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IDENTIFICATION

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DECO/DEPO: 1.0

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TABLE OF CONTENTS

1.0 GENERAL INFORMATION
1.1 PROGRAM ABSTRACT
1.2 SYSTEM REQUIREMENTS
1.3 RELATED DOCUMENTS AND STANDARDS
1.4 DIAGNOSTIC HIERARCHY PREREQUISITES
1.5 ASSUMPTIONS

2.0 OPERATING INSTRUCTIONS
2.1 COMMANDS
2.2 SWITCHES
2.3 FLAGS
2.4 HARDWARE QUESTIONS
2.5 SOFTWARE QUESTIONS
2.6 EXTENDED P-TABLE DIALOGUE
2.7 QUICK STARTUP PROCEDURE

3.0 ERROR INFORMATION

4.0 PERFORMANCE AND PROGRESS REPORTS

5.0 DEVICE INFORMATION TABLES

6.0 TEST SUMMARIES

7.0 MAINTENANCE HISTORY

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

1.4 DIAGNOSTIC HIERARCY PREREQUISITES

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:

```
ISBA/ISDB = 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.

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

UNIT 0

DEVICE ADDRESS  (O) 176000 ? <ENTER THE ADDRESS OF THE
                              1SBA/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 "0 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 (0) ?  160000<CR>
SUB-DEVICE @ (0) ?  0<CR>
Q-FACTOR (0) 0 ?  1<CR>

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

UNIT 3
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE @ (0) ?  2<CR>
Q-FACTOR (0) 0 ?  <CR>

UNIT 4
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE @ (0) ?  3<CR>
Q-FACTOR (0) 0 ?  <CR>

UNIT 5
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE @ (0) ?  4<CR>
Q-FACTOR (0) 0 ?  <CR>

UNIT 6
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE @ (0) ?  5<CR>
Q-FACTOR (0) 0 ?  <CR>

UNIT 7
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE @ (0) ?  6<CR>
Q-FACTOR (0) 0 ?  1<CR>

UNIT 8
CSR ADDRESS (0)  160000<CR>
SUB-DEVICE @ (0)    7<CR>
Q-FACTOR (0) 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 (0) ?  8<CR>

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

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

UNIT 7
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  6,7<CR>
Q-FACTOR (0) 0 ?  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 (0) ?  8<CR>

UNIT 1
CSR ADDRESS (0) ?  160000<CR>
SUB-DEVICE # (0) ?  0-7<CR>
Q-FACTOR (0) 0 ?  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 00101  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 0  = 140010
 PACKET WORD 0  = 000010
 PACKET WORD 0  = 000000
 PACKET WORD 0  = 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  XS1(0 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

SEQ 0020

```
                                        .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::

002146  176000                          .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:

002166                                  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                  TOU==    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
```

MEMORY MANAGEMENT DEFINITIONS

```
.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
```

```
                        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 SEQ 0027

```
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 2
                        ;(XST2)
                        ;-
000000                  X2.OPM  = BIT15         ;OPERATION IN PROGRESS (TAPE MOVING)
000000                  X2.RCE  = BIT14         ;RAM CHECKSUM ERROR
000000                  X2.SPARE= BIT13+BIT12+BIT11+BIT9+BIT8   ;NOT USED BY TSV05 (ALWAYS=0)
000000                  X2.WCF  = BIT10         ;WRITE CLOCK FAILURE (FIFO NOT EMPTIED BY TRANSPORT)
000000                  X2.EXTF = BIT7          ;IF WRITE CHAR CMD THEN = EXTENDED FEATURES ENABLED
000000                  X2.BUFE = BIT6          ;IF WRITE CHAR CMD THEN = BUFFERING ENABLED
000000                  X2.REV  = 000077        ;IF WRITE CHAR CMD THEN = MICROCODE REVISION LEVEL
000000                  X2.UNIT = BIT2+BIT1+BIT0 ;IF GET STATUS THEN = CURRENTLY SELECTED UNIT NO.

                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 3
                        ;(XST3)
                        ;-
000000                  X3.MDE  = 177400        ;MICRO-DIAGNOSTIC ERROR CODE
000000                  X3.SPARE= BIT7          ;NOT USED BY TSV05
000000                  X3.OPI  = BIT6          ;OPERATION INCOMPLETE
000000                  X3.REV  = BIT5          ;REVERSE
000000                  X3.TRF  = BIT4          ;TRANSPORT RESPONSE FAILURE
000000                  X3.DCK  = BIT3          ;DENSITY CHECK
000000                  X3.MBZ  =BIT2+BIT1      ;NOT USED ALWAYS 0
000000                  X3.RIB  = BIT0          ;REVERSE INTO BOT

                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 4
                        ;(XST4)
                        ;-
000000                  X4.HSP  = BIT15         ;HIGH SPEED
000000                  X4.RCE  = BIT14         ;RETRY COUNT EXCEEDED
000000                  X4.TSM  = BIT13         ;TRANSPORT SPECIAL MODE
000000                  X4.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT8   ;NOT USED ALWAYS 0
000000                  X4.WRC  = 000377        ;WRITE RETRY COUNT FIELD

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

000006                          TSREJ=  3*2             ;COMMAND REJECTED
000006                          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
```

```
                        ;
                        ;
                        ;
000006                  XST0==  6               ;EXTENDED STATUS REGISTER 0 (WORD 4)
000010                  XST1==  8.              ;EXTENDED STATUS REGISTER 1 (WORD 5)
000012                  XST2==  10.             ;EXTENDED STATUS REGISTER 2 (WORD 6)
000014                  XST3==  12.             ;EXTENDED STATUS REGISTER 3 (WORD 7)
000016                  XST4==  14.             ;EXTENDED STATUS REGISTER 4 (WORD 8)
                        ;*
                        ;
                        ;OFFSETS TO WORD LOCATIONS IN PACKET DEFINITIONS
                        ;
                        ;-
000002                          PKLOW   = 2             ;LOW ORDER CHARACTERISTIC DATA POINTER
000004                          PKHI    = 4             ;HIGH ORDER CHARACTERISTIC DATA POINTER
000006                          PKBCNT  = 6             ;NUMBER OF BYTES IN DATA PACKET
                        
000010                          EXBCNT=10               ;NUMBER OF BYTES IN EXTENDED DATA PACKET
                        
                        ;*
                        ;DATA PACKET OFFSETS FOR WRITE SUBSYTEM COMMAND
                        ;-
000000                          BSEL0   = 0             ;BYTE 0
000001                          BSEL1   = 1             ;BYTE 1
000002                          SEL2    = 2             ;WORD 2
000004                          SELDATA = 4             ;WORD 3
                        
                        ;*
                        ;BSEL0 SELECT CODES FOR WRITE SUBSYSTEM COMMAND
                        ;-
000000                  PW.NOP          = 0             ;NO-OP
000001                  PW.RDRAM        = 1             ;READ RAM
000002                  PW.WTRAM        = 2             ;WRITE RAM
000003                  PW.RFIFO        = 3             ;READ FIFO
000004                  PW.WFIFO        = 4             ;WRITE FIFO
000005                  PW.RDSTAT       = 5             ;READ STATUS
000006                  PW.WCTL         = 6             ;WRITE TAPE CONTROL
000007                  PW.WFMT         = 7             ;WRITE TAPE FORMAT
000010                  PW.WMISC        = 10            ;WRITE MISCELLANEOUS
000011                  PW.WNPR         = 11            ;WRITE NPR CONTROL
000020                  PW.D22          = 20            ;DO MICROTEST 22
000021                  PW.D11          = 21            ;DO MICROTEST 11
000022                  PW.D13          = 22            ;DO MICROTEST 13
000023                  PW.NO1311       = 23            ;DISABLE MICROTEST 11 AND 13
000024                  PW.RDEXT        = 24            ;READ EXT. TAPE STATUS (NOT SUPPORTED BY ALL TRANSPORTS
                        
                        ;*
                        ;BSEL1 CODES FOR WRITE TAPE CONTROL
                        ;-
000200                  WC.IFAD         = BIT7          ;IFAD - FORMATTER ADDRESS
000100                  WC.IOTAD        = BIT6          ;ITAD0  - TRANSPORT ADDRESS BIT 0
000040                  WC.I1TAD        = BIT5          ;ITAD1  - TRANSPORT ADDRESS BIT 1
000020                  WC.I5RESV       = BIT4          ;IRESV5 - RESERVED #5
000010                  WC.IREW         = BIT3          ;IREW   - REWIND
000004                  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
```

TSV05 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                  QVP::           .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                  BEN8SW::        .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

```
438 002274  000000                RCVHIADD::      .WORD   0       ;RECEIVED BUFFER HIGH ADDRESS
439 002276  000000                RCVLOADD::      .WORD   0       ;RECEIVED BUFFER LOW ADDRESS
440 002300  000000                COUNT::         .WORD   0       ;TEST COUNT PATTERN
441 002302  000000                DATA::          .WORD   0       ;TEST DATA
442 002304  000000                TSTFLAG::       .WORD   0       ;TEST FLAG WORD
443 002306  000000                TSTPTR::        .WORD   0       ;TSTBLK POINTER
444 002310  000000                PRMNO::         .WORD   0       ;PRINT ROUTINE TEMP
445 002312                        EXPMSG::        .BLKB   100.    ;EXPECTED MESSAGE BUFFER DATA
446 002456                        RECMSG::        .BLKB   100.    ;RECEIVED MESSAGE BUFFER DATA
447 002622                        TMPBFR::        .BLKB   80.     ;TEMPORARY STORAGE FOR PRINT
448                                       .SBTTL  TSTBLK  - TEST DATA TABLE
449
450                               ;+
451                               ;
452                               ;THIS TABLE CONTAINS TEST DATA USED IN SEVERAL TESTS
453                               ;
454                               ;IN SEQUENCE THE DATA IS:
455                               ;
456                               ;       ALL ZEROS
457                               ;       ALL ONES
458                               ;       WALKING ONES
459                               ;       WALKING ZEROS
460                               ;       ALTERNATING ONES AND ZEROS
461                               ;
462                               ;-
463
464 002742                        TSTBLK::
465 002742  000000                        .WORD   0               ;ALL ZEROS
466 002744  177777                        .WORD   177777          ;ALL ONES
467 002746  000001                        .WORD   BIT0            ;DATA FOR WALKING ONES
468 002750  000002                        .WORD   BIT1
469 002752  000004                        .WORD   BIT2
470 002754  000010                        .WORD   BIT3
471 002756  000020                        .WORD   BIT4
472 002760  000040                        .WORD   BIT5
473 002762  000100                        .WORD   BIT6
474 002764  000200                        .WORD   BIT7
475 002766  000400                        .WORD   BIT8
476 002770  001000                        .WORD   BIT9
477 002772  002000                        .WORD   BIT10
478 002774  004000                        .WORD   BIT11
479 002776  010000                        .WORD   BIT12
480 003000  020000                        .WORD   BIT13
481 003002  040000                        .WORD   BIT14
482 003004  100000                        .WORD   BIT15
483 003006  177776                        .WORD   ^CBIT0          ;DATA FOR WALKING ZEROS
484 003010  177775                        .WORD   ^CBIT1
485 003012  177773                        .WORD   ^CBIT2
486 003014  177767                        .WORD   ^CBIT3
487 003016  177757                        .WORD   ^CBIT4
488 003020  177737                        .WORD   ^CBIT5
489 003022  177677                        .WORD   ^CBIT6
490 003024  177577                        .WORD   ^CBIT7
491 003026  177377                        .WORD   ^CBIT8
492 003030  176777                        .WORD   ^CBIT9
493 003032  175777                        .WORD   ^CBIT10
494 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                              NXRERR: BGNMSG  NXRERR          ;NON-EXISTANT DEVICE REGISTER.
     005734
 660 005734                              NXRERR::
     005734  013746  003104                  PRINTX  #NXRX,NODEV     ;NODEV = NEXM ADDRESS.
     005740  012746  003775                  MOV     NODEV,-(SP)
     005744  012746  000002                  MOV     #NXRX,-(SP)
     005750  010600                          MOV     #2,-(SP)
     005752  104415                          MOV     SP,R0
     005754  062706  000006                  TRAP    C$PNTX
 661 005760  004737  005766                  ADD     #6,SP
 662 005764                                  JSR     PC,EXTEND       ; PRINT EXTENSION IF REQUIRED.
     005764                                  ENDMSG
     005764  104423                  L10002:
                                             TRAP    C$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 O  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)
```

PRITSSR PRINT TSSR CONTENTS

```
                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$PNTX
                006350  062706  000004                  ADD     #4,SP
    737         006354  000207                          RTS     PC              ;RETURN TO CALLER
    738
    749 006356      045     116     045 EPRT1:  .ASCIZ  '#N#A *****CHECK CABLES BETWEEN M7196 AND TRANSPORT*****'
    750 006446      045     116     045 EPRT2:  .ASCIZ  '#N#A *****CHECK TRANSPORT*****'
    756 006505      045     116     045 TSSRFOR:        .ASCIZ  '#N#A TSSR = #O6'
    757 006525      045     116     045 TEXASC:         .ASCIZ  '#N#A Extended Address Bits = #O6'
    758 006566      045     116     045 TCOASC:         .ASCIZ  '#N#A Termination Class Code = #T'
    759 006627      045     116     045 TFCASC:         .ASCIZ  '#N#A Fatal Termination Class Code = #T'
    760 006676      045     116     045 TSSDEF:         .ASCIZ  '#N#A TSSR Bits Set: #T'
    761 006725      045     116     045 AMBTSSR:        .ASCIZ  '#N#A TSSR Contents Are Ambiguous'
    762                                 .EVEN
    763 006766  007006  007031  007057 TCOCOD: .WORD   1$,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      14     160  3$:     .ASCIZ  'Tape Status Alert'
                767 007101      106     ...     156  4$:     .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  000004                  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: %O6%A RECV: %O6%A XOR: %O6'
                                        .EVEN
                                        .SBTTL  PRIEQU  - PRINT BIT NUMBERS 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
                                        ;
                                        ;-
                                        PRIRAM:
                                                SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
                                                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 = %O6'
                                        .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
                                        ;
                                        ;-
                                        PRIADD:
                                                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 = %O1%O5'
                                        .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
010364  013702  002224                  MOV     ERRHI,R2        ;GET HIGH ADDRESSS
010370  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
```

SPACE - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

```
                                        ;
                                        ;
                                        ;IMPLICIT OUTPUT:
                                        ;
                                        ;       TAPE HAS BEEN MOVED
                                        ;
                                        ;SIDE EFFECTS:
                                        ;
                                        ;
                                        ;-
                                        SPACE::
                                                SAVREG                  ;SAVE THE GENERAL REGISTERS
010562  012737  000764  010750            MOV     #500.,SDELAY            ;SET UP DELAY
010570  012737  140010  010740            MOV     #140010,80$             ;SET UP COMMAND, SPACE FORWARD
010576  005703                            TST     R3                      ;CHECK FOR DIRECTION
010600  100403                            BMI     5$                      ;BR, IF REVERSE INDICATED
010602  016337  010742                    MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
010606  000407                            BR      10$                     ;GO DO COMMAND
010610  042703  100000            5$:     BIC     #BIT15,R3               ;CLEAR DIRECTION BIT
010614  010337  010742                    MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
010620  052737  000400  010740            BIS     #BIT8,80$               ;SET REVERSE BIT IN COMMAND PACKET
010626  012704  010730            10$:    MOV     #80$,R4                 ;SET UP R4 WITH PACKET ADDRESS
010632  010465  000000                    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010636  004737  016340            15$:    JSR     PC,WAITF                ;WAIT FOR SSR
010642  103420                            BCS     20$                     ;BR, IF SSR IS SET AND OK
010644                                  DELAY   250             ;DELAY ABOUT .25 SECONDS
010644  012727  000250                    MOV     #250,(PC)+
010650  000000                            .WORD   0
010652  013727  002116                    MOV     L$DLY,(PC)+
010656  000000                            .WORD   0
010660  005367  177772                    DEC     -6(PC)
010664  001375                            BNE     .-4
010666  005367  177756                    DEC     -22(PC)
010672  001367                            BNE     .-20
010674  005337  010750                    DEC     SDELAY                  ;BUMP DELAY COUNTER DOWN
010700  001356                            BNE     15$                     ;BR, IF MORE DELAY
010702  000411                            BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
010704  016501  000002            20$:    MOV     TSSR(R5),R1             ;READ TSSR
010710  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
010714  020201                    25$:    CMP     R2,R1                   ;ARE THEY OK
010716  001401                            BEQ     40$                     ;BR, IF EQUAL = OK
010720  000402                            BR      60$                     ;TROUBLE EXIT
010722  000261                    40$:    SEC                             ;SET CARRY NO TROUBLE
010724  000401                            BR      70$                     ;EXIT
010726  000241                    60$:    CLC                             ;CARRY CLEAR = ERROR
010730                            70$:
010730  010400                            MOV     R4,R0                   ;PASS PACKET ADDRESS
010732  000207                            RTS     PC                      ;RETURN
```

```
1036                                    ;
1037                                    ;
1038                                    ;
1039                                    ;PACKET FOR SPACE COMMAND
1040                                    ;
1042            010740                  .=<.+10>&177770
1044                                    ;
1045                                    ;COMMAND WORD
1046 010740  000000                     80$:    .WORD
1047                                    ;NUMBER OF RECORDS TO BE SPACED OVER WORD
1048 010742  000000                     90$:    .WORD
1049 010744  000000                             .WORD
1050 010746  000000                             .WORD
1051 010750  000000                     SDELAY: .WORD   0                       ;DELAY COUNTER
1052                                            .EVEN
1053                                            .SBTTL  WRTCHR  - WRITE CHARACTERISTICS COMMAND
1054
1055                                    ;+
1056                                    ;
1057                                    ;ROUTINE TO ISSUE A WRITE CHARACTERISTICS
1058                                    ;COMMAND SO THAT OTHER COMMANDS WILL BE ACCEPTED
1059                                    ;
1060                                    ;INPUT:
1061                                    ;
1062                                    ;       R4      ADDRESS OF PACKET FROM TEST
1063                                    ;       R5      FIRST DEVICE UNIBUS ADDRESS
1064                                    ;       REQUIRES A CALL TO SOFINIT BE DONE PREVIOUSLY
1065                                    ;
1066                                    ;OUTPUT:
1067                                    ;
1068                                    ;       R0      TSSR CONTENTS
1069                                    ;       CARRY   SET - WRITE CHARACTERISTICS COMMAND OK
1070                                    ;               CLR - WRITE CHARACTERISTICS FAILED
1071                                    ;
1072                                    ;IMPLICIT OUTPUT:
1073                                    ;
1074                                    ;       MESSAGE BUFFER - OTHER BUFFERS ALL SET UP
1075                                    ;       SOFTWARE SWITCHES SET AS FOLLOWS:
1076                                    ;               EXTFEA = EXTENDED FEATURES PRESENT
1077                                    ;               BENBSW = BUFFER ENABLE SWITCH ON OR OFF
1078                                    ;
1079                                    ;
1080                                    ;SIDE EFFECTS:
1081                                    ;
1082                                    ;
1083                                    ;-
1084
1085 010752                             WRTCHR::
1086 010752                                     SAVREG                          ;SAVE THE GENERAL REGISTERS
1087 010756  005037  002200                     CLR     BENBSW          ;CLEAR BUFFER ENABLE SWITCH
1088 010762  005037  002210                     CLR     EXTFEA                  ;CLEAR EXTENDED FEATURES SW SWITCH
1089 010766  010465  000000             10$:    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
1090 010772  004737  016426                     JSR     PC,CHKTSSR              ;WAIT FOR SSR
1091 010776  1034                               BCS     20$                     ;BR, IF SSR IS SET AND OK
1092 011000  000430                             BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
1093 011002  016501  000000             20$:    MOV     TSSR(R5),R1             ;READ TSSR
1094 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$:
1107 011054  032763  000100  000012  BIT     #X2.BUFE,XST2(R3)                       ;BUFFER ENABLE SWITCH SET
1108 011062  001403                  BEQ     50$                     ;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
```

```
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$:    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1253 011350  010265  000000                    MOV     R2,TSDB(R5)             ;SELECT NEXT RAM ADDRESS
1254 011354  004737  016426                    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1255 011360  116511  000000                    MOVB    TSBA(R5),(R1)           ;READ THE RAM DATA
1256 011364  122124                            CMP3    (R1)+,(R4)+             ;COMPARE TO EXPECTED
1257 011366  001401                            BEQ     20$                     ;BRANCH IF OK
1258 011370  005203                            INC     R3                      ;SET ERROR FLAG
1259 011372  005202                    20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
```

```
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     1S$             ;BR IF NO
1319 011536  032765  000200  000012            BIT     #X2.EXTF,XST2(R5);IS EXTENDED FEATURES SET IN EXPD?
1320 011544  001403                            BEQ     5O$             ;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      6O$             ;
1327 011564  000261                 55$:       SEC                     ;SET SUCCESS
1328 011566  000207                 6O$:       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-';@@D
 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                                     SFIMSG::
 1408 012124  004737  006022                             JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
 1409 012130  004737  017272                             JSR     PC,CKDROP       ;DROP UNIT, IF ALLOWED
 1410 012134                                             ENDMSG
      012134                                     L10003:
      012134  104423                                     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
                                        PKTMES::
1473 012200  004737  006022                    JSR     PC,PRITSSR              ;PRINT CONTENTS OF TSSR
1474 012204  010200                            MOV     R2,R0                   ;LOW ORDER ADDRESS
1475 012206  010301                            MOV     R3,R1                   ;HIGH ORDER ADDRESS
1476 012210  004737  014332                    JSR     PC,PRMESS               ;PRINT THE MESSAGE BUFFER
1477 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
1496                                           .SBTTL  MSGEXP - PRINT WRITE CHAR. EXPD-RECV MESSAGE BUFFERS
1497                                   ;+
1498                                   ;
1499                                   ;PRINT ROUTINE TO PRINT WRITE CHARACTERISTIC MESSAGE BUFFER
1500                                   ;
1501                                   ;IMPLICIT INPUTS:
1502                                   ;
1503                                   ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1504                                   ;       RECMSG  - RECEIVED MESSAGE BUFFER
1505                                   ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
1506                                   ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
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
```

FIFEXP - PRINT FIFO EXP/RECV DATA

```
                                        ;
                                        ;       R1      - BYTE COUNT
                                        ;
                                        ;IMPLICIT INPUTS:
                                        ;
                                        ;       EXPMSG  - EXPECTED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY
                                        ;       RECMSG  - RECEIVED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY)
                                        ;-
                                                BGNMSG  FIFEXP
                                        FIFEXP::
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$PNTX
012276  062706  000006                          ADD     #6,SP
012302                                          PRINTX  #FIF2MSG        ;PRINT HEADER MSG
012302  012746  012401                          MOV     #FIF2MSG,-(SP)
012306  012746  000001                          MOV     #1,-(SP)
012312  010600                                  MOV     SP,R0
012314  104415                                  TRAP    C$PNTX
012316  062706  000004                          ADD     #4,SP
012322  010100                                  MOV     R1,R0           ;GET BYTE COUNT
012324  004737  015212                          JSR     PC,PRBYTEXP     ;PRINT FIFO BYTES IN ERROR
012330                                          ENDMSG
012330                                  L10012:
012330  104423                                  TRAP    C$MSG
012332     045     116     045  FIF1MSG:        .ASCIZ  '#N#A NUMBER OF BYTES TRANSFERRED = #D2'
012401     045     116     045  FIF2MSG:        .ASCIZ  '#N#A FIFO DATA BYTES IN ERROR:'
                                                .EVEN
                                                .SBTTL  MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS
                                        ;+
                                        ;
                                        ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
                                        ;
                                        ;
                                        ;IMPLICIT INPUTS:
                                        ;
                                        ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                        ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                        ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                        ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                        ;-
                                                BGNMSG  MSGSTAT
012440                                  MSGSTAT::
012440  012701  012502                          MOV     #STATCOD,R1     ;ASCII ADDRESS TABLE
012444  012100                          10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
012446  001410                                  BEQ     20$             ;BR IF YES
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$PNTX
012462  062706  000004                          ADD     #4,SP
012466  000766                                  BR      10$             ;DO ANOTHER MSG LINE
012470  012700  000012                  20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
```

MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS

```
1556 012474  004737  014642                    JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
1557 012500                                    ENDMSG
     012500                              L10013:
     012500  104423                            TRAP    C$MSG
1558
1559 012502  012520  012562  012653  STATCOD:          .WORD   1$,2$,3$,4$,5$,6$,0
1560 012520    045     116     045   1$:.ASCIZ  '<N><A Tape Bus Signals in Word #8:'
1561 012562    045     116     045   2$:.ASCIZ  '<N><A        PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<3>'
1562 012653    045     116     045   3$:.ASCIZ  '<N><A        IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>'
1563 012744    045     116     045   4$:.ASCIZ  '<N><A        IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>'
1564 013035    045     116     045   5$:.ASCIZ  '<N><A Tape Bus Signals in Word #9:'
1565 013077    045     116     045   6$:.ASCIZ  '<N><A        DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>'
1566                                           .EVEN
1567
1568                                           .SBTTL  MSGLOOP - PRINT LOOPBACK HEADER AND MESSAGE BUFFERS
1569                                   ;+
1570                                   ;
1571                                   ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
1572                                   ;
1573                                   ;IMPLICIT INPUTS:
1574                                   ;
1575                                   ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1576                                   ;       RECMSG  - RECEIVED MESSAGE BUFFER
1577                                   ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
1578                                   ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
1579                                   ;-
1580 013154                                    BGNMSG  MSGLOOP
     013154                            MSGLOOP::
1581 013154  012701  013216                       MOV     #LOOPCOD,R1     ;ASCII ADDRESS TABLE
1582 013160  012100                    10$:       MOV     (R1)+,R0        ;DONE ALL MSG LINES?
1583 013162  001410                               BEQ     20$             ;BR IF YES
1584 013164                                       PRINTX  R0              ;PRINT STATUS BIT NAMES
     013164  010046                               MOV     R0,-(SP)
     013166  012746  000001                       MOV     #1,-(SP)
     013172  010600                               MOV     SP,R0
     013174  104415                               TRAP    C$PNTX
     013176  062706  000004                       ADD     #4,SP
1585 013202  000766                               BR      10$             ;DO ANOTHER MSG LINE
1586 013204  012700  000012            20$:       MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
1587 013210  004737  014642                       JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
1588 013214                                       ENDMSG
     013214                            L10014:
     013214  104423                               TRAP    C$MSG
1589
1590 013216  013236  013311  013410  LOOPCOD:          .WORD   1$,2$,3$,4$,5$,6$,7$,0
1591 013236    045     116     045   1$:.ASCIZ  '<N><A Tape Bus Loopback Signals in Word #8:'
1592 013311    045     116     045   2$:.ASCIZ  '<N><A      PARERR<15>          IRESV2<14>          IRESV1<13>'
1593 013410    045     116     045   3$:.ASCIZ  '<N><A IHISP=>IEOT <12>   IWRT=>IIDENT<11>   IREV  =>ICER  <10>'
1594 013507    045     116     045   4$:.ASCIZ  '<N><A IWFM =>IFMK<09>   IEDIT=>IHER <08>   IFAD  =>ISPEED<07>'
1595 013606    045     116     045   5$:.ASCIZ  '<N><A ITADO=>IRDY<06>   ITAD1=>IONL <05>   IERASE=>ILDP  <04>'
1596 013705    045     116     045   6$:.ASCIZ  '<N><A IREW =>IDBY<03>   IRWU =>IRWD <02>   IFEN  =>IFBY  <01>'
1597 014004    045     116     045   7$:.ASCIZ  '<N><A IGO  =>IFPT<00>'
1598                                           .EVEN
1599                                           .SBTTL  MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER
1600                                   ;+
1601                                   ;
1602                                   ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
```

```
1603                                    ;
1604                                    ;
1605                                    ;IMPLICIT INPUTS:
1606                                    ;
1607                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1608                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
1609                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
1610                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
1611                                    ;-
1612 014032                                     BGNMSG  MSGSUB
     014032                             MSGSUB::
1613 014032  012700  000012                     MOV     #10.,R0         ;SIZE OF WRITE SUBSYSTEM BUFFER
1614 014036  004737  014642                     JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
1615 014042                                     ENDMSG
     014042                             L10015:
     014042  104423                             TRAP    C$MSG
1616
1617                                            .SBTTL  MEMADD - PRINT MEMORY ADDRESS DATA ERROR
1618                                    ;+
1619                                    ;
1620                                    ;PRINT ROUTINE TO PRINT MEMORY ADDRESS DATA COMPARE ERROR
1621                                    ;
1622                                    ;IMPLICIT INPUTS:
1623                                    ;
1624                                    ;       ERRHI   - MEMORY ERROR HIGH ORDER ADDRESS
1625                                    ;       ERRLO   - MEMORY ERROR LOW ORDER ADDRESS
1626                                    ;       EXP     - EXPECTED DATA
1627                                    ;       RECV    - RECEIVED DATA
1628                                    ;-
1629 014044                                     BGNMSG  MEMADD
     014044                             MEMADD::
1630 014044  004737  010250                     JSR     PC,PRIADD       ;PRINT MEMORY ADDRESS IN ERROR
1631 014050  013701  002222                     MOV     EXPD,R1         ;GET EXPD DATA
1632 014054  013702  002224                     MOV     RECV,R2         ;GET RECEIVED DATA
1633 014060  004737  010032                     JSR     PC,PRIXOR       ;PRINT EXPD/RECV
1634 014064                                     ENDMSG
     014064                             L10016:
     014064  104423                             TRAP    C$MSG
1635                                            .SBTTL  PRAMPKT - PRINT RAM AND PACKET DATA
1636                                    ;+
1637                                    ;
1638                                    ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
1639                                    ;WHEN THE RAM DATA DOES NOT MATCH.
1640                                    ;
1641                                    ;INPUTS:
1642                                    ;
1643                                    ;       R4      POINTER TO COMMAND PACKET
1644                                    ;
1645                                    ;IMPLICIT INPUTS:
1646                                    ;
1647                                    ;       RAMDATA         DATA AS READ FROM THE RAM
1648                                    ;       RAMSIZ          NUMBER OF BYTES IN PACKET
1649                                    ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
1650                                    ;
1651                                    ;IMPLICIT OUTPUTS:
1652                                    ;
1653                                    ;       RAMSIZ  SET TO 0
```

PRAMPKT - PRINT RAM AND PACKET DATA

```
                                        ;*
                                        ;
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:
```

PRMESS - PRINT CONTENTS OF MESSAGE BUFFER

```
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 <D1><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                                    ;
```

PRMSGEXP - PRINT EXPD/RECV MESSAGE BUFFERS

```
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$             ;BUG
1806 015356  000404                            BR      35$                     ;BUG
1807 015360                            30$:
1808 015360                                    FORCERROR  27$,NOTSSR           ;BUG
1809 015370                            35$:                                    ;BUG
1810 015370  005204                            INC     R4                      ;NUMBER OF THE NEXT
1811 015372  020405                            CMP     R4,R5                   ;DONE ALL YET?
1812 015374  002001                            BGE     50$                     ;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: %O3%A  RECV: %O3%A  XOR: %O3'
```

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
                RAMERR::
015600  004737  014066  JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
                        ENDMSG
                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
                RAMTADD::
015606  004737  010364  JSR     PC,PRITADD      ;PRINT TEST ADDRESS
015612  004737  014066  JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
                        ENDMSG
                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
                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  '#N#A 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  000002          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
```

CHKAMB CHECK TSSR FOR AMBIGUITY

```
2014
2015                                    ;*
2016                                    ;
2017                                    ;THIS ROUTINE TESTS THE CONTENTS OF THE TSSR REGISTER
2018                                    ;FOR AMBIGUITY
2019                                    ;
2020                                    ;INPUT:
2021                                    ;
2022                                    ;       R0      CONTENTS OF TSSR
2023                                    ;
2024                                    ;OUTPUT:
2025                                    ;
2026                                    ;       R0      CONTENTS OF TSSR
2027                                    ;
2028                                    ;       CARRY   SET - NO AMBIGUITY
2029                                    ;               CLR - AMBIGUOUS CONTENTS
2030                                    ;
2031                                    ;-
2032
2033 016134                            CHKAMB:
2034 016134                                    SAVREG                  ;SAVE THE GENERAL REGISTERS
2035 016140  010004                            MOV     R0,R4           ;CONTENTS OF TSSR
2036 016142  032700  100000                    BIT     #SC,R0          ;IS BIT 15 SET ?
2037 016146  001004                            BNE     5$              ;BRANCH IF YES
2038 016150  032700  174077                    BIT     #^C<NBA!OFL!SSR!HIADDR>,R0      ;ANY OTHER BITS SET ?
2039 016154  001023                            BNE     40$             ;MUST BE AN ERROR
2040 016156  000424                            BR      45$             ;RETURN WITH SUCCESS
2041 016160  032700  000200            5$:     BIT     #SSR,R0         ;IS READY BIT SET ?
2042 016164  001011                            BNE     10$             ;BRANCH IF READY BIT IS SET.
2043 016166  032700  000040                    BIT     #BIT5,R0        ;IS FATAL ERROR BIT SET ?
2044 016172  001414                            BEQ     40$             ;ERROR IF NOT
2045 016174  042704  177761                    BIC     #^CTERCLS,R4    ;CLEAR ALL BUT TERMINATION CODE
2046 016200  020427  000016                    CMP     R4,#16          ;ALL THREE BITS MUST BE SET
2047 016204  001007                            BNE     40$             ;ERROR IF NOT SET
2048 016206  000410                            BR      45$             ;OK IF ALL ARE SET
2049 016210  032700  000040            10$:    BIT     #BIT5,R0        ;IS FATAL ERROR BIT SET ?
2050 016214  001405                            BEQ     45$             ;ERROR IF BIT IS SET WITH SSR
2051 016216  032700  000006                    BIT     #BIT2!BIT1,R0   ;IS THIS A FUNCTION REJECT
2052 016222  001002                            BNE     45$             ;BR, IF TSSR IS OK
2053 016224  000241            40$:    CLC                             ;AMBIGUOUS CONTENTS
2054 016226  000401                            BR      50$
2055 016230  000261            45$:    SEC                             ;SHOW SUCCESS - NO AMBIGUITY
2056 016232  000207            50$:    RTS     PC                      ;RETURN TO CALLER
2057                                    .SBTTL  ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS
2058                                    ;
2059                                    ; DEFAULT DISPLAY INTERRUPT HANDLERS.
2060                                    ; IF DISPLAY TIME-OUT, REPORT DEV FATAL, AND ABORT PASS.
2061                                    ; OTHERWISE, SAVE DPU REGISTERS AND DISMISS.
2062                                    ;
2063
2064                                    ; BIT DEFINITIONS FOR "INTMASK" AND "INTFLAG" BYTES:
2065                                    ;
2066          000200                            IOKCKIN=BIT7    ; DON'T CHECK FOR BAD INTERRUPTS -- TEST WILL.
2067          000001                            IOKSTP=BIT0     ; EXPECT "STOP" INTERRUPT.
2068                                    ;
2069                                    ;INTERRUPT MASK -- SAYS EXPECTING INTERRUPTS
2070 016234     000                    INTMASK:        .BYTE   0
```

```
2071
2072 016235     000                    ;INTERRUPT FLAG -- SAYS WE GOT ONE (IF POSITIVE)
                                        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
```

WAITF - WAIT FOR SUBSYSTEM READY

```
2124
2125 016356  100420                        BMI     3$              ; EXIT ON STOP FLAG.
2126 016360                                 DELAY   1               ; WAIT 100 USEC
     016360  012727  000001                 MOV     #1,(PC)+
     016364  000000                         .WORD   0
     016366  013727  002116                 MOV     L$DLY,(PC)+
     016372  000000                         .WORD   0
     016374  005367  177772                 DEC     -6(PC)
     016400  001375                         BNE     .-4
     016402  005367  177756                 DEC     -22(PC)
     016406  001367                         BNE     .-20
2127 016410  005316                         DEC     (SP)            ;REDUCE DELAY COUNT
2128 016412  001356                         BNE     2$              ;RETRY UNTIL TIMER EXPIRES
2129 016414  000241                         CLC                     ; C = 0, CONTROLLER STILL RUNNING...
2130 016416  000401                         BR      4$              ;...OR HUNG-UP AFTER 300 MSEC.
2131 016420  000261                 3$:     SEC                     ; C = 1, CONTROLLER IS STOPPED.
2132 016422  005326                 4$:     DEC     (SP)+           ;RESTORE STACK WITHOUT CHANGING CARRY BIT
2133 016424  000207                         RTS     PC
2134                                        .SBTTL  CHKTSSR - CHECK TSSR FOR READY
2135
2136                                ;+
2137                                ;
2138                                ;THIS ROUTINE WAITS FOR READY IN THE TSSR
2139                                ;AND TESTS FOR AMBIGUOUS BIT SETTINGS IN TSSR.
2140                                ;
2141                                ;INPUT:
2142                                ;
2143                                ;       R5      ADDRESS OF CSR REGISTERS
2144                                ;
2145                                ;OUTPUT:
2146                                ;
2147                                ;       R0      CONTENTS OF TSSR
2148                                ;       CARRY   SET - OKAY
2149                                ;               CLR - NOT READY AMBIGUOUS, OR SC SET
2150                                ;
2151                                ;-
2152
2153 016426                         CHKTSSR:
2154 016426  004737  016340                JSR     PC,WAITF                ;WAIT FOR READY
2155 016432  103014                        BCC     20$                     ;BRANCH IF TIME OUT
2156 016434  004737  016134                JSR     PC,CHKAMB               ;TSSR AMBIGOUS?
2157 016440  103006                        BCC     10$                     ;BR IF YES
2158 016442  032700  100000                BIT     #SC,R0                  ;SPECIAL CONDITION SET?
2159 016446  001405                        BEQ     15$                     ;BR IF NO
2160 016450  032700  074000                BIT     #<SCE!BIE!RMR!NXM>,R0   ;ANY ERROR BITS SET?
2161 016454  001402                        BEQ     15$                     ;BR IF NO
2162 016456  000241                 10$:    CLC                             ;SET FAILURE
2163 016460  000401                        BR      20$                     ;
2164 016462  000261                 15$:    SEC                             ;SET SUCCESS
2165 016464  000207                 20$:    RTS     PC                      ;RETURN TO CALLER
2166                                        .SBTTL  XNXM    - CHECK FOR NONEXISTENT MEMORY
2167                                ;+
2168                                ; ROUTINE TO TEST FOR A NEXM IN THE RANGE (R1) THRU (R2).
2169                                ; ON RETURN, IF "C" = 1, (R1) = NEXM ADDRESS.
2170                                ;               "C" = 0, ALL ADDRESSES OK.
2171                                ;
2172                                ;CALL:  MOV ADR1,R1
```

XNXM CHECK FOR NONEXISTENT MEMORY

```
2173                                    ;       MOV ADR2,R2
2174                                    ;       JSR PC,NXM
2175                                    ;       RETURN          ;TEST "C" AND PROCEED.
2176                                    ;
2177 016466  012737  016520  000004    XNXM:   MOV     @#2$,@#4        ; SET BUSERR VECTOR.
2178 016474  012737  000200  000006            MOV     @#PRI04,@#6
2179 016502  005003                            CLR     R3              ;FLAG.
2180 016504  005711                    1$:     TST     (R1)            ;TEST THE ADDRESS(ES).
2181                                                                    ;IF ANY TRAP, CONTINUE AT 2$.
2182 016506  020102                            CMP     R1,R2           ;OTHERWISE, CONTINUE HERE.
2183 016510  001407                            BEQ     3$              ;BR IF FINISHED (NO NEXM'S).
2184 016512  062701  000002                    ADD     #2,R1           ;SET NEXT ADDRESS...
2185 016516  000772                            BR      1$              ;...AND CONTINUE.
2186
2187 016520  005103                    2$:     COM     R3              ;GOT ONE, SET FLAG...
2188 016522  012716  016530                    MOV     #3$,(SP)
2189 016526  000002                            RTI                     ;...AND DISMISS INTERRUPT...
2190 016530                            3$:     CLRVEC  #4              ;...AND GIVE BACK THE VECTOR.
     016530  012700  000004                    MOV     #4,R0
     016534  104436                            TRAP    C$CVEC
2191 016536  005703                            TST     R3              ;DID WE CATCH ONE ??
2192 016540  001401                            BEQ     .+4             ;NO, "C" = 0, SKIP NEXT.
2193 016542  000261                            SEC                     ;YES, "C" = 1, (R1) = NEXM ADDR.
2194 016544  000207                            RTS     PC
2195
2196
2197                                            .SBTTL  TSTLOOP - CHECK ITERATION COUNT
2198                                    ;+
2199                                    ; SUBROUTINE TO EXECUTE TEST ITERATIONS.
2200                                    ; EXIT WITH "C" SET IF LOOPS ALLOWED AND LOOP COUNT NON-ZERO.
2201                                    ; LOOP COUNTER IS SET BY "BEGIN.TEST" MACRO.
2202                                    ;
2203                                    ; CALL: LOOPTO  ARG
2204                                    ;
2205 016546                            TSTLOOP::
2206 016546  005737  002160                    TST     NOITS           ; ITERATIONS INHIBITED?
2207 016552  001006                            BNE     1$              ; YES.
2208 016554  005737  002174                    TST     QVP             ; NO.
2209 016560  100403                            BMI     1$              ;LOOPS DISALLOWED IN QUICK PASS.
2210 016562  005337  002206                    DEC     LOOPCNT         ; BUMP LOOP COUNTER.
2211 016566  001002                            BNE     2$
2212 016570  000241                    1$:     CLC                     ;LOOP DISALLOWED, OR DONE.
2213 016572  000401                            BR      3$
2214 016574  000261                    2$:     SEC                     ;LOOP ENABLED.
2215 016576  000207                    3$:     RTS     PC
2216
2217                                            .SBTTL  TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS
2218                                    ;+
2219                                    ; PRINT THE NUMBER AND NAME OF EACH TEST AS WE GO ALONG.
2220                                    ; INCREMENT "TESTK" TO INDICATE THE NUMBER OF TESTS
2221                                    ; IN THE CURRENT RUN SEQUENCE.
2222                                    ; CLEAR THE ERROR COUNTER AND SIGNATURE EXTENSION FLAGS.
2223                                    ;
2224                                    ;INPUT:
2225                                    ;
2226                                    ;       R0      POINTER TO TEST ID ASCIZ STRING
2227                                    ;
```

TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS

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

INCERK - INCREMENT LOCAL ERROR COUNT

```
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 IP 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.
                                        ;
```

FILLMEM FILL MEMORY WITH BACKGROUND PATTERN

```
                                        ; 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.
                                        ;
```

CMPMEM COMPARE MEMORY TO BACKGROUND PATTERN

```
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
                                        ;
                                        ;-
                                        GETSEL::
020346                                          SAVREG                          ;SAVE GENERAL REGISTERS
020346  010002                                  MOV     R0,R2                   ;SAVE THE MENU ADDRESS
020352  010203                          1$:     MOV     R2,R3                   ;START OF MENU STRING
020354  005713                          2$:     TST     (R3)                    ;END OF ASCII ?
020356  001412                                  BEQ     3$                      ;BRANCH IF ALL LINES DISPLAYED
020360                                          PRINTF  #SELASC,(R3)+           ;DISPLAY THE MENU
020360  012346                                  MOV     (R3)+,-(SP)
020362  012746  020532                          MOV     #SELASC,-(SP)
020366  012746  000002                          MOV     #2,-(SP)
020372  010600                                  MOV     SP,R0
```

GETSEL - ISSUE MENU AND GET OPERATOR RESPONSE

```
                020376  104417                          TRAP    C$PNTF
                020400  062706  000006                  ADD     #6,SP
           2631 020404  000764                          BR      2$
           2632 020406                          3$:     GMANID  MENASC,MENRES,0,-1,0,-1,NO
                020406  104443                          TRAP    C$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  '%NBA *** Menu Selection Too Large ***'
           2641 020532     045     116     045  SELASC: .ASCIZ  '%NBT'
           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
```

```
                                        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$PNTF
020614  062706  000004                   ADD     #4,SP
2672 020620  000241                     CLC                     ;CLEAR CARRY FOR ERROR
2673 020622  000207             1$:     RTS     PC              ;RETURN
2674
2675 020624  045  116  045     NOMAN:  .ASCIZ  '%N%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
```

```
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
```

KTINIT - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
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
```

KTINIT SETUP KT11 MEMORY MANAGEMENT REGISTERS

```
                                        .TITLE  TSV4 - MISCELLANEOUS SECTIONS
                                        BGNMOD  TSV4
021636                          TSV4::
021636
```

PROTECTION TABLE

```
                                                .SBTTL  PROTECTION TABLE
021636                                          BGNPROT
021636                                  L$PROT::
021636  177777  177777  177777                .WORD   -1, -1, -1, -1          ;NO DEVICE PROTECTION REQUIRED.
021646                                          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
```

SEQ 0089

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 SECTIONS

```
                                        .SBTTL  ADD AND DROP UNITS SECTIONS

                                ;++
                                ; THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
                                ; TO BE (A) ADDED TO THE TEST LIST FOR THE FIRST TIME,
                                ;    OR (B) RE-INSERTED IF IT HAD BEEN PREVIOUSLY DROPPED.
                                ;--
022470                                  BGNAU
022470                          L$AU::
022470  010001                          MOV     R0,R1                   ; GET UNIT TO BE ADDED (R0)
022472  006301                          ASL     R1                      ; MAKE IT A WORD INDEX
022474  052761  100000  003166          BIS     #100000,ERTABL(R1)      ; SET THE "ACTIVE" BIT
022502  042761  040000  003166          BIC     #40000,ERTABL(R1)       ; CLEAR THE "DROPPED" BIT
022510                                  PRINTF  #1$,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
022532                                  EXIT    AU
022532  000167                          .WORD   J$JMP
022534  000026                          .WORD   L10031-2-.
022536    045     116     045   1$:     .ASCIZ  /%N%A  UNIT %D%A ADDED/
                                        .EVEN

022564                                  ENDAU           ; UNUSED.
022564                          L10031:
022564  104452                          TRAP    C$AU
                                ;++
                                ; THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
                                ; TO BE REMOVED FROM THE TEST LIST.
                                ;
                                ; SUPVSR DOES THE "DROPPING".  THIS IS JUST TO TELL THE MAN.
                                ; "DROPPED" UNITS ARE RE-SELECTED ON OPERATOR "STA" OR "ADD"
                                ; COMMAND, OTHERWISE REMAIN INACTIVE.  THE "DISPLAY" COMMAND
                                ; WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
                                ; WHICH ARE STILL ACTIVE.
                                ; UPON ENTRY, R0 CONTAINS THE UNIT TO BE DROPPED.

022566                                  BGNDU
022566                          L$DU::
022566  012737  177777  003102          MOV     #-1,DUFLG
022574  010001                          MOV     R0,R1
022576  006301                          ASL     R1
022600  052761  140000  003166          BIS     #140000,ERTABL(R1)      ; SAY DROPPED
022606  000240  000240  000240          240,240,240                     ; ?????????
022614                                  PRINTF  #1$,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
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.
                                ;--
022754                                  BGNCLN
022754                          L$CLEAN::
022754  013705  002176                  MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
022760  005737  003102                  TST     DUFLG                   ;"DROPPED" FLAG IS SET ON...
022764  100405                          BMI     1$                      ;...AND GROSS CONTROLLER FAULT...
                                                                        ;...DON'T TRY TO XCT CLEANUP CODE.

022766  012765  000000  000002          MOV     #0,TSSR(R5)             ;DO SOFT INIT
022774  004737  016340                  JSR     PC,WAITF
023000                          1$:
023000                          2$:     ENDCLN
023000                          L10034:
023000  104412                          TRAP    C$CLEAN
                                ;**
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;--
023002                                  BGNRPT
023002                          L$RPT::
023002                                  PRINTS  #DEVSUM
023002  012746  023244                  MOV     #DEVSUM,-(SP)
023006  012746  000001                  MOV     #1,-(SP)
023012  010600                          MOV     SP,R0
023014  104416                          TRAP    C$PNTS
023016  062706  000004                  ADD     #4,SP
023022  010246                          MOV     R2,-(SP)
023024  010346                          MOV     R3,-(SP)
023026  010446                          MOV     R4,-(SP)
023030  012704  003166                  MOV     #ERTABL,R4      ; GET START OF ERROR TABLE.
023034  005003                          CLR     R3              ; CLEAR UNIT NUMBER
023036  011402                  1$:     MOV     (R4),R2         ; GET ERROR TABLE ENTRY & TEST IT.
023040  001467                          BEQ     4$              ; ZERO IF UNIT NOT RUN
023042  100066                          BPL     4$
023044  032702  040000                  BIT     #BIT14,R2       ; WAS UNIT DROPPED?
023050  001015                          BNE     2$              ; BR IF YES
023052  042702  170000                  BIC     #^C7777,R2      ; GET ERROR COUNT FIELD
023056                                  PRINTS  #DEVONL,R3,R2   ; PRINT
023056  010246                          MOV     R2,-(SP)
023060  010346                          MOV     R3,-(SP)
023062  012746  023301                  MOV     #DEVONL,-(SP)
023066  012746  000003                  MOV     #3,-(SP)
023072  010600                          MOV     SP,R0
023074  104416                          TRAP    C$PNTS
023076  062706  000010                  ADD     #10,SP
023102  000446                          BR      4$
023104  020227  160000          2$:     CMP     R2,#160000      ; WAS UNIT NON-EXISTENT?
023110  001012                          BNE     3$              ; BR IF NO
023112                                  PRINTS  #DEVNXR,R3
023112  010346                          MOV     R3,-(SP)
023114  012746  023351                  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  /<LF>DEVICE STATUS SUMMARY:<LF>/
    275 023301      045     101     040 DEVONL: .ASCIZ  /<BEL>  UNIT <D3><BEL>    ONLINE,  ERRORS = <D><LF>/
    276 023351      045     101     040 DEVNXR: .ASCIZ  /<BEL>  UNIT <D3><BEL>    DROPPED, NON-EXISTENT REGISTER<LF>/
    277 023433      045     101     040 DEVNRD: .ASCIZ  /<BEL>  UNIT <D3><BEL>    DROPPED, NOT READY AT STARTUP<LF>/
    278 023514      045     101     040 DEVDRO: .ASCIZ  /<BEL>  UNIT <D3><BEL>    DROPPED, ERRORS = <D><LF>/
    279                                 .EVEN
    280
    281 023564                          ENDMOD
    282
    283
```

CLEAN-UP AND REPORT CODING SECTIONS

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

TEST 1: INITIALIZE #4 TEST

```
                                        .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     #T$T21ID,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
```

TEST 1: INITIALIZE #4 TEST

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

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

TEST 1: INITIALIZE #4 TEST

```
        024112  000151                                                          .WORD   105
        024114  024503                                                          .WORD   T21OFL
        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$:    CKLOOP                  ;SCOPE LOOP
        024134  104406                                                          TRAP    C$CLP1
    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-.
```

TEST 1: INITIALIZE #4 TEST

```
                        ;+
                        ;LOCAL STORAGE FOR THIS TEST
                        ;-
                                .=<.+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
                        ;
                                .=<.+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               ;BSELO 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
```

TEST 1: INITIALIZE #4 TEST

```
                                        ;+
                                        ;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  T21OFL: .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 YET
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                                                          L10036:
024700  104401                                                          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
                                ;
                                ;
                                ;-
                                        BGNTST
                                                                                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.
                                ;-
                                
024732                          T22LOOP:
024732                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                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

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

024774  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
025000  103407                          BCS     23$                     ;BR, IF COMMAND ISSUED OK
025002  005237  002212                  INC     FATFLG                  ;BUMP COUNT
025006  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
025010                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
025010  104456                                                                  TRAP    C$ERHRD
025012  000312                                                                  .WORD   202
025014  005054                                                                  .WORD   WRTMSG
025016  012124                                                                  .WORD   SFIMSG
025020                          23$:    CKLOOP
025020  104406                                                                  TRAP    C$CLP1
025022  013701  026300                  MOV     T22BFR+6,R1             ;PICK UP XTSO
025026  032701  000004                  BIT     #4,R1                   ;IS UNIT WRITE-LOCKED?
025032  001407                          BEQ     24$                     ;NO,PROCEED WITH TESTING
025034  005237  002212                  INC     FATFLG                  ;BUMP COUNT
025040                                  ERRDF   ERRNO,T22WLK,SFIMSG     ;TAPE IS WRITE LOCKED
025040  104455                                                                  TRAP    C$ERDF
025042  000313                                                                  .WORD   203
025044  027102                                                                  .WORD   T22WLK
025046  012124                                                                  .WORD   SFIMSG
025050                                  DOCLN
025050  104444                                                                  TRAP    C$DCLN
025052                          24$:    CKLOOP
025052  104406                                                                  TRAP    C$CLP1
025054  005737  002216                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
025060  001041                          BNE     50$                     ;BR IF SWITCH IS ON
025062  112737  000200  026371          MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
025070  112737  000010  026370          MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
025076  012704  026360                  MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
025102  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
025106  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
025112  103407                          BCS     30$                     ;BR, IF NO ERROR
025114  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
025116  005237  002212                  INC     FATFLG                  ;BUMP COUNT
025122                                  ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
025122  104456                                                                  TRAP    C$ERHRD
025124  000314                                                                  .WORD   204
025126  026410                                                                  .WORD   T22SSR
025130  012136                                                                  .WORD   PKTSSR
025132                          30$:    CKLOOP                          ;LOOP IF SELECTED
025132  101406                                                                  TRAP    C$CLP1
025134  012704  026250                  MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

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,T220FL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    025204  104455                                                              TRAP    C$ERDF
    025206  000316                                                              .WORD   206
    025210  026605                                                              .WORD   T220FL
    025212  012124                                                              .WORD   SFIMSG
354 025214                          60$:    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$:
375 025306                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    025306                                                                      10040:
    025306  104403                                                              TRAP    C$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, 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,T22BSO              ;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$CLP1
468 025554  012737  102210  026360  65$:    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

```
        025630
        025630  104403
    483 025632  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
    484 025640  103402                          BLO     999$                    ;BR, IF LESS THAN 25
    485 025642  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
    486 025646                          999$:
```

```
                                        10041:
                                                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 >>>>>>>>>>>>>
                                                                                                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  ERRNO,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 (BAD)
    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     XSTO(R3),R1             ;PICK UP XSTO 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
                                ;-
                                        .=<.+10>&177770
 026250                         T22PACKET:
 026250  100204                         .WORD   100204          ;COMMAND PACKET FOR TEST
 026252  026260                         .WORD   T22DATA         ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
 026254  000000                         .WORD   0               ;ADDRESS OF CHARACTERISTICS BLOCK
 026256  000012                         .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
 026260                         T22DATA:                        ;CHARACTERISTICS 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
                                ;
                                        .=<.+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
```

TEST 2: OFF-LINE AND REJECT REWIND

```
                                        ;+
                                        ;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                                                                  L10037:
027360  104401                                                                  TRAP    C$ETST
```

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     #EPRT1,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:
                                        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

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

TEST 3: BASIC WRITE DATA SEQ 0113

```
    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 >>>>>>>>>>>>>
                                                                                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
                                ;
                                ;*****************************************************************

032032  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
032036  103407                          BCS     20$                     ;BR IF INIT WAS OK
032040  005237  002212                  INC     FATFLG                  ;BUMP COUNT
032044  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR RECISTER
032046                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
032046  104455                                                                  TRAP    C$ERDF
032050  000463                                                                  .WORD   307
032052  003650                                                                  .WORD   SFIERR
032054  012124                                                                  .WORD   SFIMSG
032056                          20$:
032056  013737  002172  032510          MOV     UNITN,T23DSW            ;LOAD UP SELECTED UNIT NUMBER
032064  012704  032470                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

032070  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 ISSR
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     FREF,T23WB              ;STARTING WRITE BUFFER ADDRESS

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

TEST 3: BASIC WRITE DATA

```
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 PACKET
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,123CHK               ;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
```

E1.0

SEQ 0121

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, SUBTEST 4
                                        ;
                                        ;VERIFIES THAT A WRITE COMMAND WITH AN ILLEGAL MODE
                                        ;FIELD OR AN ILLEGAL BUFFER ADDRESS IS REJECTED WITH
                                        ;THE PROPER ERROR STATUS AND THAT TAPE DOES NOT MOVE
                                        ;
                                        ;
                                        ;-

031470                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T3.4:
031470  104402                                                                                  TRAP    C$BSUB
031472  004737  034002                          JSR     PC,T23REST              ;SET COMMAND PACKET
031476  004737  034136                          JSR     PC,T23RT3               ;RESTORE PACKET
031502  004737  034074                          JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

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

031506  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
031512  103407                                  BCS     20$                     ;BR IF INIT WAS OK
031514  005237  002212                          INC     FATFLG                  ;BUMP COUNT
031520  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
031522                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
031522  104455                                                                                  TRAP    C$ERDF
031524  000501                                                                                  .WORD   321
031526  003650                                                                                  .WORD   SFIERR
031530  012124                                                                                  .WORD   SFIMSG
031532                                  20$:
031532  013737  002172  032510                  MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
031540  012704  032470                          MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

031544  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
031550  103407                                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
031552  005237  002212                          INC     FATFLG                  ;BUMP COUNT
031556  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
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

                                        ;*****************************************************************
                                        ;
                                        ;WRITE DATA, ACK, ILLEGAL BITS
                                        ;
```

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$:
```

```
                                ;+
                                ;
                                ;TEST 3, SUBTEST 6
                                ;
                                ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
                                ;BUFFER STARTING IN EXISTANT MEMORY BUT RUNNING INTO
                                ;NONEXISTENT MEMORY TERMINATES WITH THE PROPER ERROR
                                ;STATUS. A LARGE ENOUGH RECORD SIZE IS SPECIFIED SUCH
                                ;THAT TAPE IS ACTUALLY MOVED AND WRITTEN.
                                ;       ********************************************************************
                                ;                               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!
                                ;       ********************************************************************
                                ;-

032136                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                        T3.6:
032136  104402                                                            TRAP    C$BSUB
032140  005737  003126          TST     NXMFLG                  ;DO WE HAVE IT?
032144  001002                  BNE     10$                     ;BR, IF  ENOUGH
032146  000137  032432          JMP     130$                    ;SKIP THIS TEST IF NOT
032152  004737  034136  10$:    JSR     PC,T23RT3               ;RESTORE PACKET
032156  004737  034002          JSR     PC,T23RTST              ;SET COMMAND PACKET
032162  004737  034074          JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

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

032166  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
032172  103407                  BCS     20$                     ;BR IF INIT WAS OK
032174  005237  002212          INC     FATFLG                  ;BUMP COUNT
032200  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
032202                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
032202  104455                                                          TRAP    C$ERDF
032204  000507                                                          .WORD   327
032206  003650                                                          .WORD   SFIERR
032210  012124                                                          .WORD   SFIMSG
032212                  20$:
032212  013737  002172  032510  MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
032220  012704  032470          MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

032224  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
032230  103407                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
032232  005237  002212          INC     FATFLG                  ;BUMP COUNT
032236  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
```

TEST 3: BASIC WRITE DATA

```
1432 032240                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC 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

```
1486                                    ;*
1487                                    ;LOCAL STORAGE FOR THIS TEST
1488                                    ;-
1490            032470                          .=<.+10>&177770
1492 032470                             T23PACKET:
1493 032470  100004                             .WORD   100004          ;COMMAND PACKET FOR TEST
1494 032472  032500                             .WORD   T23DATA         ;WRITE CHARACTERISTICS COMMAND, WITH ACK
1495 032474  000000                             .WORD   0               ;ADDRESS OF CHARACTERISTICS BLOCK
1496 032476  000010                             .WORD   8.              ;STARTING VALUE OF BLOCK SIZE
1497 032500                             T23DATA:                        ;CHARACTERISTICS DATA BLOCK
1498 032500  032512                             .WORD   T23BFR          ;ADDRESS OF MESSAGE BUFFER
1499 032502  000000                             .WORD   0
1500 032504  000012                             .WORD   10.             ;LENGTH OF MESSAGE BUFFER
1501 032506  000000                             .WORD   0
1502 032510  000000                     T23DSW: .WORD   0               ;SELECT DRIVE 0
1503 032512                             T23BFR: .BLKW   25.             ;MESSAGE BUFFER
1504                                    ;
1505                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
1506                                    ;
1508            032600                          .=<.+10>&177770
1510 032600                             T23PK2:
1511 032600  100006                             .WORD   100006          ;WRITE SUB SYS MEM COMMAND, AND ACK
1512 032602  032622                             .WORD   T23BF2          ;ADDRESS OF SELECT BLOCK DATA
1513 032604  000000                             .WORD   0
1514 032606  000006                             .WORD   6.              ;SIZE OF DATA PACKET
1515
1519 032610                             T23PK3:
1520 032610  100005                             .WORD   100005          ;WRITE COMMAND,  AND ACK
1521 032612  000000                     T23WB:  .WORD   0               ;ADDRESS OF WRITE BUFFER
1522 032614  000000                             .WORD   0
1523 032616  000000                     T23SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
1524                                            .EVEN
1525                                    ;
1526 032620  000000                     T23RSZ: .WORD   0               ;LARGEST TAPE RECORD IN BYTES
1527                                    ;
1528                                    ;
1529 032622                             T23BF2:
1530 032622     010                     T23BS0: .BYTE   10              ;BSEL0 AREA
1531 032623     200                     T23BS1: .BYTE   200             ;BSEL1 AREA
1532 032624  000000                     T23S2:  .WORD   0               ;SEL 2 AREA
1533 032626  000000                     T23S3:  .WORD   0               ;DATA AREA
1534                                    ;
1535                                    ;
1536 032630  000000                     T23TMP: .WORD   0               ;TEMPORARY REGISTER
1537 032632  000000                     T23WRT: .WORD   0               ;RETRY COMMAND
1538                                    ;
1539                                            .EVEN
1540                                    ;TAPE MOTION PACKET COMMAND VALUES
1541
1542 032634  100005                     T23WD:  .WORD   100005          ;WRITE DATA (NEXT)
1543 032636  100405                     T23WDR: .WORD   100405          ;WRITE DATA RETRY
1544 032640  102005                     T23CON: .WORD   102005          ;WRITE CONTINOUS
1545 032642  177777                             .WORD   177777          ;END OF DATA
1546
1547
```

TEST 3: BASIC WRITE DATA

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

032644      127     122     111  T23SSR: .ASCIZ  'WRITE Command Not Accepted'
032677      105     117     124  T23ET:  .ASCIZ  'EOT Not Found In 12000 4k Writes, (Use Shorter Tape)'
032764      127     122     111  T23EOT: .ASCIZ  'WRITE DATA OVER EOT GAVE NO TAPE STATUS ALERT'
033042      124     123     123  T23TM:  .ASCIZ  'TSSR Not Correct After WRITE Command Reject'
033116      122     145     167  T23RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
033165      122     101     115  T23RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
033240      124     123     123  T23AM3: .ASCIZ  'TSSR Init. Failed After WRITE Command'
033306      104     162     151  T23OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
033361      124     123     123  T23WDO: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, SWB Bit Set'
033450      124     123     123  T23WDC: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, Check For Tape Offline'
033552      103     126     103  T23VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
033625      124     123     102  T23BA:  .ASCIZ  'TSBA Not Correct After WRITE DATA Command'
033677      127     122     111  T23WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
033766      102     141     163  TST23ID:        .ASCIZ  'Basic Write'
                                            .EVEN
                                        ;*
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-

034002                                  T23REST:
034002                                      SAVREG                  ;SAVE THE REGISTERS
034006  012701  032470                      MOV     #T23PACKET,R1   ;START OF THE PACKET
034012  012721  100004                      MOV     #100004,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK
034016  012721  032500                      MOV     #T23DATA,(R1)+  ;ADDRESS OF CHARAISTICS DATA BLOCK
034022  005021                            CLR     (R1)+           ;EXTENDED ADDRESS
034024  012721  000012                      MOV     #10.,(R1)+      ;SIZE OF DATA BLOCK IN BYTES
034030  012721  032512                      MOV     #T23BFR,(R1)+   ;ADDRESS OF MESSAGE BUFFER
034034  005021                            CLR     (R1)+
034036  012721  000024                      MOV     #20.,(R1)+      ;LENGTH OF MESSAGE BUFFER
034042  005021                            CLR     (R1)+
034044  012711  000000                      MOV     #0,(R1)         ;SELECT DRIVE ZERO
034050  012702  000030                      MOV     #24.,R2         ;NUMBER OF LOCATIONS TO BE CLEARED
034054  012762  177777  032512  64$:       MOV     #177777,T23BFR(R2) ;ALL ONES TO MESSAGE BUFFER
034062  005742                            TST     -(R2)           ;BUMP DOWN TO NEXT LOCATION
034064  020227  000000                      CMP     R2,#0           ;R2 AT ZERO YET
034070  001371                            BNE     64$             ;KEEP GOING UNTIL DONE
034072  000207                            RTS     PC              ;RETURN

034074                                  T23RT2:
034074                                      SAVREG                  ;SAVE THE REGISTERS
034100  012701  032600                      MOV     #T23PK2,R1      ;START OF THE PACKET
034104  012721  100006                      MOV     #100006,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK
034110  012721  032622                      MOV     #T23BF2,(R1)+   ;ADDRESS OF DATA BLOCK
034114  005021                            CLR     (R1)+           ;EXTENDED ADDRESS
034116  012721  000006                      MOV     #6.,(R1)+       ;SIZE OF DATA BLOCK IN BYTES
034122  012701  032622                      MOV     #T23BF2,R1      ;POINT TO DATA SEL AREA
034126  005021                            CLR     (R1)+
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
```

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

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
                                        .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
                                ;
                                ;
                                ;
                                ;-
                                        BGNTST
                                                                                T4::
1686 034352  012737  006350  002170          MOV     @#PRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
1687 034360  005037  003124                  CLR     KTENABLE                ;TURN OFF KT11
1688 034364  004737  017364                  JSR     PC,KTOFF                ;TURN KT11 OFF
1693 034370  012700  046232                  MOV     #TST24ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
1694 034374  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
1695 034400  004737  021366                  JSR     PC,MEMCK                ;CHECK FOR MEMORY
1696 034404  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
1697                                    ;*
1698                                    ;
1699                                    ;TEST 4, SUBTEST 1
1700                                    ;
1701                                    ;
1702                                    ;VERIFIES THAT A READ DATA COMMAND WITH THE CLEAR
1703                                    ;VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE
1704                                    ;VOLUME CHECK (VCK) IS SET. ALL LEGAL
1705                                    ;COMBINATIONS OF THE COMMAND MODE FIELD ARE TESTED
1706                                    ;(I.E., IT IS VERIFIED THAT THE COMMAND IS REJECTED
1707                                    ;DUE TO VCK BEING SET RATHER THAN ERRONEOUS DECODING
1708                                    ;OF THE MODE FIELD.
1709                                    ;
1710                                    ;
1711                                    ;-
1712
1713 034412                             T24LOOP:
1714 034412                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                        T4.1:
     034412  104402                                                                    TRAP    C$BSUB
1715 034414  004737  046300                  JSR     PC,T24REST              ;SET COMMAND PACKET
1716 034420  004737  046434                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
1717 034424  004737  046372                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
1718 034430  012737  176750  043766          MOV     #65000.,T24DLY          ;LOAD UP DELAY ROUTINE
1719
1720                                    ;*****************************************************************
1721                                    ;
1722                                    ;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  11[illegible]  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
 1918 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)

```
                                                                                    TRAP    C$CLP1
      035002  104406
1820  035004  005723                          TST     (R3)+           ;BUMP TO NEXT COMMAND
1821  035006  022713  177777                  CMP     #177777,(R3)    ;END OF THE COMMANDS YET
1822  035012  001401                          BEQ     90$             ;BR, IF DONE
1823  035014  000746                          BR      65$             ;MORE COMMAND(S) TO GO
1824  035016                          90$:
1825  035016                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      035016                                                                L10053:
      035016  104403                                                            TRAP    C$ESUB
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 UNIT
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$CLP1
1969
1970                               ;*****************************************************************
1971                               ;
1972                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
1973                               ;
1974                               ;*****************************************************************
1975
1976 035364  013701  043650                MOV     T24BFR+6,R1             ;PICK UP XSTO
1977 035370  010102                        MOV     R1,R2                   ;SET UP EXPECTED
1978 035372  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
1979 035376  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
1980 035400  001406                        BEQ     140$                    ;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
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE) SEQ 0141

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

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
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 TSSR REGISTER
2069 035646                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      035646  104455                                                                        TRAP    C$ERDF
      035650  000640                                                                        .WORD   416
      035652  003650                                                                        .WORD   SFIERR
      035654  012124                                                                        .WORD   SFIMSG
2070 035656                                20$:
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$CLP1
2105
2106                                    ;*************************************************************
2107                                    ;
2108                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2109                                    ;
2110                                    ;*************************************************************
2111
2112 035744  013701  043650                    MOV     T24BFR+6,R1             ;PICK UP XST0
2113 035750  010102                            MOV     R1,R2                   ;SET UP EXPECTED
2114 035752  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2115 035756  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
2116 035760  001406                            BEQ     40$                     ;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$CLP1
2150 036100  005723                          TST     (R3)+           ;BUMP RECORD SIZE
2151 036102  022703  000414                  CMP     #268.,R3                ;END OF RECORD SET
2152 036106  001346                          BNE     65$                     ;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$CLP1
2171
2172                                 ;*****************************************************************
2173                                 ;
2174                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2175                                 ;
2176                                 ;*****************************************************************
2177
2178 036140  013701  043650                  MOV     T24BFR+6,R1             ;PICK UP XST0
2179 036144  010102                          MOV     R1,R2                   ;SET UP EXPECTED
2180 036146  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2181 036152  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
2182 036154  001406                          BEQ     140$                    ;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$:
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
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, IF 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) SEQ 0147

```
2293                                    ;
2294                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2295                                    ;
2296                                    ;*****************************************************************
2297
2298 036472  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2299 036476  103407                            BC      30$                     ;BR, IF NO PROBLEM
2300 036500  010001                            MOV     R0,R1                   ;SAVE TSSR
2301 036502  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2305 036506                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      036506  104456                                                                    TRAP    C$ERHRD
      036510  000653                                                                    .WORD   427
      036512  045076                                                                    .WORD   T24RWN
      036514  012136                                                                    .WORD   PKTSSR
2306 036516                            30$:    CKLOOP                          ;LOOP IF SELECTED
      036516  104406                                                                    TRAP    C$CLP1
2307
2308                                    ;*****************************************************************
2309                                    ;
2310                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2311                                    ;
2312                                    ;*****************************************************************
2313
2314 036520  013701  043650                    MOV     T24BFR+6,R1             ;PICK UP XST0
2315 036524  010102                            MOV     R1,R2                   ;SET UP EXPECTED
2316 036526  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2317 036532  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
2318 036534  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
2319 036536  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2323 036542                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      036542  104456                                                                    TRAP    C$ERHRD
      036544  000654                                                                    .WORD   428
      036546  044613                                                                    .WORD   T24BOT
      036550  015564                                                                    .WORD   EXPREC
2324 036552                            40$:    CKLOOP                          ;LOOP IF SELECTED
      036552  104406                                                                    TRAP    C$CLP1
2325 036554  012703  001000                    MOV     #512.,R3                ;RECORD SIZE
2326 036560  013737  003114  043742            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2327
2328                                    ;*****************************************************************
2329                                    ;
2330                                    ;WRITE DATA,ACK,CVC=1 COMMAND
2331                                    ;
2332                                    ;*****************************************************************
2333
2334 036566  012737  140005  043740            MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2335 036574  012704  043740                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2336 036600                            65$:
2337 036600  010337  043746                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2338 036604  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2339 036610  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2340 036614  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2341 036620  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
2342 036624  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
2343 036626  001406                            BEQ     75$                     ;BR, IF OK
2344 036630  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2348 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) SEQ 0149

```
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$CLP1
2409
2410                                 ;*****************************************************************
2411                                 ;
2412                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2413                                 ;
2414                                 ;*****************************************************************
2415
2416 037022  013701  043650                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
2417 037026  010102                          MOV     R1,R2                   ;SET UP EXPECTED
2418 037030  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
2419 037034  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2420 037036  001406                          BEQ     180$                    ;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$:
```

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 COUNT
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$ERHRD
      037510  000671                                                                  .WORD   441
      037512  046056                                                                  .WORD   T24P3P
      037514  015564                                                                  .WORD   EXPREC
 2597 037516                          190$:   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,TSDR(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
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
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)

```
                                        ;+
                                        ;
                                        ;TEST 4, SUBTEST 7
                                        ;
                                        ;VERIFIES THAT READ 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.
                                        ;
                                        ;
                                        ;-
040172                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                        T4.7:
040172  104402                                                                          TRAP    C$BSUB
040174  004737  046434                            JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
040200  004737  046300                            JSR     PC,T24REST              ;SET COMMAND PACKET
040204  004737  046372                            JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

040210  004737  016064                            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
040214  103407                                    BCS     20$                     ;BR IF INIT WAS OK
040216  005237  002212                            INC     FATFLG                  ;BUMP COUNT
040222  010001                                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
040224                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
040224  104455                                                                          TRAP    C$ERDF
040226  000700                                                                        .WORD   448
040230  003650                                                                        .WORD   SFIERR
040232  012124                                                                        .WORD   SFIMSG
040234                                  20$:
040234  013737  002172  043640                    MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
040242  012704  043620                            MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

040246  004737  010752                            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
040252  103407                                    BCS     24$                     ;BR, IF COMMAND ISSUED OK
040254  005237  002212                            INC     FATFLG                  ;BUMP COUNT
040260  010001                                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
040262                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
040262  104456                                                                          TRAP    C$ERHRD
040264  000701                                                                        .WORD   449
040266  005054                                                                        .WORD   WRTMSG
040270  012124                                                                        .WORD   SFIMSG
040272                                  24$:    CKLOOP                          ;LOOP IF SELECTED
040272  104406                                                                          TRAP    C$CLP1

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

TEST 4: BASIC READ DATA (FORWARD AND REVERSE) SEQ 0158

```
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$CLP1
2826 040322  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
2827 040326  013737  003114  043742            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2828
2829                                    ;*****************************************************************
2830                                    ;
2831                                    ;WRITE DATA,ACK,CYC=1,SWB COMMAND
2832                                    ;
2833                                    ;*****************************************************************
2834
2835 040334  012737  150005  043740            MOV     #150005,T24PK3          ;WRITE DATA,ACK,CYC=1,SWB COMMAND
2836 040342  012704  043740                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2837 040346                            65$:
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                                    ;
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
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)

```
                                        ;*
                                        ;
                                        ;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$BSUB
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) SEQ 0161

```
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 040740  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
```

SEQ 0162

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$CLP1
3025
3026                                ;*************************************************************
3027                                ;
3028                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
3029                                ;
3030                                ;*************************************************************
3031
3032 041146  013701  043650                MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER (XSTO)
3033 041152  010102                        MOV     R1,R2                   ;SET UP EXPECTED
3034 041154  052702  010000                BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
3035 041160  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3036 041162  001406                        BEQ     180$                    ;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 XSTO
     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$BSUB
3066 041222  005737  003126                     TST     NXMFLG                  ;DO WE HAVE IT?
3067 041226  001002                           BNE     10$                     ;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   SFTMSG
   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)

```
3154                                    ;READ DATA,ACK COMMAND
3155                                    ;
3156                                    ;*************************************************************************
3157
3158 041504  012737  100001  043740            MOV     #100001,T24PK3          ;READ DATA,ACK COMMAND
3159 041512  012704  043740            165$:    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3160 041516  010337  043746                     MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3161 041522  010465  000000                     MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3162 041526  004737  016340                     JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3163 041532  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3164 041536  012702  104210                     MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
3165 041542  020102                             CMP     R1,R2                   ;ARE THEY EQUAL
3166 041544  001406                             BEQ     170$                    ;BR, IF OK
3167 041546  005237  002212                     INC     FATFLG                  ;BUMP COUNT
3171 041552                                     ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     041552  104456                                                                     TRAP    C$ERHRD
     041554  000720                                                                     .WORD   464
     041556  046144                                                                     .WORD   T24TRL
     041560  012136                                                                     .WORD   PKTSSR
3172 041562                             170$:   CKLOOP                          ;LOOP IF SELECTED
     041562  104406                                                                     TRAP    C$CLP1
3173
3174                                    ;*************************************************************************
3175                                    ;
3176                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3177                                    ;
3178                                    ;*************************************************************************
3179
3180 041564  013701  043650                     MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3181 041570  010102                             MOV     R1,R2                   ;SET UP EXPECTED
3182 041572  052702  040000                     BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
3183 041576  020102                             CMP     R1,R2                   ;ARE THEY EQUAL
3184 041600  001406                             BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3185 041602  005237  002212                     INC     FATFLG                  ;BUMP COUNT
3189 041606                                     ERRHRD  ERRNO,T24LOP EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     041606  104456                                                                     TRAP    C$ERHRD
     041610  000721                                                                     .WORD   465
     041612  045774                                                                     .WORD   T24LOP
     041614  015564                                                                     .WORD   EXPREC
3190 041616                             180$:   CKLOOP
     041616  104406                                                                     TRAP    C$CLP1
3191 041620                                     ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     041620                                                                             L10063:
     041620  104403                                                                     TRAP    C$ESUB
3192 041622  023727  002212  000017                     CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3193 041630  103402                                     BLO     999$                    ;BR, IF LESS THAN 25
3194 041632  004737  017272                             JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
3195 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$BSUB
3211 041640  004737  046434                    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3212 041644  004737  046300                    JSR     PC,T24REST              ;SET COMMAND PACKET
3213 041650  004737  046372                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3214
3215                                    ;*****************************************************************
3216                                    ;
3217                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3218                                    ;
3219                                    ;*****************************************************************
3220
3221 041654  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3222 041660  103407                           BCS     20$                     ;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$ERDF
    041672  000723                                                                           .WORD   466
    041674  003650                                                                           .WORD   SFIERR
    041676  012124                                                                           .WORD   SFIMSG
3229 041700                                20$:
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
```

SEQ 0167

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$:
```

```
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: BASIC READ DATA (FORWARD AND REVERSE)

```
3393                                    ;*
3394                                    ;
3395                                    ;TEST 4, SUBTEST 12
3396                                    ;
3397                                    ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
3398                                    ;NONEXISTANT MEMORY CAUSES RECOVERABLE ERROR
3399                                    ;TERMINATION (TC=4), WITH THE NXM BIT SET IN THE TSSR, AND
3400                                    ;THAT THE TAPE .  ULTIMATELY POSITIONED PROPERLY.
3401                                    ;       ********************************************************************
3402                                    ;                               CAUTION
3403                                    ;
3404                                    ;               The LSI BUS drivers for all available address lines(16-21)
3405                                    ;       are only checked when running on a 11/23B system with more than
3406                                    ;       128K words of memory!
3407                                    ;       ********************************************************************
3408                                    ;
3409
3410 042354                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     042354                                                                             T4.12:
     042354  104402                                                                       TRAP    C$BSUB
3411 042356  005737  003126                    TST     NXM#LG                  ;DO WE HAVE IT?
3412 042362  001002                          BNE     10$                     ;BR, IF  ENOUGH
3413 042364  000137  042572                  JMP     80$                     ;SKIP THIS TEST IF NOT
3414 042370  004737  046434          10$:    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3415 042374  004737  046300                  JSR     PC,T24REST              ;SET COMMAND PACKET
3416 042400  004737  046372                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3417
3418                                    ;*******************************************************************
3419                                    ;
3420                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3421                                    ;
3422                                    ;*******************************************************************
3423
3424 042404  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3425 042410  103407                          BCS     20$                     ;BR IF INIT WAS OK
3426 042412  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3430 042416  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3431 042420                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     042420  104455                                                                     TRAP    C$ERDF
     042422  000732                                                                     .WORD   474
     042424  003650                                                                     .WORD   SFIERR
     042426  012124                                                                     .WORD   SFIMSG
3432 042430                          20$:
3433 042430  013737  002172  043640          MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3434 042436  012704  043620                  MOV     @T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3435
3436                                    ;*******************************************************************
3437                                    ;
3438                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3439                                    ;
3440                                    ;*******************************************************************
3441
3442 042442  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3443 042446  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
3444 042450  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3448 042454  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3449 042456                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
        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$CLP1
  3451  042470  004737  021276                  JSR     PC,INVERT             ;INVERT THE EXTENDED FEATURES SWITCH
  3452  042474  013737  003130  043742        MOV     NXMLO,T24RB           ;SET TO NXM MEMORY ADDRESS
  3453  042502  013737  003132  043744        MOV     NXMHI,T24RB+2         ;SET HIGH BITS
  3454
  3455                                  ;*****************************************************************
  3456                                  ;
  3457                                  ;READ, ACK, CVC=1, COMMAND
  3458                                  ;
  3459                                  ;*****************************************************************
  3460
  3461  042510  012737  140001  043740        MOV     #140001,T24PK3        ;READ, ACK, CVC=1, COMMAND
  3462  042516  012704  043740                MOV     #T24PK3,R4            ;SET UP R4 WITH PACKET ADDRESS
  3463  042522  012737  000400  043746        MOV     #256.,T24SZ           ;SET UP RECORD SIZE IN PACKET
  3464  042530  010465  000000                MOV     R4,TSDB(R5)           ;ISSUE COMMAND
  3465  042534  004737  016340                JSR     PC,WAITF              ;WAIT FOR SSR!BIT1!BIT2 TO SET
  3466  042540  016501  000002                MOV     TSSR(R5),R1           ;GET TSSR CONTENTS
  3467  042544  012702  104210                MOV     #SSR!SC!NXM!BIT3,R2           ;SET UP EXPECTED
  3468  042550  020102                        CMP     R1,R2                 ;ARE THEY EQUAL
  3469  042552  001406                        BEQ     75$                   ;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$BSUB
3496 042612  004737  046434                 JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3497 042616  004737  046300                 JSR     PC,T24REST              ;SET COMMAND PACKET
3498 042622  004737  046372                 JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3499
3500                                    ;*****************************************************************
3501                                    ;
3502                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3503                                    ;
3504                                    ;*****************************************************************
3505
3506 042626  004737  016064                 JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3507 042632  103407                        BCS     20$                     ;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                                    ;*****************************************************************
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
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$CLP1
3550 042744  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
3551 042750  013737  003114  043742            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3552
3553                                    ;*************************************************************************
3554                                    ;
3555                                    ;READ REVERSE DATA,ACK COMMAND
3556                                    ;
3557                                    ;*************************************************************************
3558
3559 042756  012737  100401  043740            MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3560 042764  012704  043740                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3561 042770                            65$:
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, SUBTEST 14
                                        ;
                                        ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
                                        ;TAPE IS POSITIONED BEFORE THE FIRST RECORD ON TAPE
                                        ;(BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT.
                                        ;
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                        T4.14:
                                                                                                TRAP    C$BSUB
                                                JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
                                                JSR     PC,T24REST              ;SET COMMAND PACKET
                                                JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

                                                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$ERDF
                                                                                                .WORD   482
                                                                                                .WORD   SFIERR
                                                                                                .WORD   SFIMSG
                                        20$:
                                                MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
                                                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

                                                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                                BCS     24$                     ;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$ERHRD
                                                                                                .WORD   483
                                                                                                .WORD   WRTMSG
                                                                                                .WORD   SFIMSG
                                        24$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                                TRAP    C$CLP1

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

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
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 043310  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$ERHRD
     043326  000745                                                                    .WORD   485
     043330  005111                                                                    .WORD   WRTERR
     043332  012136                                                                    .WORD   PKTSSR
3690 043334                            75$:    CKLOOP                          ;LOOP IF SELECTED
     043334  104406                                                                    TRAP    C$CLP1
3691 043336  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
3692 043342  013737  003114  043742            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3693
3694                                    ;*************************************************************************
3695                                    ;
3696                                    ;READ REVERSE DATA,ACK COMMAND
3697                                    ;
3698                                    ;*************************************************************************
3699
3700 043350  012737  100401  043740            MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3701 043356  012704  043740            165$:   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)

```
3764                                    ;+
3765                                    ;LOCAL STORAGE FOR THIS TEST
3766                                    ;-
3768            043620                          .=<.+10>&177770
3770 043620                             T24PACKET:                      ;COMMAND PACKET FOR TEST
3771 043620     100204                          .WORD   100204          ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
3772 043622     043630                          .WORD   T24DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
3773 043624     000000                          .WORD   0
3774 043626     000012                          .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
3775 043630                             T24DATA:                        ;CHARACTERISTICS DATA BLOCK
3776 043630     043642                          .WORD   T24BFR          ;ADDRESS OF MESSAGE BUFFER
3777 043632     000000                          .WORD   0
3778 043634     000024                          .WORD   20.             ;LENGTH OF MESSAGE BUFFER
3779 043636     000000                          .WORD   0
3780 043640     000000                  T24DSW: .WORD   0               ;DRIVE SELECTION BITS 2-0
3781 043642                             T24BFR: .BLKW   25.             ;MESSAGE BUFFER
3782                                    ;
3783                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
3784                                    ;
3786            043730                          .=<.+10>&177770
3788 043730                             T24PK2:
3789 043730     100206                          .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
3790 043732     043750                          .WORD   T24BF2          ;ADDRESS OF SELECT BLOCK DATA
3791 043734     000000                          .WORD   0
3792 043736     000006                          .WORD   6.              ;SIZE OF DATA PACKET
3793
3797 043740                             T24PK3:
3798 043740     100205                          .WORD   100205          ;READ COMMAND, IE AND ACK
3799 043742                             T24RB:
3800 043742     003114                  T24WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
3801 043744     000000                          .WORD   0
3802 043746     000000                  T24SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
3803                                            .EVEN
3804                                    ;
3805                                    ;
3806                                    ;
3807 043750                             T24BF2:
3808 043750        010                  T24BS0: .BYTE   10              ;BSEL0 AREA
3809 043751        200                  T24BS1: .BYTE   200             ;BSEL1 AREA
3810 043752     000000                  T24S2:  .WORD   0               ;SEL 2 AREA
3811 043754     000000                  T24S3:  .WORD   0               ;DATA AREA
3812                                    ;
3813                                    ;
3814                                            .EVEN
3815                                    ;TAPE MOTION PACKET COMMAND VALUES
3816
3817 043756     100005                  T24RN:  .WORD   100005          ;READ DATA (NEXT)
3818 043760     100405                  T24WDR: .WORD   100405          ;READ DATA RETRY
3819 043762     102005                  T24CON: .WORD   102005          ;WRITE CONTINUOUS
3820 043764     177777                          .WORD   177777          ;END OF DATA
3821 043766     000000                  T24DLY: .WORD   0               ;DELAY STORAGE AREA
3822
3823
```

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

043770  116  105  106  T24NEF: .ASCIZ  'NEF Not Set After NON-EXECUTABLE FUNCTION'
044042  122  111  102  T24LOR: .ASCIZ  'RIB Not Set After READ REVERSE Into BOT'
044112  124  123  123  T24WDG: .ASCIZ  'TSSR Not Correct After Illegal Buffer Address Bits Set'
044201  124  123  123  T24NXM: .ASCIZ  'TSSR Not Correct After NXM Memory Address In Packet'
044265  124  123  123  T24WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
044342  111  154  154  T24ILA: .ASCIZ  'Illegal Address Bits, Failed To Set ILA Bit In XST0'
044426  111  154  154  T24LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
044507  122  105  101  T24SSR: .ASCIZ  'READ COMMAND Not Accepted'
044541  124  123  123  T24WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
044613  124  141  160  T24BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
044660  104  141  164  T24DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
044746  122  105  101  T24EOT: .ASCIZ  'READ DATA OVER EOT GAVE NO TAPE STATUS ALERT'
045023  124  123  123  T24TM:  .ASCIZ  'TSSR Not Correct After READ COMMAND Reject'
045076  122  145  167  T24RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
045145  122  101  115  T24RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
045220  124  123  123  T24AM3: .ASCIZ  'TSSR Init. Failed After READ COMMAND'
045265  104  162  151  T24OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
045340  124  123  123  T24WDD: .ASCIZ  'TSSR Not Correct After READ DATA Command, SWB Bit Set'
045426  124  123  123  T24WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
045477  103  126  103  T24VCK: .ASCIZ  'CVC Set, Didn't Reset VCK In Message Buffer'
045552  124  123  102  T248A:  .ASCIZ  'TSBA Not Correct After READ DATA Command'
045623  127  122  111  T24WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
045712  122  145  141  T24LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
045774  122  145  141  T24LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
046056  122  145  163  T24PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
046144  122  145  141  T24TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
046232  102  141  163  TST24ID:        .ASCIZ  'Basic Read Data (Forward and Reverse)'
                                .EVEN
                                ;+
                                ;
                                ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                ;WRITE SUBSYSTEM MEMORY COMMAND
                                ;
                                ;-

046300                          T24REST:
046300                                  SAVREG                          ;SAVE THE REGISTERS
046304  012701  043620                  MOV     #T24PACKET,R1           ;START OF THE PACKET
046310  012721  100004                  MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
046314  012721  043630                  MOV     #T24DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
046320  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
046322  012721  000012                  MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
046326  012721  043642                  MOV     #T24BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
046332  005021                          CLR     (R1)+
046334  012721  000024                  MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
046340  005021                          CLR     (R1)+
046342  012711  000000                  MOV     #0,(R1)                 ;SELECT DRIVE ZERO
046346  012702  000030                  MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
046352  012762  177777  043642  64$:    MOV     #177777,T24BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
046360  005742                          TST     -(R2)                   ;NEXT LOCATION
046362  022702  000000                  CMP     #0,R2                   ;CKECK FOR END OF LOOP
046366  001371                          BNE     64$                     ;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
     046464  104401                                        L10052:
                                                                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
                                ;
                                ;*****************************************************************
```

TEST 5: SPACE RECORDS

```
3965 046546 004737 016064          5$:  JSR     PC,$DFINIT          ;DO INITIALIZE ON CONTROLLER
3966 046552 103423                      BCS     10$                 ;BR IF INIT WAS OK
3967 046554                             DELAY   250                 ;DELAY IF REQUIRED
     046554 012737 000250                                                    MOV     #250,@PC)+
     046560 000000                                                          .WORD   0
     046562 013727 002116                                                   MOV     @$DLY,@PC)+
     046566 000000                                                          .WORD   0
     046570 005367 177772                                                   DEC     -6(PC)
     046574 001375                                                          BNE     .-4
     046576 005367 177756                                                   DEC     -22.(PC)
     046602 001367                                                          BNE     .-20
3968 046604 005337 054030                       DEC     T25DLY              ;DEC DELAY COUNTER
3969 046610 001356                              BNE     5$                          ;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 055700                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
```

TEST 5: SPACE RECORDS

```
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 046732  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
```

TEST 5: SPACE RECORDS

```
4062 047102                          120$:
4063
4064                                 ;*****************************************************************
4065                                 ;
4066                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4067                                 ;
4068                                 ;*****************************************************************
4069
4070 047102  013701  053710                  MOV     T25BFR+6,R1             ;QUICK CHECK FOR EOT SET
4071 047106  010102                          MOV     R1,R2                   ;SET UP EXPECTED
4072 047110  052702  000001                  BIS     #BIT0,R2                ;SET THE EOT BIT XST0
4073 047114  020102                          CMP     R1,R2                   ;IS THE EOT BIT SET IN XST0
4074 047116  001406                          BEQ     125$                    ;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 SEQ 0186

```
                047220  104406                                                          TRAP    C$CLP1
4115            047222  005737  002216          TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES
4116            047226  001(                   BNE     160$                    ;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,T25BS0              ;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
```

SEQ 0187

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$:
```

```
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$BSUB
4198 047474  004737  055216                    JSR     PC,T25REST              ;SET COMMAND PACKET
4199 047500  004737  055352                    JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4200 047504  004737  055310                    JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4201
4202                                    ;*****************************************************************
4203                                    ;
4204                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4205                                    ;
4206                                    ;*****************************************************************
4207
4208 047510  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4209 047514  103407                            BCS     10$                     ;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 I) 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$ERHRD
     047612  001003                                                                    .WORD   513
     047614  055005                                                                    .WORD   T25RWN
     047616  012136                                                                    .WORD   PKTSSR
4250 047620                             30$:    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,SFTMSG        ;WRITE CHARACTERISTISC FAILED
     047730  104456                                                                    TRAP    C$ERHRD
     047732  001005                                                                    .WORD   517
     047734  005054                                                                    .WORD   WRTMSG
     047736  012124                                                                    .WORD   SFTMSG
4284 047740                             160$:   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 SEQ 0190

```
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,T25R8                ;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

```
                                        ;-
                                        ;
                                        ;TEST 5, SUBTEST 3
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE
                                        ;RECORD OFF BOT AND CAUSES BOT STATUS TO BE CLEARED.
                                        ;
                                        ;
                                        ;-
050072                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
050072                                                                                  T5.3:
050072  104402                                                                          TRAP    C$BSUB
050074  004737  055216                          JSR     PC,T25REST              ;SET COMMAND PACKET
050100  004737  055310                          JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
050104  004737  055352                          JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

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

050110  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
050114  103407                                  BCS     10$                     ;BR IF INIT WAS OK
050116  005237  002212                          INC     FATFLG                  ;BUMP COUNT
050122  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
050124                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
050124  104455                                                                          TRAP    C$ERDF
050126  001010                                                                          .WORD   520
050130  003650                                                                          .WORD   SFIERR
050132  012124                                                                          .WORD   SFIMSG
050134  013737  002172  053700  10$:     MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER

050142  012704  053660                          MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

050146  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
050152  103407                                  BCS     15$                     ;BR, IF COMMAND ISSUED OK
050154  005237  002212                          INC     FATFLG                  ;BUMP COUNT
050160  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
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

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

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     FATFLG                   ;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$CLP1
4386
4387                               ;*****************************************************************
4388                               ;
4389                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4390                               ;
4391                               ;*****************************************************************
4392
4393 050222  013701  053710                MOV     T25BFR+6,R1              ;PICK UP XSTO
4394 050226  010102                        MOV     R1,R2                    ;SET UP EXPECTED
4395 050230  052702  000002                BIS     #BIT1,R2                 ;SET BOT BIT IN EXPECTED
4396 050234  020102                        CMP     R1,R2                    ;DOES EXP = REC'D
4397 050236  001406                        BEQ     40$                      ;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$:
   4430
   4431                                 ;*****************************************************************
   4432                                 ;
   4433                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
   4434                                 ;
   4435                                 ;*****************************************************************
   4436
   4437 050346  013701  053710                  MOV     T25BFR+6,R1             ;QUICK CHECK FOR BOT SET
   4438 050352  010102                          MOV     R1,R2                   ;SET UP EXPECTED
   4439 050354  042702  000002                  BIC     #BIT1,R2                ;CLEAR THE BOT BIT (XST0)
   4440 050360  020102                          CMP     R1,R2                   ;IS THE EOT BIT SET IN XST0
   4441 050362  001406                          BEQ     125$                    ;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
        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$:
```

TEST 5: SPACE RECORDS

```
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$ERDF
      050602  001020                                                                          .WORD   528
      050604  003650                                                                          .WORD   SFIERR
      050606  012124                                                                          .WORD   SFIMSG
4517 050610  013737  00   2  053700  20$:     MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
4518
4519 050616  012704  055660                    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
```

TEST 5: SPACE RECORDS

```
                                ;
                                ;*****************************************************************
                                ;
050650  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
050654  103407                          BCS     30$                     ;BR, IF NO PROBLEM
050656  010001                          MOV     R0,R1                   ;SAVE T.SR
050660  005237  002212                  INC     FATFLG                  ;BUMP COUNT
050664                                  ERRHRD  ERRNO,T25RWN,PKTS%R     ;REWIND NOT ACCEPTED
050664  104456                                                                  TRAP    C$ERHRD
050666  001022                                                                  .WORD   %30
050670  055005                                                                  .WORD   T.%SRW%
050672  012136                                                                  .WORD   PKTS%R
050674                          30$:    CKLOOP                          ;LOOP IF SELECTED
050674  104406                                                                  TRAP    C$CLP1
                                ;
                                ;*****************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (X%10)
                                ;
                                ;*****************************************************************
050676  013701  053710                  MOV     T25BFR+6,R1             ;PICK UP X%10
050702  010102                          MOV     R1,R2                   ;SET UP EXPECTED
050704  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
050710  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
050712  001406                          BEQ     40$                     ;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$ERHRD
050722  001023                                                                  .WORD   %31
050724  054175                                                                  .WORD   T25BOT
050726  015564                                                                  .WORD   EXPREC
050730                          40$:    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 FOR 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$ERHRD
050756  001024                                                                  .WORD   %32
050760  054115                                                                  .WORD   T25WDE
050762  012172                                                                  .WORD   SFFMSG
050764                          50$:    CKLOOP                          ;LOOP IF SELECTED
050764  104406                                                                  TRAP    C$CLP1
050766  012737  000001  054002          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
                                ;
                                ;*****************************************************************
```

TEST 5: SPACE RECORDS

```
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

SEQ 0198

```
        051166  054405                                                  .WORD   T25WNG
        051170  015564                                                  .WORD   EXPREC
4645    051172                          200$:   CKLDOP
        051172  104406                                                  TRAP    C$CLP1
4646    051174                          ENDSUB                  ;;;;;;;;;;;;; END JOBTEST ;;;;;;;;;;;;;
        051174                                                          1$:
        051174  104403                                                  TRAP    C$ESUB
4647    051176  023727  002212  000017          CMP     FATLOG,#17.             ;IS ERROR COUNT AT 25
4648    051204  103402                          BLO     999$                    ;BR, IF IT'S 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.
                                        ;
                                        ;
                                        ;
                                        ;-

051212                                  BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                        T5.5:
051212  104402                                                                          TRAP    C$BSUB
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)
                                        ;
```

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

051376  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
051402  103407                    BCS     30$                     ;BR, IF NO PROBLEM
051404  010001                    MOV     R0,R1                   ;SAVE TSSR
051406  005237  002212            INC     FATFLG                  ;BUMP COUNT
051412                            ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
051412  104456                                                            TRAP    C$ERHRD
051414  001032                                                            .WORD   538
051416  055005                                                            .WORD   T25RWN
051420  012136                                                            .WORD   PKTSSR
051422                    30$:    CKLOOP                          ;LOOP IF SELECTED
051422  104406                                                            TRAP    C$CLP1
051424  013701  054026            MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
051430  012702  177776            MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
051434  020201                    CMP     R2,R1                   ;WHICH VALUE CAN WE USE
051436  003002                    BGT     46$                     ;BR, IF # WRITTEN > 64K
051440  010103                    MOV     R1,R3                   ;# WRITTEN CAN BE USED
051442  000401                    BR      47$                     ;MOVE ON
051444  010203                46$:MOV     R2,R3                   ;USE MAX NUMBER
051446  162703  000001        47$:SUB     #1,R3                   ;DON'T GO ALL THE WAY YET
051452  010337  054002            MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER

                        ;*****************************************************************
                        ;
                        ;SPACE FORWARD,ACK,CVC+1 COMMAND
                        ;
                        ;*****************************************************************

051456  012737  140010  054000      MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC+1 COMMAND
051464  012704  054000            MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
051470                    65$:
051470  013737  054026  054032      MOV     T25CN2,T25DLY           ;NUMBER OF RECORDS USED AS DELAY COUNTER
051476  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
051502  004737  016340        67$:JSR     PC,WAITF                ;WAIT FOR SSR TO SET
051506  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
051512  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
051516  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
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
                                                                                .WORD   EXPREC
        4796    051732                          200$:   CKLOOP
                051732  104406                                                  TRAP    C$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 SEQ 0203

```
                                        ;*
                                        ;
                                        ;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.
                                        ;
                                        ;
                                        ;
                                        ;-
051752                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
051752                                                                                  T5.6:
051752  104402                                                                          TRAP    C$BSUB
051754  004737  055216                        JSR     PC,T25REST              ;SET COMMAND PACKET
051760  013737  054030  054026                MOV     T25CNT,T25CN2           ;SET UP RECORD COUNTER
051766  004737  055310                        JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
051772  004737  055352                        JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
051776  013737  054030  054032                MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER

                                        ;*******************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*******************************************************************
052004  004737  016064                10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
052010  103427                              BCS     20$                     ;BR IF INIT WAS OK
052012                                      DELAY   250                     ;WAIT ABOUT .25 SECONDS
052012  012727  000250                                                              MOV     #250,(PC)+
052016  000000                                                                      .WORD   0
052020  013727  002116                                                              MOV     L$DLY,(PC)+
052024  000000                                                                      .WORD   0
052026  005367  177772                                                              DEC     -6(PC)
052032  001375                                                                      BNE     .-4
052034  005367  177756                                                              DEC     -22(PC)
052040  001367                                                                      BNE     .-20
052042  005337  054032                        DEC     T25DLY                  ;DEC COUNTER
052046  001356                              BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
052050  016501  000002                      MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
052054  005237  002212                      INC     FATFLG                  ;BUMP COUNT
052060                                      ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
052060  104455                                                                      TRAP    C$ERDF
052062  001036                                                                      .WORD   542
052064  003650                                                                      .WORD   SFIERR
052066  012124                                                                      .WORD   SFIMSG
052070  013737  002172  053700  20$:    MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER

052076  012704  053660                      MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

TEST 5: SPACE RECORDS SEQ 0204

```
 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,SFTMSG     ;WRITE CHARACTERISTISC FAILED
      052116  104456                                                          TRAP    C$ERHRD
      052120  001037                                                          .WORD   543
      052122  005054                                                          .WORD   WRTMSG
      052124  012124                                                          .WORD   SFTMSG
 4858 052126                  25$:    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$CLP1
 4875
 4876                         ;*****************************************************************
 4877                         ;
 4878                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 4879                         ;
 4880                         ;*****************************************************************
 4881
 4882 052156  013701  053710          MOV     T25BFR+6,R1             ;PICK UP XSTO
 4883 052162  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 4884 052164  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 4885 052170  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
 4886 052172  001406                  BEQ     40$                     ;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 SEQ 0206

```
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     @#$DL+,(PC)+
     052470  000000                                                                .WORD   0
     052472  005367  177772                                                        DEC     -6(PC)
     052476  001375                                                                BNE     .-4
     052500  005367  177756                                                        DEC     -22(PC)
     052504  001367                                                                BNE     .-20
4953 052506  005337  054032                DEC     T25DLY                  ;BUMP COUNTER DOWN
4954 052512  001351                        BNE     70$                     ;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$CLP1
4961 052532  012703  010000                MOV     #4096.,R3               ;RECORD SIZE
4962 052536  013737  003114  054002        MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4963
4964                                       ;*************************************************************
4965                                       ;
4966                                       ;READ DATA,ACK COMMAND
4967                                       ;
4968                                       ;*************************************************************
4969
4970 052544  012737  100001  054000        MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4971 052552  012704  054000        165$:   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$CLP1
4999 052674                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     052674                                                                      L10077:
     052674  104403                                                                TRAP    C$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$:
```

USER DOCUMENTATION B1
....C1
....D1
....E1
....F1
....G1
....H1
....I1
....J1
....K1
....L1
....M1
....N1

....B2
....C2
....D2
....E2
....F2
....G2
....H2
....I2
....J2
....K2
....L2
....M2
....N2

....B3
....C3
....D3
....E3
....F3
....G3
....H3
....I3
....J3
....K3
....L3
....M3
....N3

....B4
....C4
....D4
....E4
....F4
....G4
....H4
....I4
....J4
....K4
....L4
....M4
....N4

....B5
....C5
....D5
....E5
....F5
....G5
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....K5
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....I6
....J6
....K6
....L6
....M6
....N6

....B7
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....D7
....E7
....F7
....G7
....H7
....I7
....J7
....K7
....L7
....M7
....N7

....B8
....C8
....D8
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....F8
....G8
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....K8
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....I9
....J9
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....M11
....N11

....B12
....C12
....D12
....E12
....F12
....G12
....H12
....I12
....J12
....K12
....L12
....M12
....N12

....B13
....C13
....D13
....E13
....F13
....G13
....H13
....I13
....J13
....K13
....L13
....M13
....N13

....B14
....C14
....D14
....E14
....F14
....G14
....H14
....I14
....J14
....K14
....L14
....M14
....N14

....B15
....C15
....D15
....E15
....F15
....G15
....H15
....I15
....J15
....K15
....L15
....M15
....N15

....B16
....C16
....D16
....E16
....F16
....G16
....H16
....I16
....J16
....K16
....L16
....M16

TEST 5: SPACE RECORDS

```
5005                                    ;*
5006                                    ;
5007                                    ;TEST 5, SUBTEST 7
5008                                    ;
5009                                    ;VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE THE
5010                                    ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
5011                                    ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
5012                                    ;
5013                                    ;
5014                                    ;
5015                                    ;
5016 052712                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>
     052712                                                                                     T5.7:
     052712  104402                                                                                 TRAP    C$BSUB
5017 052714  004737  055216                     JSR     PC,T25RE.7              ;SET COMMAND PACKET
5018 052720  004737  055310                     JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
5019 052724  004737  055352                     JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
5020
5021                                    ;*****************************************************************
5022                                    ;
5023                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
5024                                    ;
5025                                    ;*****************************************************************
5026
5027 052730  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5028 052734  103407                             BCS     20$                     ;BR IF INIT WAS OK
5029 052736  005237  002212                     INC     FATFLG                  ;BUMP COUNT
5033 052742  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5034 052744                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     052744  104455                                                                             TRAP    C$ERDF
     052746  001046                                                                             .WORD   550
     052750  003600                                                                             .WORD   SFIERR
     052752  012124                                                                              WORD   SFIMSG
5035 052754  013737  002172  053700  20$:       MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
5036
5037 052762  012704  053660                     MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5038
5039                                    ;*****************************************************************
5040                                    ;
5041                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5042                                    ;
5043                                    ;*****************************************************************
5044
5045 052766  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5046 052772  103407                             BCS     25$                     ;BR, IF COMMAND ISSUED OK
5047 052774  005237  002212                     INC     FATFLG                  ;BUMP COUNT
5051 053000  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5052 053002                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     053002  104456                                                                             TRAP    C$ERHRD
     053004  001047                                                                             .WORD   551
     053006  005054                                                                             .WORD   WRTMSG
     053010  012124                                                                             .WORD   SFIMSG
5053 053012                             25$:    CKLOOP                          ;LOOP IF SELECTED
     053012  104406                                                                             TRAP    C$CLP1
5054
5055                                    ;*****************************************************************
5056                                    ;
```

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  104455                                                                TRAP    C$ERHRD
     056146  001140                                                                .WORD   608
     056150  072417                                                                .WORD   T26SC
     056152  015564                                                                .WORD   EXPREC
5636 056154                        150$:   CKLOOP                                  TRAP    C$CLP1
     056154  104406
5637 056156  013703  072002                MOV     T26RSZ,R3               ;RECORD SIZE
5638 056162  013737  003114  071752        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5639
5640                               ;*****************************************************************
5641                               ;
5642                               ;REREREAD DATA,CYC=1,ACK COMMAND
5643                               ;
5644                               ;*****************************************************************
5645
5646 056170  012737  141001  071750        MOV     #141001,T26PK3          ;REREREAD DATA,CYC=1,ACK COMMAND
5647 056176  012704  071750        165$:   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 5: SPACE RECORDS

```
        053154  012136                                                          .WORD   PKT%SR
5110    053156                          75$:    CKLOOP                          ;LOOP IF SELECTED
        053156  104406                                                          TRAP    C$CLP1
5111
5112                                    ;*******************************************************************
5113                                    ;
5114                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5115                                    ;
5116                                    ;*******************************************************************
5117
5118    053160  013701  053210                MOV     T.SBER+6,R1             ;GET XST0 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,T2SNEF,EXPREC     ;NEF SHOULD BE SET
        053202  104456                                                          TRAP    C$ERHRD
        053204  001053                                                          .WORD   555
        053206  054643                                                          .WORD   T2SNEF
        053210  015564                                                          .WORD   EXPREC
5128    053212                          170$:   CKLOOP
        053212  104406                                                          TRAP    C$CLP1
5129    053214                                  ENDSUB
        053214  104403                                                      L10100:
                                                                                TRAP    C$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

```
5135                                    ;-
5136                                    ;
5137                                    ;TEST 5, SUBTEST 8
5138                                    ;
5139                                    ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT
5140                                    ;CAUSES 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$ERDF
      053266  001054                                                                           .WORD   556
      053270  003650                                                                           .WORD   SFIERR
      053272  012124                                                                           .WORD   SFIMSG
5167 053274  013737  002172  053700  20$:      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 6: REREADS

```
5742                                    ;*****************************************************************
5743                                    ;
5744                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5745                                    ;
5746                                    ;*****************************************************************
5747
5748 056460  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5749 056464  103413                            BCS     30$                     ;BR, IF NO PROBLEM
5750 056466  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
5751 056472  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5752 056476  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
5753 056500  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5757 056504                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     056504  104456                                                                    TRAP    C$ERHRD
     056506  001145                                                                    .WORD   613
     056510  073304                                                                    .WORD   T26RWN
     056512  012136                                                                    .WORD   PKTSSR
5758 056514                            30$:    CKLOOP                          ;LOOP IF SELECTED
     056514  104406                                                                    TRAP    C$CLP1
5759
5760                                    ;*****************************************************************
5761                                    ;
5762                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5763                                    ;
5764                                    ;*****************************************************************
5765
5766 056516  013701  071660                    MOV     T26BFR+6,R1             ;PICK UP XST0
5767 056522  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5768 056524  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5769 056530  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5770 056532  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5771 056534  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5775 056540                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     056540  104456                                                                    TRAP    C$ERHRD
     056542  001146                                                                    .WORD   614
     056544  073015                                                                    .WORD   T26BOT
     056546  015564                                                                    .WORD   EXPREC
5776 056550                            40$:    CKLOOP                          ;LOOP IF SELECTED
     056550  104406                                                                    TRAP    C$CLP1
5777 056552  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
5778 056556  013737  003114  071752            MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
5779
5780                                    ;*****************************************************************
5781                                    ;
5782                                    ;WRITE DATA,ACK,SWB COMMAND
5783                                    ;
5784                                    ;*****************************************************************
5785
5786 056564  012737  110005  071750            MOV     #110005,T26PK3          ;WRITE DATA,ACK,SWB COMMAND
5787 056572  012704  071750                    MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5788 056576                            65$:
5789 056576  010300                            MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5790 056600  004737  017512                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
5791 056604  010337  071756                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5792 056610  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5793 056614  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5794 056620  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

TEST 6: REREADS SEQ 0226

```
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$CLP1
5827
5828                             ;*****************************************************************
5829                             ;
5830                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
5831                             ;
5832                             ;*****************************************************************
5833
5834 056722  013701  071660              MOV     T26BFR+6,R1             ;PICK UP XSTO
5835 056726  010102                      MOV     R1,R2                   ;SET UP EXPECTED
5836 056730  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5837 056734  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
5838 056736  001406                      BEQ     140$                    ;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
```

TEST 6: REREADS

```
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
```

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$:
```

TEST 6: REREADS

```
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$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6118 057704  010337   71756            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6119 057710  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6120 057714  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6121 057720  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6122 057724  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
 6123 057730  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
 6124 057732  001406                    BEQ     170$                    ;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

```
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$CLP1
7409
7410                                       ;*********************************************************************
7411                                       ;
7412                                       ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7413                                       ;
7414                                       ;*********************************************************************
7415
7416 064354  013701  071060                MOV     T26BFR+6,R1             ;PICK UP XST0
7417 064360  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7418 064362  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7419 064366  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7420 064370  001406                        BEQ     40$                     ;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

```
                056000  104406                                                          TRAP    C$CLP1
5576 056004  005723                      TST     (R3)+                  ;BUMP RECORD SIZE
5577 056006  022703  000414              CMP     #268.,R3               ;END OF RECORD SET
5578 056012  001346                      BNE     65$                    ;BR, IF MORE RECORDS TO WRITE
5579 056014                      80$:    CKLOOP                         ;LOOP IF SELECTED
                056014  104406                                                          TRAP    C$CLP1
5580 056016                      100$:
5581
5582                             ;*****************************************************************
5583                             ;
5584                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5585                             ;
5586                             ;*****************************************************************
5587
5588 056016  004737  011104              JSR     PC,REWIND              ;CALL TAPE REWIND COMMAND
5589 056022  103413                      BCS     130$                   ;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$CLP1
5599
5600                             ;*****************************************************************
5601                             ;
5602                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5603                             ;
5604                             ;*****************************************************************
5605
5606 056054  013701  071660              MOV     T26BFR+6,R1            ;PICK UP XST0
5607 056060  010102                      MOV     R1,R2                  ;SET UP EXPECTED
5608 056062  052702  000002              BIS     #BIT1,R2               ;SET BOT BIT IN EXPECTED
5609 056066  020102                      CMP     R1,R2                  ;DOES EXP = REC'D
5610 056070  001406                      BEQ     140$                   ;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$ERHRD
     056146  001140                                                                .WORD   608
     056150  072417                                                                .WORD   T26SC
     056152  015564                                                                .WORD   EXPREC
5636 056154                        150$:   CKLOOP                                  TRAP    C$CLP1
     056154  104406
5637 056156  013703  072002                MOV     T26RSZ,R3               ;RECORD SIZE
5638 056162  013737  003114  071752        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5639
5640                               ;*****************************************************************
5641                               ;
5642                               ;REREREAD DATA,CVC=1,ACK COMMAND
5643                               ;
5644                               ;*****************************************************************
5645
5646 056170  012737  141001  071750        MOV     #141001,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
5647 056176  012704  071750        165$:   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 TST
5682 056334  001070                    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$ESUB
5685 056342  023727  002212  000017    CMP     ERTFLG,#15.                 ;IS ERROR COUNT AT 25
5686 056350  103402                    BLO     999$                        ;BR, IF LESS THAN 25
5687 056352  004737  017272            JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
5688 056356                    999$:
```

TEST 6: REREADS

```
5690                                    ;*
5691                                    ;
5692                                    ;TEST 6, SUBTEST 2
5693                                    ;
5694                                    ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
5695                                    ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
5696                                    ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
5697                                    ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
5698                                    ;SWAPPED BYTES.
5699                                    ;
5700                                    ;
5701                                    ;
5702                                    ;-
5703 056356                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      056356                                                                                  T6.2:
      056356  104402                                                                            TRAP    C$BSUB
5704 056360  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
5705 056364  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
5706 056370  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
5707
5708                                    ;*****************************************************************
5709                                    ;
5710                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5711                                    ;
5712                                    ;*****************************************************************
5713
5714 056374  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5715 056400  103407                            BCS     20$                     ;BR IF INIT WAS OK
5716 056402  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5720 056406  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5721 056410                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      056410  104455                                                                          TRAP    C$ERDF
      056412  001143                                                                          .WORD   611
      056414  003650                                                                          .WORD   SFIERR
      056416  012124                                                                          .WORD   SFIMSG
5722 056420  013737  002172  071650  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
5723
5724 056426  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5725
5726                                    ;*****************************************************************
5727                                    ;
5728                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5729                                    ;
5730                                    ;*****************************************************************
5731
5732 056432  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5733 056436  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
5734 056440  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5738 056444  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5739 056446                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      056446  104456                                                                          TRAP    C$ERHRD
      056450  001144                                                                          .WORD   612
      056452  005054                                                                          .WORD   WRTMSG
      056454  012124                                                                          .WORD   SFIMSG
5740 056456                            26$:     CKLOOP                          ;LOOP IF SELECTED
      056456  104406                                                                          TRAP    C$CLP1
5741
```

TEST 6: REREADS

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

TEST 6: REREADS SEQ 0226

```
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
```

TEST 6: REREADS

```
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
```

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$:
```

```
                                ;*
                                ;
                                ;TEST 6, SUBTEST 3
                                ;
                                ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
                                ;(READ REVERSE, SPACE FORWARD) 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 FIRST FOUR BYTES OF EACH RECORD
                                ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
                                ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
                                ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
                                ;
                                ;1.      THE REREAD PREVIOUS COMMAND WITH OPP=1 IS ISSUED
                                ;        AND THE RESULTS CHECKED
                                ;
                                ;2.      A READ FORWARD COMMAND IS THEN ISSUED AND THE
                                ;        DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
                                ;        POSITIONED PROPERLY AFTER THE REREAD PREVIOUS
                                ;        COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
                                ;        POSITIONED AT THE START OF THE TEST RECORD). THE
                                ;        READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
                                ;        PROPERLY AT THE START OF THE NEXT TEST RECORD.
                                ;
                                ;THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET
                                ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
                                ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                                ;
                                ;
                                ;
                                ;-
057224                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
057224                                                                                  T6.3:
057224  104402                                                                          TRAP    C$BSUB
057226  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
057232  005037  071776                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
057236  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
057242  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************
057246  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
057252  103407                          BCS     20$                     ;BR IF INIT WAS OK
057254  005237  002212                    INC     FATFLG                  ;BUMP COUNT
057260  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
057262                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
057262  104455                                                                          TRAP    C$ERDF
057264  001155                                                                          .WORD   621
057266  003650                                                                          .WORD   SFIERR
057270  012124                                                                          .WORD   SFIMSG
057272  013737  002172  071650  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
```

TEST 6: REREADS

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

057300  012704  071630                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

057304  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
057310  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
057312  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057316  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
057320                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
057320  104456                                                                  TRAP    C$ERHRD
057322  001156                                                                  .WORD   622
057324  005054                                                                  .WORD   WRTMSG
057326  012124                                                                  .WORD   SFIMSG
057330                          26$:    CKLOOP                          ;LOOP IF SELECTED
057330  104406                                                                  TRAP    C$CLP1

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

057332  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
057336  103413                          BCS     30$                     ;BR, IF NO PROBLEM
057340  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
057344  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
057350  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
057352  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057356                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
057356  104456                                                                  TRAP    C$ERHRD
057360  001157                                                                  .WORD   623
057362  073304                                                                  .WORD   T26RWN
057364  012136                                                                  .WORD   PKTSSR
057366                          30$:    CKLOOP                          ;LOOP IF SELECTED
057366  104406                                                                  TRAP    C$CLP1

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

057370  013701  071660                  MOV     T26BFR+6,R1             ;PICK UP XST0
057374  010102                          MOV     R1,R2                   ;SET UP EXPECTED
057376  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
057402  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
057404  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
057406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
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

```
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 057760  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$:
6168 060100                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     060100                                                                     10105:
     060100  104403                                                                TRAP    C$ESUB
6169 060102  023727  002212  000017                 CMP     FATFLG,#15.             ;IS ERROR COUNT A  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

```
                                        ;*
                                        ;
                                        ;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 >>>>>>>>>>>>
                                                                                        T6.4:
060116  104402                                                                          TRAP    C$BSUB
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$ERDF
060156  001167                                                                          .WORD   631
060160  003650                                                                          .WORD   SFIERR
060162  012124                                                                          .WORD   SFIMSG
060164  013737  002172  071650  20$:    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     30$                     ;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$CLP1
6246
6247                                ;*****************************************************************
6248                                ;
6249                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6250                                ;
6251                                ;*****************************************************************
6252
6253 060262  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XST0
6254 060266  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6255 060270  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6256 060274  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
6257 060276  001406                        BEQ     40$                     ;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  122536          MOV     T26CNT,@#REE            ;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$ERHRD
     060422  001173                                                                  .WORD   635
     060424  005111                                                                  .WORD   WRTERR
     060426  012136                                                                  .WORD   PKTSSR
6292 060430                          75$:    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$CLP1
6317
6318                                         ;*************************************************************************
6319                                         ;
6320                                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6321                                         ;
6322                                         ;*************************************************************************
6323
6324 060506  013701  071660                  MOV     T26BFR+6,R1             ;PICK UP XST0
6325 060512  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6326 060514  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6327 060520  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6328 060522  001406                          BEQ     140$                    ;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: REREADS

```
6423                                    ;*
6424                                    ;
6425                                    ;TEST 6, SUBTEST 5
6426                                    ;
6427                                    ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
6428                                    ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
6429                                    ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
6430                                    ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
6431                                    ;STATES OF OPP (0 AND 1).
6432                                    ;
6433                                    ;
6434                                    ;
6435                                    ;-
6436
6437
6438 061044                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     061044                                                                                    T6.5:
     061044  104402                                                                                TRAP    C$BSUB
6439 061046  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
6440 061052  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
6441 061056  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
6442
6443                                    ;*************************************************************************
6444                                    ;
6445                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6446                                    ;
6447                                    ;*************************************************************************
6448
6449 061062  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
6450 061066  103407                            BCS     20$                     ;BR IF INIT WAS OK
6451 061070  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6455 061074  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
6456 061076                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     061076  104455                                                                            TRAP    C$ERDF
     061100  001202                                                                            .WORD   642
     061102  003650                                                                            .WORD   SFIERR
     061104  012124                                                                            .WORD   SFIMSG
6457 061106  013737  002172  071650  20$:       MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
6458
6459 061114  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
6460
6461                                    ;*************************************************************************
6462                                    ;
6463                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6464                                    ;
6465                                    ;*************************************************************************
6466
6467 061120  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
6468 061124  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
6469 061126  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6473 061132  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6474 061134                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     061134  104456                                                                            TRAP    C$ERHRD
     061136  001203                                                                            .WORD   643
     061140  005054                                                                            .WORD   WRTMSG
     061142  012124                                                                            .WORD   SFIMSG
6475 061144                            26$:     CKLOOP                          ;LOOP IF SELECTED
```

TEST 6: REREADS SEQ 0240

```
      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$CLP1
6494
6495                          ;*****************************************************************
6496                          ;
6497                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6498                          ;
6499                          ;*****************************************************************
6500
6501 061204  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XST0
6502 061210  010102                  MOV     R1,R2                   ;SET UP EXPECTED
6503 061212  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6504 061216  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
6505 061220  001406                  BEQ     40$                     ;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

```
6627                                    ;*
6628                                    ;
6629                                    ;TEST 6, SUBTEST 6
6630                                    ;
6631                                    ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
6632                                    ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
6633                                    ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
6634                                    ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
6635                                    ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
6636                                    ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
6637                                    ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
6638                                    ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
6639                                    ;STATES OF OPP (0 AND 1).
6640                                    ;
6641                                    ;
6642                                    ;
6643                                    ;-
6644 061622                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      061622                                                                                T6.6:
      061622  104402                                                                          TRAP    C$BSUB
6645 061624  004737  074540                    JSR     PC,T26REST              ;SET COMMAND PACKET
6646 061630  004737  074632                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
6647 061634  004737  074674                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
6648
6649                                    ;*****************************************************************
6650                                    ;
6651                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6652                                    ;
6653                                    ;*****************************************************************
6654
6655 061640  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
6656 061644  103407                            BCS     20$                     ;BR IF INIT WAS OK
6657 061646  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6661 061652  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
6662 061654                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      061654  104455                                                                       TRAP    C$ERDF
      061656  001213                                                                       .WORD   651
      061660  003650                                                                       .WORD   SFIERR
      061662  012124                                                                       .WORD   SFIMSG
6663 061664  013737  002172  071650  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
6664
6665 061672  012704  071630                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
6666
6667                                    ;*****************************************************************
6668                                    ;
6669                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6670                                    ;
6671                                    ;*****************************************************************
6672
6673 061676  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
6674 061702  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
6675 061704  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6679 061710  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6680 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  010537  071756                  MOV     R3,T26SZ                    ;SET UP RECORD SIZE IN PACKET
 6731 062046  010465  000000                  MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
```

SEQ 0245

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$CLP1
6767
6768                               ;*****************************************************************
6769                               ;
6770                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6771                               ;
6772                               ;**********  ***************************************************
6773
6774 062202  013701  071660                MOV     T26P   +5,R1            ;GET MESSAGE BUFFER
6775 062206  010102                        MOV     R1 .                    ;SET UP EXPECTED
6776 062210  052702  040000                BIS       14,R2                 ;SET THE RLS BIT IN EXPECTED
6777 062214  020102                        CMP     R1 R2                   ;ARE THEY EQUAL
6778 062216  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6779 062220  005237  002212                INC     FATFLG                  ;BUMP COUNT
6783 062224                                ERRHRD  ERRNO,T26LOP            ;THE RLS BIT WAS NOT SET IN XSTO
     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$CLP1
 6795 062270  012703  001000                MOV     #512.,R3                ;RECORD SIZE
 6796 062274  013737  003114  071752        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 6797
 6798                                ;*****************************************************************
 6799                                ;
 6800                                ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
 6801                                ;
 6802                                ;*****************************************************************
 6803
 6804 062302  012737  141001  071750        MOV     #141001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
 6805 062310  012704  071750                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6806 062314  010437  071756                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6807 062320  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6808 062324  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6809 062330  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6810 062334  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 6811 062340  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 6812 062342  001406                        BEQ     270$                    ;BR, IF OK
 6813 062344  005237  002212                INC     FATFL                   ;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
```

TEST 6: REREADS

```
                062412  015564                                                          .WORD   EXPREC
6836            062414                  280$:   CKLOOP
                062414  104406                                                          TRAP    C$CLP1
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$CLP1
6846            062446                          ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                062446                                                                  10110:
                062446  104403                                                          TRAP    C$ESUB
6847            062450  023727  002712  000017          CMP     FATELG,#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: REREADS

```
                                ;*
                                ;
                                ;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$ERHRD
        062556  001226                                                          .WORD   662
        062560  005054                                                          .WORD   WRTMSG
        062562  012124                                                          .WORD   SFTMSG
  6909  062564                  26$:    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$CLP1
  6928
  6929                          ;*****************************************************************
  6930                          ;
  6931                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
  6932                          ;
  6933                          ;*****************************************************************
  6934
  6935  062624  013701  071660         MOV     T26BFR+6,R1             ;PICK UP XST0
  6936  062630  010102                 MOV     R1,R2                   ;SET UP EXPECTED
  6937  062632  052702  000002         BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
  6938  062636  020102                 CMP     R1,R2                   ;DOES EXP = REC'D
  6939  062640  001406                 BEQ     40$                     ;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 SEQ 0250

```
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$CLP1
6996
6997                               ;*****************************************************************
6998                               ;
6999                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7000                               ;
7001                               ;*****************************************************************
7002
7003 063030  013701  071660               MOV     T26BFR+6,R1             ;PICK UP XST0
7004 063034  010102                      MOV     R1,R2                   ;SET UP EXPECTED
7005 063036  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7006 063042  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
7007 063044  001406                      BEQ     140$                    ;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
     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$:
```

TEST 6: REREADS

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 8
                                        ;
                                        ;VERIFIES THAT THE REREAD NEXT 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.
                                        ;
                                        ;
                                        ;
                                        ;-
063336                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T6.8:
063336  104402                                                                                  TRAP    C$BSUB
063340  004737  074540                          JSR     PC,T26REST              ;SET COMMAND PACKET
063344  004737  074632                          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
063350  004737  074674                          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************
063354  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
063360  103407                                  BCS     20$                     ;BR IF INIT WAS OK
063362  005237  002212                          INC     FATFLG                  ;BUMP COUNT
063366  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
063370                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
063370  104455                                                                                  TRAP    C$ERDF
063372  001237                                                                                  .WORD   671
063374  003650                                                                                  .WORD   SFIERR
063376  012124                                                                                  .WORD   SFIMSG
063400  013737  002172  071650  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

063406  012704  071630                          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*************************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************************
063412  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
063416  103407                                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
063420  005237  002212                          INC     FATFLG                  ;BUMP COUNT
063424  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
063426                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
063426  104456                                                                                  TRAP    C$ERHRD
063430  001240                                                                                  .WORD   672
063432  005054                                                                                  .WORD   WRTMSG
063434  012124                                                                                  .WORD   SFIMSG
063436                                  26$:    CKLOOP                          ;LOOP IF SELECTED
063436  104406                                                                                  TRAP    C$CLP1
```

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$ERHRD
063466  001241                                                            .WORD   673
063470  073304                                                            .WORD   T26RWN
063472  012136                                                            .WORD   PKTSSR
063474                    30$:    CKLOOP                          ;LOOP IF SELECTED
063474  104406                                                            TRAP    C$CLP1

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

063476  013701  071660                MOV     T26BFR+6,R1             ;PICK UP XST0
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
```

TEST 6: REREADS

```
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  104466                                                              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$:
7208
7209                             ;*****************************************************************
7210                             ;
7211                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7212                             ;
7213                             ;*****************************************************************
7214
7215 063646  004[27  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7216 063650  103413                      BCS     130$                    ;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$:   MOV     #1,R3                   ;SPACE ... ECORD PARAMETER
7255 063752  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
7256 063756  103413                          BCS     150$                    ;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                                  TRAP    C$CLP1
     064006  104406
7266 064010  013703  072002                  MOV     T26RSZ,R3               ;RECORD SIZE
7267 064014  013737  003114  071752          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7268
7269                                 ;*****************************************************************
7270                                 ;
7271                                 ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7272                                 ;
7273                                 ;*****************************************************************
7274
7275 064022  012737  151401  071750          MOV     #151401,T26PK3          ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7276 064030  012704  071750          165$:   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                                                                 110112:
     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, SUBTEST 9
                                ;
                                ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1
                                ;(READ FORWARD, SPACE REVERSE) 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 FIRST FOUR BYTES OF EACH RECORD
                                ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
                                ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
                                ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
                                ;
                                ;1.      THE REREAD NEXT COMMAND WITH OPP=1 IS ISSUED
                                ;        AND THE RESULTS CHECKED
                                ;
                                ;2.      A READ FORWARD COMMAND IS THEN ISSUED AND THE
                                ;        DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
                                ;        POSITIONED PROPERLY AFTER THE REREAD NEXT
                                ;        COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
                                ;        POSITIONED AT THE START OF THE TEST RECORD). THE
                                ;        READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
                                ;        PROPERLY AT THE START OF THE NEXT TEST RECORD.
                                ;
                                ;THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET
                                ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
                                ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                                ;
                                ;
                                ;
                                ;-
064210                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
064210                                                                                      T6.9:
064210  104402                                                                              TRAP    C$BSUB
064212  004737  074540                  JSR     PC,T26REST              ;SET COMMAND PACKET
064216  005037  071776                  CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
064222  004737  074632                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
064226  004737  074674                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

064232  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
064236  103407                          BCS     20$                     ;BR IF INIT WAS OK
064240  005237  002212                  INC     FATFLG                  ;BUMP COUNT
064244  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
064246                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
064246  104455                                                                              TRAP    C$ERDF
064250  001251                                                                              .WORD   681
064252  003650                                                                              .WORD   SFIERR
064254  012124                                                                              .WORD   SFIMSG
064256  013737  002172  071650  20$:     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$CLP1
7391
7392                                 ;*************************************************************************
7393                                 ;
7394                                 ;TSSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7395                                 ;
7396                                 ;*************************************************************************
7397
7398 064316  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7399 064322  103413                          BCS     30$                     ;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   EXPREC
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$:
7439  064434  010337  071756                    MOV     R3,T26SZ            ;SET UP RECORD SIZE IN PACKET
7440  064440  013777  071776  116446            MOV     T26CNT,@FREE        ;MOVE TAPE RECORD NUMBER TO BUFFER
7441  064446  062737  000001  071776            ADD     #1,T26CNT           ;NUMBER READY FOR NEXT RECORD
7442  064454  010465  000000                    MOV     R4,TSDB(R5)         ;ISSUE COMMAND
7443  064460  004737  016340                    JSR     PC,WAITF            ;WAIT FOR SSR TO SET
7444  064464  016501  000002                    MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
7445  064470  012702  000200                    MOV     #SSR,R2             ;SET UP EXPECTED
7446  064474  020102                          CMP     R1,R2               ;ARE THEY EQUAL
7447  064476  001406                          BEQ     75$                 ;BR, IF OK
7448  064500  005237  002212                  INC     FATFLG              ;BUMP COUNT
7452  064504                                  ERRHRD  ERRNO,WRTERR,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
      064504  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
```

TEST 6: REREADS

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

064566  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XSTO
064572  010102                  MOV     R1,R2                   ;SET UP EXPECTED
064574  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
064600  020102                  CMP     R1,R2                   ;DOES EXP - REC'D
064602  001406                  BEQ     135$                    ;BR, IF EQUAL (OK)
064604  005237  002212          INC     FATFLG                  ;BUMP COUNT
064610                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
064610  104456                                                          TRAP    C$ERHRD
064612  001257                                                          .WORD   687
064614  073015                                                          .WORD   T26BOT
064616  015564                                                          .WORD   EXPREC
064620                  135$:   CKLOOP                          ;LOOP IF SELECTED
064620  104406                                                          TRAP    C$CLP1
064622  012737  000400  072002  MOV     #256.,T26RSZ            ;STARTING RECORD SIZE
064630  000420                  BR      140$                    ;SKIP OVER THE SAPCE THIS TIME

                                ;*****************************************************************
                                ;
                                ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
                                ;BIT 15 SETS DIRECTION - 0-FORWARD    1-REVERSE
                                ;
                                ;*****************************************************************

064632  012703  000001  132$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
064636  004737  010556          JSR     PC,SPACE                ;CALL SPACE ROUTINE
064642  103413                  BCS     140$                    ;BR, IF NO TROUBLE
064644  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
064650  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
064654  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
064656  005237  002212          INC     FATFLG                  ;BUMP COUNT
064662                          ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
064662  104456                                                          TRAP    C$ERHRD
064664  001260                                                          .WORD   688
064666  072417                                                          .WORD   T26SC
064670  012136                                                          .WORD   PKTSSR
064672                  140$:   CKLOOP                          ;LOOP IF SELECTED
064672  104406                                                          TRAP    C$CLP1
064674  013703  072002          MOV     T26RSZ,R3               ;RECORD SIZE
064700  013737  003114  071752  150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS

                                ;*****************************************************************
                                ;
                                ;REREAD DATA,CVC=1,ACK, OPP COMMAND
                                ;
                                ;*****************************************************************

064706  012737  161401  071750          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
064714  012704  071750  165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
064720  010337  071756          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
064724  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

TEST 6: REREADS

```
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

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 10
                                        ;
                                        ;VERIFIES THAT THE REREAD NEXT 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.
                                        ;
                                        ;
                                        ;
                                        ;-

                                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                        T6.10:
                                                                                                TRAP    C$BSUB
                                        JSR     PC,T26REST              ;SET COMMAND PACKET
                                        CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
                                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
                                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

                                                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$ERDF
                                                                                        .WORD   691
                                                                                        .WORD   SFIERR
                                                                                        .WORD   SFIMSG
                                20$:            MOV     UNITN,T26DSW    ;SET UP UNIT NUMBER

                                                MOV     #T26PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS

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

                                                JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
                                                BCS     26$             ;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   692
                                                                                        .WORD   WRTMSG
                                                                                        .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     TSSR(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$CLP1
7636
7637                               ;*************************************************************
7638                               ;
7639                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7640                               ;
7641                               ;*************************************************************
7642
7643 065230  013701  071560                MOV     T26BFR+6,R1             ;PICK UP XST0
7644 065234  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7645 065236  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7646 065242  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7647 065244  001406                        BEQ     40$                     ;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
```

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$:   MOV     #000001,R3                      ;SET UP SPACE COMMAND (1 FORWARD)
7733 065512  004737  01055e                  JSR     PC,SPACE                        ;CALL SPACE ROUTINE
7734 065516  103413                          BCS     140$                            ;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 06553o                                  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$:
7785 065722                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     065722                                                                     L10114:
     065722  104403                                                                TRAP    C$ESUB
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: REREADS

```
7791                                    ;+
7792                                    ;
7793                                    ;TEST 6, SUBTEST 11
7794                                    ;
7795                                    ;VERIFIES THAT A REREAD NEXT COMMAND READING A
7796                                    ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
7797                                    ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
7798                                    ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
7799                                    ;STATES OF OPP (0 AND 1).
7800                                    ;
7801                                    ;
7802                                    ;
7803                                    ;-
7804
7805
7806 065740                                     BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      065740                                                                                    T6.11:
      065740  104402                                                                              TRAP    C$BSUB
7807 065742  004737  074540                     JSR     PC,T26REST              ;SET COMMAND PACKET
7808 065746  004737  074632                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7809 065752  004737  074674                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7810
7811                                    ;*************************************************************************
7812                                    ;
7813                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7814                                    ;
7815                                    ;*************************************************************************
7816
7817 065756  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7818 065762  103407                             BCS     20$                     ;BR IF INIT WAS OK
7819 065764  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7823 065770  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7824 065772                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      065772  104455                                                                           TRAP    C$ERDF
      065774  001275                                                                          .WORD   701
      065776  003650                                                                          .WORD   SFIERR
      066000  012124                                                                          .WORD   SFIMSG
7825 066002  013737  002172  071650  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
7826
7827 066010  012704  071630                     MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7828
7829                                    ;*************************************************************************
7830                                    ;
7831                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7832                                    ;
7833                                    ;*************************************************************************
7834
7835 066014  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7836 066020  103407                             BCS     26$                     ;BR, IF COMMAND ISSUED OK
7837 066022  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7841 066026  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF ISSR
7842 066030                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      066030  104456                                                                           TRAP    C$ERHRD
      066032  001276                                                                          .WORD   702
      066034  005054                                                                          .WORD   WRTMSG
      066036  012124                                                                          .WORD   SFIMSG
7843 066040                             26$:    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

```
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                                                          .WORD   SFTMSG
 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                MOV     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
```

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$CLP1
8209                                    ;*****************************************************************************
8210                                    ;
8211                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8212                                    ;
8213                                    ;*****************************************************************************
8214
8215 067262  013701  071660                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8216 067266  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8217 067270  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8218 067274  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8219 067276  001406                          BEQ     180$                    ;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
```

SEQ 0278

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 11/23B 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
```

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$CLP1
8370
8371                           ;*****************************************************************
8372                           ;
8373                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8374                           ;
8375                           ;*****************************************************************
8376
8377 067720  013701  071660            MOV     T26BFR+6,R1             ;PICK UP XST0
8378 067724  010102                    MOV     R1,R2                   ;SET UP EXPECTED
8379 067726  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8380 067732  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
8381 067734  001406                    BEQ     40$                     ;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  001533                                                          .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$CLP1
 8533
 8534                           ;*************************************************************************
 8535                           ;
 8536                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8537                           ;
 8538                           ;*************************************************************************
 8539
 8540   070454  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XST0
 8541   070460  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 8542   070462  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 8543   070466  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
 8544   070470  001406                  BEQ     196$                    ;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$:
8567 070534                                    ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     070534                                                                                    L10117:
     070534  104403                                                                                      TRAP    C$ESUB
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$CKLP1
```

TEST 6: REREADS

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

070656  004737  011104      26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
070662  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
070666  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
070672  103407                      BCS     30$                     ;BR, IF NO PROBLEM
070674  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
070676  005237  002212              INC     FATFLG                  ;BUMP COUNT
070702                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
070702  104456                                                              TRAP    C$ERHRD
070704  001341                                                              .WORD   737
070706  073304                                                              .WORD   T26RWN
070710  012136                                                              .WORD   PKTSSR
070712                          30$:    CKLOOP                  ;LOOP IF SELECTED
070712  104406                                                              TRAP    C$CLP1

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

070714  013701  071660                  MOV     T26BFR+6,R1             ;PICK UP XST0
070720  010102                          MOV     R1,R2                   ;SET UP EXPECTED
070722  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
070726  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
070730  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
070732  005237  002212                  INC     FATFLG                  ;BUMP COUNT
070736                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
070736  104456                                                                  TRAP    C$ERHRD
070740  001342                                                                  .WORD   738
070742  073015                                                                  .WORD   T26BOT
070744  015564                                                                  .WORD   EXPREC
070746                          40$:    CKLOOP                  ;LOOP IF SELECTED
070746  104406                                                                  TRAP    C$CLP1
070750  012737  000400  071756          MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
070756  013737  003114  071752          MOV     FREE,T26RB              ;ADDRESS OF READ BUFFER
070764  005703                          TST     R3                      ;CHECK NUMBER OF TIMES THROUGH HERE
070766  001404                          BEQ     50$                     ;BR, IF FIRST TIME THROUGH HERE

                                ;*****************************************************************
                                ;
                                ;REREAD,CVC=1,ACK COMMAND
                                ;
                                ;*****************************************************************

070770  012737  161001  071750          MOV     #161001,T26PK3          ;REREAD,CVC=1,ACK COMMAND
070776  000403                          BR      55$                     ;SKIP NEXT COMMAND

                                ;*****************************************************************
                                ;
                                ;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

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 15
                                        ;
                                        ;VERIFIES THAT REREAD PREVIOUS WITH OPP=1 (SPACE
                                        ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
                                        ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
                                        ;POSITIONED JUST BEFORE THE FIRST RECORD ON TAPE (BUT
                                        ;NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION WITH
                                        ;THE REVERSE INTO BOT (RIB) STATUS BIT SET.
                                        ;
                                        ;
                                        ;
                                        ;*
8737 071132                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     071132                                                                                     T6.15:
     071132  104402                                                                                 TRAP    C$BSUB
8738 071134  005037  072000                     CLR     T26CNU                  ;CLEAR OUT COUNTER
8739 071140  004737  074540                     JSR     PC,T26REST              ;SET COMMAND PACKET
8740 071144  004737  074632                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8741 071150  004737  074674                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8742
8743                                    ;*************************************************************************
8744                                    ;
8745                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8746                                    ;
8747                                    ;*************************************************************************
8748
8749 071154  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8750 071160  103407                             BCS     20$                     ;BR IF INIT WAS OK
8751 071162  005237  002212                     INC     FATFLG                  ;BUMP CC NT
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     UNTIN,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 SET UP
8788 071260  005237  002212          INC     FATFLG                  ;BUMP COUNT
8792 071264                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      071264  104456                                                          TRAP    C$ERHRD
      071266  001347                                                          .WORD   743
      071270  073304                                                          .WORD   T26RWN
      071272  012136                                                          .WORD   PKTSSR
8793 071274  104406          30$:    CKLOOP                          ;LOOP IF SELECTED
      071274                                                                  TRAP    C$CLP1
8794
8795                          ;*************************************************************
8796                          ;
8797                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8798                          ;
8799                          ;*************************************************************
8800
8801 071276  013701  071660          MOV     T26BFR+6,R1             ;PICK UP XSTO
8802 071302  010102                  MOV     R1,R2                   ;SET UP EXPECTED
8803 071304  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8804 071310  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
8805 071312  001406                  BEQ     40$                     ;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$ERHRD
      071322  001350                                                          .WORD   744
      071324  073015                                                          .WORD   T26BOT
      071326  015564                                                          .WORD   EXPREC
8811 071330  104406          40$:    CKLOOP                                  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     #100001,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-.
```

TEST 6: REREADS

```
                                        ;*
                                        ;LOCAL STORAGE FOR THIS TEST
                                        ;-
                 071630                         .=<.+10>&177770
071630                                  T26PACKET:                      ;COMMAND PACKET FOR TEST
071630  014004                                  .WORD   14004           ;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
071632  071640                                  .WORD   T26DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
071634  000000                                  .WORD   0
071636  000012                                  .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
071640                                  T26DATA:                        ;CHARACTERISTICS DATA BLOCK
071640  071652                                  .WORD   T26BFR          ;ADDRESS OF MESSAGE BUFFER
071642  000000                                  .WORD   0
071644  000024                                  .WORD   20.             ;LENGTH OF MESSAGE BUFFER
071646  000000                                  .WORD   0
071650  000000                          T26DSW: .WORD   0               ;SELECT DRIVE 0
071652                                  T26BFR: .BLKW   25.             ;MESSAGE BUFFER
                                        ;
                                        ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                        ;
                 071740                         .=<.+10>&177770
071740                                  T26PK2:
071740  100006                                  .WORD   100006          ;WRITE SUB SYS MEM COMMAND, AND ACK
071742  071760                                  .WORD   T26BF2          ;ADDRESS OF SELECT BLOCK DATA
071744  000000                                  .WORD   0
071746  000006                                  .WORD   6.              ;SIZE OF DATA PACKET

071750                                  T26PK3:
071750  140005                                  .WORD   140005          ;REREAD COMMAND, CVC=1 AND ACK
071752                                  T26RB:
071752  003114                          T26WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
071754  000000                                  .WORD   0
071756  000000                          T26SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
                                                .EVEN
                                        ;
                                        ;
                                        ;
071760                                  T26BF2:
071760      010                         T26BS0: .BYTE   10              ;BSEL0 AREA
071761      200                         T26BS1: .BYTE   200             ;BSEL1 AREA
071762  000000                          T26S2:  .WORD   0               ;SEL 2 AREA
071764  000000                          T26S3:  .WORD   0               ;DATA AREA
                                        ;
                                        ;
                                                .EVEN
                                        ;TAPE MOTION PACKET COMMAND VALUES

071766  140001                          T26RN:  .WORD   140001          ;READ DATA
071770  141401                                  .WORD   141401          ;REREAD NEXT OPP=0
071772  161401                                  .WORD   161401          ;PEREAD NEXT OPP=1
071774  177777                                  .WORD   177777          ;END OF DATA

                                        ;
071776  000000                          T26CNT: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA
072000  000000                          T26CNU: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA

072002  000000                          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    T26LOQ: .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 Give 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
```

SEQ 0295

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
074724  104401                      L10102:
                                            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
                                ;
                                ;
                                ;-
                                        BGNTST
                                                                                T7::
074726  012737  006446  002170            MOV     #EPRT2,EPRT+TSW         ;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.
                                ;
                                ;
                                ;-
                                T27LOOP:
                                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                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$CLP1
 9178 075222  012737  000400  101566  MOV     #256.,T27SZ             ;SET UP RECORD SIZE
 9179 075230  013737  003114  101562  MOV     FREE,T27WD              ;ADDRESS OF WRITE BUFFER
 9180
 9181                         ;*****************************************************************
 9182                         ;
 9183                         ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9184                         ;
 9185                         ;*****************************************************************
 9186
 9187 075236  012737  141005  101560  MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9188 075244  012704  101560          MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9189 075250  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9190 075254  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9191 075260  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9192 075264  012702  100206          MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
 9193 075270  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 9194 075272  001406                  BEQ     75$                     ;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
```

```
 9218 075344                          1105$:  CK,CKDROP
      075344  104406                                      TRAP    C$CLP1
 9219 075346                                  END 7TH
      075346
      075346  104403                                  1 10123$:
                                                          TRAP    C$ESUB
 9220 075350  023727  002210  000017          CMP     FATTTG,#15.     ;IS ERROR COUNT AT 25
 9221 075356  103402                          BLO     9995$           ;BR, IF LESS THAN 25
 9222 075360  004737  017272                  JSR     PC,CKDROP       ;TRY TO DROP THE UNIT
 9223 075364                          9995$:
```

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 >>>>>>>>>>>>
                                                                                        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   PKTCSR
   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$ERHRD
      076120  001314                                                                    .WORD   716
      076122  104131                                                                    .WORD   127NEF
      076124  015564                                                                    .WORD   EXPREC
 9424 076126                    190$:   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

```
                                        ;+
                                        ;
                                        ;TEST 7, SUBTEST 3
                                        ;
                                        ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=0
                                        ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
                                        ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
                                        ;BYTE COUNTS AND DATA PATTERNS ARE USED.
                                        ;
                                        ;
                                        ;-
076146                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T7.3:
076146  104402                                                                                  TRAP    C$BSUB
076150  004737  104564                        JSR     PC,T27REST                  ;SET COMMAND PACKET
076154  004737  104656                        JSR     PC,T27RT2                   ;SET UP OTHER COMMAND PACKET
076160  004737  104720                        JSR     PC,T27RT3                   ;SET UP OTHER COMMAND PACKET

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

076164  004737  016064                        JSR     PC,SOFINIT                  ;DO INITIALIZE ON CONTROLLER
076170  103407                                BCS     20$                         ;BR IF INIT WAS OK
076172  005237  002212                        INC     FATFLG                      ;BUMP COUNT
076176  010001                                MOV     R0,R1                       ;CONTENTS OF TSSR REGISTER
076200                                          ERRDF   ERRNO,SFIERR,SFIMSG         ;FATAL ERROR TSSR WAS NOT OK
076200  104455                                                                                  TRAP    C$ERDF
076202  001315                                                                                  .WORD   717
076204  003650                                                                                  .WORD   SFIERR
076206  012124                                                                                  .WORD   SFIMSG
076210  013737  002172  101460  20$:    MOV     UNITN,T27DSW                ;SET UP UNIT NUMBER IN PACKET
076216  012704  101440                        MOV     #T27PACKET,R4               ;SUBROUTINE NEEDS PACKET ADDRESS

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

076222  004737  010752                        JSR     PC,WRTCHR                   ;ISSUE WRITE CHARACTERISTICS
076226  103407                                BCS     23$                         ;BR, IF COMMAND ISSUED OK
076230  005237  002212                        INC     FATFLG                      ;BUMP COUNT
076234  010001                                MOV     R0,R1                       ;SAVE CONTENTS OF TSSR
076236                                          ERRHRD  ERRNO,WRTMSG,SFIMSG         ;WRITE CHARACTERISTISC FAILED
076236  104456                                                                                  TRAP    C$ERHRD
076240  001316                                                                                  .WORD   718
076242  005054                                                                                  .WORD   WRTMSG
076244  012124                                                                                  .WORD   SFIMSG
076246                                  23$:    CKLOOP                          ;LOOP IF SELECTED
076246  104406                                                                                  TRAP    C$CLP1

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

```
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 SEQ 0306

```
        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 RETRY

```
 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,T27PK3          ;READ DATA,ACK COMMAND
 9607 076614  012704  101560                MOV     #T27PK3,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
```

SEQ 0308

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$:
 9644 076752                          ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      076752                                                          L10125:
      076752  104403                                                          TRAP    C$ENDS
 9645 076754  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 9646 076762  103402                          BLO     999$                    ;BR, 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$BSUB
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$DLY,(PC)+
077034  000000                                                                  .WORD   0
077036  005367  177772                                                          DEC     -6(PC)
077042  001375                                                                  BNE     .-4
077044  005367  177756                                                          DEC     -22(PC)
077050  001367                                                                  BNE     .-20
077052  005337  101612                          DEC     T27DLY                  ;BUMP COUNTER
077056  001356                          BNE     10$                     ;BR, IF COUNTER NOT DONE
077060  005237  002212                          INC     FATFLG                  ;BUMP COUNT
077064  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
077066                                  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 (YES)
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
```

TEST 7: WRITE DATA RET.1

```
        077424  104456                                                          TRAP    C$ERHRD
        077426  001335                                                          .WORD   733
        077430  102765                                                          .WORD   T27RWN
        077432  012136                                                          .WORD   PKTSSR
 9803   077434                          230$:   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$:
```

TEST 7: WRITE DATA RETRY

```
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 COUTING 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     T$DLY,(PC)+
                077752  000000                                                          .WORD   0
                077754  005367  177772                                                  DEC     -6(PC)
                077760  001375                                                          BNE     .-4
                077762  005367  177756                                                  DEC     -22(PC)
                077766  001367                                                          BNE     .-20
   9930 077770  005337  101612          DEC     T27DLY                  ;BUMP COUNTER
   9931 077774  001356                  BNE     10$                     ;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$ERHRD
      100132  001344                                                                    .WORD   740
      100134  102461                                                                    .WORD   T27BOT
      100136  015564                                                                    .WORD   EXPREC
 9991 100140                            40$:    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,TSDB(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 REWIND
      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 @@@D 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
```

TEST 7: WRITE DATA RETRY

```
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  TS127ID:        .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

```
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                                  TRAP    C$CLP1
      105100  104406
10532 105102  005737  002216            TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
10533 105106  001044                    BNE     50$                     ;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,T28BSO              ;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,T3DB(R5)             ;ISSUE COMMAND
10572 105272  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

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$BSUB
10607  105362  004737  112206                  JSR     PC,T28REST              ;SET COMMAND PACKET
10608  105366  004737  112300                  JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10609  105372  004737  112342                  JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10610  105376  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10611  105402  103407                          BCS     20$                     ;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
```

SEQ 0330

TEST 8: WRITE/READ TAPE MARK

```
10645 105552                          75$:    CKLOOP                          ;LOOP IF SELECTED
      105552  104406                                                                  TRAP    C$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$:
```

```
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 PREMATURELY 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

```
10724                                   ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
10725                                   ;       TO BE PREMATURELY TERMINATED.
10726                                   ;
10727                                   ;
10728                                   ;
10729                                   ;
10730                                   ;
10731                                   ;
10732                                   ;-
10733 105640                           BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
       105640                                                                   T8.3:
       105640  104402                                                           TRAP    C$BSUB
10734 105642  004737  112206           JSR     PC,T28REST              ;SET COMMAND PACKET
10735 105646  004737  112300           JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10736 105652  004737  112342           JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10737 105656  012737  023420  110312   MOV     #10000.,T28DLY          ;SET UP DELAY ROUTINE
10738 105664  004737  016064   10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10739 105670  103426                   BCS     20$                     ;BR IF INIT WAS OK
10740 105672                           DELAY   250                     ;DELAY ABOUT .25 SECONDS
       105672  012727  000250                                                   MOV     #250,(PC)+
       105676  000000                                                           .WORD   0
       105700  013727  002116                                                   MOV     L$DLY,(PC)+
       105704  000000                                                           .WORD   0
       105706  005367  177772                                                   DEC     -6(PC)
       105712  001375                                                           BNE     .-4
       105714  005367  177756                                                   DEC     -22(PC)
       105720  001367                                                           BNE     .-20
10741 105722  005337  110312           DEC     T28DLY                  ;BUMP DELAY ROUTINE DOWN
10742 105726  001356                   BNE     10$                     ;BR, IF MORE DELAY TIME LEFT
10743 105730  005237  002212           INC     FATFLG                  ;BUMP COUNT
10747 105734  010001                   MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10748 105736                           ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       105736  104455                                                           TRAP    C$ERDF
       105740  001453                                                           .WORD   811
       105742  003650                                                           .WORD   SFIERR
       105744  012124                                                           .WORD   SFIMSG
10749 105746  013737  002172  110150  20$:    MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
10750 105754  012704  110130           MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10751 105760  004737  010752           JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10752 105764  103407                   BCS     23$                     ;BR, IF COMMAND ISSUED OK
10753 105766  005237  002212           INC     FATFLG                  ;BUMP COUNT
10757 105772  010001                   MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10758 105774                           ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       105774  104456                                                           TRAP    C$ERHRD
       105776  001454                                                           .WORD   812
       106000  005054                                                           .WORD   WRTMSG
       106002  012124                                                           .WORD   SFIMSG
10759 106004                   23$:    CKLOOP                          ;LOOP IF SELECTED
       106004  104406                                                           TRAP    C$CLP1
10760 106006  004737  011104           JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10761 106012  103411                   BCS     30$                     ;BR, IF NO PROBLEM
10762 106014  016501  000002           MOV     TSSR(R5),R1             ;GET TSSR
10763 106020  010004                   MOV     R0,R4                   ;SAVE PACKET ADDRESS
10764 106022  005237  002212           INC     FATFLG                  ;BUMP COUNT
10768 106026                           ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
       106026  104456                                                           TRAP    C$ERHRD
       106030  001455                                                           .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                          BNE     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,T28BSO      ;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$CLP1
10930 106756  013701  110160                 MOV     T28BFR+6,R1             ;PICK UP XSTO
10931 106762  010102                        MOV     R1,R2                   ;SET UP EXPECTED
10932 106764  052702  100000                 BIS     #BIT15,R2               ;TMK SHOULD BE SET
10933 106770  020102                        CMP     R1,R2                   ;IS TMK SET
10934 106772  001406                        BEQ     210$                    ;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

```
        107120  110535                                                          .WORD   T28RDG
        107122  012136                                                          .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

```
        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$CLP1
11073   107606  012737  100410  110250          MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
11074   107614  012737  000001  110252          MOV     #1,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
11075   107622  012704  110250                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11076   107626  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11077   107632  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11078   107636  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11079   107642  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11080   107646  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11081   107650  001406                          BEQ     290$                    ;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$CLP1
11088   107670  013701  110166                  MOV     T28BFR+14,R1            ;PICK UP XST3
11089   107674  010102                          MOV     R1,R2                   ;SET UP EXPECTED
11090   107676  052702  000001                  BIS     #BIT0,R2                ;RIB SHOULD BE SET
11091   107702  020102                          CMP     R1,R2                   ;IS RIB SET
11092   107704  001406                          BEQ     300$                    ;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$CLP1
11099   107724  012737  100010  110250          MOV     #100010,T28PK3          ;SPACE FORWARD,ACK, COMMAND
11100   107732  012737  000005  110252          MOV     #5,T28RB                ;NUMBER OF RECORDS TO SPACE FORW.
11101   107740  012704  110250                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11102   107744  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11103   107750  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11104   107754  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11105   107760  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11106   107764  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11107   107766  001406                          BEQ     310$                    ;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
```

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     003154 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$$INI= 010030          T23BA    033625
P.READ= 000001          SR3    = 172516          TSSRH  = 000003 G        T$$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          T22L00   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          TIMSG0   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          T24E01   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
```

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        T28BS0  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  102456        T28CNU  110310        T4.5    037072
T24RN   043756        T26AM3  073426        T27BS0  [illegible]   T28CON  110302        T4.6    037536
T24RNC  045145        T26BA   073765        T27BS1  [illegible]   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  041507        T26BS0  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
T25BS0  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  104360        T3BFLG  003140 G      UAM   = 000200 G
T25RES  055216        T26S2   071762        T27VCK  103372        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.WCE= 002000
WC.IRW= 000004          WSMAK   021360 G        XSOLET= 020000          X$TRUE= 000020          X3.DCK= 000010
WC.IOT= 000100          XFERAS  016030          XSOMOT= 000200          X1.COR= 020000          X3.MBZ= 000006
WC.IIT= 000040          XNXM    016466          XSONEF= 002000          X1.DLT= 100000          X3.MDE= 177400
WC.ISR= 000020          XORBFO  007764          XSOONL= 000100          X1.MBZ= 017575          X3.OPT= 000100
WF.IED= 000010          XORFOR  010102          XSOPED= 000010          X1.RBP= 000400          X3.REV= 000040
WF.IER= 000004          XST0  = 000006 G        XSORLL= 010000          X1.SPA= 040000          X3.RIB= 000001
WF.IHI= 000200          XST1  = 000010 G        XSORLS= 040000          X1.UNC= 000002          X3.SPA= 000200
WF.IRE= 000040          XST2  = 000012 G        XSOTMK= 100000          X2.BUF= 000100          X3.TRE= 000010
WF.IWF= 000020          XST3  = 000014 G        XSOVCK= 000020          X2.EXT= 000200          X4.HSP= 100000
WF.IWR= 000100          XST4  = 000016 G        XSOWLE= 004000          X2.OPM= 100000          X4.MBZ= 017400
WF.I3R= 000002          XSOBOT= 000002          XSOWLK= 000004          X2.RCE= 040000          X4.RCE= 040000
WF.I4R= 000001          XSOEOT= 000001          XXCOMM  005112 G        X2.REV= 000077          X4.TSM= 020000
WRTCHR  010752 G        XSOIE = 000040          X$ALWA= 000000          X2.SPA= 035400          X4.WRC= 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
CNTSCAO.BIC,CNTSCAO.SEQ/-SP=SVC34/ML,TSV1C,TSV22C,TSV3B,TSV4,TSV7A,TSV6
.
```

....B1
....C1
....D1
....E1
....F1
....G1
....H1
....I1
....J1
....K1
....L1
....M1
....N1

....B2
....C2
....D2
....E2
....F2
....G2
....H2
....I2
....J2
....K2
....L2
....M2
....N2

....B3
....C3
....D3
....E3
....F3
....G3
....H3
....I3
....J3
....K3
....L3
....M3
....N3

....B4
....C4
....D4
....E4
....F4
....G4
....H4
....I4
....J4
....K4
....L4
....M4
....N4

....B5
....C5
....D5
....E5
....F5
....G5
....H5
....I5
....J5
....K5
....L5
....M5
....N5

....B6
....C6
....D6
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....F6
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