI  = 000003 G        T$$MSG= 010025          T23BFR  032512
P.SWB  = 010000          SSR    = 000200          TSSX    004016          T$$PRO= 010027          T23BF2  032622
P.WRIT= 000005          STATCO  012502          TSTBLK  002742 G        T$$RPT= 010035          T23BS0  032622
P.WRTC= 000004          SVCGBL= 000000          TSTCNT  002204 G        T$$SOF= 010135          T23BS1  032623
P.WRTS= 000006          SVCINS= 000000          TSTEND  017010          T$$SRV= 010026          T23CHK  034162
QVP     002174 G        SVCSUB= 000001          TSTFLA  002304 G        T$$SUB= 010133          T23CON  032640
RAMASC  014246          SVCTAG= 000000          TSTLOO  016546 G        T$$SW  = 010001          T23DAT  032500
RAMDAT  002232 G        SVCTST= 000001          TSTPTR  002306 G        T$$TES= 010130          T23DSW  032510
RAMERR  015600 G        S$LSYM= 010000          TSTSET  016600 G        T1      023564 G        T23EOT  032764
RAMEXP  015620 G        S0.IDB= 000010          TST21I  024524          T2      024702 G        T23ET   032677
RAMFOR  010206          S0.IFB= 000002          TST22I  027167          T2.1    024732          T23LOO  027426
RAMSIZ  002272 G        S0.IFP= 000001          TST23I  033766          T2.2    025324          T23OFL  033306
RAMTAD  015606 G        S0.ILD= 000020          TST24I  046232          T2.3    025646          T23PAC  032470
RCVHIA  002274 G        S0.ION= 000040          TST25I  055200          T21AM3  024403          T23PK2  032600
RCVLOA  002276 G        S0.IRD= 000100          TST26I  074527          T21BFR  024204          T23PK3  032610
RDERR   005204          S0.IRW= 000004          TST27I  104543          T21BF2  024300          T23RES  034002
RECMSG  002456 G        S0.ISP= 000200          TST28I  112161          T21BS0  024300          T23RNC  033165
RECV    002224 G        S1.ICE= 002000          TSV2    002000 G        T21BS1  024301          T23RSZ  032620
REGSAV  020230          S1.IEO= 010000          TSV3    002166 G        T21DAT  024170          T23RT2  034074
RETERR  005370          S1.IFM= 001000          TSV4    021636 G        T21DLY  024202          T23RT3  034136
RETRY   034226          S1.IHE= 000400          TSV6    112366 G        T21DSW  024200          T23RWN  033116
REWIND  011104 G        S1.IID= 004000          TSV7    023564 G        T21LOO  023614          T23SSR  032644
RMCHBE= 000167          S1.I1R= 020000          TTIBFR= 177562 G        T21OFL  024503          T23SZ   032616
RMCHEN= 000200          S1.I2R= 040000          TTICSR= 177560 G        T21PAC  024160          T23S2   032624
RMMSGB= 000215          S1.PAR= 100000          TTIVEC= 000060 G        T21PK2  024270          T23S3   032626
RMMSGE= 000234          S2.ATI= 000010          T$ARGC= 000003          T21RES  024546          T23TM   033042
RMPKTB= 000201          S2.BTI= 000004          T$CODE= 001130          T21RT2  024636          T23TMP  032630
RMPKTE= 000210          S2.DIM= 000200          T$ERRN= 001513          T21SSR  024306          T23VCK  033552
RMR    = 010000          S2.ILW= 000100          T$EXCP= 000000          T21S2   024302          T23WB   032612
RWPACK  011200          S2.INR= 000020          T$FLAG= 000040          T21S3   024304          T23WD   032634
SC     = 100000          S2.OUT= 000040          T$GMAN= 000000          T22AM3  026505          T23WDC  033450
SCE    = 020000          S2.UND= 000003          T$HILI= 000776          T22BFR  026272          T23WDD  033361
SCHERR  005276          TBLEND= 003052 G        T$LAST= 000001          T22BF2  026370          T23WDR  032636
SCME    005011          TCOASC  006566          T$LOLI= 000000          T22BS0  026370          T23WRT  032632
SDELAY  010750          TCOCOD  006766          T$LSYM= 010000          T22BS1  026371          T23WSS  033677
SELASC  020532          TEMP1   003106 G        T$LTNO= 000010          T22DAT  026260          T24AM3  045220
SELDAT= 000004          TEMP2   003110 G        T$NEST= 177777          T22FOR  026404          T24BA   045552
SEL2   = 000002          TERCLS= 000016          T$NS0  = 000000          T22LOO  024732          T24BFR  043642
SETMAP  017406          TESTNO= 000010          T$NS1  = 000005          T22OFL  026605          T24BF2  043750
SETU    022224          TEXASC  006525          T$NS2  = 000002          T22PAC  026250          T24BOT  044613
SFFMSG  012172 G        TFCASC  006627          T$PTNU= 000000          T22PK2  026360          T24BS0  043750
SFHERR  003703          TIMEXP  015642 G        T$SAVL= 177777          T22POS  026402          T24BS1  043751
SFIERR  003650          TIMSGO  015670          T$SEGL= 177777          T22RD   026376          T24CON  043762
SFIMSG  012124 G        TINERR  012111          T$SUBN= 000003          T22RES  027222          T24DAT  043630
SFPTBL  002156 G        TMPBFR  002622 G        T$TAGL= 177777          T22RT2  027314          T24DLY  043766
SIFLAG  003144 G        TNAM    016774          T$TAGN= 010136          T22RWJ  026754          T24DSW  043640
SIMSG   012056          TRANST  002156 G        T$TEMP= 000000          T22SSR  026410          T24DTA  044660
SKIPT   003370          TSBA   = 000000 G        T$TEST= 000010          T22S2   026372          T24EOT  044746
SOFINI  016064 G        TSBAH  = 000001 G        T$TSTM= 177777          T22S3   026374          T24ILA  044342
SPACE   010556 G        TSDB   = 000000 G        T$TSTS= 000001          T22TM   026660          T24LON  045712
SPM1    112530          TSDBH  = 000001 G        T$$AU  = 010031          T22VCK  027027          T24LOO  034412
SPM4    112560          TSFCOD  007326          T$$AUT= 010033          T22WLK  027102          T24LOP  045774
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SYMBOL TABLE

```
T24LOQ  044426      T25SSR  054034      T26WDC  073640      T27WDR  101600      T4      034352 G
T24LOR  044042      T25SZ   054006      T26WDD  073550      T27WNG  101614      T4.1    034412
T24NEF  043770      T25S2   054012      T26WDE  072743      T27WRF  104366      T4.10   041636
T24NXM  044201      T25S3   054014      T26WDF  072551      T27WSS  103522      T4.11   042102
T24OFL  045265      T25TM   054242      T26WNG  072006      T28BFR  110152      T4.12   042354
T24PAC  043620      T25WB   054002      T26WSS  074041      T28BF2  110260      T4.13   042610
T24PBP  046056      T25WDC  055127      T27AM3  103107      T28BOT  111117      T4.14   043110
T24PK2  043730      T25WDE  054115      T27BA   103447      T28BSO  110260      T4.2    035034
T24PK3  043740      T25WDR  054020      T27BFR  101462      T28BS1  110261      T4.3    035614
T24RB   043742      T25WNG  054405      T27BF2  101570      T28CNT  110306      T4.4    036370
T24RES  046300      T25WNH  054560      T27BOT  102461      T28CNU  110310      T4.5    037072
T24RN   043756      T26AM3  073426      T27BSO  101570      T28CON  110302      T4.6    037536
T24RNC  045145      T26BA   073766      T27BS1  101571      T28DAT  110140      T4.7    040172
T24RT2  046372      T26BFR  071652      T27CNT  101606      T28DLY  110312      T4.8    040626
T24RT3  046434      T26BF2  071760      T27CNU  101610      T28DSW  110150      T4.9    041220
T24RWN  045076      T26BOT  073015      T27CON  101602      T28DTA  112064      T5      046466 G
T24SSR  044507      T26BSO  071760      T27DAT  101450      T28DTR  112002      T5.1    046516
T24SZ   043746      T26BS1  071761      T27DLY  101612      T28IMV  110266      T5.2    047472
T24S2   043752      T26CNT  071776      T27DSW  101460      T28LOO  105000      T5.3    050072
T24S3   043754      T26CNU  072000      T27DTA  104446      T28LOQ  110674      T5.4    050546
T24TM   045023      T26DAT  071640      T27EOT  102631      T28OFL  111310      T5.5    051212
T24TRL  046144      T26DLY  072004      T27LON  103611      T28PAC  110130      T5.6    051752
T24VCK  045477      T26DSW  071650      T27LOO  074766      T28PBP  110371      T5.7    052712
T24WB   043742      T26DTA  073062      T27LOP  103673      T28PK2  110240      T5.8    053232
T24WDC  045426      T26EOT  073150      T27LOQ  102255      T28PK3  110250      T6      055404 G
T24WDD  045340      T26LON  074130      T27LOR  102130      T28RB   110252      T6.1    055444
T24WDE  044541      T26LOO  055444      T27NEF  104131      T28RDF  110454      T6.10   065064
T24WDF  044265      T26LOP  074212      T27OFL  103156      T28RDG  110535      T6.11   065740
T24WDG  044112      T26LOQ  072626      T27PAC  101440      T28RES  112206      T6.12   066610
T24WDR  043760      T26LOR  072501      T27PBP  103755      T28RIB  110314      T6.13   067542
T24WSS  045623      T26NEF  072074      T27PK2  101550      T28RN   110276      T6.14   070552
T25BFR  053702      T26NEQ  074450      T27PK3  101560      T28RRM  111567      T6.15   071132
T25BF2  054010      T26OFL  073475      T27RB   101562      T28RRN  111645      T6.2    056356
T25BNC  054470      T26PAC  071630      T27RDF  101702      T28RRP  111724      T6.3    057224
T25BOT  054175      T26PBP  074274      T27RES  104564      T28RT2  112300      T6.4    060116
T25BSO  054010      T26PK2  071740      T27RN   101576      T28RT3  112342      T6.5    061044
T25BS1  054011      T26PK3  071750      T27RNC  103034      T28RWN  111241      T6.6    061622
T25CNT  054030      T26RB   071752      T27RRF  101751      T28SSR  110755      T6.7    062464
T25CN2  054026      T26RDF  072156      T27RT2  104656      T28SZ   110256      T6.8    063336
T25CON  054022      T26RES  074540      T27RT3  104720      T28S2   110262      T6.9    064210
T25DAT  053670      T26RN   071766      T27RWN  102765      T28S3   110264      T7      074726 G
T25DLY  054032      T26RNC  073353      T27SC   102046      T28TM   111164      T7.1    074766
T25DSW  053700      T26RRF  072225      T27SCF  104227      T28TMK  111515      T7.2    075364
T25LOO  046516      T26RRG  072322      T27SSR  102336      T28VCK  111442      T7.3    076146
T25NEF  054643      T26RSZ  072002      T27SZ   101566      T28WB   110252      T7.4    076770
T25NET  054331      T26RT2  074632      T27S2   101572      T28WDC  111363      T7.5    077672
T25OFL  055054      T26RT3  074674      T27S3   101574      T28WDE  111026      T8      104744 G
T25PAC  053660      T26RWN  073304      T27TIM  102554      T28WDF  110617      T8.1    105000
T25PK2  053770      T26SC   072417      T27TM   102710      T28WDR  110300      T8.2    105360
T25PK3  054000      T26SSR  072707      T27TRL  104043      T3      027362 G    T8.3    105640
T25RB   054002      T26SZ   071756      T27TSA  104304      T3BFLG  003140 G    UAM   = 000200 G
T25RES  055216      T26S2   071762      T27VCK  103374      T3.1    027426      UNITN   002172 G
T25RIB  054723      T26S3   071764      T27WB   101562      T3.2    030000      UNREC = 000006
T25RN   054016      T26TM   073227      T27WDC  103321      T3.3    030650      USI     004121
T25RT2  055310      T26TRL  074362      T27WDD  103231      T3.4    031470      WAITF   016340 G
T25RT3  055352      T26VCK  073713      T27WDE  102372      T3.5    031704      WC.IFA= 000200
T25RWN  055005      T26WB   071752      T27WDF  102200      T3.6    032136      WC.IFE= 000002
```

SYMBOL TABLE

```
WC.IGO= 000001          WRTERR  005111          XSOILA= 000400          X$FALS= 000040          X2.UNI= 000007
WC.IRE= 000010          WRTMSG  005054          XSOILC= 001000          X$OFFS= 000400          X2.WCF= 002000
WC.IRW= 000004          WSMBK   021360 G        XSOLET= 020000          X$TRUE= 000020          X3.DCK= 000010
WC.IOT= 000100          XFERAS  016030          XSOMOT= 000200          X1.COR= 020000          X3.MBZ= 000006
WC.I1T= 000040          XNXM    016466          XSONEF= 002000          X1.DLT= 100000          X3.MDE= 177400
WC.I5R= 000020          XORBFO  007764          XSOONL= 000100          X1.MBZ= 017375          X3.OPI= 000100
WF.IED= 000010          XORFOR  010102          XSOPED= 000010          X1.RBP= 000400          X3.REV= 000040
WF.IER= 000004          XST0  = 000006 G        XSORLL= 010000          X1.SPA= 040000          X3.RIB= 000001
WF.IHI= 000200          XST1  = 000010 G        XSORLS= 040000          X1.UNC= 000002          X3.SPA= 000200
WF.IRE= 000040          XST2  = 000012 G        XSOTMK= 100000          X2.BUF= 000100          X3.TRF= 000020
WF.IWF= 000020          XST3  = 000014 G        XSOVCK= 000020          X2.EXT= 000200          X4.HSP= 100000
WF.IWR= 000100          XST4  = 000016 G        XSOWLE= 004000          X2.OPM= 100000          X4.MBZ= 017400
WF.I3R= 000002          XSOBOT= 000002          XSOWLK= 000004          X2.RCE= 040000          X4.RCE= 040000
WF.I4R= 000001          XSOEOT= 000001          XXCOMM  003112 G        X2.REV= 000077          X4.TSM= 020000
WRTCHR  010752 G        XSOIE = 000040          X$ALWA= 000000          X2.SPA= 035400          X4.WPC= 000377

. ABS.  113004      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  28880 WORDS  ( 113 PAGES)
DYNAMIC MEMORY:  20060 WORDS  ( 77 PAGES)
ELAPSED TIME:  00:51:20
CNTSCA0.BIC,CNTSCA0.SEQ/ SP=SVC34/ML,TSV1C,TSV22C,TSV3B,TSV4,TSV7A,TSV6
.
```