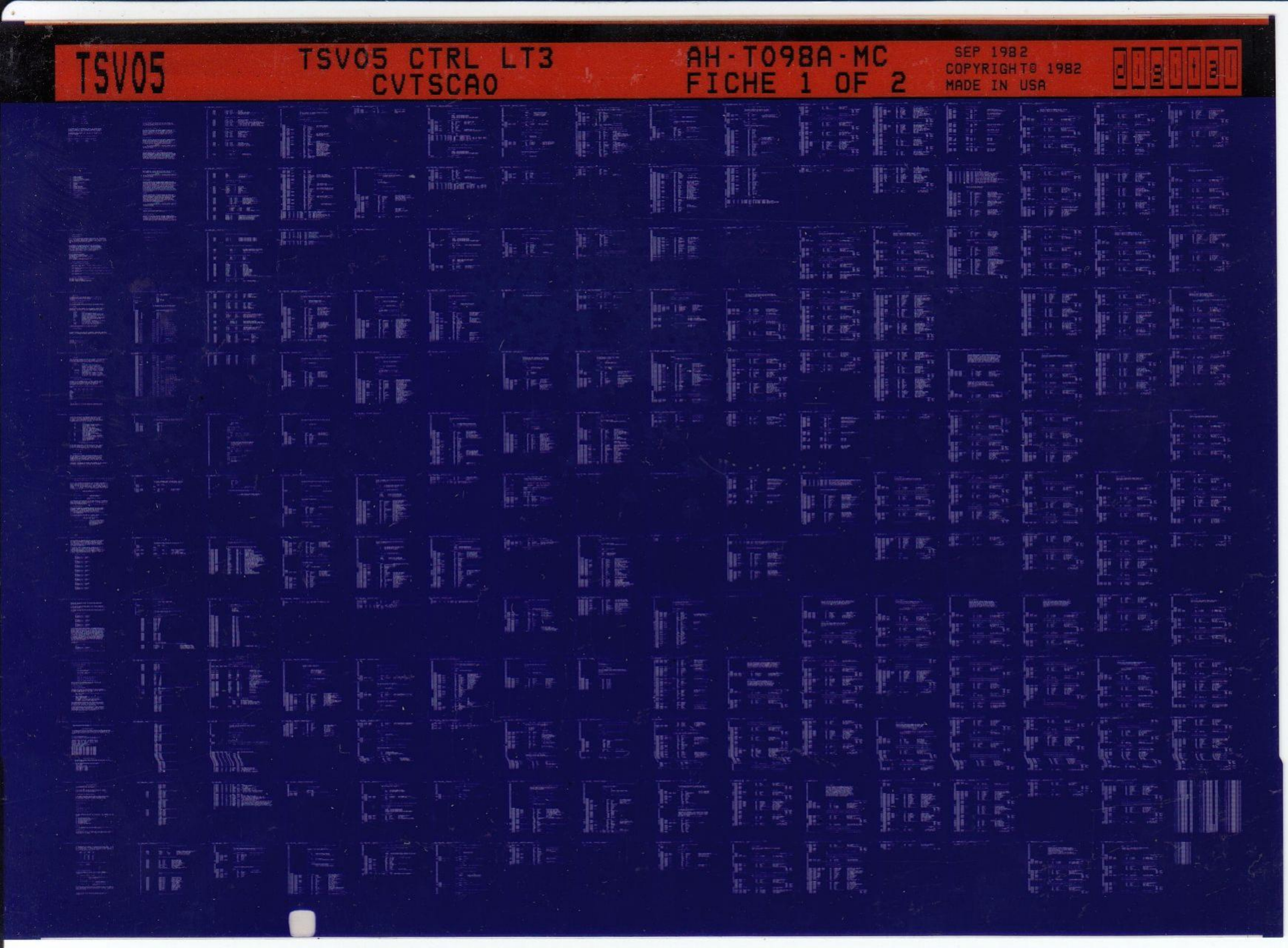
TSV05

TSV05 CTRL LT3
CVTSCA0

AH-T098A-MC
FICHE 1 OF 2

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TSV05 CTRL LT3
CVTSCA0

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IDENTIFICATION

PRODUCT ID: AC-T097A-MC

PRODUCT TITLE: CVTSCA0 TSV05 CTRL LT3

AUTHOR: DICK GORDON

MAINTAINER: SCOTT SNOWDON

DATE: MARCH 08, 1982

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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS IS A PDP-11/23 RESIDENT DIAGNOSTIC WHICH CHECKS THE FUNCTIONALITY OF A TSV05 MAGTAPE SUBSYSTEM WHILE CONNECTED TO A PDP-11//23 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

PDP-11/23 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. CHQUS XXDP+ USERS MANUAL; DOCUMENT NUMBER AC-F348E-MC
   DATE: 14 JULY 1980.

2. TSV05 TRANSPORT SUBSYSTEM USER'S GUIDE; DOCUMENT NUMBER EK-TSV05-UG-001
   DATE: AUGUST 1982

3. TSV05 TRANSPORT SUBSYSTEM TECHNICAL MANUAL; DOCUMENT NUMBER EK-TSV05-TM-001
   DATE: AUGUST 1982

4. TSV05 TRANSPORT SUBSYSTEM INSTALLATION MANUAL; DOCUMENT NUMBER EK-TSV05-IN-001
   DATE: AUGUST 1982

1.4 DIAGNOSTIC HIERARCY PREREQUISITES

FUNCTIONAL PDP-11/23 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 TS05 TRANSPORT IS A KNOWN GOOD REEL OF TAPE.
CVTSAA AND CVTSBA 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 (CHQUS).

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 PDP-11/23 DIAGNOSTIC SUPERVISOR COMPATIBLE PROGRAM. ALL LOADING AND RUNTIME INSTRUCTIONS CAN BE REFERENCED IN THE CHQUS XXDP+ USERS MANUAL,DOCUMENT NUMBER AC-F348E-MC. THE USER ENTRY IS IN QUOTES.

BOOT THE DIAGNOSTIC MEDIA

```
.R VTSC??
DIAG. RUN-TIME SERVICES REV D. APR 79
CVTSC-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 USINC THE FLAGS SWITCH. FLAGS ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS, NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

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

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

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

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

2.4 HARDWARE QUESTIONS

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

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

ON A "N" (NO) RESPONSE TO THE "CHANGE HW?" QUESTION, THE DIAGNOSTIC WILL

RUN USING THE DEFAULT VALUES FOR ALL QUESTIONS. THE DEFAULT ADDRESS AND VECTOR ARE:

TSBA/TSDB = 172520, VECTOR = 224

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

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

UNIT 0

DEVICE ADDRESS  (O) 172520 ? <ENTER THE ADDRESS OF THE
                              TSBA/TSDB REGISTER>

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

THE ADDRESS AND VECTOR QUESTIONS WILL BE ASKED FOR EACH OF THE NUMBER OF UNITS (CONTROLLERS) SPECIFIED IN THE "# UNITS?" QUESTION. LOGICAL UNIT NUMBERS ARE ASSIGNED IN ORDER, BEGINNING AT 0. UP TO FOUR UNITS CAN BE SELECTED FOR TESTING AS FOLLOWS:
UP TO 4 TSV05 CONTROLLERS PER 11/23 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 T` CHANGE ANY PARAMETERS, ANSWER BY TYPING "Y". THE SOFTWARE QUESTIONS AND THE DEFAULT VALUES ARE DESCRIBED IN THE NEXT PARAGRAPH(S).

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

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

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

2.6 EXTENDED P-TABLE DIALOGUE

WHEN YOU ANSWER THE HARDWARE QUESTIONS, YOU ARE BUILDING ENTRIES IN A TABLE THAT DESCRIBES THE DEVICES UNDER TEST. THE SIMPLEST WAY TO BUILD THIS TABLE IS TO ANSWER ALL QUESTIONS FOR EACH UNIT TO BE TESTED. IF YOU HAVE A MULTIPLEXED DEVICE SUCH AS A MASS STORAGE CONTROLLER WITH SEVERAL DRIVES OR A COMMUNICATION DEVICE WITH SEVERAL LINES, THIS BECOMES TEDIOUS SINCE MOST OF THE ANSWERS ARE REPETITIOUS.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

        UNIT 1
        CSR ADDRESS (O) ?  160000<CR>
        SUB-DEVICE # (O) ?  0-7<CR>
        Q-FACTOR (O) 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
CVTSC 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 OCCJRED WHICH INDICATES THAT THE CONTROLLER MAY BE DEFECTIVE.

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

ERROR MESSAGE EXAMPLE 3

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

```
CVTSC HRD ERR 00121 ON UNIT 00 TST 001 SUB 002 PC: 023306
MOT BIT (XST0) 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 (PDP-11/23)

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

 UNITS (D) ?  1

 UNIT 0

 UNIT 0

 DEVICE ADDRESS  (O) 172520 ? <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 #4 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 PDP-11/23 PROCESSOR WITH A LA34 CONSOLE.

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).

TEST NUMBER	N/I SECS.	NUMBER ITER	DEF SECS.
1	3	10	7
2	3	8	5
3	38	250	212
4	60	300	240
5	60	300	240
6	120	360	240
7	120	600	480
8	22	90	68

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

Q.V. 7 MINUTES
DEFAULT 31 MINUTES

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) 172520 ? <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 11/23B 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 11/23B 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 11/23B 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

```
                                        .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  CVTSC,A,0,655.,0
002000                          LSNAME::                ;DIAGNOSTIC NAME
002000  103                             .ASCII /C/
002001  126                             .ASCII /V/
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                          LSREV::                 ;REVISION LEVEL
002010  101                             .ASCII  /A/
002011                          LSDEPO::                ;0
002011  060                             .ASCII  /0/
002012                          LSUNIT::                ;NUMBER OF U''ITS
002012  000000                          .WORD   0
002014                          LSTIML::                ;LONGEST TEST TIME
002014  001217                          .WORD   655.
002016                          LSHPCP::                ;POINTER TO H.W. QUES.
002016  112340                          .WORD   LSHARD
002020                          LSSPCP::                ;POINTER TO S.W. QUES.
002020  112472                          .WORD   LSSOFT
002022                          LSHPTP::                ;PTR. TO DEF. H.W. PTABLE
002022  002146                          .WORD   LSHW
002024                          LSSPTP::                ;PTR. TO S.W. PTABLE
002024  002156                          .WORD   LSSW
002026                          LSLADP::                ;DIAG. END ADDRESS
002026  113004                          .WORD   LSLAST
002030                          LSSTA::                 ;RESERVED FOR APT STATS
002030  000000                          .WORD   0
002032                          LSCO::
002032  000000                          .WORD   0
002034                          LSDTYP::                ;DIAGNOSTIC TYPE
002034  000000                          .WORD   0
002036                          LSAPT::                 ;APT EXPANSION
002036  000000                          .WORD   0
002040                          LSDTP::                 ;PTR. TO DISPATCH TABLE
002040  002124                          .WORD   LSDISPATCH
```

```
002042
002042  000000                  L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
                                .WORD   0
002044
002044  000000                  L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
                                .WORD   0
002046
002046  000000                  L$EXP1::                ;EXPANSION WORD
                                .WORD   0
002050
002050     003                  L$MREV::                ;SVC REV AND EDIT #
                                .BYTE   C$REVISION
002051     003                  .BYTE   C$EDIT
002052
002052  000000                  L$EF::                  ;DIAG. EVENT FLAGS
                                .WORD   0
002054  000000                  .WORD   0
002056
002056  000000                  L$SPC::
                                .WORD   0
002060
002060  003372                  L$DEVP::                ; POINTER TO DEVICE TYPE LIST
                                .WORD   L$DVTYP
002062
002062  022754                  L$REPP::                ;PTR. TO REPORT CODE
                                .WORD   L$RPT
002064
002064  000000                  L$EXP4::
                                .WORD   0
002066
002066  000000                  L$EXP5::
                                .WORD   0
002070
002070  022442                  L$AUT::                 ;PTR. TO ADD UNIT CODE
                                .WORD   L$AU
002072
002072  022540                  L$DUT::                 ;PTR. TO DROP UNIT CODE
                                .WORD   L$DU
002074
002074  000000                  L$LUN::                 ;LUN FOR EXERCISERS TO FILL
                                .WORD   0
002076
002076  003400                  L$DESP::                ;POINTER TO DIAG. DESCRIPTION
                                .WORD   L$DESC
002100
002100  104035                  L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
                                EMT     E$LOAD
002102
002102  000000                  L$ETP::                 ;POINTER TO ERRTBL
                                .WORD   0
002104
002104  021646                  L$ICP::                 ;PTR. TO INIT CODE
                                .WORD   L$INIT
002106
002106  022726                  L$CCP::                 ;PTR. TO CLEAN-UP CODE
                                .WORD   L$CLEAN
002110
002110  022646                  L$ACP::                 ;PTR. TO AUTO CODE
                                .WORD   L$AUTO
002112
002112  021636                  L$PRT::                 ;PTR. TO PROTECT TABLE
                                .WORD   L$PROT
002114
002114  000000                  L$TEST::                ;TEST NUMBER
                                .WORD   0
002116
002116  000000                  L$DLY::                 ;DELAY COUNT
                                .WORD   0
002120
002120  000000                  L$HIME::                ;PTR. TO HIGH MEM
                                .WORD   0
```

```
                                        .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  023536                          .WORD   T1
002126  024652                          .WORD   T2
002130  027332                          .WORD   T3
002132  034322                          .WORD   T4
002134  046436                          .WORD   T5
002136  055354                          .WORD   T6
002140  074676                          .WORD   T7
002142  104714                          .WORD   T8

```

```
                                        .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  172520                          .WORD   172520          ; 1ST (OF 2) REGISTERS.
002150  000224                          .WORD   224             ; INTERRUPT VECTOR
002152  000200                          .WORD   PRI04           ; INTERRUPT PRIORITY.
002154                                  ENDHW
002154                          L10000:
```

```
                                .SBTTL  SOFTWARE P-TABLE

                        ;++
                        ; THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
                        ; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
                        ;--
                                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
                                ENDSW
002166                  L10001:

                                ENDMOD
```

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

002166                          BGNMOD  TSV3
002166                  TSV3::


                                .SBTTL  GLOBAL EQUATES SECTION

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

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

```
                        ; PRIORITY LEVEL DEFINITIONS
                        ;
000340                  PRI07== 340
000300                  PRI06== 300
000240                  PRI05== 240
000200                  PRI04== 200
000140                  PRI03== 140
000100                  PRI02== 100
000040                  PRI01== 40
000000                  PRI00== 0
                        ;
                        ;OPERATOR FLAG BITS
                        ;
000004                  EVL==       4
000010                  LOT==      10
000020                  ADR==      20
000040                  IDU==      40
000100                  ISR==     100
000200                  UAM==     200
000400                  BOE==     400
001000                  PNT==    1000
002000                  PRI==    2000
004000                  IXE==    4000
010000                  IBE==   10000
020000                  IER==   20000
040000                  LOE==   40000
100000                  HOE==  100000
34
35 002166                       KT11                    ;DEFINE MEMORY MANAGEMENT REGISTERS
                        .SBTTL  MEMORY MANAGEMENT DEFINITIONS
                        ;*KT11 VECTOR ADDRESS
000250                  MMVEC=  250
                        ;*KT11 STATUS REGISTER ADDRESSES
177572                  SR0=    177572
177574                  SR1=    177574
177576                  SR2=    177576
172516                  SR3=    172516
                        .IF NB
                        ;*USER "I" PAGE DESCRIPTOR REGISTERS
                        UIPDR0= 177600
                        UIPDR1= 177602
                        UIPDR2= 177604
                        UIPDR3= 177606
                        UIPDR4= 177610
                        UIPDR5= 177612
                        UIPDR6= 177614
                        UIPDR7= 177616
                        .IF NB
                        ;*USER "D" PAGE DESCRIPTOR REGISTORS
                        UDPDR0= 177620
                        UDPDR1= 177622
                        UDPDR2= 177624
                        UDPDR3= 177626
                        UDPDR4= 177630
                        UDPDR5= 177632
                        UDPDR6= 177634
                        UDPDR7= 177636
```

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

```
                        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
040000                          X1.SPARE= BIT14          ;NOT USED
020000                          X1.COR  = BIT13          ;CORRECTABLE DATA ERROR
017375                          X1.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT7+BIT6+BIT5+BIT4+BIT3+BIT2+BIT0 ;ALWAYS 0
000400                          X1.RBP  = BIT8           ;READ BUS PARITY ERROR
000002                          X1.UNC  = BIT1           ;UNCORRECTABLE DATA OR HARD ERROR

                                ;+
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 2
                                ;(XST2)
                                ;-
100000                          X2.OPM  = BIT15          ;OPERATION IN PROGRESS (TAPE MOVING)
040000                          X2.RCE  = BIT14          ;RAM CHECKSUM ERROR
035400                          X2.SPARE= BIT13+BIT12+BIT11+BIT9+BIT8   ;NOT USED BY TSV05 (ALWAYS=0)
002000                          X2.WCF  = BIT10          ;WRITE CLOCK FAILURE (FIFO NOT EMPTIED BY TRANSPORT)
000200                          X2.EXTF = BIT7           ;IF WRITE CHAR CMD THEN = EXTENDED FEATURES ENABLED
000100                          X2.BUFE = BIT6           ;IF WRITE CHAR CMD THEN = BUFFERING ENABLED
000077                          X2.REV  = 000077         ;IF WRITE CHAR CMD THEN = MICROCODE REVISION LEVEL
000007                          X2.UNIT = BIT2+BIT1+BIT0 ;IF GET STATUS THEN = CURRENTLY SELECTED UNIT NO.

                                ;+
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 3
                                ;(XST3)
                                ;-
177400                          X3.MDE  = 177400         ;MICRO-DIAGNOSTIC ERROR CODE
000200                          X3.SPARE= BIT7           ;NOT USED BY TSV05
000100                          X3.OPI  = BIT6           ;OPERATION INCOMPLETE
000040                          X3.REV  = BIT5           ;REVERSE
000020                          X3.TRF  = BIT4           ;TRANSPORT RESPONSE FAILURE
000010                          X3.DCK  = BIT3           ;DENSITY CHECK
000006                          X3.MBZ  =BIT2+BIT1       ;NOT USED ALWAYS 0
000001                          X3.RIB  = BIT0           ;REVERSE INTO BOT

                                ;+
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 4
                                ;(XST4)
                                ;-
100000                          X4.HSP  = BIT15          ;HIGH SPEED
040000                          X4.RCE  = BIT14          ;RETRY COUNT EXCEEDED
020000                          X4.TSM  = BIT13          ;TRANSPORT SPECIAL MODE
017400                          X4.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT8   ;NOT USED ALWAYS 0
000377                          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
```

```
                        ;
                        ;-

000000                  TSBA==  0
000000                  TSDB==                  ;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
```

```
                        WC.I1TAD        = BIT5          ;ITAD1  - TRANSPORT ADDRESS BIT 1
                        WC.I5RESV       = BIT4          ;IRESV5 - RESERVED #5
                        WC.IREW         = BIT3          ;IREW   - REWIND
                        WC.IRWU         = BIT2          ;IRWU   - REWIND AND UNLOAD
                        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
```

```
325          004000                  S1.IIDENT       = BIT11         ;                   IIDENT H
326          002000                  S1.ICER         = BIT10         ;                   ICER H
327          001000                  S1.IFMK         = BIT9          ;                   IFMK H
328          000400                  S1.IHER         = BIT8          ;                   IHER H
329          000200                  S0.ISPEED       = BIT7          ;WORD #8 BYTE 0     ISPEED H
330          000100                  S0.IRDY         = BIT6          ;                   IRDY L
331          000040                  S0.IONL         = BIT5          ;                   IONL L
332          000020                  S0.ILDP         = BIT4          ;                   ILDP L
333          000010                  S0.IDBY         = BIT3          ;                   IDBY L
334          000004                  S0.IRWD         = BIT2          ;                   IRWD L
335          000002                  S0.IFBY         = BIT1          ;                   IFBY L
336          000001                  S0.IFPT         = BIT0          ;                   IFPT L
337
338
```

```
                        .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
                                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   PR104   ;INTERRUPT PRIORITY.
002204  000000          TSTCNT::        .WORD   0       ;NUMBER OF TESTS RUN IN THIS PASS
002206  000000          LOOPCNT::       .WORD   0       ;REMAINING ITERATION COUNT FOR TEST
002210  000000          DEVCNT::        .WORD   0       ;NUMBER OF DEVICE UNDER TEST
002212  000000          FATFLG::        .WORD   0       ;SET IF FATAL ERROR IS DETECTED IN TEST
002214  000000          INTRECV::       .WORD   0       ;SET IF TAPE INTERRUPT WAS RECEIVED
002216  000000          EXTFEA::        .WORD   0       ;EXTENDED FEATURES SOFTWARE SW 0=OFF;1=ON
002220  000000          BENBSW::        .WORD   0       ;BUFFER ENABLE SWITCH SW 0=OFF;1=ON
002222  000000          EXPD::          .WORD   0       ;EXPECTED RAM DATA FOR PRAMPKT ROUTINE
002224  000000          RECV::          .WORD   0       ;RECEIVED RAM DATA FOR PRAMPKT ROUTINE
002226  000000          ERRHI::         .WORD   0       ;HIGH ADDRESS MEMORY ERROR
002230  000000          ERRLO::         .WORD   0       ;LOW ADDRESS MEMORY ERROR
002232                  RAMDATA::       .BLKW   16.     ;DATA READ FROM RAM PACKET OR MESSAGE BUF AREA
002272  000000          RAMSIZ::        .WORD   0       ;RAM DATA SIZE FOR PRAMPKT ROUTINE
002274  000000          RCVHIADD::      .WORD   0       ;RECEIVED BUFFER HIGH ADDRESS
002276  000000          RCVLOADD::      .WORD   0       ;RECEIVED BUFFER LOW ADDRESS
002300  000000          COUNT::         .WORD   0       ;TEST COUNT PATTERN
002302  000000          DATA::          .WORD   0       ;TEST DATA
002304  000000          TSTFLAG::       .WORD   0       ;TEST FLAG WORD
002306  000000          TSTPTR::        .WORD   0       ;TSTBLK POINTER
002310  000000          PRMNO::         .WORD   0       ;PRINT ROUTINE TEMP
002312                  EXPMSG::        .BLKB   100.    ;EXPECTED MESSAGE BUFFER DATA
002456                  RECMSG::        .BLKB   100.    ;RECEIVED MESSAGE BUFFER DATA
002622                  TMPBFR::        .BLKB   80.     ;TEMPORARY STORAGE FOR PRINT
```

```
                        .SBTTL  TSTBLK  - TEST DATA TABLE

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

002742          TSTBLK::
002742  000000          .WORD   0               ;ALL ZEROS
002744  177777          .WORD   177777          ;ALL ONES
002746  000001          .WORD   BIT0            ;DATA FOR WALKING ONES
002750  000002          .WORD   BIT1
002752  000004          .WORD   BIT2
002754  000010          .WORD   BIT3
002756  000020          .WORD   BIT4
002760  000040          .WORD   BIT5
002762  000100          .WORD   BIT6
002764  000200          .WORD   BIT7
002766  000400          .WORD   BIT8
002770  001000          .WORD   BIT9
002772  002000          .WORD   BIT10
002774  004000          .WORD   BIT11
002776  010000          .WORD   BIT12
003000  020000          .WORD   BIT13
003002  040000          .WORD   BIT14
003004  100000          .WORD   BIT15
003006  177776          .WORD   ^CBIT0          ;DATA FOR WALKING ZEROS
003010  177775          .WORD   ^CBIT1
003012  177773          .WORD   ^CBIT2
003014  177767          .WORD   ^CBIT3
003016  177757          .WORD   ^CBIT4
003020  177737          .WORD   ^CBIT5
003022  177677          .WORD   ^CBIT6
003024  177577          .WORD   ^CBIT7
003026  177377          .WORD   ^CBIT8
003030  176777          .WORD   ^CBIT9
003032  175777          .WORD   ^CBIT10
003034  173777          .WORD   ^CBIT11
003036  167777          .WORD   ^CBIT12
003040  157777          .WORD   ^CBIT13
003042  137777          .WORD   ^CBIT14
003044  077777          .WORD   ^CBIT15
003046  125252          .WORD   125252          ;ALTERNATING ONES, ZEROS
003050  052525          .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                 NODEV::          .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.
003366  000000                 ERTABE:          .WORD   0

003370  000000                 SKIPT:  .WORD    0               ;1=SKIP SUBTEST 0=NO SKIP OF SUBTEST
```

```
                                        .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/
004217     040     040     116  NOINTR:  .ASCIZ  /  NO INTERRUPT WAS GENERATED/
004254     040     040     111  IFAULT:  .ASCIZ  /  INTERRUPT FAULT/
004276     045     101     040  INTX:    .ASCIZ  /%A  CPU PC: %06%A  TSBA: %06/
004333     040     040     042  NOINIT:  .ASCIZ  /  ''BUS-INIT'' DIDN'T INITIALIZE CONTROLLER/
004405     040     040     042  NSINIT:  .ASCIZ  /  ''SOFT-INIT'' DIDN'T INITIALIZE THE DPU/
004455     040     040     042  BRINIT:  .ASCIZ  /  ''BUS-RESET'' DIDN'T INITIALIZE THE DPU/

004525     000                  NUL:     .ASCIZ  //
004526     045     116     000  NULCR:   .ASCIZ  /%N/
004531     045     101     040  EXPGOT:  .ASCIZ  /%A EXP'D: %06%A, REC'D: %06/
004565     045     116     045  EXPGT2:  .ASCIZ  /%N%A EXP'D: %06%A, %06%N%A REC'D: %0%A, %06/
004641     045     101     040  DUAD12:  .ASCIZ  /%A REG(W) WRITTEN TO: %06%A REG(R) READ; EXP'D: %06%A, REC'D: %06/
004743     122     101     115  PKTRAM::         .ASCIZ  'RAM Contents Do Not Match Packet Sent'
005011     040     040     103  SCME:    .ASCIZ  /  CONFIG DOESN'T MATCH MFG. MASTER/
005054     127     122     111  WRTMSG:  .ASCIZ  'WRITE CHARACTERISTICS Failed'
005111     124     123     123  WRTERR:  .ASCIZ  'TSSR Incorrect After WRITE Command, More Bits Set Than SSR'
005204     124     123     123  RDERR:   .ASCIZ  'TSSR Incorrect After READ Command, More Bits Set Than SSR'
005276     106     101     124  SCHERR:  .ASCIZ  'FATAL ERROR IN SUBTEST - CHECK TAPE,CABLES,TRANSPORT etc.'
005370     105     122     122  RETERR:  .ASCIZ  'ERROR IN SUBTEST - WRITE DATA RETRY FIVE TIMES FAILED'
005456     045     116     045  NOMEM:   .ASCIZ  '%N%A ***** NO NXM ADDRESS--CANNOT TEST NXM TIMEOUT. *****%N'
005552     045     116     045  M8186:   .ASCIZ  '%N%A ****************** 11/23A SYSTEM ******************%N'
005643     045     116     045  M8189:   .ASCIZ  '%N%A ****************** 11/23B SYSTEM ******************%N'
                                         .EVEN
```

```
                                        .SBTTL  GLOBAL ERROR REPORT SECTION

                                ;++
                                ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX
                                ; CALLS THAT ARE USED IN MORE THAN ONE TEST.
                                ; ASCII TEXT STRINGS ARE FOUND IN THE GLOBAL TEXT SECTION.
                                ;--

                                        BGNMSG  NXRERR          ;NON-EXISTANT DEVICE REGISTER.
005734                          NXRERR::
                                        PRINTX  #NXRX,NODEV     ;NODEV = NEXM ADDRESS.
005734  013746  003104                  MOV     NODEV,-(SP)
005740  012746  003775                  MOV     #NXRX,-(SP)
005744  012746  000002                  MOV     #2,-(SP)
005750  010600                          MOV     SP,R0
005752  104415                          TRAP    C$PNTX
005754  062706  000006                  ADD     #6,SP
005760  004737  005766                  JSR     PC,EXTEND       ; PRINT EXTENSION IF REQUIRED.
005764                                  ENDMSG
005764                          L10002:
005764  104423                          TRAP    C$MSG

                                ;
                                ; THIS ROUTINE APPENDS A UNIQUE EXTENSION (IF REQUIRED)
                                ; TO ANY OF THE ABOVE ERROR SIGNATURES.
                                ;
005766  005727                  EXTEND: TST     (PC)+
005770  000000                  EXTA:   0                       ; 0 = NO EXTENSION.
005772  001402                          BEQ     1$
005774  004777  177770                  JSR     PC,@EXTA        ; APPEND EXTENSION TEXT.
006000                          1$:     PRINTX  #NULCR          ; PRINT A BLANK LINE
006000  012746  004526                  MOV     #NULCR,-(SP)
006004  012746  000001                  MOV     #1,-(SP)
006010  010600                          MOV     SP,R0
006012  104415                          TRAP    C$PNTX
006014  062706  000004                  ADD     #4,SP
006020  000207                          RTS     PC
```

```
                        .SBTTL  PRITSSR - PRINT TSSR CONTENTS

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

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

```
                006166  012746  000002                  MOV     #2,-(SP)
                006172  010600                          MOV     SP,R0
                006174  104415                          TRAP    C$PNTX
                006176  062706  000006                  ADD     #6,SP
            746
            747 006202  010403              20$:        MOV     R4,R3           ;GET THE TSSR CONTENTS
            748 006204  042703  177761                  BIC     #^CTERCLS,R3    ;CLEAR ALL BUT TERMINATION
            749 006210  016303  006766                  MOV     TCOCOD(R3),R3   ;GET THE TERMINATION CODE MEANING
            750 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$PNTX
                006232  062706  000006                  ADD     #6,SP
            751 006236  010403                          MOV     R4,R3           ;TSSR CONTENTS AGAIN
            752 006240  042703  177717                  BIC     #^CFATERR,R3    ;CLEAR ALL BUT FATAL TERMINATION
            753 006244  001416                          BEQ     25$             ;DON'T PRINT IF ZERO
            754 006246  006203                          ASR     R3
            755 006250  006203                          ASR     R3
            756 006252  006203                          ASR     R3              ;ALINE TERMINATION CODE FOR INDEX
            757 006254  016303  007326                  MOV     TSFCOD(R3),R3   ;GET THE FATAL TERMINATION CODE
            758 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$PNTX
                006276  062706  000006                  ADD     #6,SP
            759 006302  042704  176377          25$:    BIC     #^CHIADDR,R4    ;CLEAR ALL BUT EXTENDED ADDRESS
            760 006306  001411                          BEQ     30$             ;DON'T PRINT IF ZERO
            761 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$PNTX
                006326  062706  000006                  ADD     #6,SP
            762 006332  013703  002170          30$:    MOV     EPRTSW,R3               ;PRINT MEAASGE BUFFER ADDRESS
            763 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$PNTX
                006350  062706  000004                  ADD     #4,SP
            764 006354  000207                          RTS     PC              ;RETURN TO CALLER
            765
            776 006356      045     116     045 EPRT1:  .ASCIZ  '%N%A *****CHECK CABLES BETWEEN M7196 AND TRANSPORT*****'
            777 006446      045     116     045 EPRT2:  .ASCIZ  '%N%A *****CHECK TRANSPORT*****'
            783 006505      045     116     045 TSSRFOR:        .ASCIZ  '%N%A TSSR = %O6'
            784 006525      045     116     045 TEXASC:         .ASCIZ  '%N%A Extended Address Bits = %O6'
            785 006566      045     116     045 TCOASC:         .ASCIZ  '%N%A Termination Class Code = %T'
            786 006627      045     116     045 TFCASC:         .ASCIZ  '%N%A Fatal Termination Class Code = %T'
            787 006676      045     116     045 TSSDEF:         .ASCIZ  '%N%A TSSR Bits Set: %T'
            788 006725      045     116     045 AMBTSSR:        .ASCIZ  '%N%A TSSR Contents Are Ambiguous'
            789                                             .EVEN
            790 006766  007006  007031  007057 TCOCOD: .WORD   1$,2$,3$,4$,5$,6$,7$,8$
```

```
     791 007006      116      157      162  1$:      .ASCIZ  'Normal Termination'
     792 007031      124      145      162  2$:      .ASCIZ  'Termination Condition'
     793 007057      124      141      160  3$:      .ASCIZ  'Tape Status Alert'
     794 007101      106      165      156  4$:      .ASCIZ  'Function Reject'
     795 007121      122      145      143  5$:      .ASCIZ  'Recoverable Error - Tape Position One Record Down'
     796 007203      122      145      143  6$:      .ASCIZ  'Recoverable Error - Tape Was Not Moved'
     797 007252      125      156      162  7$:      .ASCIZ  'Unrecoverable Error'
     798 007276      106      141      164  8$:      .ASCIZ  'Fatal Controller Error'
     799                                              .EVEN
     800
     801 007326  007336  007372  007403  TSFCOD:  .WORD   1$,2$,3$,4$
     802 007336      111      156      164  1$:      .ASCIZ  'Internal Diagnostic Failure'
     803 007372      122      145      163  2$:      .ASCIZ  'Reserved'
     804 007403      102      165      163  3$:      .ASCIZ  'Bus Interface or Sanity Check Error'
     805 007447      122      145      163  4$:      .ASCIZ  'Reserved'
     806                                              .EVEN
```

```
                        .SBTTL  PRIPKT  - PRINT THE ADDRESS/CONTENTS OF COMMAND PACKET

                ;+
                ;THIS ROUTINE PRINTS THE ADDRESS AND CONTENTS OF A COMMAND PACKET.
                ;THIS ROUTINE IS NORMALLY ONLY CALLED FROM A PRINT ROUTINE.
                ;
                ;INPUT:
                ;
                ;       R0      NUMBER OF WORDS IN PACKET
                ;       R3      HIGH ORDER COMMAND PACKET ADDRESS
                ;       R4      ADDRESS OF COMMAND PACKET
                ;
                ;       NOTE:   R3 IS IGNORED IF THE KTENABLE FLAG IS CLEAR.
                ;-

007460          PRIPKT::
007460                  SAVREG                          ;SAVE THE REGISTERS
007464  010005          MOV     R0,R5                   ;SAVE NO. OF WORDS IN PACKET
007466  005737  003124  TST     KTENABLE                ;ABOVE 28K UNDER TEST?
007472  001001          BNE     10$                     ;BR IF YES
007474  005003          CLR     R3                      ;SET HIGH ORDER ADDRESS TO 0
007476  010301  10$:    MOV     R3,R1                   ;COPY HIGH ORDER ADDRESS
007500  010400          MOV     R4,R0                   ;GET LOWER ADDRESS
007502  006100          ROL     R0                      ;SHIFT BIT 15 INTO C BIT
007504  006101          ROL     R1                      ;AND INTO HIGH ORDER.
007506                  PRINTB  #PKTADD,R1,R4           ;PRINT PACKET ADDRESS
007506  010446          MOV     R4,-(SP)
007510  010146          MOV     R1,-(SP)
007512  012746  007644  MOV     #PKTADD,-(SP)
007516  012746  000003  MOV     #3,-(SP)
007522  010600          MOV     SP,R0
007524  104414          TRAP    C$PNTB
007526  062706  000010  ADD     #10,SP
007532  010300  15$:    MOV     R3,R0                   ;GET HIGH ORDER ADDRESS
007534  001404          BEQ     20$                     ;BR IF NOT ABOVE 28K.
007536  010401          MOV     R4,R1                   ;GET LOW ORDER ADDRESS
007540  004737  017406  JSR     PC,SETMAP               ;SETUP PAR6 MAPPING FOR 18 BIT ADDRESS
007544  010004          MOV     R0,R4                   ;GET RETURNED PAR6 ADDRESS BIAS
007546  005001  20$:    CLR     R1                      ;SAVE WORD NUMBER
007550  012402  25$:    MOV     (R4)+,R2                ;GET PACKET CONTENTS
007552                  PRINTB  #PKTFRM,R1,R2           ;PRINT THE DATA
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$PNTB
007572  062706  000010  ADD     #10,SP
007576  005201          INC     R1                      ;NEXT WORD NUMBER
007600  020105          CMP     R1,R5                   ;DONE ALL PACKET WORDS?
007602  002762          BLT     25$                     ;LOOP TILL ALL DONE
007604  000207          RTS     PC                      ;RETURN

007606    045   116   045   PKTFRM: .ASCIZ  '%N%A Packet Word #%D1%A = %O6'
007644    045   116   045   PKTADD: .ASCIZ  '%N%A Packet Address = %O1%O5'
                              .EVEN
```

```
                                .SBTTL  PRIBXOR - PRINT EXPD, RECV AND XOR BYTE

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

                        PRIBXOR::
007702                          SAVREG                          ;SAVE THE REGISTERS
007702 010203                   MOV     R2,R3                   ;EXPECTED DATA
007706                          XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
007710 012700  177400           MOV     #^C<377>,R0             ;BYTE MASK
007720 040001                   BIC     R0,R1                   ;SAVE LOW BYTE RECV
007724 040002                   BIC     R0,R2                   ;SAVE LOW BYTE EXPD
007726 040003                   BIC     R0,R3                   ;SAVE LOW BYTE XOR
007730                          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
007760 010300                   MOV     R3,R0                   ;R0 HAS XOR ON RETURN
007762 000207                   RTS     PC                      ;RETURN TO CALLER

007764     045     116     045  XORBFOR:        .ASCIZ  '%N%A EXPD: %03%A RECV: %03%A XOR: %03'
                                .EVEN
```

```
                        .SBTTL  PRIXOR  - PRINT EXPD, RECV AND XOR

                ;+
                ;
                ;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
                ;
                ;-

                PRIXOR::
                        SAVREG                          ;SAVE THE REGISTERS
                        MOV     R2,R3                   ;EXPECTED DATA
                        XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
                        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: %06%A RECV: %06%A XOF: %06'
                                         .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
                                ;
                                ;-

                                PRIEQU:
                                        SAVREG                          ;SAVE THE REGISTERS
                                        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 = %06'
                                        .EVEN


                                        .SBTTL  PRIADD  - PRINT MEMORY ERROR ADDRESS
                                ;+
                                ;
                                ;PRINT MEMORY ADDRESS
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                                ;
                                ; IMPLICIT INPUTS
                                ;
                                ;       ERRHI   - HIGH ORDER ADDRESS
                                ;       ERRLO   - LOW ORDER ADDRESS
```

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

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


                        .SBTTL  PRITADD - PRINT MEMORY TEST ADDRESS
                        ;+
                        ;
                        ;PRINT MEMORY ADDRESS
                        ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                        ;
                        ; IMPLICIT INPUTS
                        ;
                        ;       ERRHI   - HIGH ORDER ADDRESS
                        ;       ERRLO   - LOW ORDER ADDRESS
                        ;
                        ;-
                        PRITADD:
010364                          SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
010370  013702  002226          MOV     ERRHI,R2                ;GET HIGH ADDRESSS
010374  013701  002230          MOV     ERRLO,R1                ;GET LOW ADDRESS
                                :MOV    R1,R2                   ;COPY LOW ADDRESS
                                :ROL    R1                      ;SHIFT BIT 15 TO C BIT
                                :ROL    R0                      ;SHIFT INTO HIGH ORDER
010400                          PRINTB  #PRIT0,R1               ;PRINT MEMORY ADDRESS LOW IN ERROR
010400  010146                  MOV     R1,-(SP)
010402  012746  010446          MOV     #PRIT0,-(SP)
010406  012746  000002          MOV     #2,-(SP)
010412  010600                  MOV     SP,R0
010414  104414                  TRAP    C$PNTB
010416  062706  000006          ADD     #6,SP
010422                          PRINTB  #PRIT1,R2               ;PRINT MEMORY ADDRESS HIGH IN ERROR
010422  010246                  MOV     R2,-(SP)
010424  012746  010511          MOV     #PRIT1,-(SP)
010430  012746  000002          MOV     #2,-(SP)
010434  010600                  MOV     SP,R0
010436  104414                  TRAP    C$PNTB
010440  062706  000006          ADD     #6,SP
010444  000207                  RTS     PC                      ;RETURN
```

```
1004
1005 010446     045     116     045  PRIT0:  .ASCIZ  '%N%A MEMORY TEST ADDRESS LOW = %06'
1006 010511     045     116     045  PRIT1:  .ASCIZ  '%N%A MEMORY TEST ADDRESS HIGH = %06'
1007                                         .EVEN
1008
1009
1010
```

```
                        .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
                ;
                ;
                ;IMPLICIT OUTPUT:
                ;
                ;       TAPE HAS BEEN MOVED
                ;
                ;SIDE EFFECTS:
                ;
                ;
                ;-

010556                          SPACE::
010556                                  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  010337  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  010740          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
   1063 010674  005337  010750                  DEC     $DELAY          ;BUMP DELAY COUNTER DOWN
   1064 010700  001356                          BNE     15$             ;BR, IF MORE DELAY
   1065 010702  000411                          BR      60$             ;BR IF TROUBLE CARRY = CLEAR
   1066 010704  016501  000002          20$:    MOV     TSSR(R5),R1     ;READ TSSR
   1067 010710  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
   1068 010714  020201                  25$:    CMP     R2,R1           ;ARE THEY OK
   1069 010716  001401                          BEQ     40$             ;BR, IF EQUAL = OK
   1070 010720  000402                          BR      60$             ;TROUBLE EXIT
   1071 010722  000261                  40$:    SEC                     ;SET CARRY NO TROUBLE
   1072 010724  000401                          BR      70$             ;EXIT
   1073 010726  000241                  60$:    CLC                     ;CARRY CLEAR = ERROR
   1074 010730                          70$:
   1075 010730  010400                          MOV     R4,R0           ;PASS PACKET ADDRESS
   1076 010732  000207                          RTS     PC              ;RETURN
```

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

```
                        .SBTTL  WRTCHR  - WRITE CHARACTERISTICS COMMAND

                ;+
                ;
                ;ROUTINE TO ISSUE A WRITE CHARACTERISTICS
                ;COMMAND SO THAT OTHER COMMANDS WILL BE ACCEPTED
                ;
                ;INPUT:
                ;
                ;       R4      ADDRESS OF PACKET FROM TEST
                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                ;       REQUIRES A CALL TO SOFINIT BE DONE PREVIOUSLY
                ;
                ;OUTPUT:
                ;
                ;       R0      TSSR CONTENTS
                ;       CARRY   SET - WRITE CHARACTERISTICS COMMAND OK
                ;               CLR - WRITE CHARACTERISTICS FAILED
                ;
                ;IMPLICIT OUTPUT:
                ;
                ;       MESSAGE BUFFER AND OTHER BUFFERS ALL SET UP
                ;       SOFTWARE SWITCHES SET AS FOLLOWS:
                ;               EXTFEA = EXTENDED FEATURES PRESENT
                ;               BENBSW = BUFFER ENABLE SWITCH ON OR OFF
                ;
                ;
                ;SIDE EFFECTS:
                ;
                ;
                ;-
                ;
                ;
                ;
010752                  WRTCHR::
010752                          SAVREG                          ;SAVE THE GENERAL REGISTERS
010756  005037  002220          CLR     BENBSW          ;CLEAR BUFFER ENABLE SWITCH
010762  005037  002216          CLR     EXTFEA                  ;CLEAR EXTENDED FEATURES SW SWITCH
010766  010465  000000  10$:    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010772  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
010776  103401                  BCS     20$                     ;BR, IF SSR IS SET AND OK
011000  000435                  BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
011002  016501  000002  20$:    MOV     TSSR(R5),R1             ;READ TSSR
011006  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
011012  032701  000100          BIT     #OFL,R1                 ;WAS OFF LINE SET IN TSSR
011016  001402                  BEQ     25$                     ;BR, IF NO OFL SET
011020  052702  000100          BIS     #OFL,R2                 ;MAKE THEM LOOK ALIKE
011024  020201          25$:    CMP     R2,R1                   ;ARE THEY OK
011026  001401                  BEQ     40$                     ;BR, IF EQUAL = OK
011030  000421                  BR      60$                     ;TROUBLE EXIT
011032  062704  000010  40$:    ADD     #8.,R4                  ;POINT TO WRT CHARA DATA PACKET
011036  011403                  MOV     (R4),R3                 ;GET ADDRESS OF MESSAGE BUFFER
011040  032763  000200  000012  BIT     #X2.EXTF,XST2(R3)       ;EXTENDED FEATURES BIT SET?
011046  001402                  BEQ     45$                     ;BR IF NO
011050  005237  002216          INC     EXTFEA                  ;SET EXTENDED FEATURES SW SWITCH
011054                  45$:
011054  032763  000100  000012  BIT     #X2.BUFE,XST2(R3)                       ;BUFFER ENABLE SWITCH SET
011062  001402                  BEQ     50$                     ;BR, IF SWITCH NOT SET
011064  005237  002220          INC     BENBSW                  ;SET SOFTWARE SWITCH FOR ENABLED
```

```
1153 011070                          50$:
1154 011070  000261                         SEC                     ;SET CARRY NO TROUBLE
1155 011072  000401                         BR      70$             ;EXIT
1156 011074  000241                 60$:    CLC                     ;CARRY CLEAR = ERROR
1157 011076  016500  000002         70$:    MOV     TSSR(R5),R0     ;RETURN TSSR CONTENTS
1158 011102  000207                         RTS     PC              ;RETURN
1159
1160
```

```
                                .SBTTL  REWIND  - POSITION TAPE (REWIND) COMMAND

                        ;+
                        ;
                        ;THIS ROUTINE WILL REWIND THE SELECTED TAPE.
                        ;
                        ;       CAUTION: THE ROUTINE DOES NOT WAIT FOR BOT
                        ;                TO ARRIVE. ALSO THE CALLER MUST CHECK FOR
                        ;                SSR TO SET IN THE TSSR
                        ;
                        ;
                        ;CALLING SEQUENCE:
                        ;
                        ;       DO A SOFT INIT
                        ;       DO A WRITE CHARACTERISTICS
                        ;       JSR     PC,REWIND
                        ;
                        ;INPUT:
                        ;
                        ;       R5      FIRST DEVICE UNIBUS ADDRESS
                        ;
                        ;
                        ;OUTPUT
                        ;
                        ;       R0      THE CONTENTS OF R4 IS PASSED TO R0
                        ;
                        ;
                        ;-
                        ;
                        ;
011104                  REWIND::
011104                          SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011110  012704  011200          MOV     #RWPACK,R4              ;GET PACKET ADDRESS
011114  010465  000000          MOV     R4,TSDB(R5)             ;SEND PACKET ADDRESS TO EXECUTE
011120  012703  000550          MOV     #360.,R3                ;ENOUGH TIME FOR 2400' REEL TO REWIND
011124  004737  016340  10$:     JSR     PC,WAITF                ;WAIT FOR SSR TO SET
011130  103417                  BCS     20$                     ;LEAVE WHEN SSR IS SET
011132                          DELAY   250.                    ;WAIT FOR .25 SECONDS
011132  012727  000372          MOV     #250.,(PC)+
011136  000000                  .WORD   0
011140  013727  002116          MOV     L$DLY,(PC)+
011144  000000                  .WORD   0
011146  005367  177772          DEC     -6(PC)
011152  001375                  BNE     .-4
011154  005367  177756          DEC     -22(PC)
011160  001367                  BNE     .-20
011162  005303                  DEC     R3                      ;BUMP COUNTER DOWN
011164  001357                  BNE     10$                     ;KEEP GOING
011166  000241                  CLC                             ;CLEAR CARRY TO SET ERROR
011170  010400          20$:    MOV     R4,R0                   ;PASS THE PACKET ADDRESS
011172  000207                  RTS     PC                      ;RETURN


                                .=<.+10>&177770
011200                  RWPACK:
011200  102010                  .WORD   102010                  ;POSTION COMMAND (REWIND)
011202  000000                  .WORD   0                       ;NOT USED
```

```
    1213
    1214
    1215
```

```
                        .SBTTL  CKRAM   - COMPARE RAM TO I/O PACKET

                ;+
                ;
                ;ROUTINE TO READ THE FIRST 8 BYTES FROM RAM
                ;MEMORY AND COMPARE THIS DATA TO A COMMAND PACKET.
                ;
                ;INPUT:
                ;
                ;       R4      ADDRESS OF THE COMMAND PACKET
                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                ;
                ;OUTPUT:
                ;
                ;       CARRY   SET - RAM MATCHES PACKET
                ;               CLR - RAM DOES NOT MATCH PACKET
                ;
                ;IMPLICIT OUTPUT:
                ;
                ;       THE TABLE RAMDATA IS FILLED WITH THE
                ;       DATA HELD IN RAM.
                ;       RAMSIZ IS SET TO 8. FOR PRAMPKT ROUTINE
                ;
                ;SIDE EFFECTS:
                ;
                ;       THE SUBSYSTEM IS LEFT IN MAINTENANCE MODE
                ;
                ;-

011204                  CKRAM::
011204                          SAVREG                  ;SAVE THE GENERAL REGISTERS
011210  012701  002232          MOV     #RAMDATA,R1     ;ADDRESS TO SAVE THE RAM DATA
011214  012702  000201          MOV     #RMPKTBEG,R2    ;BYTE ADDRESS OF FIRST RAM DATA
011220  005003                  CLR     R3              ;CLEAR THE ERROR FLAG
011222  004737  016426          JSR     PC,CHKTSSR      ;WAIT FOR SSR
011226  112765  000000  000000  MOVB    #0,TSDB(R5)     ;SET MAINTENANCE MODE
011234  004737  016426  10$:    JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
011240  010265  000000          MOV     R2,TSDB(R5)     ;SELECT NEXT RAM ADDRESS
011244  004737  016426          JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
011250  116511  000000          MOVB    TSBA(R5),(R1)   ;READ THE RAM DATA
011254  122124                  CMPB    (R1)+,(R4)+     ;COMPARE TO EXPECTED
011256  001401                  BEQ     20$             ;BRANCH IF OK
011260  005203                  INC     R3              ;SET ERROR FLAG
011262  005202          20$:    INC     R2              ;ADDRESS OF NEXT RAM LOCATION
011264  020227  000210          CMP     R2,#RMPKTEND    ;REACHED END YET ?
011270  003761                  BLE     10$             ;BRANCH TILL ALL READ
011272  005703                  TST     R3              ;WAS AN ERROR FOUND ?
011274  001402                  BEQ     30$             ;BRANCH IF NOT
011276  000241                  CLC                     ;CLEAR CARRY TO SHOW ERROR
011300  000401                  BR      50$             ;AND EXIT
011302  000261          30$:    SEC                     ;SHOW GOOD COMPARE
011304  012737  000010  002272  50$:    MOV     #8.,RAMSIZ      ;SETUP RAMSIZ FOR PRAMPKT ROUTINE
011312  000207                  RTS     PC              ;RETURN
```

```
                        .SBTTL  CKRAM2  - COMPARE RAM TO I/O CHARACTERISTICS DATA
                ;+
                ;
                ;ROUTINE TO READ THE FIRST 8 OR 10 BYTES FROM RAM
                ;MEMORY AND COMPARE THIS DATA TO A CHARACTERISTICS DATA BLOCK.
                ;
                ;INPUT:
                ;
                ;       R4      ADDRESS OF THE CHARACTERISTICS DATA
                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                ;
                ;OUTPUT:
                ;
                ;       CARRY   SET - RAM MATCHES PACKET
                ;               CLR - RAM DOES NOT MATCH PACKET
                ;
                ;IMPLICIT OUTPUT:
                ;
                ;       THE TABLE RAMDATA IS FILLED WITH THE
                ;       DATA HELD IN RAM.
                ;       RAMSIZ IS SET TO 8. OR 10. FOR PRAMPKT ROUTINE
                ;
                ;SIDE EFFECTS:
                ;
                ;       THE SUBSYSTEM IS LEFT IN MAINTENANCE MODE
                ;
                ;-

011314                  CKRAM2::
011314                          SAVREG                          ;SAVE THE GENERAL REGISTERS
011320  012701  002232          MOV     #RAMDATA,R1             ;ADDRESS TO SAVE THE RAM DATA
011324  012702  000167          MOV     #RMCHBEG,R2             ;BYTE ADDRESS OF FIRST RAM DATA
011330  005003                  CLR     R3                      ;CLEAR THE ERROR FLAG
011332  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
011336  112765  000000  000000  MOVB    #0,TSDB(R5)             ;SET MAINTENANCE MODE
011344  004737  016426  10$:    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011350  010265  000000          MOV     R2,TSDB(R5)             ;SELECT NEXT RAM ADDRESS
011354  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011360  116511  000000          MOVB    TSBA(R5),(R1)           ;READ THE RAM DATA
011364  122124                  CMPB    (R1)+,(R4)+             ;COMPARE TO EXPECTED
011366  001401                  BEQ     20$                     ;BRANCH IF OK
011370  005203                  INC     R3                      ;SET ERROR FLAG
011372  005202          20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
011374  012737  000010  002272  MOV     #8.,RAMSIZ              ;ASSUME EXTFEA NOT SET
011402  005737  002216          TST     EXTFEA                  ;IS THE SOFTWARE EXTENDED FEATURES SET
011406  001407                  BEQ     25$                     ;BR, IF NOT SET
011410  012737  000012  002272  MOV     #10.,RAMSIZ             ;SET RAMSIZ FOR EXTEND FEATURES
011416  020227  000200          CMP     R2,#RMCHEND             ;AT END OF EXTENDED BUFFER
011422  003750                  BLE     10$                     ;BR, IF NOT AT END YET
011424  000403                  BR      27$                     ;AT END BRANCH
011426  020227  000176  25$:    CMP     R2,#RMCHEND-2           ;REACHED END YET ?
011432  003744                  BLE     10$                     ;BRANCH TILL ALL READ
011434  005703          27$:    TST     R3                      ;WAS AN ERROR FOUND ?
011436  001402                  BEQ     30$                     ;BRANCH IF NOT
011440  000241                  CLC                             ;CLEAR CARRY TO SHOW ERROR
011442  000401                  BR      50$                     ;AND EXIT
011444  000261          30$:    SEC                             ;SHOW GOOD COMPARE
```

```
1329 011446  000207                50$:    RTS     PC                  ;RETURN
1330
```

```
                        .SBTTL  CKMSG   - COMPARE WRITE CHAR. MESSAGE BUFFERS
                ;+
                ;
                ;ROUTINE TO COMPARE A WRITE CHARACTERISTICS EXPD AND RECV
                ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
                ;ERROR PRINT ROUTINES.
                ;
                ;INPUT:
                ;
                ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
                ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
                ;       R2      EXPD MESSAGE BUFFER ADDRESS
                ;OUTPUT:
                ;
                ;       CARRY   SET - MESSAGE BUFFERS MATCH
                ;               CLR -MESSAGE BUFFERS DON'T MATCH
                ;
                ;IMPLICIT OUTPUT:
                ;
                ;       EXPMSG          BUFFER IS SET TO EXPD DATA
                ;       RECMSG          BUFFER IS SET TO RECV DATA
                ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
                ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
                ;
                ;-
                CKMSG::
                        SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011450                  MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
011454  010037  002274  MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
011460  010137  002276  TST     KTENABLE                ;TESTING ABOVE 28K?
011464  005737  003124  BEQ     10$                     ;BR IF NO
011470  001403          JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
011472  004737  017406  MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
011476  010001          CLR     R4                      ;WORD IN BUFFER
011500  005004          CLR     R3                      ;CLEAR ERROR SEEN FLAG
011502  005003          MOV     R2,R5                   ;GET EXPD BUFFER ADDRESS
011504  010205  15$:    MOV     (R2),EXPMSG(R4)         ;SAVE EXPD FOR ERROR REPORT
011506  011264  002312  MOV     (R1),RECMSG(R4)         ;SAVE RECV FOR ERROR REPORT
011512  011164  002456  CMP     (R2)+,(R1)+             ;EXPD EQUAL RECV?
011516  022221          BEQ     25$                     ;BR IF YES
011520  001401          INC     R3                      ;SET ERROR SEEN FLAG
011522  005203  25$:    ADD     #2,R4                   ;POINT TO NEXT WORD ADDRESS
011524  062704  000002  CMP     R4,#14                  ;DONE FIRST 7 WORDS?
011530  020427  000014  BLE     15$                     ;BR IF NO
011534  003764          BIT     #X2.EXTF,XST2(R5);IS EXTENDED FEATURES SET IN EXPD?
011536  032765  000200  000012  BEQ     50$             ;BR IF NO
011544  001403          CMP     R4,#16                  ;DONE EXTENDED FEATURES WORD?
011546  020427  000016  BLE     15$                     ;BR IF NO
011552  003755          TST     R3                      ;ANY ERRORS SEEN?
011554  005703  50$:    BEQ     55$                     ;BR IF NO
011556  001402          CLC                             ;SET FAILURE
011560  000241          BR      60$                     ;
011562  000401  55$:    SEC                             ;SET SUCCESS
011564  000261  60$:    RTS     PC                      ;RETURN
011566  000207
                
```

```
                                        .SBTTL  CKMSG2  - COMPARE EXPD RECV MESSAGE BUFFERS
                                ;+
                                ;
                                ;ROUTINE TO COMPARE AN EXPECTED AND RECEIVED MESSAGE
                                ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
                                ;ERROR PRINT ROUTINES.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
                                ;       R2      EXPD MESSAGE BUFFER ADDRESS
                                ;       R3      NUMBER OF BYTES TO COMPARE
                                ;
                                ;OUTPUT:
                                ;
                                ;       CARRY   SET - MESSAGE BUFFERS MATCH
                                ;               CLR - MESSAGE BUFFERS DON'T MATCH
                                ;
                                ;IMPLICIT OUTPUT:
                                ;
                                ;       EXPMSG          BUFFER IS SET TO EXPD DATA
                                ;       RECMSG          BUFFER IS SET TO RECV DATA
                                ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
                                ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
                                ;
                                ;-
011570                          CKMSG2::
011570                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011574  020327  000144                  CMP     R3,#RECMSG-EXPMSG;@@D IS COUNT ABOVE MAX ALLOWED?
011600  003412                          BLE     5$                      ;@@D BR IF NO
011602  012703  000144                  MOV     #RECMSG-EXPMSG,R3;@@D
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$PNTF
011622  062706  000004                  ADD     #4,SP
011626  010037  002274          5$:     MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
011632  010137  002276                  MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
011636  005737  003124                  TST     KTENABLE                ;TESTING ABOVE 28K?
011642  001403                          BEQ     10$                     ;BR IF NO
011644  004737  017406                  JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
011650  010001                          MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
011652  005004          10$:    CLR     R4                      ;WORD IN BUFFER
011654  005005                  CLR     R5                      ;CLEAR ERROR SEEN FLAG
011656  111264  002312          15$:    MOVB    (R2),EXPMSG(R4) ;SAVE EXPD FOR ERROR REPORT
011662  111164  002456                  MOVB    (R1),RECMSG(R4) ;SAVE RECV FOR ERROR REPORT
011666  122221                          CMPB    (R2)+,(R1)+     ;EXPD EQUAL RECV?
011670  001401                          BEQ     25$             ;BR IF YES
011672  005205                          INC     R5              ;SET ERROR SEEN FLAG
011674  062704  000001          25$:    ADD     #1,R4           ;POINT TO NEXT BYTE
011700  020403                          CMP     R4,R3           ;DONE ALL BYTES?
011702  002001                          BGE     50$             ;BR IF YES
011704  000764                          BR      15$             ;DO NEXT BYTE
011706  005705          50$:    TST     R5              ;ANY ERRORS SEEN?
011710  001402                  BEQ     55$             ;BR IF NO
```

```
1440 011712  000241                    CLC                     ;SET FAILURE
1441 011714  000401                    BR      60$             ;
1442 011716  000261              55$:  SEC                     ;SET SUCCESS
1443 011720  000207              60$:  RTS     PC              ;RETURN
1444
1445 011722      120      122      117  DEBUGMSG:       .ASCIZ  'PROGRAM INTERNAL ERROR -CKMSG2 MESSAGE BUFFER EXCEEDED-';@@D
1446 012012      045      116      045  FERCM:  .ASCII  /%N%A  ***/
1447 012023      040      040      124  ERCM:   .ASCIZ  /  TSSR ERROR CODE REC'D = /
1448 012056      056      056      056  SIMSG:  .ASCIZ  /.... AFTER DOING SOFT INIT/
1449 012111      124      105      123  TINERR: .ASCIZ  /TEST: .../
1450                                    .EVEN
```

```
                                        ;+
                                        ;
                                        ;PRINT ROUTINE TO FATAL SOFT INIT ERRORS
                                        ;
                                        ;INPUT:
                                        ;
                                        ;       R1      CONTENTS OF TSSR AT ERROR
                                        ;
                                        ;SIDE EFFECTS:
                                        ;
                                        ;       EXECUTES DROP UNIT TO CEASE TESTING
                                        ;
                                        ;-

                                                BGNMSG  SFIMSG
                                        SFIMSG::
012124  004737  006022                          JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
012130  004737  017272                          JSR     PC,CKDROP       ;DROP UNIT, IF ALLOWED
012134                                          ENDMSG
                                        L10003:
012134  104423                                  TRAP    C$MSG

                                        ;+
                                        ;PRINT ROUTINE TO PRINT THE CONTENTS OF
                                        ;TSSR AND A COMMAND PACKET OTHER THAN GET STATUS COMMAND PACKET.
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R1      TSSR CONTENTS
                                        ;       R4      ADDRESS OF COMMAND PACKET
                                        ;
                                        ;-

                                                BGNMSG  PKTSSR
                                        PKTSSR::
012136  004737  006022                          JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012142  012700  000004                          MOV     #4,R0           ;NO. OF WORDS IN PACKET
012146  004737  007460                          JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
012152                                          ENDMSG
                                        L10004:
012152  104423                                  TRAP    C$MSG

                                        ;+
                                        ;PRINT ROUTINE TO PRINT THE CONTENTS OF
                                        ;TSSR AND A GET STATUS COMMAND PACKET.
                                        ;
                                        ;INPUTS:
                                        ;
                                        ;       R1      TSSR CONTENTS
                                        ;       R4      ADDRESS OF COMMAND PACKET
                                        ;
                                        ;-

                                                BGNMSG  PKTGETS
                                        PKTGETS::
```

```
1502 012154  004737  006022                    JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
1503 012160  012700  000002                    MOV     #2,R0           ;NO. OF WORDS IN GET STATUS PACKET
1504 012164  004737  007460                    JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
1505 012170                                    ENDMSG
     012170                              L10005:
     012170  104423                            TRAP    C$MSG
1506
1507
1508                                       ;+
1509                                       ;PRINT TSSR ERRORS FOR INITIALIZATION TESTS
1510                                       ;
1511                                       ;INPUTS:
1512                                       ;
1513                                       ;       R1      TSSR CONTENTS
1514                                       ;       R4      ADDRESS OF COMMAND PACKET
1515                                       ;-
1516
1517 012172                                    BGNMSG  SFFMSG
     012172                              SFFMSG::
1518 012172  004737  006022                    JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
1519 012176                                    ENDMSG
     012176                              L10006:
     012176  104423                            TRAP    C$MSG
1520
1521
1522                                           .SBTTL  PKTMES  - PRINT TSSR AND MESSAGE BUFFER
1523                                       ;+
1524                                       ;
1525                                       ;PRINT ROUTINE TO PRINT THE CONTENTS OF TSSR AND MESSAGE
1526                                       ;BUFFER FOR ERROR REPORTS
1527                                       ;
1528                                       ;INPUTS:
1529                                       ;
1530                                       ;       R1      CONTENTS OF TSSR
1531                                       ;       R2      LOW ORDER MESSAGE BUFFER
1532                                       ;       R3      HIGH ORDER MESSAGE BUFFER ADDRESS
1533                                       ;       NOTE: R3 IS IGNORED IF KTENABLE FLAG IS CLEAR
1534                                       ;-
1535 012200                                    BGNMSG  PKTMES
     012200                              PKTMES::
1536 012200  004737  006022                    JSR     PC,PRITSSR              ;PRINT CONTENTS OF TSSR
1537 012204  010200                            MOV     R2,R0                   ;LOW ORDER ADDRESS
1538 012206  010301                            MOV     R3,R1                   ;HIGH ORDER ADDRESS
1539 012210  004737  014332                    JSR     PC,PRMESS               ;PRINT THE MESSAGE BUFFER
1540 012214                                    ENDMSG
     012214                              L10007:
     012214  104423                            TRAP    C$MSG
1541
```

```
1543                                            .SBTTL  ADDSSR  - PRINT TEST ADDRESS AND TSSR
1544                                    ;+
1545                                    ;PRINT ROUTINE TO PRINT THE CONTENTS OF
1546                                    ;TSSR AND A MEMORY TEST ADDRESS
1547                                    ;
1548                                    ;INPUTS:
1549                                    ;
1550                                    ;       R5      FIRST DEVICE UNIBUS ADDRESS
1551                                    ;       ERRHI   HIGH ORDER MEMORY TEST ADDRESS
1552                                    ;       ERRLO   LOW ORDER MEMORY TEST ADDRESS
1553                                    ;-
1554
1555 012216                                            BGNMSG  ADDSSR
     012216                             ADDSSR::
1556 012216  004737  010364                           JSR     PC,PRITADD      ;PRINT MEMORY TEST ADDRESS
1557 012222  016501  000002                           MOV     TSSR(R5),R1     ;GET CURRENT TSSR
1558 012226  004737  006022                           JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
1559 012232                                            ENDMSG
     012232                             L10010:
     012232  104423                                   TRAP    C$MSG
1560
1561
1562                                            .SBTTL  MSGEXP - PRINT WRITE CHAR. EXPD-RECV MESSAGE BUFFERS
1563                                    ;+
1564                                    ;
1565                                    ;PRINT ROUTINE TO PRINT WRITE CHARACTERISTIC MESSAGE BUFFER
1566                                    ;
1567                                    ;IMPLICIT INPUTS:
1568                                    ;
1569                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
1570                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
1571                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
1572                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
1573                                    ;-
1574 012234                                            BGNMSG  MSGEXP
     012234                             MSGEXP::
1575 012234  012700  000007                           MOV     #7,R0           ;ASSUME NO EXT FEATURES
1576 012240  005737  002216                           TST     EXTFEA          ;EXT FEATURES SET?
1577 012244  001402                                   BEQ     5$              ;BR IF NO
1578 012246  012700  000010                           MOV     #8.,R0          ;EXT FEATURE BUFFER IS 8 WORDS
1579 012252  004737  014642             5$:           JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
1580 012256                                            ENDMSG
     012256                             L10011:
     012256  104423                                   TRAP    C$MSG
1581
1582
```

```
                        .SBTTL  FIFEXP  - PRINT FIFO EXP/RECV DATA
                ;+
                ;
                ;PRINT ROUTINE TO 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
012260          FIFEXP::
                        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$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
012474  004737  014642                  JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
012500                                  ENDMSG
012500                          L10013:
012500  104423                          TRAP    C$MSG

012502  012520  012562  012653  STATCOD:        .WORD   1$,2$,3$,4$,5$,6$,0
012520    045     116     045   1$:.ASCIZ  '%N%A Tape Bus Signals in Word #8:'
012562    045     116     045   2$:.ASCIZ  '%N%A        PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>'
012653    045     116     045   3$:.ASCIZ  '%N%A        IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>'
012744    045     116     045   4$:.ASCIZ  '%N%A        IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>'
013035    045     116     045   5$:.ASCIZ  '%N%A Tape Bus Signals in Word #9:'
013077    045     116     045   6$:.ASCIZ  '%N%A        DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>'
                                        .EVEN


                                        .SBTTL  MSGLOOP - PRINT LOOPBACK HEADER AND MESSAGE BUFFERS
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;-
                                        BGNMSG  MSGLOOP
013154                          MSGLOOP::
013154  012701  013216                  MOV     #LOOPCOD,R1     ;ASCII ADDRESS TABLE
```

```
1655 013160  012100                  10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
1656 013162  001410                          BEQ     20$             ;BR IF YES
1657 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$PNTX
     013176  062706  000004                  ADD     #4,SP
1658 013202  000766                          BR      10$             ;DO ANOTHER MSG LINE
1659 013204  012700  000012          20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
1660 013210  004737  014642                  JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
1661 013214                                  ENDMSG
     013214                          L10014:
     013214  104423                          TRAP    C$MSG
1662
1663 013216  013236  013311  013410  LOOPCOD:        .WORD   1$,2$,3$,4$,5$,6$,7$,0
1664 013236     045     116     045  1$:.ASCIZ  '%N%A Tape Bus Loopback Signals in Word #8:'
1665 013311     045     116     045  2$:.ASCIZ  '%N%A      PARERR<15>          IRESV2<14>          IRESV1<13>'
1666 013410     045     116     045  3$:.ASCIZ  '%N%A IHISP=>IEOT<12>    IWRT=>IIDENT<11>    IREV  =>ICER  <10>'
1667 013507     045     116     045  4$:.ASCIZ  '%N%A IWFM =>IFMK<09>    IEDIT=>IHER <08>    IFAD  =>ISPEED<07>'
1668 013606     045     116     045  5$:.ASCIZ  '%N%A ITAD0=>IRDY<06>    ITAD1=>IONL <05>    IERASE=>ILDP  <04>'
1669 013705     045     116     045  6$:.ASCIZ  '%N%A IREW =>IDBY<03>    IRWU =>IRWD <02>    IFEN  =>IFBY  <01>'
1670 014004     045     116     045  7$:.ASCIZ  '%N%A IGO  =>IFPT<00>'
1671                                         .EVEN
1672
```

```
                                        .SBTTL  MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER
                                ;+
                                ;
                                ;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  MSGSUB
014032                          MSGSUB::
014032
014032  012700  000012                    MOV     #10.,R0         ;SIZE OF WRITE SUBSYSTEM BUFFER
014036  004737  014642                    JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
014042                                  ENDMSG
014042                          L10015:
014042  104423                          TRAP    C$MSG


                                        .SBTTL  MEMADD - PRINT MEMORY ADDRESS DATA ERROR
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT MEMORY ADDRESS DATA COMPARE ERROR
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       ERRHI   - MEMORY ERROR HIGH ORDER ADDRESS
                                ;       ERRLO   - MEMORY ERROR LOW ORDER ADDRESS
                                ;       EXP     - EXPECTED DATA
                                ;       RECV    - RECEIVED DATA
                                ;-
                                        BGNMSG  MEMADD
014044                          MEMADD:.
014044
014044  004737  010250                    JSR     PC,PRIADD       ;PRINT MEMORY ADDRESS IN ERROR
014050  013701  002222                    MOV     EXPD,R1         ;GET EXPD DATA
014054  013702  002224                    MOV     RECV,R2         ;GET RECEIVED DATA
014060  004737  010032                    JSR     PC,PRIXOR       ;PRINT EXPD/RECV
014064                                  ENDMSG
014064                          L10016:
014064  104423                          TRAP    C$MSG
```

```
                        .SBTTL  PRAMPKT - PRINT RAM AND PACKET DATA
                ;+
                ;
                ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                ;WHEN THE RAM DATA DOES NOT MATCH.
                ;
                ;INPUTS:
                ;
                ;       R4      POINTER TO COMMAND PACKET
                ;
                ;IMPLICIT INPUTS:
                ;
                ;       RAMDATA         DATA AS READ FROM THE RAM
                ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                ;
                ;IMPLICIT OUTPUTS:
                ;
                ;       RAMSIZ  SET TO 0
                ;-

014066                  PRAMPKT:
014066                          SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
014072  012701  002232          MOV     #RAMDATA,R1             ;DATA FROM THE RAM
014076  005002                  CLR     R2                      ;INIT BYTE NUMBER
014100  122124          5$:     CMPB    (R1)+,(R4)+             ;COMPARE EXPECTED, RECEIVED
014102  001005                  BNE     7$                      ;BR IF NO MATCH
014104                          FORCERROR       7$,NOTSSR
014114  000436                  BR      10$                     ;aaD
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: %O3%A Packet: %O3%A XOR:%O3'
```

```
1764                                    .EVEN
1765
1766
```

```
                        .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:
014332                  SAVREG                          ;SAVE THE REGISTERS
014336  010005          MOV     R0,R5                   ;SAVE LOW ORDER ADDRESS
014340  005737  003124  TST     KTENABLE                ;ADDRESS ABOVE 28K?
014344  001001          BNE     10$                     ;BR IF YES
014346  005001          CLR     R1                      ;SET HIGH ORDER ADDRESS TO 0
014350  010103  10$:     MOV     R1,R3                   ;SAVE HIGH ORDER ADDRESS
014352  006100          ROL     R0                      ;SHIFT BIT15 TO C BIT
014354  006101          ROL     R1                      ;SHIFT TO HIGH ORDER FOR PRINTOUT
014356                  PRINTX  #PROASC,R1,R5           ;PRINT MESSAGE BUFFER ADDRESS
014356  010546          MOV     R5,-(SP)
014360  010146          MOV     R1,-(SP)
014362  012746  014510  MOV     #PROASC,-(SP)
014366  012746  000003  MOV     #3,-(SP)
014372  010600          MOV     SP,R0
014374  104415          TRAP    C$PNTX
014376  062706  000010  ADD     #10,SP
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$PNTX
014416  062706  000004  ADD     #4,SP
014422  005004          CLR     R4                      ;NUMBER OF THE NEXT WORD
014424  010501          MOV     R5,R1                   ;COPY LOW ORDER ADDRESS
014426  010300          MOV     R3,R0                   ;COPY HIGH ORDER ADDRESS
014430  001403          BEQ     20$                     ;BR IF NOT ABOVE 28K
014432  004737  017406  JSR     PC,SETMAP               ;SETUP PAR ADDRESS IN R0
014436  010005          MOV     R0,R5                   ;GET PAR FORMAT ADDRESS ABOVE 28K
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
014464  005204          INC     R4                      ;NUMBER OF THE NEXT
014466  020427  000007  CMP     R4,#7                   ;DONE ALL YET ?
014472  003005          BGT     50$                     ;BRANCH IF ALL DONE
```

```
1806 014474  002761                        BLT     20$                ;PRINT FIRST 7 WORDS
1807 014476  032763  000200  000012        BIT     #X2.EXTF,XST2(R3);EXTENDED FEATUTES ON ?
1808 014504  001355                        BNE     20$                ;PRINT EXTENDED STATUS WORD
1809 014506  000207                 50$:    RTS     PC                 ;RETURN
1810
1811 014510     045     116     045  PR0ASC: .ASCIZ  '%N%A Message Buffer Address = %01%05'
1812 014555     045     116     045  PR1ASC: .ASCIZ  '%N%A Message Buffer Contents:'
1813 014613     045     116     045  PRASC:  .ASCIZ  '%N%A    Word%D1%A: %O'
1814                                 .EVEN
```

```
                        .SBTTL  PRMSGEXP - PRINT EXPD/RECV MESSAGE BUFFERS
                ;+
                ;
                ;ROUTINE TO PRINT EXPECTED AND RECEIVED MESSAGE BUFFERS
                ;
                ;       R0      - NUMBER OF WORDS IN BUFFER
                ;
                ;IMPLICIT INPUTS:
                ;
                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                ;-
                PRMSGEXP::
                        SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
                        MOV     R0,R5                   ;SAVE NUMBER OF WORDS
                        MOV     RCVLOADD,R0             ;GET RECV LOW ADDRESS
                        MOV     R0,R4                   ;COPY LOW ADDRESS
                        MOV     RCVHIADD,R1             ;GET RECV HIGH ADDRESS
                        ROL     R0                      ;SHIFT BIT15 TO C BIT
                        ROL     R1                      ;SHIFT TO HIGH ORDER FOR PRINTOUT
                        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$PNTX
014706  062706  000010  ADD     #10,SP
                        PRINTX  #PRMSG1                 ;PRINT HEADER FOR CONTENTS
014712  012746  015067  MOV     #PRMSG1,-(SP)
014716  012746  000001  MOV     #1,-(SP)
014722  010600          MOV     SP,R0
014724  104415          TRAP    C$PNTX
014726  062706  000004  ADD     #4,SP
                        CLR     R4                      ;NUMBER OF THE CURRENT WORD
014734  012701  002312  MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
014740  012702  002456  MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
014744  011100          MOV     (R1),R0         20$:    ;GET EXPD
014746  011203          MOV     (R2),R3                 ;GET RECV
014750                  XOR     R0,R3                   ;XOR EXPD/RECV
014760                  PRINTX  #PRMSG2,R4,(R1)+,(R2)+,R3
014760  010346          MOV     R3,-(SP)
014762  012246          MOV     (R2)+,-(SP)
014764  012146          MOV     (R1)+,-(SP)
014766  010446          MOV     R4,-(SP)
014770  012746  015125  MOV     #PRMSG2,-(SP)
014774  012746  000005  MOV     #5,-(SP)
015000  010600          MOV     SP,R0
015002  104415          TRAP    C$PNTX
015004  062706  000014  ADD     #14,SP
015010  005204          INC     R4                      ;NUMBER OF THE NEXT
015012  020405          CMP     R4,R5                   ;DONE ALL YET?
015014  002001          BGE     50$                     ;BR IF YES
015016  000752          BR      20$                     ;DO ANOTHER
015020  000207  50$:    RTS     PC                      ;RETURN
```

```
1852
1853 015022  045  116  045  PRMSG0: .ASCIZ  '%N%A Message Buffer Address = %01%05'
1854 015067  045  116  045  PRMSG1: .ASCIZ  '%N%A Message Buffer Contents:'
1855 015125  045  116  045  PRMSG2: .ASCIZ  '%N%A   WORD #%D2%A  EXPD: %06%A  RECV: %06%A  XOR: %06'
1856                                .EVEN
1857
```

```
                                        .SBTTL  PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER
                                ;+
                                ;
                                ;ROUTINE TO PRINT ERROR BYTES IN MESSAGE BUFFERS
                                ;       ONLY THE FIRST 8 ERRORS ENCOUNTERED ARE PRINTED DUE TO SCREEN SPACE
                                ;
                                ;       R0      - NUMBER OF BYTES IN BUFFER
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;-
                                PRBYTEXP::
                                        SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
                                        MOV     R0,R5                   ;SAVE NUMBER OF BYTES
                                        CLR     PRMNO                   ;INIT ERROR COUNT
                                        CLR     R4                      ;NUMBER OF THE CURRENT BYTE
                                        MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
                                        MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
                                20$:    MOVB    (R1),R0                 ;GET EXPD BYTE
                                        BIC     #^C<377>,R0             ;CLEAR UPPER BYTE
                                        MOVB    R0,PRBEXP               ;SAVE FOR ERROR REPORT
                                        MOVB    (R2),R3                 ;GET RECV BYTE
                                        BIC     #^C<377>,R3             ;CLEAR UPPER BYTE
                                        MOVB    R3,PRBREC               ;FOR ERROR REPORT
                                        XOR     R0,R3                   ;XOR EXPD/RECV
                                        CMPB    (R1)+,(R2)+             ;EXPD = RECV?
                                        BEQ     30$                     ;BR IF YES
                                        INC     PRMNO                   ;UPDATE ERROR COUNT
                                        CMP     PRMNO,#8.               ;PRINTED 8?
                                        BHI     30$                     ;BR IF YES
                                27$:    PRINTX  #PRBMSG,R4,PRBEXP,PRBREC,R3
                                        MOV     R3,-(SP)
                                        MOV     PRBREC,-(SP)
                                        MOV     PRBEXP,-(SP)
                                        MOV     R4,-(SP)
                                        MOV     #PRBMSG,-(SP)
                                        MOV     #5,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
                                        ADD     #14,SP
                                        FORCEXIT        50$             ;aad
                                        BR      35$                     ;aad
                                30$:
                                        FORCERROR  27$,NOTSSR           ;aad
                                35$:                                    ;aad
                                        INC     R4                      ;NUMBER OF THE NEXT
                                        CMP     R4,R5                   ;DONE ALL YET?
                                        BGE     50$                     ;BR IF YES
                                        BR      20$                     ;DO ANOTHER
                                50$:    PRINTX  #PRBTOT,PRMNO           ;PRINT TOTAL ERROR COUNT
                                        MOV     PRMNO,-(SP)
                                        MOV     #PRBTOT,-(SP)
                                        MOV     #2,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
```

```
        015420  062706  000006                  ADD     #6,SP
   1902 015424  000207                          RTS     PC              ;RETURN
   1903
   1904 015426     045     116     045  PRBMSG: .ASCIZ  '%N%A   BYTE #%D2%A  EXPD: %O3%A  RECV: %O3%A  XOR: %O3'
   1905 015513     045     116     045  PRBTOT: .ASCIZ  '%N%A NUMBER OF BYTES IN ERROR = %D2'
   1906                                  .EVEN
   1907 015560  000000                  PRBEXP: .WORD   0               ;EXPD
   1908 015562  000000                  PRBREC: .WORD   0               ;RECV
   1909
```

```
1911                                            .SBTTL  EXPREC  - PRINT EXPD/RECV WORD DATA
1912                                    ;+
1913                                    ;
1914                                    ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
1915                                    ;
1916                                    ;INPUTS:
1917                                    ;
1918                                    ;       R1      RECEIVED DATA
1919                                    ;       R2      EXPECTED DATA
1920                                    ;
1921                                    ;-
1922
1923 015564                             EXPREC::        BGNMSG  EXPREC
     015564
1924 015564  004737  010032                            JSR     PC,PRIXOR               ;PRINT THE DATA
1925 015570                                             ENDMSG
     015570                             L10017:
     015570  104423                                     TRAP    C$MSG
1926
1927
```

```
                                        .SBTTL  EXPBREC - PRINT EXPD/RECV BYTE DATA
                                ;+
                                ;
                                ;PRINT ROUTINE TO DISPLAY BYTE EXPD/RECV DATA
                                ;
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA BYTE
                                ;       R2      EXPECTED DATA BYTE
                                ;
                                ;-
                                ;
                                        BGNMSG  EXPBREC
                                EXPBREC::
015572  004737  007702                  JSR     PC,PRIBXOR              ;PRINT THE DATA
                                        ENDMSG
                                L10020:
015576  104423                          TRAP    C$MSG



                                        .SBTTL  RAMERR  - PRINT 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.
                                ;
                                ;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::
1997 015606  004737  010364             JSR     PC,PRITADD      ;PRINT TEST ADDRESS
1998 015612  004737  014066             JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
1999 015616                             ENDMSG
     015616                     L10022:
     015616  104423                     TRAP    C$MSG
2000
2001
2002                                    .SBTTL  RAMEXP  - PRINT RAM EXPD/RECV DATA
2003                            ;+
2004                            ;
2005                            ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
2006                            ;
2007                            ;INPUTS:
2008                            ;
2009                            ;       R1      RECEIVED DATA
2010                            ;       R2      EXPECTED DATA
2011                            ;       R4      CONTROLLER RAM ADDRESS
2012                            ;-
2013
2014 015620                             BGNMSG  RAMEXP
     015620                     RAMEXP::
2015 015620  042701  177400             BIC     #^C<377>,R1             ;SAVE EXPD RAM DATA BYTE
2016 015624  042702  177400             BIC     #^C<377>,R2             ;SAVE EXPD RAM DATA BYTE
2017 015630  004737  010156             JSR     PC,PRIRAM               ;PRINT THE RAM ADDRESS
2018 015634  004737  010032             JSR     PC,PRIXOR               ;PRINT THE DATA
2019 015640                             ENDMSG
     015640                     L10023:
     015640  104423                     TRAP    C$MSG
2020
2021
2022                                    .SBTTL  TIMEXP  - PRINT TIMER A,B AND EXP/REC
2023                            ;+
2024                            ;
2025                            ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
2026                            ;AND TIMER A,B HEADER MESSAGE
2027                            ;
2028                            ;INPUTS:
2029                            ;
2030                            ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
```

```
                                        ;-
                                
                                        BGNMSG  TIMEXP
                                TIMEXP::
                                        PRINTX  #TIMSG0                 ;PRINT HEADER
015642  012746  015670                   MOV     #TIMSG0,-(SP)
015646  012746  000001                   MOV     #1,-(SP)
015652  010600                           MOV     SP,R0
015654  104415                           TRAP    C$PNTX
015656  062706  000004                   ADD     #4,SP
015662  004737  010032                   JSR     PC,PRIXOR               ;PRINT THE DATA
                                        ENDMSG
                                L10024:
015666  104423                           TRAP    C$MSG

015670      045     116     045 TIMSG0: .ASCIZ  '%N%A TIMER A STATUS IS IN BIT 3%N%A TIMER B STATUS IS IN BIT 2'
                                .EVEN
```

```
                        .SBTTL  BADSSR - PRINT TSSR ERRORS ON DATA TRANSFERS

                ;+
                ;
                ;PRINT ROUTINE FOR TSSR ERRORS ON DATA TRANSFERS
                ;
                ;INPUTS:
                ;
                ;       R1      CONTENTS OF TSSR
                ;       R2      DATA WRITTEN (8 BITS)
                ;
                ;-

                        BGNMSG  BADSSR
                BADSSR::
                        MOV     R2,-(SP)                ;SAVE DATA TRANSFERRED
                        BIC     #177400,R2              ;GET JUST ONE BYTE
                        PRINTB  #XFERASC,R2
                        MOV     R2,-(SP)
                        MOV     #XFERASC,-(SP)
                        MOV     #2,-(SP)
                        MOV     SP,R0
                        TRAP    C$PNTB
                        ADD     #6,SP
                        MOV     (SP)+,R2                ;RESTORE R2
                        JSR     PC,PRITSSR              ;DECODE TSSR CONTENTS
                        ENDMSG
                L10025:
                        TRAP    C$MSG
016030  045  116  045  XFERASC:       .ASCIZ  '%N%A Data Transferred = %03'
```

```
                                .SBTTL  GLOBAL SUBROUTINES SECTION

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

```
                                .SBTTL  SOFINIT - SOFT INITIALIZE OF CONTROLLER

                        ;+
                        ;
                        ;ROUTINE TO DO A SOFT INITIALIZE OF THE CONTROLLER
                        ;BY WRITING INTO THE TSSR REGISTER. AFTER THE INIT,
                        ;THE TSSR REGISTER IS TESTED FOR ERRORS. ANY ERRORS
                        ;DETECTED SHOULD BE TREATED AS DEVICE FATAL ERRORS.
                        ;
                        ;INPUTS:
                        ;
                        ;       R5      ADDRESS OF FIRST REGISTER
                        ;
                        ;OUTPUTS:
                        ;
                        ;       R0      CONTENTS OF TSSR, IF ERROR
                        ;       CARRY   SET IF INIT WAS OKAY
                        ;               CLEAR IF FATAL ERROR
                        ;
                        ;CALLING SEQUENCE:
                        ;
                        ;       MOV     #ADDRESS,R5
                        ;       JSR     PC,SOFINIT
                        ;       BCS     CONTINUE
                        ;       ERRDF                   ;REPORT FATAL ERROR
                        ;
                        ;-

                        SOFINIT::
                                SAVREG                          ; SAVE THE REGISTERS
000000  012765  000000  000002        MOV     #0,TSSR(R5)     ; DO THE INIT.
016340  004737  016076                JSR     PC,WAITF        ; WAIT FOR SSR
000002  016500  016102                MOV     TSSR(R5),R0     ;GET THE TSSR REGISTER
010004  016106                        MOV     R0,R4           ;TSSR CONTENTS
176277  042704  016110                BIC     #^C<HIADDR!OFL>,R4
002200  052704  016114                BIS     #SSR!NBA,R4     ;R4 HAS EXPECTED CONTENTS
020400  016120                        CMP     R4,R0           ;ONLY EXPECTED BITS SET ?
001402  016122                        BEQ     5$              ;BRANCH IF OKAY
000241  016124                        CLC                     ;CLEAR THE CARRY FOR ERROR
000401  016126                        BR      10$             ;GO TO EXIT
000261  016130                5$:     SEC                     ;SET THE CARRY BIT
000207  016132                10$:    RTS     PC              ;RETURN TO CALLER
```

```
                        .SBTTL  CHKAMB  - CHECK TSSR FOR AMBIGUITY

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

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

```
                                        .SBTTL  ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS
                                ;
                                ; DEFAULT DISPLAY INTERRUPT HANDLERS.
                                ; IF DISPLAY TIME-OUT, REPORT DEV FATAL, AND ABORT PASS.
                                ; OTHERWISE, SAVE DPU REGISTERS AND DISMISS.
                                ;

                                ; BIT DEFINITIONS FOR "INTMASK" AND "INTFLAG" BYTES:
                                ;
 000200                                 IOKCKIN=BIT7    ; DON'T CHECK FOR BAD INTERRUPTS -- TEST WILL.
 000001                                 IOKSTP=BIT0     ; EXPECT "STOP" INTERRUPT.
                                ;
                                ;INTERRUPT MASK -- SAYS EXPECTING INTERRUPTS
016234     000                  INTMASK:        .BYTE   0
                                ;INTERRUPT FLAG -- SAYS WE GOT ONE (IF POSITIVE)
016235     000                  INTFLAG:        .BYTE   0

                                ;SAVED INTERRUPT VECTOR:
016236  000000                  INTVEC: .WORD   0
                                ;SAVE CPU PC
016240  000000                  INTCPC: .WORD   0

                                ;SUBROUTINE TO ENABLE INTERRUPTS:
016242  010046                  ENAINT: MOV     R0,-(SP)        ;SAVE R0
016244  013700  002200                  MOV     IVEC,R0         ;GET POINTER TO VECTORS
016250  012720  016306                  MOV     #INTR,(R0)+     ;SET UP INTERRUPT VECTOR
016254  012720  000340                  MOV     #PRI07,(R0)+
016260  012600                          MOV     (SP)+,R0        ;RESTORE R0
016262  011646                          MOV     (SP),-(SP)
016264  012766  000000  000002          MOV     #0,2(SP)        ;SET CPU TO LEVEL 0
016272  000002                          RTI

                                ;SUBROUTINE TO DISABLE INTERRUPTS (RAISE PRIORITY TO LEVEL 7)
016274  011646                  DSBINT: MOV     (SP),-(SP)
016276  012766  000340  000002          MOV     #PRI07,2(SP)
016304  000002                          RTI
```

```
2200                                            .SBTTL  INTR    - INTERRUPT HANDLERS
2201
2202 016306                                     BGNSRV  INTR            ;DEFINE INTERRUPT ENTRY
     016306                                INTR::
2203 016306  012737  000001  002214            MOV     #1,INTRECV      ;SET FLAG TO SHOW INTERRUPT RECEIVED
2204 016314  105037  016235                    CLRB    INTFLAG         ;CLEAR FLAG TO SAY WE GOT INTERRUPT
2205 016320  132737  000001  016234            BITB    #IOKSTP,INTMASK ;EXPECTING STOP INTERRUPT?
2206 016326  001003                            BNE     1$              ;BR IF YES
2207 016330  152737  000001  016235            BISB    #IOKSTP,INTFLAG ;NO. SET THE ERROR FLAG.
2208
2209                                          ;SAVE REGISTERS, MSG BUFFER, ETC.
2210 016336                                   1$:
2211 016336                                     ENDSRV
     016336                                L10026:
     016336  000002                            RTI
2212
2213
```

```
                        .SBTTL  WAITF   - WAIT FOR SUBSYSTEM READY
                ;
                ; SUBROUTINE TO WAIT FOR THE SUBSYSTEM READY FLAG
                ;
                ;INPUTS:
                ;
                ;       R5      ADDRESS OF FIRST DEVICE REGISTER
                ;
                ;OUTPUTS:
                ;
                ;       R0      CONTENTS OF LAST TSSR READ
                ;       CARRY   SET - READY BIT SET
                ;               CLR - TIMEOUT WAITING FOR READY
                ;
016340 000401           WAITF:: BR      1$              ;NOP WHEN SUPER FIXED
016342                          BREAK                   ; DO A SUPVSR BREAK FIRST.
016342 104422                   TRAP    C$BRK
016344 012746 003000    1$:     MOV     #3000,-(SP)     ;300 MSEC TIMER
016350 016500 000002    2$:     MOV     TSSR(R5),R0     ;READ THE TSSR REGISTER
016354 105700                   TSTB    R0              ;TEST FOR READY BIT SET
                ;
016356 100420                   BMI     3$              ; EXIT ON STOP FLAG.
016360                          DELAY   1               ; WAIT 100 USEC
016360 012727 000001            MOV     #1,(PC)+
016364 000000                   .WORD   0
016366 013727 002116            MOV     L$DLY,(PC)+
016372 000000                   .WORD   0
016374 005367 177772            DEC     -6(PC)
016400 001375                   BNE     .-4
016402 005367 177756            DEC     -22(PC)
016406 001367                   BNE     .-20
016410 005316                   DEC     (SP)            ;REDUCE DELAY COUNT
016412 001356                   BNE     2$              ;RETRY UNTIL TIMER EXPIRES
016414 000241                   CLC                     ; C = 0, CONTROLLER STILL RUNNING...
016416 000401                   BR      4$              ;...OR HUNG-UP AFTER 300 MSEC.
016420 000261           3$:     SEC                     ; C = 1, CONTROLLER IS STOPPED.
016422 005326           4$:     DEC     (SP)+           ;RESTORE STACK WITHOUT CHANGING CARRY BIT
016424 000207                   RTS     PC
```

```
                        .SBTTL  CHKTSSR - CHECK TSSR FOR READY

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

016426          CHKTSSR:
016426  004737  016340          JSR     PC,WAITF                ;WAIT FOR READY
016432  103014                  BCC     20$                     ;BRANCH IF TIME OUT
016434  004737  016134          JSR     PC,CHKAMB               ;TSSR AMBIGOUS?
016440  103006                  BCC     10$                     ;BR IF YES
016442  032700  100000          BIT     #SC,R0                  ;SPECIAL CONDITION SET?
016446  001405                  BEQ     15$                     ;BR IF NO
016450  032700  074000          BIT     #<SCE!BIE!RMR!NXM>,R0   ;ANY ERROR BITS SET?
016454  001402                  BEQ     15$                     ;BR IF NO
016456  000241          10$:    CLC                             ;SET FAILURE
016460  000401                  BR      20$                     ;
016462  000261          15$:    SEC                             ;SET SUCCESS
016464  000207          20$:    RTS     PC                      ;RETURN TO CALLER
```

```
                                        .SBTTL  XNXM    - CHECK FOR NONEXISTENT MEMORY
                                ;+
                                ; ROUTINE TO TEST FOR A NEXM IN THE RANGE (R1) THRU (R2).
                                ; ON RETURN, IF "C" = 1, (R1) = NEXM ADDRESS.
                                ;               "C" = 0, ALL ADDRESSES OK.
                                ;
                                ;CALL:  MOV ADR1,R1
                                ;       MOV ADR2,R2
                                ;       JSR PC,NXM
                                ;       RETURN          ;TEST "C" AND PROCEED.
                                ;
016466  012737  016520  000004  XNXM:   MOV     #2$,@#4         ; SET BUSERR VECTOR.
016474  012737  000200  000006          MOV     #PRI04,@#6
016502  005003                          CLR     R3              ;FLAG.
016504  005711                  1$:     TST     (R1)            ;TEST THE ADDRESS(ES).
                                                                ;IF ANY TRAP, CONTINUE AT 2$.
016506  020102                          CMP     R1,R2           ;OTHERWISE, CONTINUE HERE.
016510  001407                          BEQ     3$              ;BR IF FINISHED (NO NEXM'S).
016512  062701  000002                  ADD     #2,R1           ;SET NEXT ADDRESS...
016516  000772                          BR      1$              ;...AND CONTINUE.

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


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

```
                                        .SBTTL  TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS
                                ;+
                                ; PRINT THE NUMBER AND NAME OF EACH TEST AS WE GO ALONG.
                                ; INCREMENT "TESTK" TO INDICATE THE NUMBER OF TESTS
                                ; IN THE CURRENT RUN SEQUENCE.
                                ; CLEAR THE ERROR COUNTER AND SIGNATURE EXTENSION FLAGS.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      POINTER TO TEST ID ASCIZ STRING
                                ;
                                ;OUTPUT:
                                ;
                                ;       R5      ADDRESS OF FIRST DEVICE REGISTER
                                ;
                                ;IMPLICIT OUTPUTS:
                                ;
                                ;       TSTCNT  UPDATED TO COUNT TESTS PERFORMED SINCE START OR RESTART
                                ;
                                ;SIDE EFFECTS:
                                ;
                                ;       INTERRUPT LEVEL IS 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$DCLN
   2378 016714  000423                          BR      5$
   2379
   2380 016716                          4$:     RFLAGS  R0              ; GET THE OPERATOR FLAGS.
        016716  104421                          TRAP    C$RFLA
   2381 016720  032700  001000                  BIT     #PNT,R0         ; PRINT THE TEST NUMBERS?
   2382 016724  001412                          BEQ     1$              ; BR IF NO
   2383 016726  011600                          MOV     (SP),R0         ;GET THE ID MESSAGE
   2384 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
        016744  104417                          TRAP    C$PNTF
        016746  062706  000006                  ADD     #6,SP
   2385 016752  005237  002204          1$:     INC     TSTCNT          ; BUMP TEST COUNTER.
   2386 016756                                  SETPRI  IPRI            ;PRIORITY THAT OF DEVICE
        016756  013700  002202                  MOV     IPRI,R0
        016762  104441                          TRAP    C$SPRI
   2387 016764  005726                  5$:     TST     (SP)+           ;FIX UP THE STACK
   2388 016766  013705  002176                  MOV     CSRADDR,R5      ; ADDRESS OF TSV REGISTERS ON UNIBUS
   2389 016772  000207                          RTS     PC
   2390 016774     045     123     045  TNAM:   .ASCIZ  '%S%T%A Test'
   2391                                          .EVEN
```

```
                                        .SBTTL  TSTEND  - PRINT ERRORS RECEIVED
                                ;
                                ; AT END OF EACH TEST, PRINT THE NUMBER OF ERRORS RECEIVED
                                ; IF NORMAL ERROR REPORTING IS DISABLED (FLA:IER).
                                ;
017010                          TSTEND: RFLAGS  R0
017010  104421                          TRAP    C$RFLA
017012  030027  020000                  BIT     R0,#IER
017016  001412                          BEQ     1$              ; BR IF "IER" NOT SET.
017020                                  PRINTF  #ESUM,ERRK      ;   INT 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$PNTF
017040  062706  000006                  ADD     #6,SP
017044  000207                  1$:     RTS     PC

017046  000000                  ERRK:   0                       ; LOCAL ERROR COUNT.
017050     045     101     040  ESUM:   .ASCIZ  /%A %D%A ERRORS/
017067     105     122     122  EMAXDU: .ASCIZ  /ERROR LIMIT REACHED -- DROPPING UNIT/
                                        .EVEN


                                        .SBTTL  INCERK  - INCREMENT LOCAL ERROR COUNT
                                ;+
                                ; ROUTINES TO INCREMENT LOCAL ERROR COUNT AND CHECK FOR LIMIT:
                                ;-
017134  005237  017046          INCERK: INC     ERRK            ; INCREMENT LOCAL ERROR COUNT
017140  010046                          MOV     R0,-(SP)        ; SAVE R0
017142  013700  002172                  MOV     UNITN,R0        ; GET UNIT NUMBER,
017146  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET.
017150  062700  003166                  ADD     #ERTABL,R0      ; R0 GETS ADDRESS OF ERROR TABLE ENTRY.
017154  005210                          INC     (R0)            ; INCREMENT THE DEVICE ERROR COUNT
017156  032710  007777                  BIT     #7777,(R0)      ; DID WE OVERFLOW THE FIELD?
017162  001001                          BNE     1$              ; BR IF NO.
017164  005310                          DEC     (R0)            ; YES -- BACK IT UP TO 7777.
017166  012600                  1$:     MOV     (SP)+,R0        ; RESTORE R0
017170  000207                          RTS     PC              ; RETURN TO CALLER.

017172  010046                  CKEMAX: MOV     R0,-(SP)        ; SAVE R0
017174  013700  002172                  MOV     UNITN,R0        ; GET UNIT NUMBER
017200  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET
017202  016000  003166                  MOV     ERTABL(R0),R0   ; GET ERROR TABLE ENTRY
017206  042700  170000                  BIC     #170000,R0      ; EXTRACT ERROR COUNT FIELD
017212  020037  002164                  CMP     R0,GERRMAX      ; IS GLOBAL LIMIT EXCEEDED FOR THIS UNIT?
017216  103004                          BHIS    1$              ; BR IF YES
017220  023737  017046  002162          CMP     ERRK,LERRMAX    ; IS LOCAL LIMIT EXCEEDED FOR THIS TEST?
017226  103417                          BLO     2$              ; BR IF NO
017230                          1$:     RFLAGS  R0              ; GET OPERATOR FLAGS
017230  104421                          TRAP    C$RFLA
017232  032700  000040                  BIT     #IDU,R0         ; IS DROPPING INHIBITED?
017236  001013                          BNE     2$              ; BR IF YES.
017240  012737  177777  003102          MOV     #-1,DUFLG       ; NO -- DROP THE UNIT
017246                                  ERRDF   4,EMAXDU
017246  104455                          TRAP    C$ERDF
017250  000004                          .WORD   4
017252  017067                          .WORD   EMAXDU
```

```
        017254  000000                          .WORD   0
2439    017256                                  DODU    UNITN
        017256  013700  002172                  MOV     UNITN,R0
        017262  104451                          TRAP    C$DODU
2440    017264                                  DOCLN
        017264  104444                          TRAP    C$DCLN
2441    017266  012600                  2$:     MOV     (SP)+,R0        ; RESTORE R0
2442    017270  000207                          RTS     PC              ; RETURN TO CALLER
2443
```

```
                                        .SBTTL  CKDROP  - CHECK IF UNIT SHOULD BE DROPPED
                                ;+
                                ; CHECK IF UNIT SHOULD BE DROPPED
                                ;-
017272  010046                  CKDROP: MOV     R0,-(SP)
017274                                  FORCERROR       1$,NOTSSR
017304                                  RFLAGS  R0
017304  104421                          TRAP    C$RFLA
017306  032700  000040                  BIT     #IDU,R0
017312  001010                          BNE     1$
017314  011600                          MOV     (SP),R0
017316  012737  177777  003102          MOV     #-1,DUFLG
017324                                  DODU    UNITN
017324  013700  002172                  MOV     UNITN,R0
017330  104451                          TRAP    C$DODU
017332                                  DOCLN                   ;ABORT THE PASS
017332  104444                          TRAP    C$DCLN
017334  012600                  1$:     MOV     (SP)+,R0
017336  000207                          RTS     PC


                                        .SBTTL  CONFIG  - DETERMINE CONFIGURATION OF SYSTEM
                                ;
                                ; SUBROUTINE - DETERMINE CONFIGURATION OF TSV05 SYSTEM.
                                ;
017340                          CONFIG:
017340  004737  016064                  JSR     PC,SOFINIT
017344  000207                          RTS     PC
```

```
                                        .SBTTL  KTON,KTOFF      - ENABLE/DISABLE MEMORY MANAGEMENT
                                ;
                                ; SUBROUTINE - ENABLE MEM MGT.
                                ;
017346  005737  003122        KTON:   TST     KTFLG           ; GOT KT?
017352  001403                        BEQ     1$              ; NO.
017354  012737  000001  177572        MOV     #1,SR0          ; YES. ENABLE KT11.
017362  000207                1$:     RTS     PC

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

```
                        .SBTTL  SETMAP  - SETUP PAR6 MAPPING

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

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

```
2596
2597
```

```
                        .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.
                ;
                ; OUTPUTS:
                ;
                ;       CARRY   - SET IF NO ERROR
                ;       CARRY   - CLR IF ERROR
                ;
                ; IMPLICIT OUTPUTS:
                ;
                ;       ERRHI   - ERROR HIGH ADDRESS
                ;       ERRLO   - ERROR LOW ADDRESS
                ;       EXPD    - EXPECTED DATA
                ;       RECV    - RECEIVED DATA
                ;-
017750          CMPMEM:
017750                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
017754  010003          MOV     R0,R3           ;COPY TEST PATTERN
017756  004737  017364  JSR     PC,KTOFF        ;DISABLE KT.
017762  013701  003114  MOV     FREE,R1         ;GET FIRST FREE LOCATION
017766  013702  003116  MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
017772  020311          10$:    CMP     R3,(R1) ;FREE SPACE LOCATION EQUAL TO EXPD?
017774  001411          BEQ     15$             ;BR IF YES
017776  010137  002230  MOV     R1,ERRLO        ;SAVE ADDRESS IN ERROR
020002  005037  002226  CLR     ERRHI           ;NO HIGH ADDRESS
020006  010337  002222  MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
020012  011137  002224  MOV     (R1),RECV       ;SAVE RECV FOR ERROR REPORT
020016  000474          BR      50$             ;
020020  005721          15$:    TST     (R1)+   ;POINT TO NEXT ADDRESS
020022  005302          DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
020024  003362          BGT     10$             ;BR IF NO
020026  005737  003122  TST     KTFLG           ; GOT KT?
020032  001472          BEQ     55$             ; NO. GET OUT.
020034  004737  017346  JSR     PC,KTON         ; YES. ENABLE KT.
020040  005000          CLR     R0              ;HIGH ORDER ADDRESS START
020042  013701  003142  MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
                        .REPT   6
                        ROL     R1              ;CONVERT BLOCKS TO WORDS
                        ROL     R0              ;MAKE IT DOUBLE PRECISION
                        .ENDR
020076  042701  000177  BIC     #177,R1         ;ALINE 4K BOUNDARY
020102  010046          MOV     R0,-(SP)        ;SAVE HIGH ORDER
020104  010146          MOV     R1,-(SP)        ;SAVE LOW ORDER
020106  004737  017406  JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
020112  010004          MOV     R0,R4           ;COPY ADDRESS BIASED TO PAR6
020114  012601          MOV     (SP)+,R1        ;RESTORE LOW ORDER IN NON PAR6 FORMAT
020116  012600          MOV     (SP)+,R0        ;RESTORE HIGH ORDER IN NON PAR6 FORMAT
020120  020314          30$:    CMP     R3,(R4) ;ABOVE 28K LOCATION EQUAL EXPD?
020122  001411          BEQ     32$             ;BR IF YES
020124  010037  002226  MOV     R0,ERRHI        ;SAVE HIGH ORDER IN ERROR
```

```
2656 020130  010137  002230                MOV     R1,ERRLO        ;SAVE LOW ORDER IN ERROR
2657 020134  010337  002222                MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
2658 020140  011437  002224                MOV     (R4),RECV       ;SAVE RECV FOR ERROR REPORT
2659 020144  000421                        BR      50$             ;
2660 020146  062701  000002          32$:  ADD     #2,R1           ;UPDATE NON PAR6 ADDRESS
2661 020152  005500                        ADC     R0              ;MAKE IT DOUBLE PRECISION ADD
2662 020154  062704  000002                ADD     #2,R4           ;UPDATE PAR FORMAT ADDRESS
2663 020160  020427  160000                CMP     R4,#160000      ;END OF PAR6 MAPPING AREA?
2664 020164  103755                        BLO     30$             ;BR IF NO
2665 020166  162704  020000                SUB     #20000,R4       ;BACKUP INTO PAR6 MAPPING BEGIN
2666 020172  062737  000200  172354        ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
2667 020200  023737  172354  003122        CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
2668 020206  101744                        BLOS    30$             ;BR IF NO
2669 020210  004737  017364          50$:  JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2670 020214  000241                        CLC                     ;SET FAILURE
2671 020216  000403                        BR      60$             ;
2672 020220  004737  017364          55$:  JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2673 020224  000261                        SEC                     ;SET SUCCESS
2674 020226  000207                60$:  RTS     PC
2675
```

```
                        .SBTTL  REGSAV  - SAVE R1-R5 ON STACK
                ;+
                ;
                ;ROUTINE TO
                ;SAVE R1 THROUGH R5 ON THE STACK.
                ;
                ;CALLING SEQUENCE:
                ;
                ;       JSR     R5,REGSAV
                ;
                ;THIS IS A COOROUTINE WHICH TRANSFER CONTROL BACK TO
                ;THE CALLING ROUTINE. AT THE END OF THE CALLING ROUTINE,
                ;THE RTS PC RETURNS CONTROL TO THIS ROUTINE TO RESTORE
                ;REGISTERS.
                ;
                ;THIS ROUTINE SHOULD ONLY BE CALLED FROM ROUTINES WHICH ARE
                ;CALLED VIA A JSR PC INSTRUCTION
                ;
                ;-

020230          REGSAV:
020230  010446          MOV     R4,-(SP)
020232  010346          MOV     R3,-(SP)
020234  010246          MOV     R2,-(SP)
020236  010146          MOV     R1,-(SP)
020240  010546          MOV     R5,-(SP)
020242  016605  000012  MOV     10.(SP),R5
020246  004736          JSR     PC,@(SP)+
020250  012601          MOV     (SP)+,R1
020252  012602          MOV     (SP)+,R2
020254  012603          MOV     (SP)+,R3
020256  012604          MOV     (SP)+,R4
020260  012605          MOV     (SP)+,R5
020262  000207          RTS     PC
```

```
                        .SBTTL  GETPAT  - GET 8 BIT PATTERN FROM OPERATOR
                ;+
                ;
                ;ROUTINE TO REQUEST AN 8 BIT DATA PATTERN FROM THE OPERATOR
                ;
                ;INPUTS:
                ;
                ;       NONE.
                ;
                ;OUTPUTS:
                ;
                ;       R0      OCTAL NUMBER FROM THE OPERATOR
                ;
                ;CALLING SEQUENCE:
                ;
                ;       JSR     PC,GETPAT
                ;
                ;-
                GETPAT::
                        SAVREG                          ;SAVE THE GENERAL REGISTERS
020264          1$:     GMANID  DATASC,PATDAT,0,377,0,377,NO
020270  104443          TRAP    C$GMAN
020272  000406          BR      10000$
020274  020320          .WORD   PATDAT
020276  000022          .WORD   T$CODE
020300  020322          .WORD   DATASC
020302  000377          .WORD   377
020304  000000          .WORD   T$LOLIM
020306  000377          .WORD   T$HILIM
020310                  10000$:
020310                          BNCOMPLETE      1$      ;RETRY IF ERROR
020310  103367          BCC     1$
020312  013700  020320        MOV     PATDAT,R0       ;DATA PATTERN FROM OPERATOR
020316  000207          RTS     PC                      ;RETURN TO CALLER

                ;+
                ;LOCAL DATA AREA
                ;-

020320  000000          PATDAT: .WORD   0               ;TEMPORARY STORAGE FOR DATA
020322      105     116     124 DATASC: .ASCIZ  'ENTER DATA PATTERN'
                                .EVEN
```

```
                        .SBTTL  GETSEL  - ISSUE MENU AND GET OPERATOR RESPONSE
                ;+
                ;
                ;ROUTINE TO ISSUE A MENU AND GET
                ;THE OPERATOR'S RESPONSE.
                ;
                ;INPUTS:
                ;
                ;       R0      ADDRESS OF ASCIZ STRING OF MENU
                ;       R1      MAXIMUM ALLOWABLE OPERATOR RESPONSE
                ;
                ;OUTPUTS:
                ;
                ;       R0      NUMBER OF THE OPERATOR'S SELECTION
                ;
                ;-

020346          GETSEL::
                        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
020362  012346          MOV     (R3)+,-(SP)
020364  012746  020532  MOV     #SELASC,-(SP)
020370  012746  000002  MOV     #2,-(SP)
020374  010600          MOV     SP,R0
020376  104417          TRAP    C$PNTF
020400  062706  000006  ADD     #6,SP
020404  000764          BR      2$
020406          3$:     GMANID  MENASC,MENRES,D,-1,0,-1,NO
020406  104443          TRAP    C$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$HILIM
020426          10001$:
020426                  BNCOMPLETE      1$              ;RETRY IF ERROR
020426  103352          BCC     1$
020430  013700  020566  MOV     MENRES,R0               ;GET THE OPERATOR'S REPLY
020434  020001          CMP     R0,R1                   ;COMPARE TO MAXIMUM ALLOWED
020436  101411          BLOS    5$                      ;BRANCH IF OK
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$PNTF
020454  062706  000004  ADD     #4,SP
020460  000735          BR      1$                      ;RETRY
020462  000207  5$:     RTS     PC                      ;RETURN TO CALLER
020464    045   116   045  MENERR: .ASCIZ  '%N%A *** Menu Selection Too Large ***'
020532    045   116   045  SELASC: .ASCIZ  '%N%T'
020537    105   156   164  MENASC: .ASCIZ  'Enter Menu Selection: '
```

```
2783                                    .EVEN
2784 020566  000000               MENRES:      .WORD   0
```

```
                        .SBTTL  CHKMAN  - CHECK MANUAL INTERVENTION LEGALITY
                ;+
                ;
                ;ROUTINE TO TEST FOR MANUAL INTERVENTION LEGALITY.
                ;
                ;INPUT:
                ;
                ;       NONE.
                ;
                ;OUTPUT:
                ;
                ;       CARRY   0       MANUAL INTERVENTION NOT ALLOWED
                ;               1       MANUAL INTERVENTION IS OK
                ;
                ;SIDE EFFECTS:
                ;
                ;       A MESSAGE IS DISPLAYED WARNING THAT TEST IS
                ;       NOT EXECUTED IF MANUAL INTERVENTION IS NOT
                ;       ALLOWED.
                ;
                ;-

020570          CHKMAN::
020570                  SAVREG                  ;SAVE THE REGISTERS
020574                  MANUAL                  ;SEE IF MANUAL INTERVENTION OK
020574  104450          TRAP    C$MANI
020576                  BCOMPLETE 1$            ;BRANCH IF ALLOWED
020576  103411          BCS     1$
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$PNTF
020614  062706  000004  ADD     #4,SP
020620  000241          CLC                     ;CLEAR CARRY FOR ERROR
020622  000207          1$:     RTS     PC      ;RETURN

020624      045     116     045 NOMAN:  .ASCIZ  '%N%A *** Manual Intervention not Allowed - Test Aborted ***'
                                    .even
```

```
                        .SBTTL  ENVIRN  - SETUP FREE DIAGNOSTIC SPACE
                ;
                ; SUBROUTINE TO SET-UP VARIOUS ENVIRONMENTAL PARAMETERS.
                ;
020720          ENVIRN: MEMORY  R0
020720 104431           TRAP    C$MEM
020722 010037 003114    MOV     R0,FREE         ; GET 1ST FREE ADDRESS...
020726 062737 000002 003114     ADD     #2,FREE
020734 011037 003116    MOV     (R0),FRESIZ     ;...AND WORD COUNT.
020740 162737 000004 003116     SUB     #4,FRESIZ
020746 013702 002012    MOV     L$UNIT,R2       ; GET NUMBER OF UNITS
020752 162737 000007 003116 10$:        SUB     #7,FRESIZ       ; TAKE AWAY 7 WORDS PER UNIT
020760 005302           DEC     R2
020762 001373           BNE     10$
020764 013700 003114    MOV     FREE,R0         ;GET FIRST FREE ADDRESS
020770 063700 003116    ADD     FRESIZ,R0       ;POINT TO LAST FREE ADDRESS
020774 162700 000002    SUB     #2,R0           ;BACKUP 1 WORD
021000 010037 003120    MOV     R0,FREEH        ;STORE LAST FREE ADDRESS
021004 000240           NOP                     ;*****************************************
021006 012701 177520    MOV     #BDVPCR,R1      ;GET BDV11 PCR ADDRESS
021012 010102           MOV     R1,R2           ;COPY TO R2
021014 062702 000002    ADD     #2,R2           ;SET THE RANGE
021020 004737 016466    JSR     PC,XNXM         ;SEE IF WE HAVE ONE
021024 103001           BCC     15$             ;OK TO SET FLAGS
021026 000445           BR      40$             ;RETURN WITH FLAGS CLEAR
021030 013701 177520 15$:       MOV     BDVPCR,R1       ;SAVE PCR CONTENTS
021034 062701 000001    ADD     #1,R1           ;ADD ONE TO IT
021040 012702 177520    MOV     #BDVPCR,R2      ;GET BDV11 PCR ADDRESS
021044 005212           INC     (R2)            ;TRY TO WRITE TO IT
021046 013703 177520    MOV     BDVPCR,R3       ;GET RESULTS
021052 020103           CMP     R1,R3           ;DID IT CHANGE?
021054 001017           BNE     20$             ;NO, MUST BE 11/23B
021056 005237 003134    INC     T23A            ;SET THE FLAG
021062 042737 170000 002120     BIC     #170000,L$HIME  ;SUPERVISOR COULD BE WRONG
021070 000240           NOP                     ;BR 40$ FOR RELEASE
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$PNTF
021106 062706 000004    ADD     #4,SP
021112 000413           BR      40$             ;RETURN
021114 005237 003136 20$:       INC     T23B            ;SET THE FLAG
021120 000240           NOP                     ;BR 40$ FOR RELEASE
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$PNTF
021136 062706 000004    ADD     #4,SP
021142 000207 40$:      RTS     PC              ;RETURN
```

```
                                        .SBTTL  KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS
                                ;+
                                ;
                                ;ROUTINE TO INIT KT-11
                                ;
                                ;-

021144                          KTINIT:
021144  005037  003122                  CLR     KTFLG           ; INIT >28K MEMORY FLAG
021150  005037  003124                  CLR     KTENABLE        ; INIT TEST >28K FLAG
021154  023727  002120  001577          CMP     L$HIME,#1577    ; GOT ENOUGH MEMORY (>28K)?
021162  101444                          BLOS    9$              ; NO.
021164  013700  000004                  MOV     @#ERRVEC,R0     ; SAVE OLD ERR VEC PTR.
021170  012737  021262  000004          MOV     #2$,@#ERRVEC    ; SET ERR VEC PTR.
021176  005737  177572                  TST     @#SR0           ; GOT KT11?
021202  000240                          NOP                     ;  (TRAP IF NO).
021204  013737  002120  003122          MOV     L$HIME,KTFLG    ; YES. SET KT FLAG.
021212  042737  000177  003122          BIC     #177,KTFLG      ;
021220  010037  000004                  MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
021224  005000                          CLR     R0              ; R0 = AR DATA.
021226  012701  172340                  MOV     #KIPAR0,R1      ; R1 = KI REGS PTR.
021232  012761  077406  177740  1$:     MOV     #77406,-40(R1)  ; SET DESCRIPTOR REG.
021240  010021                          MOV     R0,(R1)+        ; SET KIPAR REG.
021242  062700  000200                  ADD     #200,R0         ; BUMP AR DATA BY "4K".
021246  020027  002000                  CMP     R0,#2000        ; AT "I/O"?
021252  001367                          BNE     1$              ; NO.
021254  012741  177600                  MOV     #177600,-(R1)   ; YES. SET KTPAR7 FOR I/O.
021260  000405                          BR      9$
                                ;
021262  012716  021270          2$:     MOV     #6$,(SP)        ; SET UP RETURN
021266  000002                          RTI                     ; RTI TO NEXT LOCATION
                                ;
021270  010037  000004          6$:     MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
                                ;
021274  000207                  9$:     RTS     PC
```

```
                        ;+
                        ;       SUBROUTINE TO SET EXTENDED FEATURES SWITCH
                        ;
                        ;       Requires that SOFINIT and WRTCHR have been done previous to call.
                        ;
                        ;
                        ;INPUTS:
                        ;       R5      CURRENT UNIT NUMBER
                        ;OUTPUTS:
                        ;       The Extended Features Switch is set.
                        ;
                        ;-

021276                  INVERT::

021276  005737  002216          TST     EXTFEA                  ; IS SWITCH SET?
021302  001020                  BNE     1$                      ; YES,EXIT STAGE RIGHT!(or the next one outa town!)
021304  012737  100206  021350  MOV     #100206,CMDPKT          ; WRT SUB-SYS MEM CMD
021312  012737  021360  021352  MOV     #WSMBK,CMDPKT+2         ; MSG BUF ADDR
021320  012737  000006  021356  MOV     #6,CMDPKT+6             ; BYTE COUNT
021326  012737  100010  021360  MOV     #100010,WSMBK           ; INVERT THE SWITCH
021334  012704  021350          MOV     #CMDPKT,R4              ; SET CMDPKT INTO R4
021340  004737  010752          JSR     PC,WRTCHR               ; DO IT
021344  000207          1$:     RTS     PC                      ; RETURN


                        ;       COMMAND PACKET.

        021350          .       =       <.+3>&177774    ;MUST BE ON MOD 4 BOUNDRY.

021350  000000          CMDPKT:: 0                      ;1ST WORD IS TSO5 COMMAND.
021352  000000                    0                     ;2ND WORD IS THE BUFFER LOW ADDRESS.
021354  000000                    0                     ;3RD WORD IS THE BUFFER HIGH ADDRESS.
021356  000000                    0                     ;4TH WORD IS THE BYTE/RECORD/FILE COUNT.


                        ;       WRITE SUB-SYSTEM MEMORY CHARACTERISTIC BLOCK.

021360  000000          WSMBK:: 0                       ;1ST WORD:: SEL 0
021362  000000                  0                       ;2ND WORD:: SEL 2
021364  000000                  0                       ;3RD WORD:: SEL 4
                                .EVEN
```

```
                                        ;+
                                        ;       SUBROUTINE TO CHECK WETHER OR NOT WE'LL TEST NXM
                                        ;
                                        ;
                                        ;INPUTS:
                                        ;OUTPUTS:
                                        ;       The NXMFLG is set if we can test.
                                        ;       The NXMLO and NXMHI addresses are setup.
                                        ;-

021366                                  MEMCK::

021366                                          SAVREG                          ;SAVE THE REGISTERS
021372  005037  003126                          CLR     NXMFLG                  ;CLEAR THE FLAG
021376  005037  003130                          CLR     NXMLO                   ;CLEAR THE TEST ADDRESS LO
021402  005037  003132                          CLR     NXMHI                   ;CLEAR THE TEST ADDRESS HI
021406  005737  003136                          TST     T23B                    ;IS IT A 11/23B?
021412  001407                                  BEQ     1$                      ;NO
021414  023727  002120  007777                  CMP     L$HIME,#7777            ; GREATER THAN 128K
021422  103406                                  BLO     2$                      ; NO
021424  004737  021542                          JSR     PC,NXMTST               ;SETUP THE ADDRESS
021430  000427                                  BR      13$                     ;SET THE FLAG AND EXIT
021432  005737  003134          1$:             TST     T23A                    ;IS IT A 11/23A?
021436  001413                                  BEQ     4$                      ;NO
021440  023727  002120  005777  2$:             CMP     L$HIME,#5777            ;GREATER THAN 96K
021446  101023                                  BHI     14$                     ;YES,23A/23B WITH 128K MEMORY
021450  023727  002120  003777                  CMP     L$HIME,#3777            ;GREATER THAN 64K BUT LESS THAN 92K?
021456  103403                                  BLO     4$                      ;NO, CHECK 24K
021460  004737  021542                          JSR     PC,NXMTST               ;SETUP THE ADDRESS
021464  000411                                  BR      13$                     ;SET THE FLAG AND EXIT
021466  023727  002120  001577  4$:             CMP     L$HIME,#1577            ;GREATER THAN 24K BUT LESS THAN 64K?
021474  103410                                  BLO     14$                     ;NO, TELL THEM AND EXIT WITH FLAG CLEAR
021476  004737  021542                          JSR     PC,NXMTST               ;SETUP THE ADDRESS
021502  062737  000077  003132                  ADD     #77,NXMHI               ;FOOL THE 11/02 & 11/03
021510  005237  003126          13$:            INC     NXMFLG                  ;SET THE FLAG
021514  000411                                  BR      15$                     ;EXIT
021516  000410                  14$:            BR      15$                     ;NOP FOR PRINTOUT
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$PNTF
021534  062706  000004                          ADD     #4,SP
021540  000207                  15$:            RTS     PC                      ;RETURN

                                        ;+
                                        ;       SUBROUTINE TO SETUP THE NXM ADDRESS FOR TESTING
                                        ;
                                        ;OUTPUTS:NXMLO,NXMHI                    ;SETUP WITH NXM ADDRESS
                                        ;
                                        ;-

021542  013701  002120          NXMTST: MOV     L$HIME,R1                       ;GET TOP OF MEMORY
021546  062701  000200                  ADD     #200,R1                         ;MAKE IT I/O BLOCK OR OTHER NXM
021552  042701  000177                  BIC     #177,R1
021556  010102                          MOV     R1,R2                           ;RESAVE RESULTS
```

```
                000006                          .REPT   6
                                                ASL     R1              ;PUT IN PLACE FOR XFER
                                                .ENDR
021574  010137  003130                          MOV     R1,NXMLO        ;SAVE TEST ADDRESS LOW
                000012                          .REPT   10.
                                                ASR     R2              ;PUT IN PLACE FOR XFER
                                                .ENDR
021624  042702  177700                          BIC     #177700,R2      ;DON'T WANT ILA!
021630  010237  003132                          MOV     R2,NXMHI        ;SAVE TEST ADDRESS HIGH
021634  000207                                  RTS     PC              ;RETURN


021636                                          ENDMOD
```

```
                                .TITLE  TSV4 - MISCELLANEOUS SECTIONS

                                BGNMOD  TSV4
021636                  TSV4::
021636
```

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

```
                                        .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$INIT::
021646  005037  002216          40$:    CLR     EXTFEA
021652  005037  003126                  CLR     NXMFLG
021656  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY MESSAGE FOR REPLACEMENT
021664  005037  003144                  CLR     SIFLAG                  ;CLEAR "SOFT INIT" FLAG
021670  005037  003124                  CLR     KTENABLE                ;CLEAR TEST ABOVE 28K FLAG
021674  005037  002272                  CLR     RAMSIZ                  ;CLEAR RAM SIZE FOR RAMERR ROUTINE
021700                                  READEF  #EF.CONTINUE
021700  012700  000036                  MOV     #EF.CONTINUE,R0
021704  104447                          TRAP    C$REFG
021706                                  BNCOMPLETE 1$
021706  103023                          BCC     1$
021710  023737  002172  002012          CMP     UNITN,L$UNIT            ;UNIT IN RANGE?
021716  103070                          BHIS    4$                      ;BR IF NO.
021720  005737  003102                  TST     DUFLG                   ;DROPPED UNIT?
021724  100472                          BMI     NXTU                    ;BR IF YES
021726  013701  002172                  MOV     UNITN,R1
021732  006301                          ASL     R1
021734  005761  003166                  TST     ERTABL(R1)
021740  001516                          BEQ     SETU
021742  032761  040000  003166          BIT     #BIT14,ERTABL(R1)       ;DROPPED?
021750  001060                          BNE     NXTU
021752                                  EXIT    INIT                    ;DO NOTHING IF "CONTINUE".
021752  104432                          TRAP    C$EXIT
021754  000416                          .WORD   L10030-.
021756                          1$:     READEF  #EF.NEW
021756  012700  000035                  MOV     #EF.NEW,R0
021762  104447                          TRAP    C$REFG
021764                                  BNCOMPLETE NXTU                 ;TAKE NEXT UNIT IF NOT NEW PASS.
021764  103052                          BCC     NXTU
021766                                  READEF  #EF.START
021766  012700  000040                  MOV     #EF.START,R0
021772  104447                          TRAP    C$REFG
021774                                  BCOMPLETE 2$
021774  103404                          BCS     2$
021776                                  READEF  #EF.RESTART
021776  012700  000037                  MOV     #EF.RESTART,R0
022002  104447                          TRAP    C$REFG
022004                                  BNCOMPLETE 31$
022004  103031                          BCC     31$
022006                          2$:                                     ;1ST PASS, BUS-INIT...
022006                                  BRESET                          ;BUS RESET.
022006  104433                          TRAP    C$RESET
```

```
                                                CLR     TSTCNT                  ;NUMBER OF TESTS RUN IN PASS
                                                CLR     FATFLG                  ;CLEAR FATAL ERROR COUNT
                                                CLR     T23A                    ;CLEAR 11/23A FLAG
                                                CLR     T23B                    ;CLEAR 11/23B FLAG
                                        ;       MOV     #340,-(SP)
                                        ;       MOV     #20$,-(SP)              ;RETURN TO DEBUGGER
                                        ;       JMP     0.ODT           ;;@@ENTER THE DEBUGGER
022030  005037  003370                          CLR     SKIPT           ;CLEAR THE SUBTEST "SKIPPER"
022034                                  20$:
022034  012737  177777  002174                  MOV     #-1,QVP                 ;...QUICK VERIFY...
022042  004737  020720                          JSR     PC,ENVIRN               ;SET ENVIRONMENT.
022046  004737  021144                          JSR     PC,KTINIT               ;INITIALIZE KT MEMORY MANAGEMENT
022052  012700  003166                          MOV     #ERTABL,R0
022056  005020                          30$:    CLR     (R0)+                   ;CLEAR THE ERROR TABLE
022060  020027  003366                          CMP     R0,#ERTABE
022064  103774                                  BLO     30$
022066  000404                                  BR      4$
022070  005037  002174                  31$:    CLR     QVP
022074  000137  022144                          JMP     PASRPT                  ;GO REPORT THE STATUS

022100                                  4$:
022100  012737  177777  002172          NEWPAS: MOV     #-1,UNITN               ;INIT UNIT NUMBER...
022106  005037  002210                          CLR     DEVCNT                  ;CLEAR COUNT OF DEVICES RUNNING
022112                                  NXTU:   BREAK
022112  104422                                  TRAP    C$BRK
022114  005237  002172                          INC     UNITN                   ;...AND SET NEXT UNIT NUMBER.
022120  023737  002172  002012                  CMP     UNITN,L$UNIT
022126  103423                                  BLO     SETU
022130  012737  177777  003102                  MOV     #-1,DUFLG
022136  000401                                  BR      11$
022140                                          DOCLN                           ;ABORT, NO MORE UNITS.
022140  104444                                  TRAP    C$DCLN
022142  000240                          11$:    NOP
022144                                  PASRPT:
022144  023727  002012  000001                  CMP     L$UNIT,#1               ;HOW MANY UNITS SELECTED?
022152  101752                                  BLOS    NEWPAS                  ;BR IF ONLY 1
022154  005737  002210                          TST     DEVCNT                  ;ARE ANY STILL RUNNING?
022160  001747                                  BEQ     NEWPAS                  ;BR IF NO
022162                                          RFLAGS  R0
022162  104421                                  TRAP    C$RFLA
022164  032700  000100                          BIT     #ISR,R0                 ;SHOULD WE PRINT STATISTICS
022170  001343                                  BNE     NEWPAS                  ;BR IF NO

022172                                          DORPT
022172  104424                                  TRAP    C$DRPT
022174  000741                                  BR      NEWPAS
022176                                  10$:

022176                                  SETU:   GPHARD  UNITN,R0                ;GET UNIT N P-TABLE POINTER.
022176  013700  002172                          MOV     UNITN,R0
022202  104442                                  TRAP    C$GPHRD
022204                                          BNCOMPLETE NXTU                 ;BR IF UNIT NOT AVAILABLE.
022204  103342                                  BCC     NXTU
022206  005037  003102                          CLR     DUFLG                   ;CLEAR "DROPPED" FLAG.
022212  005237  002210                          INC     DEVCNT
022216  012001                                  MOV     (R0)+,R1                ;GET 1ST REGISTER ADDRESS.
022220  010137  002176                          MOV     R1,CSRADDR              ;ADDRESS OF REGISTERS OF UNIT UNDER TEST
```

```
                                                ;GET VECTOR ADDRESS.
                                                ;GET INTERRUPT PRIORITY
                                                ;SET INTERRUPT PRIORITY.
                                                ;SET INTERRUPT VECTOR POINTER...
                                                ;...VECTOR...
                                                ;...AND PRIORITY.

                                                ;1ST PASS ??
                                                ;NO, SKIP THE PASS 1 STUFF.

                                                ;SAY DEVICE RUNNING
                                                ;CLEAR ERROR EXTENSION FLAG.
                                                ;ARE WE TESTING MULTIPLE UNITS?
                                                ;BR IF NO.
                                                ;YES -- GET OPERATOR FLAGS.

                                                ;SHOULD WE PRINT UNIT #?
                                                ;BR IF NOT.
                                                ;PRINT THE UNIT #

                                                ;ADDRESS OF FIRST REGISTER
                                                ;START OF REGISTERS
                                                ;ADDRESS OF TSSR REGISTER
                                                ;TEST BOTH CONTROLLER REGISTERS...
                                                ;...AND BR IF ALL OK.
                                                ;FLAG DEVICE AS NON-EXISTENT
                                                ;DROP THIS UNIT.

                                                ;ENABLE INTERRUPTS.

```

```
                        .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.
                ;--
022442                  BGNAU
022442          L$AU::
022442 010001           MOV     R0,R1                   ; GET UNIT TO BE ADDED (R0)
022444 006301           ASL     R1                      ; MAKE IT A WORD INDEX
022446 052761 100000 003166     BIS     #100000,ERTABL(R1)      ; SET THE "ACTIVE" BIT
022454 042761 040000 003166     BIC     #40000,ERTABL(R1)       ; CLEAR THE "DROPPED" BIT
022462                  PRINTF  #1$,R0
022462 010046           MOV     R0,-(SP)
022464 012746 022510    MOV     #1$,-(SP)
022470 012746 000002    MOV     #2,-(SP)
022474 010600           MOV     SP,R0
022476 104417           TRAP    C$PNTF
022500 062706 000006    ADD     #6,SP
022504                  EXIT    AU
022504 000167           .WORD   J$JMP
022506 000026           .WORD   L10031-2-.
022510    045   116   045 1$:   .ASCIZ  /%N%A  UNIT %D%A ADDED/
                        .EVEN

                        ENDAU           ; UNUSED.
022536          L10031:
022536 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.

022540                  BGNDU
022540          L$DU:.
022540 012737 177777 003102     MOV     #-1,DUFLG
022546 010001           MOV     R0,R1
022550 006301           ASL     R1
022552 052761 140000 003166     BIS     #140000,ERTABL(R1)      ; SAY DROPPED
022560 000240 000240 000240     240,240,240             ; ?????????
022566                  PRINTF  #1$,R0
022566 010046           MOV     R0,-(SP)
022570 012746 022614    MOV     #1$,-(SP)
022574 012746 000002    MOV     #2,-(SP)
022600 010600           MOV     SP,R0
022602 104417           TRAP    C$PNTF
022604 062706 000006    ADD     #6,SP
022610                  EXIT    DU
022610 000167           .WORD   J$JMP
022612 000030           .WORD   L10032-2-.
```

```
 197 022614     045     116     045 1$:     .ASCIZ  /%N%A  UNIT %D%A DROPPED/
 198                                         .EVEN
 199 022644                                  ENDDU
     022644                          L10032:
     022644  104453                         TRAP    C$DU
 200                                 ;++
 201                                 ; AUTO-DROP CODE SECTION.
 202                                 ;--
 203 022646                                  BGNAUTO
     022646                          L$AUTO::
 204 022646  013705  002176                 MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
 205 022652  012703  000550                 MOV     #360.,R3                ;ENOUGH TIME FOR 2400' REEL TO REWIND
 206 022656  004737  016340         10$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 207 022662  103420                         BCS     20$                     ;LEAVE WHEN SSR IS SET
 208 022664                                  DELAY   250.                    ;WAIT FOR .25 SECONDS
     022664  012727  000372                 MOV     #250.,(PC)+
     022670  000000                         .WORD   0
     022672  013727  002116                 MOV     L$DLY,(PC)+
     022676  000000                         .WORD   0
     022700  005367  177772                 DEC     -6(PC)
     022704  001375                         BNE     .-4
     022706  005367  177756                 DEC     -22(PC)
     022712  001367                         BNE     .-20
 209 022714  005303                         DEC     R3                      ;BUMP COUNTER DOWN
 210 022716  001357                         BNE     10$                     ;KEEP GOING
 211 022720  004737  017272                 JSR     PC,CKDROP               ;TRY AND DROP UNIT
 212 022724                          20$:
 213 022724                                  ENDAUTO                 ; UNUSED.
     022724                          L10033:
     022724  104461                         TRAP    C$AUTO
```

```
                                        .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.
                                ;--
022726                                  BGNCLN
022726                          L$CLEAN::
022726  013705  002176                  MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
022732  005737  003102                  TST     DUFLG           ;"DROPPED" FLAG IS SET ON...
022736  100405                          BMI     1$              ;...AND GROSS CONTROLLER FAULT...
                                                                ;...DON'T TRY TO XCT CLEANUP CODE.

022740  012765  000000  000002          MOV     #0,TSSR(R5)     ;DO SOFT INIT
022746  004737  016340                  JSR     PC,WAITF
022752                          1$:
022752                          2$:     ENDCLN
022752                          L10034:
022752  104412                          TRAP    C$CLEAN
                                ;++
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;--
022754                                  BGNRPT
022754                          L$RPT::
022754                                  PRINTS  #DEVSUM
022754  012746  023216                  MOV     #DEVSUM,-(SP)
022760  012746  000001                  MOV     #1,-(SP)
022764  010600                          MOV     SP,R0
022766  104416                          TRAP    C$PNTS
022770  062706  000004                  ADD     #4,SP
022774  010246                          MOV     R2,-(SP)
022776  010346                          MOV     R3,-(SP)
023000  010446                          MOV     R4,-(SP)
023002  012704  003166                  MOV     #ERTABL,R4      ; GET START OF ERROR TABLE.
023006  005003                          CLR     R3              ; CLEAR UNIT NUMBER
023010  011402                  1$:     MOV     (R4),R2         ; GET ERROR TABLE ENTRY & TEST IT.
023012  001467                          BEQ     4$              ; ZERO IF UNIT NOT RUN
023014  100066                          BPL     4$
023016  032702  040000                  BIT     #BIT14,R2       ; WAS UNIT DROPPED?
023022  001015                          BNE     2$              ; BR IF YES
023024  042702  170000                  BIC     #^C7777,R2      ; GET ERROR COUNT FIELD
023030                                  PRINTS  #DEVONL,R3,R2   ; PRINT
023030  010246                          MOV     R2,-(SP)
023032  010346                          MOV     R3,-(SP)
023034  012746  023253                  MOV     #DEVONL,-(SP)
023040  012746  000003                  MOV     #3,-(SP)
023044  010600                          MOV     SP,R0
023046  104416                          TRAP    C$PNTS
023050  062706  000010                  ADD     #10,SP
023054  000446                          BR      4$
023056  020227  160000          2$:     CMP     R2,#160000      ; WAS UNIT NON-EXISTENT?
023062  001012                          BNE     3$              ; BR IF NO
023064                                  PRINTS  #DEVNXR,R3
023064  010346                          MOV     R3,-(SP)
023066  012746  023323                  MOV     #DEVNXR,-(SP)
```

```
                023072  012746  000002                  MOV     #2,-(SP)
                023076  010600                          MOV     SP,R0
                023100  104416                          TRAP    C$PNTS
                023102  062706  000006                  ADD     #6,SP
    254         023106  000431                          BR      4$
    255         023110  020227  160001          3$:     CMP     R2,#160001      ; WAS UNIT NOT READY AT STARTUP?
    256         023114  001012                          BNE     30$             ; BR IF NO.
    257         023116                                  PRINTS  #DEVNRD,R3
                023116  010346                          MOV     R3,-(SP)
                023120  012746  023405                  MOV     #DEVNRD,-(SP)
                023124  012746  000002                  MOV     #2,-(SP)
                023130  010600                          MOV     SP,R0
                023132  104416                          TRAP    C$PNTS
                023134  062706  000006                  ADD     #6,SP
    258         023140  000414                          BR      4$
    259         023142  042702  170000          30$:    BIC     #^C7777,R2
    260         023146                                  PRINTS  #DEVDRO,R3,R2
                023146  010246                          MOV     R2,-(SP)
                023150  010346                          MOV     R3,-(SP)
                023152  012746  023466                  MOV     #DEVDRO,-(SP)
                023156  012746  000003                  MOV     #3,-(SP)
                023162  010600                          MOV     SP,R0
                023164  104416                          TRAP    C$PNTS
                023166  062706  000010                  ADD     #10,SP
    261         023172  062704  000002          4$:     ADD     #2,R4
    262         023176  005203                          INC     R3
    263         023200  020427  003366                  CMP     R4,#ERTABE
    264         023204  103701                          BLO     1$
    265         023206  012604                          MOV     (SP)+,R4
    266         023210  012603                          MOV     (SP)+,R3
    267         023212  012602                          MOV     (SP)+,R2
    268         023214                                  ENDRPT          ; UNUSED.
                023214                          L10035:
                023214  104425                          TRAP    C$RPT
    269
    270
    271 023216      045     116     045  DEVSUM: .ASCIZ  /%N%ADEVICE STATUS SUMMARY:%N/
    272 023253      045     101     040  DEVONL: .ASCIZ  /%A  UNIT %D3%A   ONLINE,  ERRORS = %D%N/
    273 023323      045     101     040  DEVNXR: .ASCIZ  /%A  UNIT %D3%A   DROPPED, NON-EXISTENT REGISTER%N/
    274 023405      045     101     040  DEVNRD: .ASCIZ  /%A  UNIT %D3%A   DROPPED, NOT READY AT STARTUP%N/
    275 023466      045     101     040  DEVDRO: .ASCIZ  /%A  UNIT %D3%A   DROPPED, ERRORS = %D%N/
    276                                          .EVEN
    277
    278 023536                                  ENDMOD
    279
    280
```

```
                                        .TITLE  TSV7 - HARDWARE TESTS 1-8
                                        BGNMOD  TSV7
023536                          TSV7::
```

```
                                        .SBTTL  TEST  1: INITIALIZE #4 TEST
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT WRITING INTO THE TSSR RETURNS THE
                                ;CONTROLLER TO ITS INITIALIZED STATE FROM VARIOUS CONDITIONS
                                ;(I.E. LOOPBACK ENABLED, FORCING WRONG PARITY, INVERTING SENSE OF
                                ;EXTENDED FEATURES SWITCH, ETC.)
                                ;
                                ;-
                                        BGNTST
 023536
 023536                                                                                 T1::
 023536  012737  006356  002170         MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE

                                ;
                                ;
                                ;TEST 1
                                ;
                                ;
                                ;-

 023544  004737  016274                 JSR     PC,DSBINT               ;DISABLE INTERRUPTS
 023550  012700  024474                 MOV     #TST21ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
 023554  004737  016600                 JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
 023560  012737  000005  002206         MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
 023566                         T21LOOP:
 023566  004737  024516                 JSR     PC,T21REST              ;SET COMMAND PACKET
 023572  004737  024606                 JSR     PC,T21RT2               ;SET UP OTHER COMMAND PACKET

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

 023576  012737  176750  024152         MOV     #65000.,T21DLY          ;SET DELAY ROUTINE
 023604  004737  016064         11$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 023610  103426                 20$     BCS                             ;BR IF INIT WAS OK
 023612                                 DELAY   250                     ;DELAY FOR A REWIND TO FINISH
 023612  012727  000250                                                         MOV     #250,(PC)+
 023616  000000                                                                 .WORD   0
 023620  013727  002116                                                         MOV     L$DLY,(PC)+
 023624  000000                                                                 .WORD   0
 023626  005367  177772                                                         DEC     -6(PC)
 023632  001375                                                                 BNE     .-4
 023634  005367  177756                                                         DEC     -22(PC)
 023640  001367                                                                 BNE     .-20
 023642  005337  024152                 DEC     T21DLY                  ;BUMP COUNTER DOWN
 023646  001356                         BNE     11$                     ;BR, IF MORE TIME TO GO
 023650  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 023654  010001                         MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 023656                                 ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
 023656  104455                                                                 TRAP    C$ERDF
 023660  000145                                                                 .WORD   101
 023662  003650                                                                 .WORD   SFIERR
 023664  012124                                                                 .WORD   SFIMSG
 023666                         20$:
 023666  012704  024130                 MOV     #T21PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
```

```
     77
     78                                 ;*****************************************************************
     79                                 ;
     80                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
     81                                 ;
     82                                 ;*****************************************************************
     83
     84 023672  013737  002172  024150          MOV     UNITN,T21DSW            ;SET UP DRIVE NUMBER
     85 023700  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
     86 023704  103407                          BCS     23$                     ;BR, IF COMMAND ISSUED OK
     87 023706  005237  002212                  INC     FATFLG                  ;BUMP COUNT
     91 023712  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
     92 023714                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        023714  104456                                                                  TRAP    C$ERHRD
        023716  000146                                                                  .WORD   102
        023720  005054                                                                  .WORD   WRTMSG
        023722  012124                                                                  .WORD   SFIMSG
     93 023724                          23$:    CKLOOP
        023724  104406                                                                  TRAP    C$CLP1
     94 023726  112737  000200  024250          MOVB    #200,T21BS0             ;WRITE MISCELLANEOUS CONT/READ STATUS
     95 023734  112737  000010  024251          MOVB    #10,T21BS1              ;FUNCTION SELECTION BIT
     96 023742                          25$:
     97 023742  012704  024240                  MOV     #T21PK2,R4              ;WRITE SUBSYS MEM PACKET
     98 023746  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
     99 023752  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
    100 023756  103407                          BCS     30$                     ;BR, IF NO ERROR
    101 023760  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
    102 023762  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    106 023766                                  ERRHRD  ERRNO,T21SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
        023766  104456                                                                  TRAP    C$ERHRD
        023770  000147                                                                  .WORD   103
        023772  024256                                                                  .WORD   T21SSR
        023774  012136                                                                  .WORD   PKTSSR
    107 023776                          30$:    CKLOOP                          ;SCOPE LOOP
        023776  104406                                                                  TRAP    C$CLP1
    108 024000  012765  000000  000002          MOV     #0,TSSR(R5)             ;ISSUE A SOFT INITIALIZE
    109 024006  004737  016340                  JSR     PC,WAITF                ;WAIT FOR JUST THE SSR BIT TO SET
    110 024012  016501  000002                  MOV     TSSR(R5),R1             ;READ THE TSSR BACK
    111 024016  010102                          MOV     R1,R2                   ;WORK REGISTER
    112 024020  042702  176377                  BIC     #^C<HIADDR>,R2          ;CLEAR OUT OTHER BITS
    113 024024  052702  002200                  BIS     #SSR!NBA,R2             ;SOME OF THE BITS THAT SHOULD BE SET
    114 024030  032701  000100                  BIT     #OFL,R1                 ;IS OFF LINE BIT SET
    115 024034  001012                          BNE     38$                     ;BR, IF DRIVE IS OFF LINE
    116 024036  020102                  35$:    CMP     R1,R2                   ;EXPECTED (R2) = RECEIVED (R1)
    117 024040  001406                          BEQ     37$                     ;BR, IF THEY ARE EQUAL (OK)
    118 024042  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    122 024046                                  ERRHRD  ERRNO,T21AM3,EXPREC     ;'ERROR TRYING TO INIT AFTER WRITE MISC.
        024046  104456                                                                  TRAP    C$ERHRD
        024050  000150                                                                  .WORD   104
        024052  024353                                                                  .WORD   T21AM3
        024054  015564                                                                  .WORD   EXPREC
    123 024056                          37$:    CKLOOP                          ;LOOP IF SELECTED
        024056  104406                                                                  TRAP    C$CLP1
    124 024060  000406                          BR      40$                     ;SKIP OVER OFF-LINE STUFF
    125 024062                          38$:
    129 024062                                  ERRDF   ERRNO,T21OFL,EXPREC     ;DRIVE IS OFF LINE
        024062  104455                                                                  TRAP    C$ERDF
```

```
                024064  000151                                                  .WORD   105
                024066  024453                                                  .WORD   T21OFL
                024070  015564                                                  .WORD   EXPREC
    130 024072  004737  017272          JSR     PC,CKDROP       ;TRY AND DROP UNIT
    131 024076  000241          40$:    CLC                     ;DON'T LET CARRY SNEAK IN
    132 024100  106037  024251          RORB    T21BS1          ;TRY NEXT "LOWEST" BIT POSITION
    133 024104  001316                  BNE     25$             ;LOOP UNTIL ALL EIGHT BITS TESTED
    134 024106                  50$:    CKLOOP                  ;SCOPE LOOP
        024106  104406                                                  TRAP    C$CLP1
    135 024110  004737  016546          JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
    136 024114  103002                  BCC     63$             ;BR, IF NO LOOP REQUIRED
    137 024116  000137  023566          JMP     T21LOOP         ;EXECUTE AGAIN
    138 024122                  63$:    EXIT    TST             ;ALL DONE THIS TEST
        024122  104432                                                  TRAP    C$EXIT
        024124  000524                                                  .WORD   L10036-.
```

```
                                ;+
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
                                        .=<.+10>&177770
024130                          T21PACKET:
024130  100004                          .WORD   100004          ;COMMAND PACKET FOR TEST
024132  024140                          .WORD   T21DATA         ;WRITE CHARACTERISTICS COMMAND, WITH, ACK
024134  000000                          .WORD   0               ;ADDRESS OF CHARACTERISTICS BLOCK
024136  000012                          .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
024140                          T21DATA:                        ;CHARACTERISTICS DATA BLOCK
024140  024154                          .WORD   T21BFR          ;ADDRESS OF MESSAGE BUFFER
024142  000000                          .WORD   0
024144  000024                          .WORD   20.             ;LENGTH OF MESSAGE BUFFER
024146  000000                          .WORD   0
024150  000000                  T21DSW: .WORD   0               ;DRIVE SELECT WORD
024152  000000                  T21DLY: .WORD   0               ;DELAY COUNTER
024154                          T21BFR: .BLKW   25.             ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
                                        .=<.+10>&177770
024240                          T21PK2:
024240  100206                          .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
024242  024250                          .WORD   T21BF2          ;ADDRESS OF SELECT BLOCK DATA
024244  000000                          .WORD   0
024246  000006                          .WORD   6.              ;SIZE OF DATA PACKET

                                        .EVEN
024250                          T21BF2:
024250      000                 T21BS0: .BYTE   0               ;BSEL0 AREA --- "COMMAND" BYTE
024251      000                 T21BS1: .BYTE   0               ;BSEL1 AREA
024252  000000                  T21S2:  .WORD   0               ;SEL 2 AREA
024254  000000                  T21S3:  .WORD   0               ;DATA AREA
```

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

024256  127  122  111  T21SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted'
024353  124  123  123  T21AM3: .ASCIZ  'TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS'
024453  104  162  151  T21OFL: .ASCIZ  'Drive is OFFLINE'
024474  111  156  151  TST21ID:        .ASCIZ  'Initialization #4'
                              .EVEN
                                        ;+
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-

024516                                  T21REST:
024516                                        SAVREG                          ;SAVE THE REGISTERS
024522  012701  024130                      MOV     #T21PACKET,R1           ;START OF THE PACKET
024526  012721  100004                      MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
024532  012721  024140                      MOV     #T21DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
024536  005021                            CLR     (R1)+                   ;EXTENDED ADDRESS
024540  012721  000010                      MOV     #8.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
024544  012721  024154                      MOV     #T21BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
024550  005021                            CLR     (R1)+
024552  012721  000024                      MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
024556  005021                            CLR     (R1)+
024560  005011                            CLR     (R1)
024562  012702  000020                      MOV     #20,R2                  ;NUMBER OF LOCATIONS TO BE CLEARED
024566  012762  177777  024154  64$:       MOV     #177777,T21BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
024574  005742                            TST     -(R2)                   ;NEXT LOCATION
024576  020227  000000                      CMP     R2,#0                   ;CHECK R2 FOR ZERO
024602  001371                            BNE     64$                     ;BR, IF NOT AT ZERO YET
024604  000207                            RTS     PC                      ;RETURN

024606                                  T21RT2:
024606                                        SAVREG                          ;SAVE THE REGISTERS
024612  012701  024240                      MOV     #T21Pk2,R1              ;START OF THE PACKET
024616  012721  100206                      MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
024622  012721  024250                      MOV     #T21BF2,(R1)+           ;ADDRESS OF DATA BLOCK
024626  005021                            CLR     (R1)+                   ;EXTENDED ADDRESS
024630  012721  000006                      MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
024634  005021                            CLR     (R1)+
024636  012701  024250                      MOV     #T21BF2,R1              ;ADDRESS OF DATA FOR WRT SUB SYS MEM
024642  005021                            CLR     (R1)+
024644  005011                            CLR     (R1)
024646  000207                            RTS     PC                      ;RETURN
024650                                        ENDTST
024650                                                          L10036:
024650  104401                                                          TRAP    C$ETST
```

```
232
```

```
                                        .SBTTL  TEST  2: OFF-LINE AND REJECT REW'ND
                                ;+
                                ;
                                ;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
                                ;
                                ;
                                ;-
024652                                  BGNTST
024652                                                                  T2::
024652  012737  006356  002170         MOV     #EPRT1,EPRTSW          ;SET UP PRIMARY ERROR MESSAGE
024660  004737  016274                 JSR     PC,DSBINT              ;DISABLE INTERRUPTS
024664  012700  027137                 MOV     #TST22ID,R0            ;ASCII MESSAGE TO IDENTIFY TEST
024670  004737  016600                 JSR     PC,TSTSETUP            ;DO INITIAL TEST SETUP
024674  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.
                                ;-

024702                          T22LOOP:
024702                                  BGNSUB                         ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
024702                                                                          T2.1:
024702  104402                                                                  TRAP    C$BSUB
024704  004737  027172                 JSR     PC,T22REST             ;SET COMMAND PACKET
024710  004737  027264                 JSR     PC,T22RT2              ;SET UP OTHER COMMAND PACKET

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

024714  004737  016064                 JSR     PC,SOFINIT             ;DO INITIALIZE ON CONTROLLER
024720  103407                         BCS     20$                    ;BR IF INIT WAS OK
024722  005237  002212                 INC     FATFLG                 ;BUMP COUNT
024726  010001                         MOV     R0,R1                  ;CONTENTS OF TSSR REGISTER
024730                                  ERRDF   ERRNO,SFIERR,SFIMSG    ;FATAL ERROR TSSR WAS NOT OK
024730  104455                                                                  TRAP    C$ERDF
024732  000311                                                                  .WORD   201
024734  003650                                                                  .WORD   SFIERR
024736  012124                                                                  .WORD   SFIMSG
024740                          20$:
024740  012704  026220                 MOV     #T22PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
```

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

024744  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
024750  103407                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
024752  005237  002212          INC     FATFLG                  ;BUMP COUNT
024756  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
024760                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
024760  104456                                                                  TRAP    C$ERHRD
024762  000312                                                                  .WORD   202
024764  005054                                                                  .WORD   WRTMSG
024766  012124                                                                  .WORD   SFIMSG
024770                  23$:    CKLOOP
024770  104406                                                                  TRAP    C$CLP1
024772  013701  026250          MOV     T22BFR+6,R1             ;PICK UP XTSO
024776  032701  000004          BIT     #4,R1                   ;IS UNIT WRITE-LOCKED?
025002  001407                  BEQ     24$                     ;NO,PROCEED WITH TESTING
025004  005237  002212          INC     FATFLG                  ;BUMP COUNT
025010                          ERRDF   ERRNO,T22WLK,SFIMSG     ;TAPE IS WRITE LOCKED
025010  104455                                                                  TRAP    C$ERDF
025012  000313                                                                  .WORD   203
025014  027052                                                                  .WORD   T22WLK
025016  012124                                                                  .WORD   SFIMSG
025020                          DOCLN
025020  104444                                                                  TRAP    C$DCLN
025022                  24$:    CKLOOP
025022  104406                                                                  TRAP    C$CLP1
025024  005737  002216          TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
025030  001041                  BNE     50$                     ;BR IF SWITCH IS ON
025032  112737  000200  026341  MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
025040  112737  000010  026340  MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
025046  012704  026330          MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
025052  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
025056  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
025062  103407                  BCS     30$                     ;BR, IF NO ERROR
025064  010001                  MOV     R0,R1                   ;ERROR, SAVE TSSR
025066  005237  002212          INC     FATFLG                  ;BUMP COUNT
025072                          ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
025072  104456                                                                  TRAP    C$ERHRD
025074  000314                                                                  .WORD   204
025076  026360                                                                  .WORD   T22SSR
025100  012136                                                                  .WORD   PKTSSR
025102                  30$:    CKLOOP                          ;LOOP IF SELECTED
025102  104406                                                                  TRAP    C$CLP1
025104  012704  026220          MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

025110  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

```
341 025114  103407                    BCS     50$                     ;BR, IF COMMAND ISSUED OK
342 025116  005237  002212            INC     FATFLG                  ;BUMP COUNT
346 025122  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
347 025124                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    025124  104456                                                            TRAP    C$ERHRD
    025126  000315                                                            .WORD   205
    025130  005054                                                            .WORD   WRTMSG
    025132  012124                                                            .WORD   SFIMSG
348 025134                      50$:  CKLOOP                          ;SCOPE LOOP
    025134  104406                                                            TRAP    C$CLP1
349 025136  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
350 025142  032701  000100            BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
351 025146  001006                    BNE     60$                     ;BR, IF OFFLINE (GOOD)
352 025150  005237  002212            INC     FATFLG                  ;BUMP COUNT
356 025154                            ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    025154  104455                                                            TRAP    C$ERDF
    025156  000316                                                            .WORD   206
    025160  026555                                                            .WORD   T22OFL
    025162  012124                                                            .WORD   SFIMSG
357 025164                      60$:  CKLOOP                          ;LOOP IF SELECTED
    025164  104406                                                            TRAP    C$CLP1
358 025166  012703  026346            MOV     #T22RD,R3               ;POINTER FOR COMMANDS
359 025172  011337  026330      65$:  MOV     (R3),T22PK2             ;TAPE MOTION COMMAND IN PLACE
360 025176  012704  026330            MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
361 025202  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
362 025206  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
363 025212  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
364 025216  012702  100306            MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
365 025222  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
366 025224  001406                    BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
367 025226  005237  002212            INC     FATFLG                  ;BUMP COUNT
371 025232                            ERRHRD  ERRNO,T22TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
    025232  104456                                                            TRAP    C$ERHRD
    025234  000317                                                            .WORD   207
    025236  026630                                                            .WORD   T22TM
    025240  015564                                                            .WORD   EXPREC
372 025242                      80$:  CKLOOP                          ;LOOP IF SELECTED
    025242  104406                                                            TRAP    C$CLP1
373 025244  005723                    TST     (R3)+                   ;POINT TO NEXT COMMAND
374 025246  022713  177777            CMP     #177777,(R3)            ;END OF THE COMMANDS YET
375 025252  001401                    BEQ     90$                     ;BR, IF DONE
376 025254  000746                    BR      65$                     ;MORE COMMAND(S) TO GO
377 025256                      90$:
378 025256                            ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    025256                                                                  L10040:
    025256  104403                                                            TRAP    C$ESUB
379 025260  023727  002212  000017      CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
380 025266  103402                      BLO     999$                            ;BR, IF LESS THAN 25
381 025270  004737  017272              JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
382 025274                      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.
                                        ;
                                        ;
                                        ;-
394 025274                              BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
    025274                                                                      T2.2:
    025274  104402                                                              TRAP    C$BSUB
395 025276  004737  027172              JSR     PC,T22REST              ;SET COMMAND PACKET
396 025302  004737  027264              JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET
397
398                                     ;*********************************************************************
399                                     ;
400                                     ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
401                                     ;
402                                     ;*********************************************************************
403
404 025306  004737  016064              JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
405 025312  103407                      BCS     20$                     ;BR IF INIT WAS OK
406 025314  005237  002212              INC     FATFLG                  ;BUMP COUNT
410 025320  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
411 025322                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
    025322  104455                                                              TRAP    C$ERDF
    025324  000320                                                             .WORD   208
    025326  003650                                                             .WORD   SFIERR
    025330  012124                                                             .WORD   SFIMSG
412 025332                          20$:
413 025332  012704  026220                  MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
414
415                                     ;*********************************************************************
416                                     ;
417                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
418                                     ;
419                                     ;*********************************************************************
420
421 025336  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
422 025342  103407                      BCS     23$                     ;BR, IF COMMAND ISSUED OK
423 025344  005237  002212              INC     FATFLG                  ;BUMP COUNT
427 025350  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
428 025352                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    025352  104456                                                              TRAP    C$ERHRD
    025354  000321                                                             .WORD   209
    025356  005054                                                             .WORD   WRTMSG
    025360  012124                                                             .WORD   SFIMSG
429 025362  005737  002216          23$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
430 025366  001041                      BNE     50$                     ;BR IF SWITCH IS ON
431
432 025370  112737  000200  026341          MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
433 025376  112737  000010  026340          MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
434 025404  012704  026330                  MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
435 025410  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
436 025414  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
```

```
    437 025420  103407                    BCS     30$                     ;BR, IF NO ERROR
    438 025422  010001                    MOV     R0,R1                   ;ERROR, SAVE TSSR
    439 025424  005237  002212            INC     FATFLG                  ;BUMP COUNT
    443 025430                            ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
        025430  104456                                                            TRAP    C$ERHRD
        025432  000322                                                            .WORD   210
        025434  026360                                                            .WORD   T22SSR
        025436  012136                                                            .WORD   PKTSSR
    444 025440                    30$:    CKLOOP                          ;LOOP IF SELECTED
        025440  104406                                                            TRAP    C$CLP1
    445 025442  012704  026220            MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
    446
    447                           ;*************************************************************************
    448                           ;
    449                           ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
    450                           ;
    451                           ;*************************************************************************
    452
    453 025446  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
    454 025452  103407                    BCS     50$                     ;BR, IF COMMAND ISSUED OK
    455 025454  005237  002212            INC     FATFLG                  ;BUMP COUNT
    459 025460  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
    460 025462                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        025462  104456                                                            TRAP    C$ERHRD
        025464  000323                                                            .WORD   211
        025466  005054                                                            .WORD   WRTMSG
        025470  012124                                                            .WORD   SFIMSG
    461 025472                    50$:    CKLOOP                          ;SCOPE LOOP
        025472  104406                                                            TRAP    C$CLP1
    462 025474  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    463 025500  032701  000100            BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
    464 025504  001006                    BNE     60$                     ;BR, IF OFFLINE (GOOD)
    465 025506  005237  002212            INC     FATFLG                  ;BUMP COUNT
    469 025512                            ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
        025512  104455                                                            TRAP    C$ERDF
        025514  000324                                                            .WORD   212
        025516  026555                                                            .WORD   T22OFL
        025520  012124                                                            .WORD   SFIMSG
    470 025522                    60$:    CKLOOP                          ;LOOP IF SELECTED
        025522  104406                                                            TRAP    C$CLP1
    471 025524  012737  102210  026330  65$:   MOV     #102210,T22PK2          ;POSITION COMMAND (REWIND MODE)
    472 025532  012704  026330            MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
    473 025536  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    474 025542  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    475 025546  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    476 025552  012702  100306            MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
    477 025556  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
    478 025560  001406                    BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
    479 025562  005237  002212            INC     FATFLG                  ;BUMP COUNT
    483 025566                            ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
        025566  104456                                                            TRAP    C$ERHRD
        025570  000325                                                            .WORD   213
        025572  026724                                                            .WORD   T22RWJ
        025574  015564                                                            .WORD   EXPREC
    484 025576                    80$:    CKLOOP                          ;LOOP IF SELECTED
        025576  104406                                                            TRAP    C$CLP1
    485 025600                            ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
```

```
            025600
            025600  104403
    486     025602  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
    487     025610  103402                          BLO     999$                    ;BR, IF LESS THAN 25
    488     025612  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
    489     025616                          999$:

                                                                    L10041:
                                                                            TRAP    CSESUB
```

```
                                        ;+
                                        ;
                                        ;TEST 2, SUBTEST 3
                                        ;
                                        ;VERIFIES THAT A REWIND COMMAND WITH CVC=1 CLEARS VCK
                                        ;AND RETURNS PROPER STATUS IN THE MESSAGE BUFFER.
                                        ;
                                        ;
                                        ;-
025616                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
025616                                                                                                  T2.3:
025616  104402                                                                                                  TRAP    C$BSUB
025620  004737  027172                        JSR     PC,T22REST              ;SET COMMAND PACKET
025624  004737  027264                        JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET

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

025630  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
025634  103407                                BCS     20$                     ;BR IF INIT WAS OK
025636  005237  002212                        INC     FATFLG                  ;BUMP COUNT
025642  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
025644                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
025644  104455                                                                                          TRAP    C$ERDF
025646  000326                                                                                          .WORD   214
025650  003650                                                                                          .WORD   SFIERR
025652  012124                                                                                          .WORD   SFIMSG
025654                                  20$:
025654  012704  026220                        MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

025660  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
025664  103407                                BCS     23$                     ;BR, IF COMMAND ISSUED OK
025666  005237  002212                        INC     FATFLG                  ;BUMP COUNT
025672  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
025674                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
025674  104456                                                                                          TRAP    C$ERHRD
025676  000327                                                                                          .WORD   215
025700  005054                                                                                          .WORD   WRTMSG
025702  012124                                                                                          .WORD   SFIMSG
025704  005737  002216                23$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
025710  001041                                BNE     50$                     ;BR IF SWITCH IS ON

025712  112737  000200  026341                MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
025720  112737  000010  026340                MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
025726  012704  026330                        MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
025732  010465  000000                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
025736  004737  016426                        JSR     PC,CHKTSSR              ;WAIT FOR SSR
025742  103407                                BCS     30$                     ;BR, IF NO ERROR
```

```
                                                                                                                    TRAP    C$ERHRD
                                                                                                                    .WORD   216
                                                                                                                    .WORD   T22SSR
                                                                                                                    .WORD   PKTSSR
                                30$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                                                    TRAP    C$CLP1
                                        MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

                                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                        BCS     50$                     ;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$ERHRD
                                                                                                                    .WORD   217
                                                                                                                    .WORD   WRTMSG
                                                                                                                    .WORD   SFIMSG
                                50$:    CKLOOP                          ;SCOPE LOOP
                                                                                                                    TRAP    C$CLP1
                                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
                                        BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
                                        BNE     60$                     ;BR, IF OFFLINE (GOOD)
                                        INC     FATFLG                  ;BUMP COUNT
                                        ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                                                                                                                    TRAP    C$ERDF
                                                                                                                    .WORD   218
                                                                                                                    .WORD   T22OFL
                                                                                                                    .WORD   SFIMSG
                                60$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                                                    TRAP    C$CLP1
                        026330  65$:    MOV     #142010,T22PK2          ;POSITION COMMAND (REWIND MODE) CVC=1
                                        MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
                                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
                                        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
                                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
                                        MOV     #SSR!OFL!SC!BIT1!BIT2,R2;SET UP EXPECTED
                                        CMP     R1,R2                   ;ARE THEY EQUAL
                                        BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
                                        INC     FATFLG                  ;BUMP COUNT
                                        ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
                                                                                                                    TRAP    C$ERHRD
                                                                                                                    .WORD   219
                                                                                                                    .WORD   T22RWJ
                                                                                                                    .WORD   EXPREC
                                80$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                                                    TRAP    C$CLP1
                                        MOV     #T22BFR,R3              ;POINTER TO MESSAGE BUFFER
                                        MOV     XST0(R3),R1             ;PICK UP XST0 FROM MESSAGE BUFFER
```

```
593 026132  010102                          MOV     R1,R2                   ;SET UP EXPECTED
594 026134  042702  000020                   BIC     #BIT4,R2                ;VCK SHOULD BE CLEAR
595 026140  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
596 026142  001406                           BEQ     90$                     ;BR, IF OK (GOOD)
597 026144  005237  002212                   INC     FATFLG                  ;BUMP COUNT
601 026150                                   ERRHRD  ERRNO,T22VCK,EXPREC     ;VCK WASN'T CLEAR (BAD)
    026150  104456                                                                   TRAP    C$ERHRD
    026152  000334                                                                  .WORD   220
    026154  026777                                                                  .WORD   T22VCK
    026156  015564                                                                  .WORD   EXPREC
602 026160                           90$:
603 026160                                   ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    026160                                                                       L10042:
    026160  104403                                                                   TRAP    C$ESUB
604 026162  023727  002212  000017           CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
605 026170  103402                           BLO     999$                            ;BR, IF LESS THAN 25
606 026172  004737  017272                   JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
607 026176                           999$:
608 026176  004737  016546                   JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
609 026202  103002                           BCC     163$                    ;BR, IF NO LOOP REQUIRED
610 026204  000137  024702                   JMP     T22LOOP                 ;EXECUTE AGAIN
611 026210                           163$:   EXIT    TST                     ;ALL DONE THIS TEST
    026210  104432                                                                   TRAP    C$EXIT
    026212  001116                                                                  .WORD   L10037-.
```

```
                        026220
026220
026220  100204          ;+
026222  026230          ;LOCAL STORAGE FOR THIS TEST
026224  000000          ;-
026226  000012                  .=<.+10>&177770
026230          T22PACKET:                      ;COMMAND PACKET FOR TEST
026230  026242                  .WORD   100204  ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
026232  000000                  .WORD   T22DATA ;ADDRESS OF CHARACTERISTICS BLOCK
026234  000024                  .WORD   0
026236  000000                  .WORD   10.     ;STARTING VALUE OF BLOCK SIZE
026240  000007          T22DATA:                ;CHARACTERISTICS DATA BLOCK
026242                  .WORD   T22BFR          ;ADDRESS OF MESSAGE BUFFER
                        .WORD   0
                        .WORD   20.             ;LENGTH OF MESSAGE BUFFER
                        .WORD   0
                        .WORD   7               ;SELECT DRIVE 7
                T22BFR: .BLKW   25.             ;MESSAGE BUFFER
                        ;
                        ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                        ;
                        026330          .=<.+10>&177770
026330          T22PK2:
026330  100206          .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
026332  026340          .WORD   T22BF2          ;ADDRESS OF SELECT BLOCK DATA
026334  000000          .WORD   0
026336  000006          .WORD   6.              ;SIZE OF DATA PACKET

                        .EVEN
026340          T22BF2:
026340  000     T22BS0: .BYTE   0               ;BSEL0 AREA
026341  000     T22BS1: .BYTE   0               ;BSEL1 AREA
026342  000000  T22S2:   .WORD   0               ;SEL 2 AREA
026344  000000  T22S3:   .WORD   0               ;DATA AREA
                        ;
                        ;
                        .EVEN
                        ;TAPE MOTION PACKET COMMAND VALUES
026346  100201  T22RD:   .WORD   100201          ;READ TAPE FORWARD
026350  100205  T22WRT:  .WORD   100205          ;WRITE TAPE FORWARD
026352  100210  T22POS:  .WORD   100210          ;POSITION TAPE
026354  100211  T22FOR:  .WORD   100211          ;FORMAT TAPE
026356  177777          .WORD   177777          ;END OF DATA
```

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

026360  127  122  111  T22SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted'
026455  124  123  123  T22AM3: .ASCIZ  'TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS'
026555  104  162  151  T22OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
026630  124  123  123  T22TM:  .ASCIZ  'TSSR Incorrect After Tape Motion Command To Off-Line Device'
026724  124  123  123  T22RWJ: .ASCIZ  'TSSR Not Correct After REWIND With VCK Set'
026777  103  126  103  T22VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
027052  052  052  052  T22WLK: .ASCIZ  '*****TAPE IS WRITE-LOCKED AND WILL CAUSE ERRORS*****'
027137  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
                                        ;
                                        ;-

027172                                  T22REST:
027172                                          SAVREG                          ;SAVE THE REGISTERS
027176  012701  026220                          MOV     #T22PACKET,R1           ;START OF THE PACKET
027202  012721  100204                          MOV     #100204,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
027206  012721  026230                          MOV     #T22DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
027212  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
027214  012721  000012                          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
027220  012721  026242                          MOV     #T22BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
027224  005021                                  CLR     (R1)+
027226  012721  000024                          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
027232  005021                                  CLR     (R1)+
027234  012711  000007                          MOV     #7,(R1)                 ;SELECT DRIVE SEVEN
027240  012702  000020                          MOV     #20,R2                  ;NUMBER OF LOCATIONS TO BE CLEARED
027244  012762  177777  026242  64$:           MOV     #177777,T22BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
027252  005742                                  TST     -(R2)                   ;BUMP R2 DOWN
027254  020227  000000                          CMP     R2,#0                   ;IS R2 AT ZERO YET
027260  001371                                  BNE     64$                     ;KEEP GOING UNTIL DONE
027262  000207                                  RTS     PC                      ;RETURN

027264                                  T22RT2:
027264                                          SAVREG                          ;SAVE THE REGISTERS
027270  012701  026330                          MOV     #T22PK2,R1              ;START OF THE PACKET
027274  012721  100206                          MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
027300  012721  026340                          MOV     #T22BF2,(R1)+           ;ADDRESS OF DATA BLOCK
027304  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
027306  012721  000006                          MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
027312  005021                                  CLR     (R1)+
027314  012701  026340                          MOV     #T22BF2,R1              ;POINT TO DATA SEL AREA
027320  005021                                  CLR     (R1)+
027322  005011                                  CLR     (R1)
027324  005011                                  CLR     (R1)                    ;LAST LOC TO BE CLEARED
027326  000207                                  RTS     PC                      ;RETURN
027330                                          ENDTST
027330                                                          L10037:
027330  104401                                                          TRAP    C$ETST
```

```
+     716
```

```
                                        .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
                                ;
                                ;
                                ;
                                ;-
027332                                  BGNTST
027332                                                                  T3::
027332  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
027340  005037  003124                  CLR     KTENABLE                        ;TURN OFF KT11
027344  004737  017364                  JSR     PC,KTOFF                        ;TURN OFF KT11
027350  004737  016274                  JSR     PC,DSBINT               ;DISABLE INTERRUPTS
027354  012700  033736                  MOV     #TST23ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
027360  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
027364  004737  021366                  JSR     PC,MEMCK                ;CHECK FOR MEMORY
027370  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:
027376                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
027376                                                                          T3.1:
027376  104402                                                                  TRAP    C$BSUB
027400  004737  033752                  JSR     PC,T23REST              ;SET COMMAND PACKET
027404  004737  034044                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

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

027410  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
027414  103407                          BCS     20$                     ;BR IF INIT WAS OK
027416  005237  002212                  INC     FATFLG                  ;BUMP COUNT
027422  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
027424                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
027424  104455                                                                  TRAP    C$ERDF
027426  000455                                                                  .WORD   301
027430  003650                                                                  .WORD   SFIERR
027432  012124                                                                  .WORD   SFIMSG
```

```
                                20$:
027434                          
027434  012737  000007  032460          MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
027442  012704  032440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                
                                ;*************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*************************************************************
                                
027446  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
027452  103407                          BCS     23$                     ;BR, IF COMMAND ISSUED OK
027454  005237  002212                  INC     FATFLG                  ;BUMP COUNT
027460  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
027462                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
027462  104456                                                                  TRAP    C$ERHRD
027464  000456                                                                  .WORD   302
027466  005054                                                                  .WORD   WRTMSG
027470  012124                                                                  .WORD   SFIMSG
027472  005737  002216          23$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
027476  001044                          BNE     50$                     ;BR IF SWITCH IS ON
                                
027500  112737  000200  032573          MOVB    #200,T23BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
027506  112737  000010  032572          MOVB    #10,T23BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
027514  012704  032550                  MOV     #T23PK2,R4              ;WRITE SUBSYS MEM PACKET
027520  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
027524  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
027530  103407                          BCS     30$                     ;BR, IF NO ERROR
027532  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
027534  005237  002212                  INC     FATFLG                  ;BUMP COUNT
027540                                  ERRHRD  ERRNO,T23SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
027540  104456                                                                  TRAP    C$ERHRD
027542  000457                                                                  .WORD   303
027544  032614                                                                  .WORD   T23SSR
027546  012136                                                                  .WORD   PKTSSR
027550                          30$:    CKLOOP                          ;LOOP IF SELECTED
027550  104406                                                                  TRAP    C$CLP1
027552  012737  000007  032460          MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
027560  012704  032440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                
                                ;*************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*************************************************************
                                
027564  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
027570  103407                          BCS     50$                     ;BR, IF COMMAND ISSUED OK
027572  005237  002212                  INC     FATFLG                  ;BUMP COUNT
027576  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
027600                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
027600  104456                                                                  TRAP    C$ERHRD
027602  000460                                                                  .WORD   304
027604  005054                                                                  .WORD   WRTMSG
027606  012124                                                                  .WORD   SFIMSG
027610                          50$:    CKLOOP                          ;SCOPE LOOP
027610  104406                                                                  TRAP    C$CLP1
```

```
827 027612  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
828 027616  032701  000100              BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
829 027622  001006                      BNE     60$                     ;BR, IF OFFLINE (GOOD)
830 027624  005237  002212              INC     FATFLG                  ;BUMP COUNT
834 027630                              ERRDF   ERRNO,T23OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    027630  104455                                                              TRAP    C$ERDF
    027632  000461                                                              .WORD   305
    027634  033256                                                              .WORD   T23OFL
    027636  012124                                                              .WORD   SFIMSG
835 027640                          60$:    CKLOOP                          ;LOOP IF SELECTED
    027640  104406                                                              TRAP    C$CLP1
836 027642  012703  032604              MOV     #T23WD,R3               ;POINTER FOR COMMANDS
837 027646  011337  032550          65$:    MOV     (R3),T23PK2             ;TAPE MOTION COMMAND IN PLACE
838 027652  012704  032550              MOV     #T23PK2,R4              ;R4 = POINTER TO PACKET
839 027656  010465  000000              MOV     R4,TSDB(R5)             :ISSUE COMMAND
840 027662  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
841 027666  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
842 027672  012702  100306              MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
843 027676  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
844 027700  001406                      BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
845 027702  005237  002212              INC     FATFLG                  ;BUMP COUNT
849 027706                              ERRHRD  ERRNO,T23TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
    027706  104456                                                              TRAP    C$ERHRD
    027710  000462                                                              .WORD   306
    027712  033012                                                              .WORD   T23TM
    027714  015564                                                              .WORD   EXPREC
850 027716                          80$:    CKLOOP                          ;LOOP IF SELECTED
    027716  104406                                                              TRAP    C$CLP1
851 027720  005723                      TST     (R3)+                   ;POINT TO NEXT COMMAND
852 027722  022713  177777              CMP     #177777,(R3)            ;END OF THE COMMANDS YET
853 027726  001401                      BEQ     90$                     ;BR, IF DONE
854 027730  000746                      BR      65$                     ;MORE COMMAND(S) TO GO
855 027732                          90$:
856 027732                              ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    027732                                                                      L10044:
    027732  104403                                                              TRAP    C$ESUB
857 027734  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
858 027742  103402                          BLO     999$                            ;BR, IF LESS THAN 25
859 027744  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
860 027750                          999$:
```

```
                        ;+
                        ;
                        ;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.
                        ;
                        ;
                        ;-
027750                          BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
027750                                                                      T3.2:
027750  104402                                                                      TRAP    C$BSUB
027752  013701  003116            MOV     FRESIZ,R1       ;GET SIZE OF AVAILIABLE MEMORY
027756  000241                    CLC                     ;CLEAR THE CARRY BIT
027760  006101                    ROL     R1              ;MAKE INTO BYTES
027762  010137  032570            MOV     R1,T23RSZ       ;STORE IN TEST FOR USE LATER
027766  004737  033752            JSR     PC,T23REST      ;SET COMMAND PACKET
027772  004737  034106            JSR     PC,T23RT3       ;RESTORE PACKET
027776  004737  034044            JSR     PC,T23RT2       ;SET UP OTHER COMMAND PACKET

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

030002  004737  016064            JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
030006  103407                    BCS     20$             ;BR IF INIT WAS OK
030010  005237  002212            INC     FATFLG          ;BUMP COUNT
030014  010001                    MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
030016                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
030016  104455                                                                  TRAP    C$ERDF
030020  000463                                                                  .WORD   307
030022  003650                                                                  .WORD   SFIERR
030024  012124                                                                  .WORD   SFIMSG
030026                  20$:
030026  013737  002172  032460      MOV     UNITN,T23DSW    ;LOAD UP SELECTED UNIT NUMBER
030034  012704  032440              MOV     #T23PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS

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

030040  004737  010752            JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
```

```
                                                        ;BR, IF COMMAND ISSUED OK
                                                        ;BUMP COUNT
                                                        ;SAVE CONTENTS OF TSSR
                                                        ;WRITE CHARACTERISTISC FAILED
                                                                TRAP    C$ERHRD
                                                                .WORD   308
                                                                .WORD   WRTMSG
                                                                .WORD   SFIMSG
                                                        ;LOOP IF SELECTED
                                                                TRAP    C$CLP1

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

                                                        ;CALL THE TAPE REWIND
                                                        ;STARTING RECORD SIZE
                                                        ;STARTING WRITE BUFFER ADDRESS

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

                                                        ;WRITE DATA,CVC=1,ACK COMMAND
                                                        ;SETUP FOR RETRY COMMAND
                                                        ;MAKE IT A RETRY
                                                        ;SET UP R4 WITH PACKET ADDRESS
                                                        ;SET PATTERN IN CORRECT REGISTER
                                                        ;FILL MEMORY WITH RECORD SIZE
                                                        ;SET UP RECORD SIZE IN PACKET
                                                        ;ISSUE COMMAND
                                                        ;WAIT FOR SSR TO SET
                                                        ;GET TSSR CONTENTS
                                                        ;SET UP EXPECTED
                                                        ;ARE THEY EQUAL
                                                        ;BR, IF OK
                                                        ;CHECK SPECIAL CONDITION
                                                        ;LOOP IF SELECTED
                                                                TRAP    C$CLP1

                                                        ;GET TSBA CONTENTS
                                                        ;SET UP EXPECTED
                                                        ;SET TO END OF MESSAGE BUFFER
                                                        ;CHECK FOR EXTENDED FEATURES SW SET
                                                        ;BR, IF IT NOT SET
                                                        ;BUMP R2 FOR EXTRA DATA
                                                        ;ARE THEY EQUAL
                                                        ;BR, IF TSBA IS CORRECT
                                                        ;BUMP COUNT
                                                        ;TSBA WAS NOT CORRECT AFTER WRITE DATA
                                                                TRAP    C$ERHRD
                                                                .WORD   309
                                                                .WORD   T23BA
                                                                .WORD   EXPREC
```

```
 969 030244                                 90$:    CKLOOP                          ;LOOP IF SELECTED
     030244  104406                                                                             TRAP    C$CLP1
 970 030246  020327  007376                         CMP     R3,#7376                ;ONLY CHECK RAM UNTIL ITS FULL
 971 030252  002114                                 BGE     115$                    ;IT WRAPS AROUND ETC.
 972 030254  004737  034044                         JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
 973 030260  012737  000400  032574                 MOV     #256.,T23S2             ;STARTING RAM ADDRESS
 974 030266  112737  000000  032572                 MOVB    #0,T23BS0               ;STOP INTERNAL TSV05 DIAGNOSTICS
 975 030274  112737  000000  032573                 MOVB    #0,T23BS1               ;SIZE OF RAM READ
 976 030302  012704  032550                         MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
 977 030306  010465  000000                         MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
 978 030312  004737  016426                         JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
 979 030316  103407                                 BCS     92$                     ;BR, IF NO ERRORS IN TSSR
 980 030320  010001                                 MOV     R0,R1                   ;SAVE TSSR
 981 030322  005237  002212                         INC     FATFLG                  ;BUMP COUNT
 985 030326                                         ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     030326  104456                                                                             TRAP    C$ERHRD
     030330  000466                                                                             .WORD   310
     030332  033647                                                                             .WORD   T23WSS
     030334  012136                                                                             .WORD   PKTSSR
 986 030336                                 92$:    CKLOOP                          ;LOOP IF SELECTED
     030336  104406                                                                             TRAP    C$CLP1
 987 030340  004737  034044                         JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
 988 030344  012737  000400  032574                 MOV     #256.,T23S2             ;STARTING RAM ADDRESS
 989 030352  112737  000001  032572                 MOVB    #1,T23BS0               ;READ RAM COMMAND FOR WRITE SUB SYS M.
 990 030360  112737  000002  032573                 MOVB    #2,T23BS1               ;SIZE OF RAM READ
 991 030366  012704  032550                         MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
 992 030372  010465  000000                 95$:    MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
 993 030376  004737  016426                         JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
 994 030402  103407                                 BCS     100$                    ;BR, IF NO ERRORS IN TSSR
 995 030404  010001                                 MOV     R0,R1                   ;SAVE TSSR
 996 030406  005237  002212                         INC     FATFLG                  ;BUMP COUNT
1000 030412                                         ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     030412  104456                                                                             TRAP    C$ERHRD
     030414  000467                                                                             .WORD   311
     030416  033647                                                                             .WORD   T23WSS
     030420  012136                                                                             .WORD   PKTSSR
1001 030422                                 100$:   CKLOOP                          ;LOOP IF SELECTED
     030422  104406                                                                             TRAP    C$CLP1
1002 030424  005001                                 CLR     R1                      ;CLEAR REGISTER
1003 030426  005002                                 CLR     R2                      ;CLEAR REGISTER
1004 030430  013701  032502                         MOV     T23BFR+20,R1            ;PICK UP BYTE READ FROM RAM
1005 030434  010302                                 MOV     R3,R2                   ;SET UP EXPECTED
1006 030436  020102                                 CMP     R1,R2                   ;IS RAM DATA CORRECT
1007 030440  001406                                 BEQ     110$                    ;BR, IF OK (EQUAL)
1008 030442  005237  002212                         INC     FATFLG                  ;BUMP COUNT
1012 030446                                         ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC=RAM NOT CORRECT
     030446  104456                                                                             TRAP    C$ERHRD
     030450  000470                                                                             .WORD   312
     030452  033135                                                                             .WORD   T23RNC
     030454  015564                                                                             .WORD   EXPREC
1013 030456                                 110$:   CKLOOP                          ;LOOP IF SELECTED
     030456  104406                                                                             TRAP    C$CLP1
1014 030460  005237  032574                         INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1015 030464  005237  032574                         INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1016 030470  010301                                 MOV     R3,R1                   ;GET SIZE OF RECORD
1017 030472  062701  000400                         ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
1018 030476  023701  032574                         CMP     T23S2,R1                ;AT END OF RAM CHECK YET
```

```
1019 030502  001333                        BNE     95$                     ;BR, IF MORE TO CHECK
1020 030504  062703  001750          115$:  ADD     #1000.,R3               ;NEXT RECORD SIZE/DATA PATTERN
1021 030510  020337  032570                 CMP     R3,T23RSZ               ;IS R3 OVER MAX RECORD SIZE
1022 030514  002005                        BGE     120$                    ;IF RECORD SIZE IS TOO BIG QUIT
1023 030516  020327  177776                 CMP     R3,#65534.              ;END OF SUBTEST MAX RECORD SIZE
1024 030522  001402                        BEQ     120$                    ;BR, IF COMPLETED
1025 030524  000137  030076                 JMP     65$                     ;DO MORE RECORDS
1026 030530                          120$:
1027 030530  004737  034106                 JSR     PC,T23RT3               ;RESTORE PACKET
1028 030534  004737  034044                 JSR     PC,T23RT2               ;CLEAN UP PACKET
1029 030540  012737  102010  032550         MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1030 030546  012704  032550                 MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1031 030552  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1032 030556  004737  016426                 JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1033 030562  103407                        BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1034 030564  010001                        MOV     R0,R1                   ;SAVE TSSR CONTENTS
1035 030566  005237  002212                 INC     FATFLG                  ;BUMP COUNT
1039 030572                                ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     030572  104456                                                                TRAP    C$ER4RD
     030574  000471                                                                .WORD   313
     030576  033066                                                                .WORD   T23RWN
     030600  012136                                                                .WORD   PKTSSR
1040 030602                          130$:
1041 030602                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     030602                                                                     L10045:
     030602  104403                                                                TRAP    C$ESUB
1042 030604  023727  002212  000017         CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1043 030612  103402                        BLO     999$                            ;BR, IF LESS THAN 25
1044 030614  004737  017272                 JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1045 030620                          999$:
```

```
1047                                    ;+
1048                                    ;
1049                                    ;TEST 3, SUBTEST 3
1050                                    ;
1051                                    ;VERIFIES THAT WRITE DATA COMMANDS WITH CVC=1 AND THE
1052                                    ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
1053                                    ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
1054                                    ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
1055                                    ;
1056                                    ;
1057                                    ;
1058                                    ;-
1059 030620                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      030620                                                                                T3.3:
      030620  104402                                                                          TRAP    C$BSUB
1060 030622  004737  033752                    JSR     PC,T23REST              ;SET COMMAND PACKET
1061 030626  004737  034044                    JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1062
1063                                    ;*****************************************************************
1064                                    ;
1065                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1066                                    ;
1067                                    ;*****************************************************************
1068
1069 030632  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1070 030636  103407                            BCS     20$                     ;BR IF INIT WAS OK
1071 030640  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1075 030644  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1076 030646                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      030646  104455                                                                        TRAP    C$ERDF
      030650  000472                                                                       .WORD   314
      030652  003650                                                                       .WORD   SFIERR
      030654  012124                                                                       .WORD   SFIMSG
1077 030656                                    20$:
1078 030656  013737  002172  032460                MOV     UNITN,T23DSW            ;SET UP UNIT NUMBER
1079 030664  012704  032440                    MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1080
1081                                    ;*****************************************************************
1082                                    ;
1083                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1084                                    ;
1085                                    ;*****************************************************************
1086
1087 030670  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1088 030674  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
1089 030676  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1093 030702  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1094 030704                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      030704  104456                                                                       TRAP    C$ERHRD
      030706  000473                                                                       .WORD   315
      030710  005054                                                                       .WORD   WRTMSG
      030712  012124                                                                       .WORD   SFIMSG
1095 030714                                    23$:
1096 030714  012703  000024                    MOV     #20.,R3                 ;STARTING RECORD SIZE
1097 030720  013737  003114  032562  65$:      MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
1098
1099                                    ;*****************************************************************
```

```
1100                                    ;
1101                                    ;WRITE DATA,CVC=1,ACK,SWB COMMAND
1102                                    ;
1103                                    ;*****************************************************************
1104
1105 030726  012737  150005  032560          MOV     #150005,T23PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
1106 030734  012737  150005  032602          MOV     #150005,T23WRT          ;SETUP FOR RETRY COMMAND
1107 030742  052737  004000  032602          BIS     #4000,T23WRT            ;MAKE IT A RETRY
1108 030750  012704  032560                  MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1109 030754  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
1110 030756  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
1111 030762  010337  032566                  MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
1112 030766  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1113 030772  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1114 030776  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1115 031002  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
1116 031006  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
1117 031010  001402                          BEQ     80$                     ;BR, IF OK
1118 031012  004737  034132                  JSR     PC,T23CHK               ;CHECK SPECIAL CONDITION
1119 031016                          80$:    CKLOOP                          ;LOOP IF SELECTED
     031016  104406                                                                  TRAP    C$CLP1
1120 031020  016501  000000                  MOV     TSBA(R5),R1             ;GET TSBA CONTENTS
1121 031024  012702  032462                  MOV     #T23BFR,R2              ;SET UP EXPECTED
1122 031030  06270   000016                  ADD     #16,R2                  ;SET TO END OF MESSAGE BUFFER
1123 031034  005737  002216                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SET
1124 031040  001402                          BEQ     85$                     ;BR, IF IT NOT SET
1125 031042  062702  000002                  ADD     #2,R2                   ;BUMP R2 FOR EXTRA DATA
1126 031046  020102                  85$:    CMP     R1,R2                   ;ARE THEY EQUAL
1127 031050  001406                          BEQ     90$                     ;BR, IF TSBA IS CORRECT
1128 031052  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1132 031056                                  ERRHRD  ERRNO,T23BA,EXPREC      ;TSBA WAS NOT CORRECT AFTER WRITE DATA
     031056  104456                                                                 TRAP    C$ERHRD
     031060  000474                                                                 .WORD   316
     031062  033575                                                                 .WORD   T23BA
     031064  015564                                                                 .WORD   EXPREC
1133 031066                          90$:    CKLOOP                          ;LOOP IF SELECTED
     031066  104406                                                                  TRAP    C$CLP1
1134 031070  020327  007376                  CMP     R3,#7376                ;ONLY CHECK RAM UNTIL ITS FULL
1135 031074  002115                          BGE     115$                    ;IT WRAPS AROUND ETC.
1136 031076  004737  034044                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
1137 031102  012737  000400  032574          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
1138 031110  112737  000000  032572          MOVB    #0,T23BS0               ;STOP INTERNAL TSV05 DIAGNOSTICS
1139 031116  112737  000000  032573          MOVB    #0,T23BS1               ;SIZE OF RAM READ
1140 031124  012704  032550                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
1141 031130  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
1142 031134  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
1143 031140  103407                          BCS     92$                     ;BR, IF NO ERRORS IN TSSR
1144 031142  010001                          MOV     R0,R1                   ;SAVE TSSR
1145 031144  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1149 031150                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     031150  104456                                                                 TRAP    C$ERHRD
     031152  000475                                                                 .WORD   317
     031154  033647                                                                 .WORD   T23WSS
     031156  012136                                                                 .WORD   PKTSSR
1150 031160                          92$:    CKLOOP                          ;LOOP IF SELECTED
     031160  104406                                                                  TRAP    C$CLP1
1151 031162  004737  034044                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
```

```
1152 031166  012737  000400  032574          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
1153 031174  112737  000001  032572          MOVB    #1,T23BS0               ;READ RAM COMMAND FOR WRITE SUB SYS M.
1154 031202  112737  000002  032573          MOVB    #2,T23BS1               ;SIZE OF RAM READ
1155 031210  012704  032550                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
1156 031214  010465  000000          95$:    MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM CMD (READ RAM)
1157 031220  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
1158 031224  103407                          BCS     100$                    ;BR, IF NO ERRORS IN TSSR
1159 031226  010001                          MOV     R0,R1                   ;SAVE TSSR
1160 031230  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1164 031234                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     031234  104456                                                                  TRAP    C$ERHRD
     031236  000476                                                                  .WORD   318
     031240  033647                                                                  .WORD   T23WSS
     031242  012136                                                                  .WORD   PKTSSR
1165 031244                          100$:   CKLOOP                          ;LOOP IF SELECTED
     031244  104406                                                                  TRAP    C$CLP1
1166 031246  005001                          CLR     R1                      ;CLEAR REGISTERS
1167 031250  005002                          CLR     R2                      ;CLEAR REGISTERS
1168 031252  013701  032502                  MOV     T23BFR+20,R1            ;PICK UP BYTE READ FROM RAM
1169 031256  010302                          MOV     R3,R2                   ;SET UP EXPECTED
1170 031260  000302                          SWAB    R2                      ;SWAP BYTES
1171 031262  020102                          CMP     R1,R2                   ;IS RAM DATA CORRECT
1172 031264  001406                          BEQ     110$                    ;BR, IF OK (EQUAL)
1173 031266  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1177 031272                                  ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC=RAM NOT CORRECT
     031272  104456                                                                  TRAP    C$ERHRD
     031274  000477                                                                  .WORD   319
     031276  033135                                                                  .WORD   T23RNC
     031300  015564                                                                  .WORD   EXPREC
1178 031302                          110$:   CKLOOP                          ;LOOP IF SELECTED
     031302  104406                                                                  TRAP    C$CLP1
1179 031304  005237  032574                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1180 031310  005237  032574                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1181 031314  010301                          MOV     R3,R1                   ;GET SIZE OF RECORD
1182 031316  062701  000400                  ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
1183 031322  023701  032574                  CMP     T23S2,R1                ;AT END OF RAM CHECK YET
1184 031326  001332                          BNE     95$                     ;BR, IF MORE TO CHECK
1185 031330  062703  001750          115$:   ADD     #1000.,R3               ;NEXT RECORD SIZE/DATA PATTERN
1186 031334  020337  032570                  CMP     R3,T23RSZ               ;IS R3 OVER MAX RECORD SIZE
1187 031340  002005                          BGE     120$                    ;IF RECORD SIZE IS TOO BIG QUIT
1188 031342  020327  177776                  CMP     R3,#65534.              ;END OF SUBTEST MAX RECORD SIZE
1189 031346  001402                          BEQ     120$                    ;BR, IF COMPLETED
1190 031350  000137  030720                  JMP     65$                     ;DO MORE RECORDS
1191 031354                          120$:
1192 031354  004737  034044                  JSR     PC,T23RT2               ;CLEAN UP PACKET
1193 031360  012737  102010  032550          MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1194 031366  012704  032550                  MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1195 031372  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1196 031376  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1197 031402  103407                          BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1198 031404  010001                          MOV     R0,R1                   ;SAVE TSSR CONTENTS
1199 031406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1203 031412                                  ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     031412  104456                                                                  TRAP    C$ERHRD
     031414  000500                                                                  .WORD   320
     031416  033066                                                                  .WORD   T23RWN
     031420  012136                                                                  .WORD   PKTSSR
```

```
1204 031422                          130$:
1205 031422                                ENDSUB                    ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     031422                                                                    L10046:
     031422  104403                                                                TRAP    C$ESUB
1206 031424  023727  002212  000017        CMP     FATFLG,#15.               ;IS ERROR COUNT AT 25
1207 031432  103402                        BLO     999$                      ;BR, IF LESS THAN 25
1208 031434  004737  017272                JSR     PC,CKDROP                 ;TRY TO DROP THE UNIT
1209 031440                          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
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T3.4:
031440  104402                                                                                  TRAP    C$BSUB
031442  004737  033752                      JSR     PC,T23REST                ;SET COMMAND PACKET
031446  004737  034106                      JSR     PC,T23RT3                 ;RESTORE PACKET
031452  004737  034044                      JSR     PC,T23RT2                 ;SET UP OTHER COMMAND PACKET

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

031456  004737  016064                      JSR     PC,SOFINIT                ;DO INITIALIZE ON CONTROLLER
031462  103407                              BCS     20$                       ;BR IF INIT WAS OK
031464  005237  002212                      INC     FATFLG                    ;BUMP COUNT
031470  010001                              MOV     R0,R1                     ;CONTENTS OF TSSR REGISTER
031472                                      ERRDF   ERRNO,SFIERR,SFIMSG       ;FATAL ERROR TSSR WAS NOT OK
031472  104455                                                                                  TRAP    C$ERDF
031474  000501                                                                                  .WORD   321
031476  003650                                                                                  .WORD   SFIERR
031500  012124                                                                                  .WORD   SFIMSG
031502                                  20$:
031502  013737  002172  032460                  MOV     UNITN,T23DSW              ;SET DRIVE NUMBER IN PACKET
031510  012704  032440                          MOV     #T23PACKET,R4             ;SUBROUTINE NEEDS PACKET ADDRESS

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

031514  004737  010752                      JSR     PC,WRTCHR                 ;ISSUE WRITE CHARACTERISTICS
031520  103407                              BCS     23$                       ;BR, IF COMMAND ISSUED OK
031522  005237  002212                      INC     FATFLG                    ;BUMP COUNT
031526  010001                              MOV     R0,R1                     ;SAVE CONTENTS OF TSSR
031530                                      ERRHRD  ERRNO,WRTMSG,SFIMSG       ;WRITE CHARACTERISTISC FAILED
031530  104456                                                                                  TRAP    C$ERHRD
031532  000502                                                                                  .WORD   322
031534  005054                                                                                  .WORD   WRTMSG
031536  012124                                                                                  .WORD   SFIMSG

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

```
                        ;*****************************************************************
                        ;
031540  012737  104405  032560  23$:    MOV     #104405,T23PK3          ;WRITE DATA, ACK, ILLEGAL BITS
031546  013737  003114  032562           MOV     FREE,T23WB              ;SET UP WRITE BUFFER ADDRESS
031554  062737  000001  032562           ADD     #1,T23WB                ;MAKE ADDRESS ODD (ILLEGAL)
031562  012737  000400  032566           MOV     #256.,T23SZ             ;SET UP BUFFER SIZE
031570  012704  032560                   MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
031574  010465  000000                   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
031600  004737  016340                   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
031604  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
031610  012702  100206                   MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
031614  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
031616  001406                           BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
031620  005237  002212                   INC     FATFLG                  ;BUMP COUNT
031624                                   ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR I  ORRECT AFTER WRITE COMMAND
                                                                                 TRAP    C$ERHRD
                                                                                 .WORD   323
                                                                                 .WORD   T23TM
                                                                                 .WORD   PKTSSR
031624  104456
031626  000503
031630  033012
031632  012136
031634          80$:    CKLOOP                                  ;LOOP IF SELECTED
031634  104406                                                           TRAP    C$CLP1
031636                  ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
031636                                                                 L10047:
031636  104403                                                           TRAP    C$ESUB
031640  023727  002212  000017           CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
031646  103402                           BLO     999$                            ;BR, IF LESS THAN 25
031650  004737  017272                   JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
031654          999$:
```

```
                        ;*
                        ;
                        ;TEST 3, SUBTEST 5
                        ;
                        ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
                        ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
                        ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
                        ;
                        ;       ************************************************************************
                        ;                                   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!
                        ;
                        ;       ************************************************************************
                        ;-
                        ;
1307 031654                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     031654                                                                     T3.5:
     031654  104402                                                                    TRAP    C$BSUB
1308 031656  005737  003126             TST     NXMFLG          ;DO WE HAVE IT?
1309 031662  001002                     BNE     10$             ;BR, IF  ENOUGH
1310 031664  000137  032070             JMP     90$             ;SKIP THIS TEST IF NOT
1311 031670  004737  033752     10$:    JSR     PC,T23REST      ;SET COMMAND PACKET
1312 031674  004737  034106             JSR     PC,T23RT3       ;RESTORE PACKET
1313 031700  004737  034044             JSR     PC,T23RT2       ;SET UP OTHER COMMAND PACKET
1314
1315                            ;************************************************************************
1316                            ;
1317                            ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1318                            ;
1319                            ;************************************************************************
1320
1321 031704  004737  016064             JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
1322 031710  103407                     BCS     20$             ;BR IF INIT WAS OK
1323 031712  005237  002212             INC     FATFLG          ;BUMP COUNT
1327 031716  010001                     MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
1328 031720                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     031720  104455                                                                    TRAP    C$ERDF
     031722  000504                                                                    .WORD   324
     031724  003650                                                                    .WORD   SFIERR
     031726  012124                                                                    .WORD   SFIMSG
1329 031730                     20$:
1330 031730  013737  002172  032460         MOV     UNITN,T23DSW    ;SET DRIVE NUMBER UP
1331 031736  012704  032440             MOV     #T23PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
1332
1333                            ;************************************************************************
1334                            ;
1335                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1336                            ;
1337                            ;************************************************************************
1338
1339 031742  004737  010752             JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
1340 031746  103407                     BCS     23$             ;BR, IF COMMAND ISSUED OK
1341 031750  005237  002212             INC     FATFLG          ;BUMP COUNT
1345 031754  010001                     MOV     R0,R1           ;SAVE CONTENTS OF TSSR
```

```
1346 031756                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     031756  104456                                                            TRAP    C$ERHRD
     031760  000505                                                            .WORD   325
     031762  005054                                                            .WORD   WRTMSG
     031764  012124                                                            .WORD   SFIMSG
1347
1348                                   ;*************************************************************************
1349                                   ;
1350                                   ;WRITE DATA, ACK, CVC=1
1351                                   ;
1352                                   ;*************************************************************************
1353
1354 031766                            23$:
1355 031766  004737  021276                       JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
1356 031772  012737  140005  032560              MOV     #140005,T23PK3          ;WRITE DATA, ACK, CVC=1
1357 032000  013737  003130  032562              MOV     NXMLO,T23WB             ;SET UP WRITE BUFFER ADDRESS
1358 032006  013737  003132  032564              MOV     NXMHI,T23WB+2           ;HIGH ORDER ADDRESS BITS
1359 032014  012737  000100  032566              MOV     #64.,T23SZ              ;SET UP BUFFER SIZE
1360 032022  012704  032560                       MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
1361 032026  010465  000000                       MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1362 032032  004737  016340                       JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1363 032036  016501  000002                       MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1364 032042  012702  104210                       MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
1365 032046  020102                               CMP     R1,R2                   ;ARE THEY EQUAL
1366 032050  001406                               BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1367 032052  005237  002212                       INC     FATFLG                  ;BUMP COUNT
1371 032056                                       ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     032056  104456                                                                    TRAP    C$ERHRD
     032060  000506                                                                    .WORD   326
     032062  033012                                                                    .WORD   T23TM
     032064  012136                                                                    .WORD   PKTSSR
1372 032066                            80$:    CKLOOP                  ;LOOP IF SELECTED
     032066  104406                                                            TRAP    C$CLP1
1373 032070                            90$:
1374 032070                                    ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     032070                                                                 L10050:
     032070  104403                                                            TRAP    C$ESUB
1375 032072  023727  002212  000017              CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
1376 032100  103402                               BLO     999$                    ;BR, IF LESS THAN 25
1377 032102  004737  017272                       JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
1378 032106                            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!
                        ;       ************************************************************************
                        ;-

                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                        T3.6:
                                                                                                TRAP    C$BSUB
032110  005737  003126        TST     NXMFLG                  ;DO WE HAVE IT?
032114  001002                BNE     10$                     ;BR, IF  ENOUGH
032116  000137  032402        JMP     130$                    ;SKIP THIS TEST IF NOT
032122  004737  034106 10$:   JSR     PC,T23RT3               ;RESTORE PACKET
032126  004737  033752        JSR     PC,T23REST              ;SET COMMAND PACKET
032132  004737  034044        JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

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

032136  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
032142  103407                  BCS     20$                     ;BR IF INIT WAS OK
032144  005237  002212          INC     FATFLG                  ;BUMP COUNT
032150  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
032152                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
032152  104455                                                                  TRAP    C$ERDF
032154  000507                                                                  .WORD   327
032156  003650                                                                  .WORD   SFIERR
032160  012124                                                                  .WORD   SFIMSG
032162                  20$:
032162  013737  002172  032460          MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
032170  012704  032440                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

032174  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
032200  103407                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
032202  005237  002212          INC     FATFLG                  ;BUMP COUNT
032206  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
```

```
1437 032210                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     032210  104456                                                              TRAP    C$ERHRD
     032212  000510                                                              .WORD   328
     032214  005054                                                              .WORD   WRTMSG
     032216  012124                                                              .WORD   SFIMSG
1438
1439                                       ;*************************************************************************
1440                                       ;
1441                                       ;WRITE DATA, ACK,CVC=1
1442                                       ;
1443                                       ;*************************************************************************
1444
1445 032220                                23$:
1446 032220  004737  021276                        JSR     PC,INVERT               ;INVERT EXT'D FEATURES
1447 032224  012737  140005  032560                MOV     #140005,T23PK3          ;WRITE DATA, ACK,CVC=1
1448 032232  013701  003130                        MOV     NXMLO,R1                ;HIGHEST MEMORY ADDRESS LOW BITS
1449 032236  162701  001000                        SUB     #1000,R1                ;SET ADDRESS A LITTLE LOWER
1450 032242  010137  032562                        MOV     R1,T23WB                ;LOAD INTO THE PACKET
1451 032246  013737  003132  032564                MOV     NXMHI,T23WB+2           ;HIGHEST MEM ADDRESS HI BITS
1452 032254  012737  000000  032566                MOV     #0.,T23SZ               ;SET UP BUFFER SIZE (64K BYTES)
1453 032262  012704  032560                        MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
1454 032266  010465  000000                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1455 032272  004737  016340                        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1456 032276  016501  000002                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1457 032302  012702  104210                        MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
1458 032306  020102                                CMP     R1,R2                   ;ARE THEY EQUAL
1459 032310  001406                                BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1460 032312  005237  002212                        INC     FATFLG                  ;BUMP COUNT
1464 032316                                ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     032316  104456                                                              TRAP    C$ERHRD
     032320  000511                                                              .WORD   329
     032322  033012                                                              .WORD   T23TM
     032324  012136                                                              .WORD   PKTSSR
1465 032326                                80$:    CKLOOP                          ;LOOP IF SELECTED
     032326  104406                                                              TRAP    C$CLP1
1466 032330  004737  034044                        JSR     PC,T23RT2               ;CLEAN UP PACKET
1467 032334  004737  034106                        JSR     PC,T23RT3               ;RESTORE PACKET
1468 032340  012737  102010  032550                MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1469 032346  012704  032550                        MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1470 032352  010465  000000                        MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1471 032356  004737  016426                        JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1472 032362  103407                                BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1473 032364  010001                                MOV     R0,R1                   ;SAVE TSSR CONTENTS
1474 032366  005237  002212                        INC     FATFLG                  ;BUMP COUNT
1478 032372                                ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     032372  104456                                                              TRAP    C$ERHRD
     032374  000512                                                              .WORD   330
     032376  033066                                                              .WORD   T23RWN
     032400  012136                                                              .WORD   PKTSSR
1479 032402                                130$:
1480 032402                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     032402                                                                    L10051:
     032402  104403                                                              TRAP    C$ESUB
1481 032404  023727  002212  000017                CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1482 032412  103402                                BLO     999$                            ;BR, IF LESS THAN 25
1483 032414  004737  017272                        JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1484 032420                                999$:
```

```
1485 032420  004737  016546          JSR     PC,TSTLOOP          ;DO WE NEED TO ITERATE TEST
1486 032424  103002                  BCC     163$                ;BR, IF NO LOOP REQUIRED
1487 032426  000137  027376          JMP     T23LOOP             ;EXECUTE AGAIN
1488 032432                  163$:
1489 032432                          EXIT    TST                 ;ALL DONE THIS TEST
     032432  104432                                              TRAP    C$EXIT
     032434  001664                                              .WORD   L10043-.
```

```
                                ;+
                                ;LOCAL STORAGE FOR THIS TEST
                                ;-
                        032440          .=<.+10>&177770
032440                  T23PACKET:                      ;COMMAND PACKET FOR TEST
032440  100004                  .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH ACK
032442  032450                  .WORD   T23DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
032444  000000                  .WORD   0
032446  000010                  .WORD   8.              ;STARTING VALUE OF BLOCK SIZE
032450                  T23DATA:                        ;CHARACTERISTICS DATA BLOCK
032450  032462                  .WORD   T23BFR          ;ADDRESS OF MESSAGE BUFFER
032452  000000                  .WORD   0
032454  000012                  .WORD   10.             ;LENGTH OF MESSAGE BUFFER
032456  000000                  .WORD   0
032460  000000          T23DSW: .WORD   0               ;SELECT DRIVE 0
032462                  T23BFR: .BLKW   25.             ;MESSAGE BUFFER
                                ;
                                ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
                                ;
                        032550          .=<.+10>&177770
032550                  T23PK2:
032550  100006                  .WORD   100006          ;WRITE SUB SYS MEM COMMAND, AND ACK
032552  032572                  .WORD   T23BF2          ;ADDRESS OF SELECT BLOCK DATA
032554  000000                  .WORD   0
032556  000006                  .WORD   6.              ;SIZE OF DATA PACKET

032560                  T23PK3:
032560  100005                  .WORD   100005          ;WRITE COMMAND,  AND ACK
032562  000000          T23WB:  .WORD   0               ;ADDRESS OF WRITE BUFFER
032564  000000                  .WORD   0
032566  000000          T23SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
                                .EVEN
                                ;
032570  000000          T23RSZ: .WORD   0               ;LARGEST TAPE RECORD IN BYTES
                                ;
                                ;
032572                  T23BF2:
032572      010         T23BS0: .BYTE   10              ;BSEL0 AREA
032573      200         T23BS1: .BYTE   200             ;BSEL1 AREA
032574  000000          T23S2:  .WORD   0               ;SEL 2 AREA
032576  000000          T23S3:  .WORD   0               ;DATA AREA
                                ;
                                ;
032600  000000          T23TMP: .WORD   0               ;TEMPORARY REGISTER
032602  000000          T23WRT: .WORD   0               ;RETRY COMMAND
                                ;
                                .EVEN
                                ;TAPE MOTION PACKET COMMAND VALUES

032604  100005          T23WD:  .WORD   100005          ;WRITE DATA (NEXT)
032606  100405          T23WDR: .WORD   100405          ;WRITE DATA RETRY
032610  102005          T23CON: .WORD   102005          ;WRITE CONTINOUS
032612  177777                  .WORD   177777          ;END OF DATA
```

```
1554
1555                                    ;+
1556                                    ;LOCAL TEXT MESSAGES FOR TEST
1557                                    ;-
1558
1559 032614  127  122  111  T23SSR: .ASCIZ  'WRITE Command Not Accepted'
1560 032647  105  117  124  T23ET:  .ASCIZ  'EOT Not Found In 12000 4k Writes, (Use Shorter Tape)'
1561 032734  127  122  111  T23EOT: .ASCIZ  'WRITE DATA OVER EOT GAVE NO TAPE STATUS ALERT'
1562 033012  124  123  123  T23TM:  .ASCIZ  'TSSR Not Correct After WRITE Command Reject'
1563 033066  122  145  167  T23RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
1564 033135  122  101  115  T23RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
1565 033210  124  123  123  T23AM3: .ASCIZ  'TSSR Init. Failed After WRITE Command'
1566 033256  104  162  151  T23OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
1567 033331  124  123  123  T23WDD: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, SWB Bit Set'
1568 033420  124  123  123  T23WDC: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, Check For Tape Offline'
1569 033522  103  126  103  T23VCK: .ASCIZ  'CVC Set, Didn't Reset VCK In Message Buffer'
1570 033575  124  123  102  T23BA:  .ASCIZ  'TSBA Not Correct After WRITE DATA Command'
1571 033647  127  122  111  T23WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
1572 033736  102  141  163  TST23ID:       .ASCIZ  'Basic Write'
1573                                .EVEN
1574                                    ;+
1575                                    ;
1576                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
1577                                    ;WRITE SUBSYSTEM MEMORY COMMAND
1578                                    ;
1579                                    ;-
1580
1581 033752                          T23REST:
1582 033752                                SAVREG                          ;SAVE THE REGISTERS
1583 033756  012701  032440                MOV     #T23PACKET,R1           ;START OF THE PACKET
1584 033762  012721  100004                MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
1585 033766  012721  032450                MOV     #T23DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
1586 033772  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
1587 033774  012721  000012                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
1588 034000  012721  032462                MOV     #T23BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
1589 034004  005021                        CLR     (R1)+
1590 034006  012721  000024                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
1591 034012  005021                        CLR     (R1)+
1592 034014  012711  000000                MOV     #0,(R1)                 ;SELECT DRIVE ZERO
1593 034020  012702  000030                MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
1594 034024  012762  177777  032462  64$:  MOV     #177777,T23BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
1595 034032  005742                        TST     -(R2)                   ;BUMP DOWN TO NEXT LOCATION
1596 034034  020227  000000                CMP     R2,#0                   ;R2 AT ZERO YET
1597 034040  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
1598 034042  000207                        RTS     PC                      ;RETURN
1599
1600
1601 034044                          T23RT2:
1602 034044                                SAVREG                          ;SAVE THE REGISTERS
1603 034050  012701  032550                MOV     #T23PK2,R1              ;START OF THE PACKET
1604 034054  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
1605 034060  012721  032572                MOV     #T23BF2,(R1)+           ;ADDRESS OF DATA BLOCK
1606 034064  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
1607 034066  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
1608 034072  012701  032572                MOV     #T23BF2,R1              ;POINT TO DATA SEL AREA
1609 034076  005021                        CLR     (R1)+
1610 034100  005021                        CLR     (R1)+
```

```
 1611 034102  005011                        CLR     (R1)
 1612 034104  000207                        RTS     PC                      ;RETURN
 1613 034106                        T23RT3:
 1614 034106                                SAVREG                          ;SAVE THE REGISTERS
 1615 034112  012701  032560                MOV     #T23PK3,R1              ;START OF THE PACKET
 1616 034116  012721  100005                MOV     #100005,(R1)+           ;WRITE  TAPE. WITH ACK
 1617 034122  005021                        CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
 1618 034124  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
 1619 034126  005011                        CLR     (R1)                    ;SIZE OF DATA BLOCK
 1620 034130  000207                        RTS     PC                              ;RETURN
 1621                               ;+
 1622                               ;
 1623                               ;ROUTINE TO RETRY WRITE DATA IN CASE OF BAD TAPE FOR TEST
 1624                               ;3,SUBTEST 2 & 3
 1625                               ;
 1626                               ;INPUTS:        R1=TSSR
 1627                               ;               SUBROUTINE SETS UP T23WRT FOR RETRY
 1628                               ;-
 1629
 1630 034132                        T23CHK:
 1631 034132                                SAVREG                          ;SAVE THE REGISTERS
 1632 034136  005037  032600                CLR     T23TMP                  ;CLEAR LOCAL REGISTER
 1633 034142  032701  100000                BIT     #SC,R1                  ;IS SC SET IN TSSR?
 1634 034146  001452                        BEQ     FATAL                   ;NO, YOU GOT PROBLEMS!
 1635 034150  013702  032472                MOV     T23BFR+10,R2            ;YES,GET XSTAT1
 1636 034154  032702  000002                BIT     #X1.UNC,R2              ;IS UNC SET IN XSTAT1?
 1637 034160  001401                        BEQ     1$                      ;NO, CHECK COR
 1638 034162  000405                        BR      RETRY                   ;YES,DO WRITE DATA RETRY
 1639 034164  032702  020000        1$:     BIT     #X1.COR,R2              ;IS COR SET IN XSTAT1 THEN?
 1640 034170  001002                        BNE     RETRY                   ;YES SO RETRY
 1641 034172  000440                        BR      FATAL                   ;NO, YOU GOT PROBLEMS
 1642 034174  000207        EXIT:   RTS     PC                              ;RETURN
 1643
 1644 034176                        RETRY:
 1645 034176  012703  000024        2$:     MOV     #20.,R3                 ;STARTING RECORD SIZE
 1646 034202  013737  003114  032562        MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
 1647 034210  012737  032602  032560        MOV     #T23WRT,T23PK3          ;WRITE DATA RETRY COMMAND SETUP BY SUBROUTINE
 1648 034216  012704  032560                MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 1649 034222  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 1650 034224  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 1651 034230  010337  032566                MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
 1652 034234  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 1653 034240  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 1654 034244  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 1655 034250  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 1656 034254  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 1657 034256  001746                        BEQ     EXIT                    ;BR, IF OK
 1658 034260  005237  032600                INC     T23TMP                  ;TRY FIVE TIMES THEN EXIT
 1659 034264  022737  000005  032600        CMP     #5,T23TMP               ;DONE FIVE YET?
 1660 034272  001341                        BNE     2$                      ;NO GO AGAIN
 1661 034274  005237  002212        FATAL:  INC     FATFLG                  ;BUMP COUNT
 1665 034300  013702  032462                MOV     T23BFR,R2               ;LOW ORDER MSGBUF
 1666 034304                                ERRHRD  ERRNO,SCHERR,PKTMES     ;TSSR INCORRECT AFTER WRITE DATA
      034304  104456                                                                TRAP    C$ERHRD
      034306  000513                                                                .WORD   331
      034310  005276                                                                .WORD   SCHERR
      034312  012200                                                                .WORD   PKTMES
```

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1667 034314  004737  017272          JSR     PC,CKDROP           ;DROP THE UNIT
1668 034320                          ENDTST
     034320
     034320  104401                                      L10043:
                                                                  TRAP    CSETST
```

```
                                        .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
                                ;
                                ;
                                ;
                                ;-
034322                                  BGNTST
034322                                                                  T4::
034322  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
034330  005037  003124                  CLR     KTENABLE                ;TURN OFF KT11
034334  004737  017364                  JSR     PC,KTOFF                ;TURN KT11 OFF
034340  012700  046202                  MOV     #TST24ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
034344  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
034350  004737  021366                  JSR     PC,MEMCK                ;CHECK FOR MEMORY
034354  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
                                ;+
                                ;
                                ;TEST 4, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A READ DATA COMMAND WITH THE CLEAR
                                ;VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE
                                ;VOLUME CHECK (VCK) IS SET. ALL LEGAL
                                ;COMBINATIONS OF THE COMMAND MODE FIELD ARE TESTED
                                ;(I.E., IT IS VERIFIED THAT THE COMMAND IS REJECTED
                                ;DUE TO VCK BEING SET RATHER THAN ERRONEOUS DECODING
                                ;OF THE MODE FIELD.
                                ;
                                ;
                                ;-
034362                          T24LOOP:
034362                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
034362                                                                          T4.1:
034362  104402                                                                  TRAP    C$BSUB
034364  004737  046250                  JSR     PC,T24REST              ;SET COMMAND PACKET
034370  004737  046404                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
034374  004737  046342                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
034400  012737  176750  043736          MOV     #65000.,T24DLY          ;LOAD UP DELAY ROUTINE
                                ;
                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
```

```
1728                                    ;
1729                                    ;*************************************************************************
1730                                    ;
1731 034406  004737  016064            5$:     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1732 034412  103426                            BCS     20$                     ;BR IF INIT WAS OK
1733 034414                                    DELAY   250                     ;DELAY AWHILE
      034414  012727  000250                                                            MOV     #250,(PC)+
      034420  000000                                                                    .WORD   0
      034422  013727  002116                                                            MOV     L$DLY,(PC)+
      034426  000000                                                                    .WORD   0
      034430  005367  177772                                                            DEC     -6(PC)
      034434  001375                                                                    BNE     .-4
      034436  005367  177756                                                            DEC     -22(PC)
      034442  001367                                                                    BNE     .-20
1734 034444  005337  043736                    DEC     T24DLY                  ;BUMP DELAY COUNTER
1735 034450  001356                            BNE     5$                      ;BR, IF MORE DELAY REQUIRED
1736 034452  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1740 034456  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1741 034460                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      034460  104455                                                                    TRAP    C$ERDF
      034462  000621                                                                    .WORD   401
      034464  003650                                                                    .WORD   SFIERR
      034466  012124                                                                    .WORD   SFIMSG
1742 034470                            20$:
1743 034470  012737  000007  043610            MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
1744 034476  012704  043570                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1745
1746                                    ;*************************************************************************
1747                                    ;
1748                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1749                                    ;
1750                                    ;*************************************************************************
1751
1752 034502  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1753 034506  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
1754 034510  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1758 034514  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1759 034516                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      034516  104456                                                                    TRAP    C$ERHRD
      034520  000622                                                                    .WORD   402
      034522  005054                                                                    .WORD   WRTMSG
      034524  012124                                                                    .WORD   SFIMSG
1760 034526  005737  002216            24$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
1761 034532  001044                            BNE     50$                     ;BR IF SWITCH IS ON
1762
1763 034534  112737  000200  043721            MOVB    #200,T24BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
1764 034542  112737  000010  043720            MOVB    #10,T24BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
1765 034550  012704  043700                    MOV     #T24PK2,R4              ;WRITE SUBSYS MEM PACKET
1766 034554  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1767 034560  004737  016426                    JSR     PC,CHKTSSR              ;WAIT FOR SSR
1768 034564  103407                            BCS     30$                     ;BR, IF NO ERROR
1769 034566  010001                            MOV     R0,R1                   ;ERROR, SAVE TSSR
1770 034570  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1774 034574                                    ERRHRD  ERRNO,T24SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
      034574  104456                                                                    TRAP    C$ERHRD
      034576  000623                                                                    .WORD   403
      034600  044457                                                                    .WORD   T24SSR
```

```
                                                                                .WORD   PKTSSR
1775 034604                             30$:    CKLOOP                          ;LOOP IF SELECTED
     034604  104406                                                            TRAP    C$CLP1
1776 034606  012737  000007  043610             MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
1777 034614  012704  043570                     MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1778
1779                                    ;*****************************************************************
1780                                    ;
1781                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1782                                    ;
1783                                    ;*****************************************************************
1784
1785 034620  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1786 034624  103407                             BCS     50$                     ;BR, IF COMMAND ISSUED OK
1787 034626  005237  002212                     INC     FATFLG                  ;BUMP COUNT
1791 034632  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1792 034634                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     034634  104456                                                            TRAP    C$ERHRD
     034636  000624                                                            .WORD   404
     034640  005054                                                            .WORD   WRTMSG
     034642  012124                                                            .WORD   SFIMSG
1793 034644                             50$:    CKLOOP                          ;SCOPE LOOP
     034644  104406                                                            TRAP    C$CLP1
1794 034646  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1795 034652  032701  000100                     BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
1796 034656  001006                             BNE     60$                     ;BR, IF OFFLINE (GOOD)
1797 034660  005237  002212                     INC     FATFLG                  ;BUMP COUNT
1801 034664                                     ERRDF   ERRNO,T240FL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     034664  104455                                                            TRAP    C$ERDF
     034666  000625                                                            .WORD   405
     034670  045235                                                            .WORD   T240FL
     034672  012124                                                            .WORD   SFIMSG
1802 034674                             60$:    CKLOOP                          ;LOOP IF SELECTED
     034674  104406                                                            TRAP    C$CLP1
1803 034676  012703  043726                     MOV     #T24RN,R3               ;POINTER FOR COMMANDS
1804
1805                                    ;*****************************************************************
1806                                    ;
1807                                    ;TAPE READ COMMAND IN PLACE
1808                                    ;
1809                                    ;*****************************************************************
1810
1811 034702  011337  043710             65$:    MOV     (R3),T24PK3             ;TAPE READ COMMAND IN PLACE
1812 034706  012704  043710                     MOV     #T24PK3,R4              ;R4 = POINTER TO PACKET
1813 034712  010465  000000                     MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1814 034716  004737  016340                     JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1815 034722  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1816 034726  012702  100306                     MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
1817 034732  020102                             CMP     R1,R2                   ;ARE THEY EQUAL
1818 034734  001406                             BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1819 034736  005237  002212                     INC     FATFLG                  ;BUMP COUNT
1823 034742                                     ERRHRD  ERRNO,T24TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     034742  104456                                                            TRAP    C$ERHRD
     034744  000626                                                            .WORD   406
     034746  044773                                                            .WORD   T24TM
     034750  012136                                                            .WORD   PKTSSR
1824 034752                             80$:    CKLOOP                          ;LOOP IF SELECTED
```

```
                                                                                    TRAP    C$CLP1
      034752  104406
1825  034754  005723                          TST     (R3)+           ;BUMP TO NEXT COMMAND
1826  034756  022713  177777                  CMP     #177777,(R3)    ;END OF THE COMMANDS YET
1827  034762  001401                          BEQ     90$             ;BR, IF DONE
1828  034764  000746                          BR      65$             ;MORE COMMAND(S) TO GO
1829  034766                          90$:
1830  034766                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      034766                                                                L10053:
      034766  104403                                                          TRAP    C$ESUB
1831  034770  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
1832  034776  103402                          BLO     999$                    ;BR, IF LESS THAN 25
1833  035000  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
1834  035004                          999$:
```

```
                        ;+
                        ;
                        ;TEST 4, SUBTEST 2
                        ;
                        ;VERIFIES THAT READ FORWARD COMMANDS WITH SWB=0
                        ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
                        ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
                        ;LENGTH AND DATA CONTENT. THE TAPE IS THEN REWOUND
                        ;AGAIN AND THE RECORD READ SEQUENTIALLY AND RESULTS
                        ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
                        ;EACH READ FORWARD COMMAND IS SET TO THE LENGTH OF THE
                        ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
                        ;OCCUR.
                        ;
                        ;
                        ;
                        ;-
035004                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
035004                                                                  T4.2:
035004  104402                                                          TRAP    C$BSUB
035006  004737  046404            JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
035012  004737  046250            JSR     PC,T24REST              ;SET COMMAND PACKET
035016  004737  046342            JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

035022  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
035026  103407                    BCS     20$                     ;BR IF INIT WAS OK
035030  005237  002212            INC     FATFLG                  ;BUMP COUNT
035034  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
035036                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
035036  104455                                                          TRAP    C$ERDF
035040  000627                                                          .WORD   407
035042  003650                                                          .WORD   SFIERR
035044  012124                                                          .WORD   SFIMSG
035046                  20$:
035046  013737  002172  043610        MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
035054  012704  043570            MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

035060  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
035064  103407                    BCS     24$                     ;BR, IF COMMAND ISSUED OK
035066  005237  002212            INC     FATFLG                  ;BUMP COUNT
035072  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
035074                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
035074  104456                                                          TRAP    C$ERHRD
035076  000630                                                          .WORD   408
035100  005054                                                          .WORD   WRTMSG
```

```
     035102  012124                                                                  .WORD   SFIMSG
1890 035104                  24$:    CKLOOP                      ;LOOP IF SELECTED
     035104  104406                                                                 TRAP    C$CLP1
1891
1892                         ;*************************************************************
1893                         ;
1894                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
1895                         ;
1896                         ;*************************************************************
1897
1898 035106  004737  011104          JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
1899 035112  103407                  BCS     30$                         ;BR, IF NO PROBLEM
1900 035114  010001                  MOV     R0,R1                       ;SAVE TSSR
1901 035116  005237  002212          INC     FATFLG                      ;BUMP COUNT
1905 035122                          ERRHRD  ERRNO,T24RWN,PKTSSR         ;REWIND NOT ACCEPTED
     035122  104456                                                                 TRAP    C$ERHRD
     035124  000631                                                                 .WORD   409
     035126  045046                                                                 .WORD   T24RWN
     035130  012136                                                                 .WORD   PKTSSR
1906 035132                  30$:    CKLOOP                      ;LOOP IF SELECTED
     035132  104406                                                                 TRAP    C$CLP1
1907
1908                         ;*************************************************************
1909                         ;
1910                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
1911                         ;
1912                         ;*************************************************************
1913
1914 035134  013701  043620          MOV     T24BFR+6,R1                 ;PICK UP XST0
1915 035140  010102                  MOV     R1,R2                       ;SET UP EXPECTED
1916 035142  052702  000002          BIS     #BIT1,R2                    ;SET BOT BIT IN EXPECTED
1917 035146  020102                  CMP     R1,R2                       ;DOES EXP = REC'D
1918 035150  001406                  BEQ     40$                         ;BR, IF EQUAL (OK)
1919 035152  005237  002212          INC     FATFLG                      ;BUMP COUNT
1923 035156                          ERRHRD  ERRNO,T24BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
     035156  104456                                                                 TRAP    C$ERHRD
     035160  000632                                                                 .WORD   410
     035162  044563                                                                 .WORD   T24BOT
     035164  015564                                                                 .WORD   EXPREC
1924 035166                  40$:    CKLOOP                      ;LOOP IF SELECTED
     035166  104406                                                                 TRAP    C$CLP1
1925 035170  012703  000400          MOV     #256.,R3                    ;RECORD SIZE
1926 035174  013737  003114  043712  MOV     FREE,T24RB                  ;STARTING WRITE BUFFER ADDRESS
1927
1928                         ;*************************************************************
1929                         ;
1930                         ;WRITE DATA,CVC=1,ACK COMMAND
1931                         ;
1932                         ;*************************************************************
1933
1934 035202  012737  140005  043710  MOV     #140005,T24PK3              ;WRITE DATA,CVC=1,ACK COMMAND
1935 035210  012704  043710          MOV     #T24PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
1936 035214                  65$:
1937 035214  010300                  MOV     R3,R0                       ;SET PATTERN IN CORRECT REGISTER
1938 035216  004737  017512          JSR     PC,FILLMEM                  ;FILL MEMORY WITH RECORD SIZE
1939 035222  010337  043716          MOV     R3,T24SZ                    ;SET UP RECORD SIZE IN PACKET
1940 035226  010465  000000          MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
```

```
 1941 035232  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 1942 035236  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 1943 035242  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
 1944 035246  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
 1945 035250  001406                         BEQ     75$                     ;BR, IF OK
 1946 035252  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 1950 035256                                 ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      035256  104456                                                                 TRAP    C$ERHRD
      035260  000633                                                                .WORD   411
      035262  005111                                                                .WORD   WRTERR
      035264  012136                                                                .WORD   PKTSSR
 1951 035266                         75$:    CKLOOP                          ;LOOP IF SELECTED
      035266  104406                                                                TRAP    C$CLP1
 1952 035270  005723                         TST     (R3)+           ;BUMP RECORD SIZE
 1953 035272  022703  000414                 CMP     #268.,R3                ;END OF RECORD YET
 1954 035276  001346                         BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 1955 035300                         80$:    CKLOOP                          ;LOOP IF SELECTED
      035300  104406                                                                TRAP    C$CLP1
 1956 035302                         120$:
 1957
 1958                                ;*****************************************************************
 1959                                ;
 1960                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 1961                                ;
 1962                                ;*****************************************************************
 1963
 1964 035302  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 1965 035306  004737  016426                 JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
 1966 035312  103407                         BCS     130$                    ;BR, IF NO PROBLEM
 1967 035314  010001                         MOV     R0,R1                   ;SAVE TSSR
 1968 035316  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 1972 035322                                 ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      035322  104456                                                                TRAP    C$ERHRD
      035324  000634                                                                .WORD   412
      035326  045046                                                                .WORD   T24RWN
      035330  012136                                                                .WORD   PKTSSR
 1973 035332                         130$:   CKLOOP                          ;LOOP IF SELECTED
      035332  104406                                                                TRAP    C$CLP1
 1974
 1975                                ;*****************************************************************
 1976                                ;
 1977                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 1978                                ;
 1979                                ;*****************************************************************
 1980
 1981 035334  013701  043620                 MOV     T24BFR+6,R1             ;PICK UP XST0
 1982 035340  010102                         MOV     R1,R2                   ;SET UP EXPECTED
 1983 035342  052702  000002                 BIS     #BIT1,R2                ;SET BO. BIT IN EXPECTED
 1984 035346  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
 1985 035350  001406                         BEQ     140$                    ;BR, IF EQUAL (OK)
 1986 035352  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 1990 035356                                 ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      035356  104456                                                                TRAP    C$ERHRD
      035360  000635                                                                .WORD   413
      035362  044563                                                                .WORD   T24BOT
      035364  015564                                                                .WORD   EXPREC
 1991 035366                         140$:   CKLOOP                          ;LOOP IF SELECTED
```

```
                035366  104406                                                          TRAP    C$CLP1
1992            035370  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
1993            035374  013737  003114  043712          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
1994
1995                                    ;*****************************************************************
1996                                    ;
1997                                    ;READ DATA,CVC=1,ACK COMMAND
1998                                    ;
1999                                    ;*****************************************************************
2000
2001            035402  012737  140001  043710          MOV     #140001,T24PK3          ;READ DATA,CVC=1,ACK COMMAND
2002            035410  012704  043710          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2003            035414  010337  043716                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2004            035420  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2005            035424  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2006            035430  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2007            035434  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2008            035440  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2009            035442  001406                          BEQ     170$                    ;BR, IF OK
2010            035444  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2014            035450                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
                035450  104456                                                          TRAP    C$ERHRD
                035452  000636                                                          .WORD   414
                035454  005204                                                          .WORD   RDERR
                035456  012136                                                          .WORD   PKTSSR
2015            035460                  170$:   CKLOOP                                  ;LOOP IF SELECTED
                035460  104406                                                          TRAP    C$CLP1
2016            035462  013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
2017            035466  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
2018            035470  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
2019            035474  060204          173$:   ADD     R2,R4                   ;GET LOCATION IN BUFFER (ADDRESS)
2020            035476  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
2021            035500  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
2022            035502  011401                          MOV     (R4),R1                 ;RECD DATA
2023            035504  010302                          MOV     R3,R2                   ;EXPECTED DATA
2024            035506  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2028            035512                                  ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
                035512  104456                                                          TRAP    C$ERHRD
                035514  000637                                                          .WORD   415
                035516  044630                                                          .WORD   T24DTA
                035520  015564                                                          .WORD   EXPREC
2029            035522                  180$:   CKLOOP                                  ;LOOP IF SELECTED
                035522  104406                                                          TRAP    C$CLP1
2030            035524  005724                  TST     (R4)+           ;BUMP TO NEXT LOCATION
2031            035526  160204                  SUB     R2,R4           ;GET BACK TO CORRECT SIZE
2032            035530  020403                  CMP     R4,R3                   ;END OF RECORD YET
2033            035532  001360                  BNE     173$                    ;BR, IF NOT AT END OF RECORD
2034            035534  005723                  TST     (R3)+                   ;BUMP RECORD SIZE
2035            035536  022703  000412          CMP     #266.,R3                ;END OF RECORD YET
2036            035542  001322                  BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
2037            035544                  190$:   CKLOOP                          ;LOOP IF SELECTED
                035544  104406                                                          TRAP    C$CLP1
2038            035546                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                035546                                                                  L10054:
                035546  104403                                                          TRAP    C$ESUB
2039            035550  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2040            035556  103402                          BLO     999$                            ;BR, IF LESS THAN 25
```

```
2041 035560  004737  017272          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2042 035564                  999$:
```

```
2044                                    ;+
2045                                    ;
2046                                    ;TEST 4, SUBTEST 3
2047                                    ;
2048                                    ;VERIFIES THAT READ DATA COMMANDS WITH CVC=1 AND THE
2049                                    ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
2050                                    ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
2051                                    ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
2052                                    ;
2053                                    ;
2054                                    ;
2055                                    ;-
2056 035564                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      035564                                                                                T4.3:
      035564  104402                                                                        TRAP    C$BSUB
2057 035566  004737  046404                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2058 035572  004737  046250                    JSR     PC,T24REST              ;SET COMMAND PACKET
2059 035576  004737  046342                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2060
2061                                    ;*****************************************************************
2062                                    ;
2063                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
2064                                    ;
2065                                    ;*****************************************************************
2066
2067 035602  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2068 035606  103407                            BCS     20$                     ;BR IF INIT WAS OK
2069 035610  005237  0022'2                    INC     FATFLG                  ;BUMP COUNT
2073 035614  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2074 035616                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      035616  104455                                                                        TRAP    C$ERDF
      035620  000640                                                                        .WORD   416
      0356..  003650                                                                        .WORD   SFIERR
      035624  012124                                                                        .WORD   SFIMSG
2075 035626                             20$:
2076 035626  013737  002172  043610                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2077 035634  012704  043570                        MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2078
2079                                    ;*****************************************************************
2080                                    ;
2081                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2082                                    ;
2083                                    ;*****************************************************************
2084
2085 035640  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2 86 035644  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
2087 035646  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2091 035652  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2092 035654                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      035654  104456                                                                        TRAP    C$ERHRD
      035656  000641                                                                        .WORD   417
      035660  005054                                                                        .WORD   WRTMSG
      035662  012124                                                                        .WORD   SFIMSG
2093 035664                             24$:    CKLOOP                          ;LOOP IF SELECTED
      035664  104406                                                                        TRAP    C$CLP1
2094
2095                                    ;*****************************************************************
```

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

035666  004737  011104                        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
035672  103407                                BCS     30$                     ;BR, IF NO PROBLEM
035674  010001                                MOV     R0,R1                   ;SAVE TSSR
035676  005237  002212                        INC     FATFLG                  ;BUMP COUNT
035702                                        ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
035702  104456                                                                        TRAP    C$ERHRD
035704  000642                                                                        .WORD   418
035706  045046                                                                        .WORD   T24RWN
035710  012136                                                                        .WORD   PKTSSR
035712                                  30$:    CKLOOP                          ;LOOP IF SELECTED
035712  104406                                                                        TRAP    C$CLP1

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

035714  013701  043620                        MOV     T24BFR+6,R1             ;PICK UP XST0
035720  010102                                MOV     R1,R2                   ;SET UP EXPECTED
035722  052702  000002                        BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
035726  020102                                CMP     R1,R2                   ;DOES EXP = REC'D
035730  001406                                BEQ     40$                     ;BR, IF EQUAL (OK)
035732  005237  002212                        INC     FATFLG                  ;BUMP COUNT
035736                                        ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
035736  104456                                                                        TRAP    C$ERHRD
035740  000643                                                                        .WORD   419
035742  044563                                                                        .WORD   T24BOT
035744  015564                                                                        .WORD   EXPREC
035746                                  40$:    CKLOOP                          ;LOOP IF SELECTED
035746  104406                                                                        TRAP    C$CLP1
035750  012703  000400                        MOV     #256.,R3                ;RECORD SIZE
035754  013737  003114  043712                MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS

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

035762  012737  150005  043710                MOV     #150005,T24PK3          ;WRITE DATA,ACK,SWB,CVC=1 COMMAND
035770  012704  043710                        MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
035774                                  65$:
035774  010300                                MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
035776  004737  017512                        JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
036002  010337  043716                        MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
036006  010465  000000                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
036012  004737  016340                        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
036016  016501  000002                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
036022  012702  000200                        MOV     #SSR,R2                 ;SET UP EXPECTED
036026  020102                                CMP     R1,R2                   ;ARE THEY EQUAL
036030  001406                                BEQ     75$                     ;BR, IF OK
```

```
2149 036032  005237  002212                INC     FATFLG                  ;BUMP COUNT
2153 036036                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     036036  104456                                                            TRAP    C$ERHRD
     036040  000644                                                            .WORD   420
     036042  005111                                                            .WORD   WRTERR
     036044  012136                                                            .WORD   PKTSSR
2154 036046                        75$:    CKLOOP                          ;LOOP IF SELECTED
     036046  104406                                                            TRAP    C$CLP1
2155 036050  005723                        TST     (R3)+           ;BUMP RECORD SIZE
2156 036052  022703  000414                CMP     #268.,R3                ;END OF RECORD YET
2157 036056  001346                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
2158 036060                        80$:    CKLOOP                          ;LOOP IF SELECTED
     036060  104406                                                            TRAP    C$CLP1
2159 036062                        120$:
2160
2161                               ;*****************************************************************
2162                               ;
2163                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2164                               ;
2165                               ;*****************************************************************
2166
2167 036062  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2168 036066  103407                        BCS     130$                    ;BR, IF NO PROBLEM
2169 036070  010001                        MOV     R0,R1                   ;SAVE TSSR
2170 036072  005237  002212                INC     FATFLG                  ;BUMP COUNT
2174 036076                                ERRHRD  ERRNO,T24RWN,EXPREC     ;REWIND NOT ACCEPTED
     036076  104456                                                            TRAP    C$ERHRD
     036100  000645                                                            .WORD   421
     036102  045046                                                            .WORD   T24RWN
     036104  015564                                                            .WORD   EXPREC
2175 036106                        130$:   CKLOOP                          ;LOOP IF SELECTED
     036106  104406                                                            TRAP    C$CLP1
2176
2177                               ;*****************************************************************
2178                               ;
2179                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2180                               ;
2181                               ;*****************************************************************
2182
2183 036110  013701  043620                MOV     T24BFR+6,R1             ;PICK UP XST0
2184 036114  010102                        MOV     R1,R2                   ;SET UP EXPECTED
2185 036116  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2186 036122  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
2187 036124  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
2188 036126  005237  002212                INC     FATFLG                  ;BUMP COUNT
2192 036132                                ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     036132  104456                                                            TRAP    C$ERHRD
     036134  000646                                                            .WORD   422
     036136  044563                                                            .WORD   T24BOT
     036140  015564                                                            .WORD   EXPREC
2193 036142                        140$:   CKLOOP                          ;LOOP IF SELECTED
     036142  104406                                                            TRAP    C$CLP1
2194 036144  012703  000400                MOV     #256.,R3                ;RECORD SIZE
2195 036150  013737  003114  043712        MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2196
2197                               ;*****************************************************************
2198                               ;
```

```
2199                                    ;READ DATA,IE,ACK,SWB COMMAND
2200                                    ;
2201                                    ;*********************************************************************
2202
2203 036156  012737  110001  043710          MOV     #110001,T24PK3          ;READ DATA,IE,ACK,SWB COMMAND
2204 036164  012704  043710          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2205 036170  010337  043716                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2206 036174  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2207 036200  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2208 036204  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2209 036210  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2210 036214  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2211 036216  001406                          BEQ     170$                    ;BR, IF OK
2212 036220  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2216 036224                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     036224  104456                                                                  TRAP    C$ERHRD
     036226  000647                                                                  .WORD   423
     036230  005204                                                                  .WORD   RDERR
     036232  012136                                                                  .WORD   PKTSSR
2217 036234                          170$:   CKLOOP                          ;LOOP IF SELECTED
     036234  104406                                                                  TRAP    C$CLP1
2218 036236  013702  003114                  MOV     FREE,R2                 ;GET BUFFER ADDRESS
2219 036242  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
2220 036244  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
2221 036250  060204                  173$:   ADD     R2,R4                   ;GET LOCATION IN BUFFER (ADDRESS)
2222 036252  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
2223 036254  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
2224 036256  011401                          MOV     (R4),R1                 ;RECD DATA
2225 036260  010302                          MOV     R3,R2                   ;EXPECTED DATA
2226 036262  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2230 036266                                  ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
     036266  104456                                                                  TRAP    C$ERHRD
     036270  000650                                                                  .WORD   424
     036272  044630                                                                  .WORD   T24DTA
     036274  015564                                                                  .WORD   EXPREC
2231 036276                          180$:   CKLOOP                          ;LOOP IF SELECTED
     036276  104406                                                                  TRAP    C$CLP1
2232 036300  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
2233 036302  160204                          SUB     R2,R4                   ;SET SIZE TO CORRECT VALUE
2234 036304  020403                          CMP     R4,R3                   ;END OF RECORD YET
2235 036306  001360                          BNE     173$                    ;BR, IF NOT AT END OF RECORD
2236 036310  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
2237 036312  022703  000412                  CMP     #266.,R3                ;END OF RECORD YET
2238 036316  001322                          BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
2239 036320                          190$:   CKLOOP                          ;LOOP IF SELECTED
     036320  104406                                                                  TRAP    C$CLP1
2240 036322                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     036322                                                                       L10055:
     036322  104403                                                                  TRAP    C$ESUB
2241 036324  023727  002212  000017          CMP     FATFLC #15.                     ;IS ERROR COUNT AT 25
2242 036332  103402                          BLO     999$                            ;BR, IF LESS THAN 25
2243 036334  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
2244 036340                          999$:
```

```
                        ;*
                        ;
                        ;TEST 4, SUBTEST 4
                        ;
                        ;VERIFIES THAT A READ FORWARD 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 >>>>>>>>>>>>
                                                                        T4.4:
036340  104402                                                          TRAP    C$BSUB
036342  004737  046404  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
036346  004737  046250  JSR     PC,T24REST              ;SET COMMAND PACKET
036352  004737  046342  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

036356  004737  016064  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
036362  103407          BCS     20$                     ;BR IF INIT WAS OK
036364  005237  002212  INC     FATFLG                  ;BUMP COUNT
036370  010001          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
036372                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
036372  104455                                                          TRAP    C$ERDF
036374  000651                                                          .WORD   425
036376  003650                                                          .WORD   SFIERR
036400  012124                                                          .WORD   SFIMSG
036402                  20$:
036402  013737  002172  043610  MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
036410  012704  043570  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

036414  004737  010752  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
036420  103407          BCS     24$                     ;BR, IF COMMAND ISSUED OK
036422  005237  002212  INC     FATFLG                  ;BUMP COUNT
036426  010001          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
036430                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
036430  104456                                                          TRAP    C$ERHRD
036432  000652                                                          .WORD   426
036434  005054                                                          .WORD   WRTMSG
036436  012124                                                          .WORD   SFIMSG
036440          24$:    CKLOOP                          ;LOOP IF SELECTED
036440  104406                                                          TRAP    C$CLP1

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

```
2298                                    ;
2299                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2300                                    ;
2301                                    ;*****************************************************************
2302
2303 036442  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2304 036446  103407                            BCS     30$                     ;BR, IF NO PROBLEM
2305 036450  010001                            MOV     R0,R1                   ;SAVE TSSR
2306 036452  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2310 036456                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      036456  104456                                                                    TRAP    C$ERHRD
      036460  000653                                                                    .WORD   427
      036462  045046                                                                    .WORD   T24RWN
      036464  012136                                                                    .WORD   PKTSSR
2311 036466                             30$:    CKLOOP                          ;LOOP IF SELECTED
      036466  104406                                                                    TRAP    C$CLP1
2312
2313                                    ;*****************************************************************
2314                                    ;
2315                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2316                                    ;
2317                                    ;*****************************************************************
2318
2319 036470  013701  043620                    MOV     T24BFR+6,R1             ;PICK UP XST0
2320 036474  010102                            MOV     R1,R2                   ;SET UP EXPECTED
2321 036476  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2322 036502  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
2323 036504  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
2324 036506  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2328 036512                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      036512  104456                                                                    TRAP    C$ERHRD
      036514  000654                                                                    .WORD   428
      036516  044563                                                                    .WORD   T24BOT
      036520  015564                                                                    .WORD   EXPREC
2329 036522                             40$:    CKLOOP                          ;LOOP IF SELECTED
      036522  104406                                                                    TRAP    C$CLP1
2330 036524  012703  001000                    MOV     #512.,R3                ;RECORD SIZE
2331 036530  013737  003114  043712            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2332
2333                                    ;*****************************************************************
2334                                    ;
2335                                    ;WRITE DATA,ACK,CVC=1 COMMAND
2336                                    ;
2337                                    ;*****************************************************************
2338
2339 036536  012737  140005  043710            MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2340 036544  012704  043710                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2341 036550                             65$:
2342 036550  010337  043716                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2343 036554  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2344 036560  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2345 036564  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2346 036570  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
2347 036574  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
2348 036576  001406                            BEQ     75$                     ;BR, IF OK
2349 036600  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2353 036604                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
```

```
        036604  104456                                                          TRAP    C$ERHRD
        036606  000655                                                          .WORD   429
        036610  005111                                                          .WORD   WRTERR
        036612  012136                                                          .WORD   PKTSSR
  2354  036614                        75$:    CKLOOP                          ;LOOP IF SELECTED
        036614  104406                                                          TRAP    C$CLP1
  2355  036616                        120$:
  2356
  2357                                ;*****************************************************************
  2358                                ;
  2359                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  2360                                ;
  2361                                ;*****************************************************************
  2362
  2363  036616  004737  011104               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  2364  036622  103407                       BCS     130$                    ;BR, IF NO PROBLEM
  2365  036624  010001                       MOV     R0,R1                   ;SAVE TSSR
  2366  036626  005237  002212               INC     FATFLG                  ;BUMP COUNT
  2370  036632                               ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
        036632  104456                                                          TRAP    C$ERHRD
        036634  000656                                                          .WORD   430
        036636  045046                                                          .WORD   T24RWN
        036640  012136                                                          .WORD   PKTSSR
  2371  036642                        130$:   CKLOOP                          ;LOOP IF SELECTED
        036642  104406                                                          TRAP    C$CLP1
  2372
  2373                                ;*****************************************************************
  2374                                ;
  2375                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
  2376                                ;
  2377                                ;*****************************************************************
  2378
  2379  036644  013701  043620               MOV     T24BFR+6,R1             ;PICK UP XST0
  2380  036650  010102                       MOV     R1,R2                   ;SET UP EXPECTED
  2381  036652  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
  2382  036656  020102                       CMP     R1,R2                   ;DOES EXP = REC'D
  2383  036660  001406                       BEQ     140$                    ;BR, IF EQUAL (OK)
  2384  036662  005237  002212               INC     FATFLG                  ;BUMP COUNT
  2388  036666                               ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        036666  104456                                                          TRAP    C$ERHRD
        036670  000657                                                          .WORD   431
        036672  044563                                                          .WORD   T24BOT
        036674  015564                                                          .WORD   EXPREC
  2389  036676                        140$:   CKLOOP                          ;LOOP IF SELECTED
        036676  104406                                                          TRAP    C$CLP1
  2390  036700  012703  000400               MOV     #256.,R3                ;RECORD SIZE
  2391  036704  013737  003114  043712       MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
  2392
  2393                                ;*****************************************************************
  2394                                ;
  2395                                ;READ DATA,ACK,CVC=1 COMMAND
  2396                                ;
  2397                                ;*****************************************************************
  2398
  2399  036712  012737  140001  043710       MOV     #140001,T24PK3          ;READ DATA,ACK,CVC=1 COMMAND
  2400  036720  012704  043710       165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
  2401  036724  010337  043716               MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
```

```
2402 036730  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2403 036734  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2404 036740  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2405 036744  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
2406 036750  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2407 036752  001406                          BEQ     170$                    ;BR, IF OK
2408 036754  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2412 036760                                  ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     036760  104456                                                                  TRAP    C$ERHRD
     036762  000660                                                                  .WORD   432
     036764  046114                                                                  .WORD   T24TRL
     036766  012136                                                                  .WORD   PKTSSR
2413 036770                          170$:   CKLOOP                          ;LOOP IF SELECTED
     036770  104406                                                                  TRAP    C$CLP1
2414
2415                                 ;*****************************************************************
2416                                 ;
2417                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2418                                 ;
2419                                 ;*****************************************************************
2420
2421 036772  013701  043620                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
2422 036776  010102                          MOV     R1,R2                   ;SET UP EXPECTED
2423 037000  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
2424 037004  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2425 037006  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
2426 037010  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2430 037014                                  ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     037014  104456                                                                  TRAP    C$ERHRD
     037016  000661                                                                  .WORD   433
     037020  045662                                                                  .WORD   T24LON
     037022  015564                                                                  .WORD   EXPREC
2431 037024                          180$:
2432 037024                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     037024                                                                  L10056:
     037024  104403                                                                  TRAP    C$ESUB
2433 037026  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
2434 037034  103402                          BLO     999$                    ;BR, IF LESS THAN 25
2435 037036  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2436 037042                          999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 4, SUBTEST 5
                                        ;
                                        ;VERIFIES THAT A READ FORWARD COMMAND READING A RECORD
                                        ;SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
                                        ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT
                                        ;(RLS) BITS SET. IT IS VERIFIED THAT THE RESIDUAL BYTE
                                        ;COUNT (RBPCR) IN THE MESSAGE BUFFER CONTAINS THE
                                        ;PROPER NONZERO VALUE (E.G. THE DIFFERENCE BETWEEN
                                        ;THE ORIGINAL BYTE COUNT AND THE ACTUAL RECORD
                                        ;LENGTH).
                                        ;
                                        ;
                                        ;-
                                
037042                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
037042                                                                                          T4.5:
037042  104402                                                                                  TRAP    C$BSUB
037044  004737  046404                            JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
037050  004737  046250                            JSR     PC,T24REST              ;SET COMMAND PACKET
037054  004737  046342                            JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

037060  004737  016064                            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
037064  103407                                    BCS     20$                     ;BR IF INIT WAS OK
037066  005237  002212                            INC     FATFLG                  ;BUMP COUNT
037072  010001                                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
037074                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
037074  104455                                                                                  TRAP    C$ERDF
037076  000662                                                                                  .WORD   434
037100  003650                                                                                  .WORD   SFIERR
037102  012124                                                                                  .WORD   SFIMSG
037104                                  20$:
037104  013737  002172  043610                    MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
037112  012704  043570                            MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

037116  004737  010752                            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
037122  103407                                    BCS     24$                     ;BR, IF COMMAND ISSUED OK
037124  005237  002212                            INC     FATFLG                  ;BUMP COUNT
037130  010001                                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
037132                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
037132  104456                                                                                  TRAP    C$ERHRD
037134  000663                                                                                  .WORD   435
037136  005054                                                                                  .WORD   WRTMSG
```

```
                037140  012124                                                          .WORD   SFIMSG
2492            037142                  24$:    CKLOOP                  ;LOOP IF SELECTED
                037142  104406                                                          TRAP    C$CLP1
2493
2494                                    ;*********************************************************************
2495                                    ;
2496                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2497                                    ;
2498                                    ;*********************************************************************
2499
2500            037144  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2501            037150  103407          BCS     30$                     ;BR, IF NO PROBLEM
2502            037152  010001          MOV     R0,R1                   ;SAVE TSSR
2503            037154  005237  002212          INC     FATFLG                  ;BUMP COUNT
2507            037160                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
                037160  104456                                                          TRAP    C$ERHRD
                037162  000664                                                          .WORD   436
                037164  045046                                                          .WORD   T24RWN
                037166  012136                                                          .WORD   PKTSSR
2508            037170                  30$:    CKLOOP                  ;LOOP IF SELECTED
                037170  104406                                                          TRAP    C$CLP1
2509            037172  012703  000400          MOV     #256.,R3                ;RECORD SIZE
2510            037176  013737  003114  043712  MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2511
2512                                    ;*********************************************************************
2513                                    ;
2514                                    ;WRITE DATA,ACK,CVC=1 COMMAND
2515                                    ;
2516                                    ;*********************************************************************
2517
2518            037204  012737  140005  043710  MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2519            037212  012704  043710          MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2520            037216                  65$:
2521            037216  010337  043716          MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2522            037222  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2523            037226  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2524            037232  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2525            037236  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
2526            037242  020102          CMP     R1,R2                   ;ARE THEY EQUAL
2527            037244  001406          BEQ     75$                     ;BR, IF OK
2528            037246  005237  002212          INC     FATFLG                  ;BUMP COUNT
2532            037252                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
                037252  104456                                                          TRAP    C$ERHRD
                037254  000665                                                          .WORD   437
                037256  005111                                                          .WORD   WRTERR
                037260  012136                                                          .WORD   PKTSSR
2533            037262                  75$:    CKLOOP                  ;LOOP IF SELECTED
                037262  104406                                                          TRAP    C$CLP1
2534            037264                  120$:
2535
2536                                    ;*********************************************************************
2537                                    ;
2538                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2539                                    ;
2540                                    ;*********************************************************************
2541
2542            037264  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
```

```
2543 037270  103407                        BCS     130$                    ;BR, IF NO PROBLEM
2544 037272  010001                        MOV     R0,R1                   ;SAVE TSSR
2545 037274  005237  002212                INC     FATFLG                  ;BUMP COUNT
2549 037300                                ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     037300  104456                                                        TRAP    C$ERHRD
     037302  000666                                                        .WORD   438
     037304  045046                                                        .WORD   T24RWN
     037306  012136                                                        .WORD   PKTSSR
2550 037310                        130$:   CKLOOP                          ;LOOP IF SELECTED
     037310  104406                                                        TRAP    C$CLP1
2551 037312  012703  001000                MOV     #512.,R3                ;RECORD SIZE
2552 037316  013737  003114  043712        MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2553
2554                               ;*************************************************************************
2555                               ;
2556                               ;READ DATA,ACK,CVC=1 COMMAND
2557                               ;
2558                               ;*************************************************************************
2559
2560 037324  012737  140001  043710        MOV     #140001,T24PK3          ;READ DATA,ACK,CVC=1 COMMAND
2561 037332  012704  043710        165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2562 037336  010337  043716                MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2563 037342  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2564 037346  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2565 037352  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2566 037356  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
2567 037362  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2568 037364  001406                        BEQ     170$                    ;BR, IF OK
2569 037366  005237  002212                INC     FATFLG                  ;BUMP COUNT
2573 037372                                ERRHRD  ERRNO,T24TRL,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     037372  104456                                                        TRAP    C$ERHRD
     037374  000667                                                        .WORD   439
     037376  046114                                                        .WORD   T24TRL
     037400  015564                                                        .WORD   EXPREC
2574 037402                        170$:   CKLOOP                          ;LOOP IF SELECTED
     037402  104406                                                        TRAP    C$CLP1
2575
2576                               ;*************************************************************************
2577                               ;
2578                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2579                               ;
2580                               ;*************************************************************************
2581
2582 037404  013701  043620                MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
2583 037410  010102                        MOV     R1,R2                   ;SET UP EXPECTED
2584 037412  052702  040000                BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
2585 037416  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2586 037420  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
2587 037422  005237  002212                INC     FATFLG                  ;BUMP COUNT
2591 037426                                ERRHRD  ERRNO,T24LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     037426  104456                                                        TRAP    C$ERHRD
     037430  000670                                                        .WORD   440
     037432  045744                                                        .WORD   T24LOP
     037434  015564                                                        .WORD   EXPREC
2592 037436                        180$:
2593 037436  013701  043616                MOV     T24BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
2594 037442  012702  000400                MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
```

```
2595 037446  020102                        CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
2596 037450  001406                        BEQ     190$                    ;BR, IF CORRECT
2597 037452  005237  002212                INC     FATFLG                  ;BUMP COUNT
2601 037456                                ERRHRD  ERRNO,T24PBP,EXPREC     ;RBPCR NOT CORRECT
     037456  104456                                                               TRAP    C$ERHRD
     037460  000671                                                               .WORD   441
     037462  046026                                                               .WORD   T24PBP
     037464  015564                                                               .WORD   EXPREC
2602 037466                        190$:   CKLOOP                          ;LOOP IF SELECTED
     037466  104406                                                               TRAP    C$CLP1
2603 037470                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     037470                                                                     L10057:
     037470  104403                                                               TRAP    C$ESUB
2604 037472  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2605 037500  103402                        BLO     999$                            ;BR, IF LESS THAN 25
2606 037502  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
2607 037506                        999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 4, SUBTEST 6
                                        ;
                                        ;VERIFIES THAT READ REVERSE COMMANDS WITH SWB=0
                                        ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
                                        ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
                                        ;LENGTH AND DATA CONTENT. THE TAPE IS THEN READ IN REVERSE
                                        ;SEQUENTIALLY AND THE RESULTS
                                        ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
                                        ;EACH READ REVERSE COMMAND IS SET TO THE LENGTH OF THE
                                        ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
                                        ;OCCUR.
                                        ;
                                        ;
                                        ;
                                        ;-
037506                                          BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
037506                                                                                  T4.6:
037506  104402                                                                          TRAP    C$BSUB
037510  004737  046404                        JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
037514  004737  046250                        JSR     PC,T24REST              ;SET COMMAND PACKET
037520  004737  046342                        JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

037524  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
037530  103407                                BCS     20$                     ;BR IF INIT WAS OK
037532  005237  002212                        INC     FATFLG                  ;BUMP COUNT
037536  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
037540                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
037540  104455                                                                          TRAP    C$ERDF
037542  000672                                                                          .WORD   442
037544  003650                                                                          .WORD   SFIERR
037546  012124                                                                          .WORD   SFIMSG
037550                                  20$:
037550  013737  002172  043610                MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
037556  012704  043570                        MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

037562  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
037566  103407                                BCS     24$                     ;BR, IF COMMAND ISSUED OK
037570  005237  002212                        INC     FATFLG                  ;BUMP COUNT
037574  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
037576                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
037576  104456                                                                          TRAP    C$ERHRD
037600  000673                                                                          .WORD   443
037602  005054                                                                          .WORD   WRTMSG
```

```
                037604  012124                                                          .WORD   SFIMSG
2664            037606                  24$:    CKLOOP                  ;LOOP IF SELECTED
                037606  104406                                                          TRAP    C$CLP1
2665
2666                                    ;*******************************************************************
2667                                    ;
2668                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2669                                    ;
2670                                    ;*******************************************************************
2671
2672 037610     004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2673 037614     103407                         BCS     30$                     ;BR, IF NO PROBLEM
2674 037616     010001                         MOV     R0,R1                   ;SAVE TSSR
2675 037620     005237  002212                 INC     FATFLG                  ;BUMP COUNT
2679 037624                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
                037624  104456                                                          TRAP    C$ERHRD
                037626  000674                                                          .WORD   444
                037630  045046                                                          .WORD   T24RWN
                037632  012136                                                          .WORD   PKTSSR
2680 037634             30$:    CKLOOP                  ;LOOP IF SELECTED
                037634  104406                                                          TRAP    C$CLP1
2681 037636     012703  000400                 MOV     #256.,R3                ;RECORD SIZE
2682 037642     013737  003114  043712         MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2683
2684                                    ;*******************************************************************
2685                                    ;
2686                                    ;WRITE DATA,ACK,CVC=1 COMMAND
2687                                    ;
2688                                    ;*******************************************************************
2689
2690 037650     012737  140005  043710         MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2691 037656     012704  043710                 MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2692 037662                             65$:
2693 037662     010300                         MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
2694 037664     004737  017512                 JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2695 037670     010337  043716                 MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2696 037674     010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2697 037700     004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2698 037704     016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2699 037710     012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
2700 037714     020102                         CMP     R1,R2                   ;ARE THEY EQUAL
2701 037716     001406                         BEQ     75$                     ;BR, IF OK
2702 037720     005237  002212                 INC     FATFLG                  ;BUMP COUNT
2706 037724                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
                037724  104456                                                          TRAP    C$ERHRD
                037726  000675                                                          .WORD   445
                037730  005111                                                          .WORD   WRTERR
                037732  012136                                                          .WORD   PKTSSR
2707 037734             75$:    CKLOOP                  ;LOOP IF SELECTED
                037734  104406                                                          TRAP    C$CLP1
2708 037736     005723                         TST     (R3)+                   ;BUMP RECORD SIZE
2709 037740     022703  000414                 CMP     #268.,R3                ;END OF RECORD YET
2710 037744     001346                         BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
2711 037746             80$:    CKLOOP                  ;LOOP IF SELECTED
                037746  104406                                                          TRAP    C$CLP1
2712 037750     005743                         TST     -(R3)                   ;SET BACK TO 512.
2713 037752     013737  003114  043712         MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
```

```
                                        ;*****************************************************************
                                        ;
                                        ;READ REVERSE DATA,ACK COMMAND
                                        ;
                                        ;*****************************************************************

037760  012737  100401  043710            MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
037766  012704  043710            165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
037772  010337  043716                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
037776  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
040002  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
040006  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
040012  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
040016  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
040020  001406                            BEQ     170$                    ;BR, IF OK
040022  005237  002212                    INC     FATFLG                  ;BUMP COUNT
040026                                    ERRHRD  ERRNO,T24WDC,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
040026  104456                                                                    TRAP    C$ERHRD
040030  000676                                                                    .WORD   446
040032  045376                                                                    .WORD   T24WDC
040034  012136                                                                    .WORD   PKTSSR
040036                            170$:   CKLOOP                          ;LOOP IF SELECTED
040036  104406                                                                    TRAP    C$CLP1
040040  013702  003114                    MOV     FREE,R2                 ;GET BUFFER ADDRESS
040044  010304                            MOV     R3,R4                   ;CURRENT RECORD SIZE
040046  162704  000400                    SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
040052  060204                    173$:   ADD     R2,R4                   ;SET POINTER TO FRAME (WORD)
040054  021403                            CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
040056  001410                            BEQ     180$                    ;BR, IF ALL IS WELL
040060  011401                            MOV     (R4),R1                 ;RECD DATA
040062  010302                            MOV     R3,R2                   ;EXPECTED DATA
040064  005237  002212                    INC     FATFLG                  ;BUMP COUNT
040070                                    ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
040070  104456                                                                    TRAP    C$ERHRD
040072  000677                                                                    .WORD   447
040074  044630                                                                    .WORD   T24DTA
040076  015564                                                                    .WORD   EXPREC
040100                            180$:   CKLOOP                          ;LOOP IF SELECTED
040100  104406                                                                    TRAP    C$CLP1
040102  005724                            TST     (R4)+                   ;BUMP TO NEXT LOCATION
040104  160204                            SUB     R2,R4                   ;GET RID OF BASE ADDRESS
040106  020403                            CMP     R4,R3                   ;END OF RECORD YET
040110  001360                            BNE     173$                    ;BR, IF NOT AT END OF RECORD
040112  005743                            TST     -(R3)                   ;BUMP RECORD SIZE
040114  022703  000400                    CMP     #256.,R3                ;END OF RECORD YET
040120  001322                            BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
040122                            190$:   CKLOOP                          ;LOOP IF SELECTED
040122  104406                                                                    TRAP    C$CLP1
040124                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
040124                                                                          L10060:
040124  104403                                                                    TRAP    C$ESUB
040126  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
040134  103402                            BLO     999$                            ;BR, IF LESS THAN 25
040136  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
040142                            999$:
```

```
                        ;+
                        ;
                        ;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.
                        ;
                        ;
                        ;-
                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T4.7:
                                                                            TRAP    C$BSUB
                            JSR     PC,T24RT3               ;SET UP OTHER COMMAND PA.KET
                            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$ERDF
                                                                            .WORD   448
                                                                            .WORD   SFIERR
                                                                            .WORD   SFIMSG
                        20$:
                            MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
                            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$ERHRD
                                                                            .WORD   449
                                                                            .WORD   WRTMSG
                                                                            .WORD   SFIMSG
                        24$:    CKLOOP                      ;LOOP IF SELECTED
                                                                            TRAP    C$CLP1

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

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

040244  004737  011104                        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
040250  103407                                BCS     30$                     ;BR, IF NO PROBLEM
040252  010001                                MOV     R0,R1                   ;SAVE TSSR
040254  005237  002212                        INC     FATFLG                  ;BUMP COUNT
040260                                        ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
040260  104456                                                                        TRAP    C$ERHRD
040262  000702                                                                      .WORD   450
040264  045046                                                                      .WORD   T24RWN
040266  012136                                                                      .WORD   PKTSSR
040270                                  30$:  CKLOOP                          ;LOOP IF SELECTED
040270  104406                                                                      TRAP    C$CLP1
040272  012703  000400                        MOV     #256.,R3                ;RECORD SIZE
040276  013737  003114  043712                MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS

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

040304  012737  150005  043710                MOV     #150005,T24PK3          ;WRITE DATA,ACK,CVC=1,SWB COMMAND
040312  012704  043710                        MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
040316                                  65$:
040316  010300                                MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
040320  004737  017512                        JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
040324  010337  043716                        MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
040330  010465  000000                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
040334  004737  016340                        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
040340  016501  000002                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
040344  012702  000200                        MOV     #SSR,R2                 ;SET UP EXPECTED
040350  020102                                CMP     R1,R2                   ;ARE THEY EQUAL
040352  001406                                BEQ     75$                     ;BR, IF OK
040354  005237  002212                        INC     FATFLG                  ;BUMP COUNT
040360                                        ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
040360  104456                                                                        TRAP    C$ERHRD
040362  000703                                                                      .WORD   451
040364  005111                                                                      .WORD   WRTERR
040366  012136                                                                      .WORD   PKTSSR
040370                                  75$:  CKLOOP                          ;LOOP IF SELECTED
040370  104406                                                                      TRAP    C$CLP1
040372  005723                                TST     (R3)+                   ;BUMP RECORD SIZE
040374  022703  000414                        CMP     #268.,R3                ;END OF RECORD YET
040400  001346                                BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
040402                                  80$:  CKLOOP                          ;LOOP IF SELECTED
040402  104406                                                                      TRAP    C$CLP1
040404  005743                                TST     -(R3)                   ;SET RECORD SIZE BACK TO 512.
040406  013737  003114  043712                MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;READ REVERSE DATA,ACK,SWB COMMAND
                                        ;
```

```
                        ;*****************************************************************
                        ;
040414  012737  110401  043710           MOV     #110401,T24PK3          ;READ REVERSE DATA,ACK,SWB COMMAND
040422  012704  043710          165$:    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
040426  010337  043716                   MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
040432  010465  000000                   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
040436  004737  016340                   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
040442  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
040446  012702  000200                   MOV     #SSR,R2                 ;SET UP EXPECTED
040452  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
040454  001406                           BEQ     170$                    ;BR, IF OK
040456  005237  002212                   INC     FATFLG                  ;BUMP COUNT
040462                                   ERRHRD  ERRNO,T24WDC,EXPREC     ;TSSR INCORRECT AFTER READ DATA
040462  104456                                                                   TRAP    C$ERHRD
040464  000704                                                                   .WORD   452
040466  045376                                                                   .WORD   T24WDC
040470  015564                                                                   .WORD   EXPREC
040472                          170$:    CKLOOP                          ;LOOP IF SELECTED
040472  104406                                                                   TRAP    C$CLP1
040474  013702  003114                   MOV     FREE,R2                 ;GET BUFFER ADDRESS
040500  010304                           MOV     R3,R4                   ;CURRENT RECORD SIZE
040502  162704  000400                   SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
040506  060204                  173$:    ADD     R2,R4                   ;SET POINTER TO FRAME (WORD)
040510  021403                           CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
040512  001410                           BEQ     180$                    ;BR, IF ALL IS WELL
040514  011401                           MOV     (R4),R1                 ;RECD DATA
040516  010302                           MOV     R3,R2                   ;EXPECTED DATA
040520  005237  002212                   INC     FATFLG                  ;BUMP COUNT
040524                                   ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
040524  104456                                                                   TRAP    C$ERHRD
040526  000705                                                                   .WORD   453
040530  044630                                                                   .WORD   T24DTA
040532  015564                                                                   .WORD   EXPREC
040534                          180$:    CKLOOP                          ;LOOP IF SELECTED
040534  104406                                                                   TRAP    C$CLP1
040536  005724                           TST     (R4)+                   ;BUMP TO NEXT LOCATION
040540  160204                           SUB     R2,R4                   ;GET RID OF BASE ADDRESS
040542  020403                           CMP     R4,R3                   ;END OF RECORD YET
040544  001360                           BNE     173$                    ;BR, IF NOT AT END OF RECORD
040546  005743                           TST     -(R3)                   ;BUMP RECORD SIZE
040550  022703  000400                   CMP     #256.,R3                ;END OF RECORD YET
040554  001322                           BNE     165$                    ;BR, IF MORE RECORDS TO WRITE
040556                          190$:    CKLOOP                          ;LOOP IF SELECTED
040556  104406                                                                   TRAP    C$CLP1
040560                                   ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
040560                                                                   L10061:
040560  104403                                                                   TRAP    C$ESUB
040562  023727  002212  000017           CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
040570  103402                           BLO     999$                    ;BR, IF LESS THAN 25
040572  004737  017272                   JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
040576                          999$:
```

```
2914
```

```
                                        ;+
                                        ;
                                        ;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:
040576  104402                                                                                          TRAP    C$BSUB
040600  004737  046404                            JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
040604  004737  046250                            JSR     PC,T24REST              ;SET COMMAND PACKET
040610  004737  046342                            JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

040614  004737  016064                            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
040620  103407                                    BCS     20$                     ;BR IF INIT WAS OK
040622  005237  002212                            INC     FATFLG                  ;BUMP COUNT
040626  010001                                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
040630                                          EPRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
040630  104455                                                                                          TRAP    C$ERDF
040632  000706                                                                                          .WORD   454
040634  003650                                                                                          .WORD   SFIERR
040636  012124                                                                                          .WORD   SFIMSG
040640                                  20$:
040640  013737  002172  043610                    MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
040646  012704  043570                            MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

040652  004737  010752                            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
040656  103407                                    BCS     24$                     ;BR, IF COMMAND ISSUED OK
040660  005237  002212                            INC     FATFLG                  ;BUMP COUNT
040664  010001                                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
040666                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
040666  104456                                                                                          TRAP    C$ERHRD
040670  000707                                                                                          .WORD   455
040672  005054                                                                                          .WORD   WRTMSG
040674  012124                                                                                          .WORD   SFIMSG
040676                                  24$:    CKLOOP                          ;LOOP IF SELECTED
040676  104406                                                                                          TRAP    C$CLP1

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

```
2968                                    ;
2969                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2970                                    ;
2971                                    ;*****************************************************************
2972
2973 040700  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2974 040704  004737  016426                    JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
2975 040710  103407                            BCS     30$                     ;BR, IF NO PROBLEM
2976 040712  010001                            MOV     P0,R1                   ;SAVE TSSR
2977 040714  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2981 040720                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     040720  104456                                                                    TRAP    C$ERHRD
     040722  000710                                                                    .WORD   456
     040724  045046                                                                    .WORD   T24RWN
     040726  012136                                                                    .WORD   PKTSSR
2982 040730                            30$:    CKLOOP                          ;LOOP IF SELECTED
     040730  104406                                                                    TRAP    C$CLP1
2983 040732  012703  001000                    MOV     #512.,R3                ;RECORD SIZE
2984 040736  013737  003114  043712            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2985
2986                                    ;*****************************************************************
2987                                    ;
2988                                    ;WRITE DATA,ACK,CVC=1 COMMAND
2989                                    ;
2990                                    ;*****************************************************************
2991
2992 040744  012737  140005  043710            MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2993 040752  012704  043710                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2994 040756                            65$:
2995 040756  010337  043716                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2996 040762  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2997 040766  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2998 040772  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2999 040776  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
3000 041002  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3001 041004  001406                            BEQ     75$                     ;BR, IF OK
3002 041006  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3006 041012                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     041012  104456                                                                    TRAP    C$ERHRD
     041014  000711                                                                    .WORD   457
     041016  005111                                                                    .WORD   WRTERR
     041020  012136                                                                    .WORD   PKTSSR
3007 041022                            75$:    CKLOOP                          ;LOOP IF SELECTED
     041022  104406                                                                    TRAP    C$CLP1
3008 041024  012703  000400                    MOV     #256.,R3                ;SIZE OF RECORD
3009 041030  013737  003114  043712            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3010
3011                                    ;*****************************************************************
3012                                    ;
3013                                    ;READ DATA,ACK COMMAND
3014                                    ;
3015                                    ;*****************************************************************
3016
3017 041036  012737  100401  043710            MOV     #100401,T24PK3          ;READ DATA,ACK COMMAND
3018 041044  012704  043710            165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3019 041050  010337  043716                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3020 041054  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

```
3021 041060  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3022 041064  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3023 041070  012702  100204          MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
3024 041074  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
3025 041076  001406                  BEQ     170$                    ;BR, IF OK
3026 041100  005237  002212          INC     FATFLG                  ;BUMP COUNT
3030 041104                          ERRHRD  ERRNO,T24TRL,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     041104  104456                                                          TRAP    C$ERHRD
     041106  000712                                                          .WORD   458
     041110  046114                                                          .WORD   T24TRL
     041112  015564                                                          .WORD   EXPREC
3031 041114                  170$:   CKLOOP                          ;LOOP IF SELECTED
     041114  104406                                                          TRAP    C$CLP1
3032
3033                                 ;*************************************************************
3034                                 ;
3035                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3036                                 ;
3037                                 ;*************************************************************
3038
3039 041116  013701  043620          MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER (XST0)
3040 041122  010102                  MOV     R1,R2                   ;SET UP EXPECTED
3041 041124  052702  010000          BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
3042 041130  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
3043 041132  001406                  BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3044 041134  005237  002212          INC     FATFLG                  ;BUMP COUNT
3048 041140                          ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     041140  104456                                                          TRAP    C$ERHRD
     041142  000713                                                          .WORD   459
     041144  045662                                                          .WORD   T24LON
     041146  015564                                                          .WORD   EXPREC
3049 041150                  180$:   CKLOOP
     041150  104406                                                          TRAP    C$CLP1
3050 041152                          ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     041152                                                       L10062:
     041152  104403                                                          TRAP    C$ESUB
3051 041154  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3052 041162  103402                          BLO     999$                    ;BR, IF LESS THAN 25
3053 041164  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
3054 041170                  999$:
```

```
                        ;*
                        ;
                        ;TEST 4, SUBTEST 9
                        ;
                        ;VERIFIES THAT A READ REVERSE COMMAND SPECIFYING A DATA
                        ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
                        ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
                        ;       ************************************************************************
                        ;                                   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!
                        ;       ************************************************************************
                        ;-

041170                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T4.9:
041170  104402                                                                  TRAP    C$BSUB
041172  005737  003126          TST     NXMFLG                  ;DO WE HAVE IT?
041176  001002                  BNE     10$                     ;BR, IF  ENOUGH
041200  000137  041566          JMP     180$                    ;SKIP THIS TEST IF NOT
041204  004737  046404  10$:    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
041210  004737  046250          JSR     PC,T24REST              ;SET COMMAND PACKET
041214  004737  046342          JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

041220  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
041224  103407                  BCS     20$                     ;BR IF INIT WAS OK
041226  005237  002212          INC     FATFLG                  ;BUMP COUNT
041232  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
041234                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
041234  104455                                                                  TRAP    C$ERDF
041236  000714                                                                  .WORD   460
041240  003650                                                                  .WORD   SFIERR
041242  012124                                                                  .WORD   SFIMSG
041244                  20$:
041244  013737  002172  043610          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
041252  012704  043570                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

041256  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
041262  103407                  BCS     24$                     ;BR, IF COMMAND ISSUED OK
041264  005237  002212          INC     FATFLG                  ;BUMP COUNT
041270  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
041272                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
041272  104456                                                                  TRAP    C$ERHRD
```

```
        041274  000715                                                          .WORD   461
        041276  005054                                                          .WORD   WRTMSG
        041300  012124                                                          .WORD   SFIMSG
3112    041302                          24$:    CKLOOP                  ;LOOP IF SELECTED
        041302  104406                                                          TRAP    C$CLP1
3113
3114                                    ;*******************************************************************
3115                                    ;
3116                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3117                                    ;
3118                                    ;*******************************************************************
3119
3120    041304  004737  021276                JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
3121    041310  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3122    041314  004737  016426                JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
3123    041320  103407                        BCS     30$                     ;BR, IF NO PROBLEM
3124    041322  010001                        MOV     R0,R1                   ;SAVE TSSR
3125    041324  005237  002212                INC     FATFLG                  ;BUMP COUNT
3129    041330                                ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
        041330  104456                                                          TRAP    C$ERHRD
        041332  000716                                                          .WORD   462
        041334  045046                                                          .WORD   T24RWN
        041336  012136                                                          .WORD   PKTSSR
3130    041340                          30$:    CKLOOP                  ;LOOP IF SELECTED
        041340  104406                                                          TRAP    C$CLP1
3131    041342  012703  000400                MOV     #256.,R3                ;RECORD SIZE
3132    041346  013737  003114  043712        MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3133                                    ;*******************************************************************
3134                                    ;
3135                                    ;WRITE DATA,ACK,CVC=1 COMMAND
3136                                    ;
3137                                    ;*******************************************************************
3138
3139    041354  012737  140005  043710        MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
3140    041362  012704  043710                MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3141    041366                          65$:
3142    041366  010337  043716                MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3143    041372  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3144    041376  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3145    041402  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3146    041406  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
3147    041412  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3148    041414  001406                        BEQ     75$                     ;BR, IF OK
3149    041416  005237  002212                INC     FATFLG                  ;BUMP COUNT
3153    041422                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        041422  104456                                                          TRAP    C$ERHRD
        041424  000717                                                          .WORD   463
        041426  005111                                                          .WORD   WRTERR
        041430  012136                                                          .WORD   PKTSSR
3154    041432                          75$:    CKLOOP                  ;LOOP IF SELECTED
        041432  104406                                                          TRAP    C$CLP1
3155    041434  012703  000400                MOV     #256.,R3                ;RECORD SIZE
3156    041440  013737  003130  043712        MOV     NXMLO,T24RB             ;STARTING READ BUFFER ADDRESS
3157    041446  013737  003132  043714        MOV     NXMHI,T24RB+2           ;SET ADDRESS BITS 16-17
3158
3159                                    ;*******************************************************************
3160                                    ;
```

```
 3161                                   ;READ DATA,ACK COMMAND
 3162                                   ;
 3163                                   ;*************************************************************************
 3164
 3165 041454  012737  100001  043710          MOV     #100001,T24PK3          ;READ DATA,ACK COMMAND
 3166 041462  012704  043710          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 3167 041466  010337  043716                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
 3168 041472  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 3169 041476  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 3170 041502  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 3171 041506  012702  104210                  MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
 3172 041512  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 3173 041514  001406                          BEQ     170$                    ;BR, IF OK
 3174 041516  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 3178 041522                                  ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      041522  104456                                                                  TRAP    C$ERHRD
      041524  000720                                                                  .WORD   464
      041526  046114                                                                  .WORD   T24TRL
      041530  012136                                                                  .WORD   PKTSSR
 3179 041532                          170$:   CKLOOP                          ;LOOP IF SELECTED
      041532  104406                                                                  TRAP    C$CLP1
 3180
 3181                                   ;*************************************************************************
 3182                                   ;
 3183                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 3184                                   ;
 3185                                   ;*************************************************************************
 3186
 3187 041534  013701  043620                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
 3188 041540  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 3189 041542  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
 3190 041546  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 3191 041550  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
 3192 041552  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 3196 041556                                  ERRHRD  ERRNO,T24LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      041556  104456                                                                  TRAP    C$ERHRD
      041560  000721                                                                  .WORD   465
      041562  045744                                                                  .WORD   T24LOP
      041564  015564                                                                  .WORD   EXPREC
 3197 041566                          180$:   CKLOOP
      041566  104406                                                                  TRAP    C$CLP1
 3198 041570                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      041570                                                                       L10063:
      041570  104403                                                                  TRAP    C$ESUB
 3199 041572  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 3200 041600  103402                          BLO     999$                            ;BR, IF LESS THAN 25
 3201 041602  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 3202 041606                          999$:
```

```
                        ;+
                        ;
                        ;TEST 4, SUBTEST 10
                        ;
                        ;VERIFIES THAT ILLEGAL MODE-FIELD CODES IN THE READ
                        ;COMMAND CAUSE A FUNCTION REJECT TERMINATION WITH THE
                        ;ILLEGAL COMMAND (ILC) ERROR BIT SET.
                        ;
                        ;
                        ;-
                        
041606                          BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
041606                                                                      T4.10:
041606  104402                                                              TRAP    C$BSUB
041610  004737  046404        JSR     PC,T24RT3       ;SET COMMAND PACKET UP CLEAR
041614  004737  046250        JSR     PC,T24REST      ;SET COMMAND PACKET
041620  004737  046342        JSR     PC,T24RT2       ;SET UP OTHER COMMAND PACKET

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

041624  004737  016064        JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
041630  103407                BCS     20$             ;BR IF INIT WAS OK
041632  005237  002212        INC     FATFLG          ;BUMP COUNT
041636  010001                MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
041640                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
041640  104455                                                              TRAP    C$ERDF
041642  000722                                                              .WORD   466
041644  003650                                                              .WORD   SFIERR
041646  012124                                                              .WORD   SFIMSG
041650                  20$:
041650  013737  002172  043610        MOV     UNITN,T24DSW    ;SET UP DRIVE NUMBER
041656  012704  043570                MOV     #T24PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS

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

041662  004737  010752        JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
041666  103407                BCS     24$             ;BR, IF COMMAND ISSUED OK
041670  005237  002212        INC     FATFLG          ;BUMP COUNT
041674  010001                MOV     R0,R1           ;SAVE CONTENTS OF TSSR
041676                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
041676  104456                                                              TRAP    C$ERHRD
041700  000723                                                              .WORD   467
041702  005054                                                              .WORD   WRTMSG
041704  012124                                                              .WORD   SFIMSG
041706                  24$:    CKLOOP                  ;LOOP IF SELECTED
041706  104406                                                              TRAP    C$CLP1
041710  013737  003114  043712        MOV     FREE,T24RB      ;STARTING WRITE BUFFER ADDRESS
```

```
                                        ;*****************************************************************
                                        ;
                                        ;ILLEGAL MODE DATA,ACK COMMAND
                                        ;
                                        ;*****************************************************************

041716  012737  104001  043710            MOV     #104001,T24PK3          ;ILLEGAL MODE DATA,ACK COMMAND
041724  012704  043710                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
041730  012737  000400  043716            MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
041736  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
041742  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
041746  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
041752  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
041756  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
041760  001406                          BEQ     75$                     ;BR, IF OK
041762  005237  002212                    INC     FATFLG                  ;BUMP COUNT
041766                                  ERRHRD  ERRNO,T24WDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
041766  104456                                                                  TRAP    C$ERHRD
041770  000724                                                                  .WORD   468
041772  044235                                                                  .WORD   T24WDF
041774  012136                                                                  .WORD   PKTSSR
041776                          75$:    CKLOOP                          ;LOOP IF SELECTED
041776  104406                                                                  TRAP    C$CLP1

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

042000  013701  043620                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
042004  010102                          MOV     R1,R2                   ;SET UP EXPECTED
042006  052702  001000                  BIS     #BIT9,R2                ;SET THE ILC BIT IN EXPECTED
042012  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
042014  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
042016  005237  002212                    INC     FATFLG                  ;BUMP COUNT
042022                                  ERRHRD  ERRNO,T24LOQ,EXPREC     ;THE ILC BIT WAS NOT SET IN XST0
042022  104456                                                                  TRAP    C$ERHRD
042024  000725                                                                  .WORD   469
042026  044376                                                                  .WORD   T24LOQ
042030  015564                                                                  .WORD   EXPREC
042032                          180$:   CKLOOP
042032  104406                                                                  TRAP    C$CLP1
042034                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
042034                                                                        L10064:
042034  104403                                                                  TRAP    C$ESUB
042036  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
042044  103402                          BLO     999$                            ;BR, IF LESS THAN 25
042046  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
042052                          999$:
```

```
                        ;+
                        ;
                        ;TEST 4, SUBTEST 11
                        ;
                        ;VERIFIES THAT ILLEGAL BUFFER ADDRESSES CAUSE A
                        ;FUNCTION REJECT TERMINATION WITH ILLEGAL ADDRESS
                        ;(ILA) ERROR BIT SET.
                        ;
                        ;
                        ;
                        ;-
                        
042052                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
042052                                                                      T4.11:
042052  104402                                                              TRAP    C$BSUB
042054  004737  046404            JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
042060  004737  046250            JSR     PC,T24REST              ;SET COMMAND PACKET
042064  004737  046342            JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
                        
                        ;*****************************************************************
                        ;
                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                        ;
                        ;*****************************************************************
                        
042070  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
042074  103407                    BCS     20$                     ;BR IF INIT WAS OK
042076  005237  002212            INC     FATFLG                  ;BUMP COUNT
042102  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
042104                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
042104  104455                                                              TRAP    C$ERDF
042106  000726                                                              .WORD   470
042110  003650                                                              .WORD   SFIERR
042112  012124                                                              .WORD   SFIMSG
042114                  20$:
042114  013737  002172  043610            MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
042122  012704  043570                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                        
                        ;*****************************************************************
                        ;
                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                        ;
                        ;*****************************************************************
                        
042126  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
042132  103407                    BCS     24$                     ;BR, IF COMMAND ISSUED OK
042134  005237  002212            INC     FATFLG                  ;BUMP COUNT
042140  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
042142                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
042142  104456                                                              TRAP    C$ERHRD
042144  000727                                                              .WORD   471
042146  005054                                                              .WORD   WRTMSG
042150  012124                                                              .WORD   SFIMSG
042152                  24$:    CKLOOP                          ;LOOP IF SELECTED
042152  104406                                                              TRAP    C$CLP1
042154  013737  003114  043712            MOV     FREE,T24RB              ;ILLEGAL STARTING READ BUFFER ADDRESS
042162  012737  177700  043714            MOV     #177700,T24RB+2         ;CREATE ILLEGAL ADDRESS
```

```
                        ;*****************************************************************
                        ;
                        ;LEGAL MODE,ACK,CVC=1,READ COMMAND
                        ;
                        ;*****************************************************************

042170  012737  140001  043710          MOV     #140001,T24PK3          ;LEGAL MODE,ACK,CVC=1,READ COMMAND
042176  012704  043710                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
042202  012737  000400  043716          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
042210  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
042214  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
042220  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
042224  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
042230  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
042232  001406                          BEQ     75$                     ;BR, IF OK
042234  005237  002212                  INC     FATFLG                  ;BUMP COUNT
042240                                  ERRHRD  ERRNO,T24WDG,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
042240  104456                                                                  TRAP    C$ERHRD
042242  000730                                                                  .WORD   472
042244  044062                                                                  .WORD   T24WDG
042246  012136                                                                  .WORD   PKTSSR
042250                  75$:    CKLOOP                          ;LOOP IF SELECTED
042250  104406                                                                  TRAP    C$CLP1

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

042252  013701  043620          MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
042256  010102                  MOV     R1,R2                   ;SET UP EXPECTED
042260  052702  000400          BIS     #BIT8,R2                ;SET THE ILA BIT IN EXPECTED
042264  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
042266  001406                  BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
042270  005237  002212          INC     FATFLG                  ;BUMP COUNT
042274                          ERRHRD  ERRNO,T24ILA,EXPREC     ;THE ILA BIT WAS NOT SET IN XST0
042274  104456                                                          TRAP    C$ERHRD
042276  000731                                                          .WORD   473
042300  044312                                                          .WORD   T24ILA
042302  015564                                                          .WORD   EXPREC
042304                  180$:   CKLOOP
042304  104406                                                          TRAP    C$CLP1
042306                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
042306                                                          L10065:
042306  104403                                                          TRAP    C$ESUB
042310  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
042316  103402                          BLO     999$                    ;BR, IF LESS THAN 25
042320  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
042324                  999$:
```

```
                        ;+
                        ;
                        ;TEST 4, SUBTEST 12
                        ;
                        ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
                        ;NONEXISTANT MEMORY CAUSES RECOVERABLE ERROR
                        ;TERMINATION (TC=4), WITH THE NXM BIT SET IN THE TSSR, AND
                        ;THAT THE TAPE IS ULTIMATELY POSITIONED PROPERLY.
                        ;       ************************************************************************
                        ;                                   CAUTION
                        ;
                        ;           The LSI BUS drivers for all available address lines(16-21)
                        ;       are only checked when running on a 11/238 system with more than
                        ;       128K words of memory!
                        ;       ************************************************************************
                        ;-

042324                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
042324                                                                          T4.12:
042324  104402                                                                      TRAP    C$BSUB
042326  005737  003126        TST     NXMFLG                  ;DO WE HAVE IT?
042332  001002                BNE     10$                     ;BR, IF  ENOUGH
042334  000137  042542        JMP     80$                     ;SKIP THIS TEST IF NOT
042340  004737  046404  10$:  JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
042344  004737  046250        JSR     PC,T24REST              ;SET COMMAND PACKET
042350  004737  046342        JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET

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

042354  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
042360  103407                BCS     20$                     ;BR IF INIT WAS OK
042362  005237  002212        INC     FATFLG                  ;BUMP COUNT
042366  010001                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
042370                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
042370  104455                                                                      TRAP    C$ERDF
042372  000732                                                                    .WORD   474
042374  003650                                                                    .WORD   SFIERR
042376  012124                                                                    .WORD   SFIMSG
042400                  20$:
042400  013737  002172  043610        MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
042406  012704  043570                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

042412  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
042416  103407                BCS     24$                     ;BR, IF COMMAND ISSUED OK
042420  005237  002212        INC     FATFLG                  ;BUMP COUNT
042424  010001                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
042426                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
```

```
        042426  104456                                                          TRAP    C$ERHRD
        042430  000733                                                          .WORD   475
        042432  005054                                                          .WORD   WRTMSG
        042434  012124                                                          .WORD   SFIMSG
 3457   042436                          24$:    CKLOOP                          ;LOOP IF SELECTED
        042436  104406                                                          TRAP    C$CLP1
 3458   042440  004737  021276                  JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
 3459   042444  013737  003130  043712          MOV     NXMLO,T24RB             ;SET TO NXM MEMORY ADDRESS
 3460   042452  013737  003132  043714          MOV     NXMHI,T24RB+2           ;SET HIGH BITS
 3461
 3462                          ;*****************************************************************
 3463                          ;
 3464                          ;READ, ACK, CVC=1, COMMAND
 3465                          ;
 3466                          ;*****************************************************************
 3467
 3468   042460  012737  140001  043710          MOV     #140001,T24PK3          ;READ, ACK, CVC=1, COMMAND
 3469   042466  012704  043710                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 3470   042472  012737  000400  043716          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
 3471   042500  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 3472   042504  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
 3473   042510  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 3474   042514  012702  104210                  MOV     #SSR!SC!NXM!BIT3,R2             ;SET UP EXPECTED
 3475   042520  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 3476   042522  001406                          BEQ     75$                     ;BR, IF OK
 3477   042524  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 3481   042530                                  ERRHRD  ERRNO,T24NXM,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        042530  104456                                                          TRAP    C$ERHRD
        042532  000734                                                          .WORD   476
        042534  044151                                                          .WORD   T24NXM
        042536  012136                                                          .WORD   PKTSSR
 3482   042540                          75$:    CKLOOP                          ;LOOP IF SELECTED
        042540  104406                                                          TRAP    C$CLP1
 3483   042542                          80$:
 3484   042542                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        042542                                                                  L10066:
        042542  104403                                                          TRAP    C$ESUB
 3485   042544  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 3486   042552  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 3487   042554  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 3488   042560                          999$:
```

```
3490                                    ;+
3491                                    ;
3492                                    ;TEST 4, SUBTEST 13
3493                                    ;
3494                                    ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
3495                                    ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
3496                                    ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET
3497                                    ;
3498                                    ;
3499                                    ;
3500                                    ;-
3501
3502 042560                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
    042560                                                                              T4.13:
    042560  104402                                                                      TRAP    C$BSUB
3503 042562  004737  046404                JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3504 042566  004737  046250                JSR     PC,T24REST              ;SET COMMAND PACKET
3505 042572  004737  046342                JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3506
3507                                    ;*************************************************************************
3508                                    ;
3509                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3510                                    ;
3511                                    ;*************************************************************************
3512
3513 042576  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3514 042602  103407                       BCS     20$                     ;BR IF INIT WAS OK
3515 042604  005237  002212               INC     FATFLG                  ;BUMP COUNT
3519 042610  010001                       MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3520 042612                               ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
    042612  104455                                                                      TRAP    C$ERDF
    042614  000735                                                                      .WORD   477
    042616  003650                                                                      .WORD   SFIERR
    042620  012124                                                                      .WORD   SFIMSG
3521 042622                            20$:
3522 042622  013737  002172  043610           MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3523 042630  012704  043570                   MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3524
3525                                    ;*************************************************************************
3526                                    ;
3527                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3528                                    ;
3529                                    ;*************************************************************************
3530
3531 042634  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3532 042640  103407                       BCS     24$                     ;BR, IF COMMAND ISSUED OK
3533 042642  005237  002212               INC     FATFLG                  ;BUMP COUNT
3537 042646  010001                       MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3538 042650                               ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    042650  104456                                                                      TRAP    C$ERHRD
    042652  000736                                                                      .WORD   478
    042654  005054                                                                      .WORD   WRTMSG
    042656  012124                                                                      .WORD   SFIMSG
3539 042660                            24$:    CKLOOP                          ;LOOP IF SELECTED
    042660  104406                                                                      TRAP    C$CLP1
3540
3541                                    ;*************************************************************************
```

```
3542                                    ;
3543                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3544                                    ;
3545                                    ;*****************************************************************
3546
3547 042662  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3548 042666  004737  016426                    JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
3549 042672  103407                            BCS     30$                     ;BR, IF NO PROBLEM
3550 042674  010001                            MOV     R0,R1                   ;SAVE TSSR
3551 042676  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3555 042702                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     042702  104456                                                                    TRAP    C$ERHRD
     042704  000737                                                                    .WORD   479
     042706  045046                                                                    .WORD   T24RWN
     042710  012136                                                                    .WORD   PKTSSR
3556 042712                            30$:    CKLOOP                          ;LOOP IF SELECTED
     042712  104406                                                                    TRAP    C$CLP1
3557 042714  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
3558 042720  013737  003114  043712            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3559
3560                                    ;*****************************************************************
3561                                    ;
3562                                    ;READ REVERSE DATA,ACK COMMAND
3563                                    ;
3564                                    ;*****************************************************************
3565
3566 042726  012737  100401  043710            MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3567 042734  012704  043710                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3568 042740                            65$:
3569 042740  010337  043716                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3570 042744  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3571 042750  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3572 042754  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3573 042760  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
3574 042764  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3575 042766  001406                            BEQ     75$                     ;BR, IF OK
3576 042770  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3580 042774                                    ERRHRD  ERRNO,T24WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     042774  104456                                                                    TRAP    C$ERHRD
     042776  000740                                                                    .WORD   480
     043000  044511                                                                    .WORD   T24WDE
     043002  012136                                                                    .WORD   PKTSSR
3581 043004                            75$:    CKLOOP                          ;LOOP IF SELECTED
     043004  104406                                                                    TRAP    C$CLP1
3582
3583                                    ;*****************************************************************
3584                                    ;
3585                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3586                                    ;
3587                                    ;*****************************************************************
3588
3589 043006  013701  043620                    MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3590 043012  010102                            MOV     R1,R2                   ;SET UP EXPECTED
3591 043014  052702  002000                    BIS     #BIT10,R2               ;SET THE NEF BIT IN EXPECTED
3592 043020  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3593 043022  001406                            BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3594 043024  005237  002212                    INC     FATFLG                  ;BUMP COUNT
```

```
3598 043030                                    ERRHRD  ERRNO,T24NEF,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     043030  104456                                                                    TRAP    C$ERHRD
     043032  000741                                                                    .WORD   481
     043034  043740                                                                    .WORD   T24NEF
     043036  015564                                                                    .WORD   EXPREC
3599 043040                            180$:   CKLOOP
     043040  104406                                                                    TRAP    C$CLP1
3600 043042                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     043042                                                                          L10067:
     043042  104403                                                                    TRAP    C$ESUB
3601 043044  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3602 043052  103402                            BLO     999$                            ;BR, IF LESS THAN 25
3603 043054  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
3604 043060                            999$:
```

```
3606                                    ;+
3607                                    ;
3608                                    ;TEST 4, SUBTEST 14
3609                                    ;
3610                                    ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
3611                                    ;TAPE IS POSITIONED BEFORE THE FIRST RECORD ON TAPE
3612                                    ;(BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT.
3613                                    ;
3614                                    ;
3615                                    ;
3616                                    ;-
3617
3618 043060                                 BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>
    043060                                                                                  T4.14:
    043060  104402                                                                          TRAP    C$BSUB
3619 043062  004737  046404                 JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3620 043066  004737  046250                 JSR     PC,T24REST              ;SET COMMAND PACKET
3621 043072  004737  046342                 JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3622
3623                                    ;*********************************************************************
3624                                    ;
3625                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3626                                    ;
3627                                    ;*********************************************************************
3628
3629 043076  004737  016064                 JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3630 043102  103407                        BCS     20$                     ;BR IF INIT WAS OK
3631 043104  005237  002212                 INC     FATFLG                  ;BUMP COUNT
3635 043110  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3636 043112                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
    043112  104455                                                                          TRAP    C$ERDF
    043114  000742                                                                         .WORD   482
    043116  003650                                                                         .WORD   SFIERR
    043120  012124                                                                         .WORD   SFIMSG
3637 043122                             20$:
3638 043122  013737  002172  043610             MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3639 043130  012704  043570                     MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3640
3641                                    ;*********************************************************************
3642                                    ;
3643                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3644                                    ;
3645                                    ;*********************************************************************
3646
3647 043134  004737  010752                 JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3648 043140  103407                        BCS     24$                     ;BR, IF COMMAND ISSUED OK
3649 043142  005237  002212                 INC     FATFLG                  ;BUMP COUNT
3653 043146  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3654 043150                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    043150  104456                                                                          TRAP    C$ERHRD
    043152  000743                                                                         .WORD   483
    043154  005054                                                                         .WORD   WRTMSG
    043156  012124                                                                         .WORD   SFIMSG
3655 043160                             24$:    CKLOOP                          ;LOOP IF SELECTED
    043160  104406                                                                          TRAP    C$CLP1
3656
3657                                    ;*********************************************************************
```

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

043162  004737  011104                        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
043166  004737  016426                        JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
043172  103407                              BCS     30$                     ;BR, IF NO PROBLEM
043174  010001                              MOV     R0,R1                   ;SAVE TSSR
043176  005237  002212                      INC     FATFLG                  ;BUMP COUNT
043202                                      ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
043202  104456                                                                      TRAP    C$ERHRD
043204  000744                                                                      .WORD   484
043206  045046                                                                      .WORD   T24RWN
043210  012136                                                                      .WORD   PKTSSR
043212                                  30$:    CKLOOP                          ;LOOP IF SELECTED
043212  104406                                                                      TRAP    C$CLP1
043214  012703  000400                      MOV     #256.,R3                ;RECORD SIZE
043220  013737  003114  043712              MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS

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

043226  012737  140005  043710              MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
043234  012704  043710                      MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
043240                                  65$:
043240  010337  043716                      MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
043244  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
043250  004737  016340                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
043254  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
043260  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED
043264  020102                              CMP     R1,R2                   ;ARE THEY EQUAL
043266  001406                              BEQ     75$                     ;BR, IF OK
043270  005237  002212                      INC     FATFLG                  ;BUMP COUNT
043274                                      ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
043274  104456                                                                      TRAP    C$ERHRD
043276  000745                                                                      .WORD   485
043300  005111                                                                      .WORD   WRTERR
043302  012136                                                                      .WORD   PKTSSR
043304                                  75$:    CKLOOP                          ;LOOP IF SELECTED
043304  104406                                                                      TRAP    C$CLP1
043306  012703  000400                      MOV     #256.,R3                ;RECORD SIZE
043312  013737  003114  043712              MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS

                                        ;*****************************************************************
                                        ;
                                        ;READ REVERSE DATA,ACK COMMAND
                                        ;
                                        ;*****************************************************************

043320  012737  100401  043710              MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
043326  012704  043710                  165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
043332  010337  043716                      MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
043336  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

```
3711 043342  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3712 043346  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3713 043352  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
3714 043356  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3715 043360  001406                        BEQ     170$                    ;BR, IF OK
3716 043362  005237  002212                INC     FATFLG                  ;BUMP COUNT
3720 043366                                ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043366  104456                                                                TRAP    C$ERHRD
     043370  000746                                                                .WORD   486
     043372  046114                                                                .WORD   T24TRL
     043374  012136                                                                .WORD   PKTSSR
3721 043376                        170$:   CKLOOP                          ;LOOP IF SELECTED
     043376  104406                                                                TRAP    C$CLP1
3722 043400  012703  000400                MOV     #256.,R3                ;RECORD SIZE
3723 043404  013737  003114  043712        MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3724
3725                               ;*****************************************************************
3726                               ;
3727                               ;READ REVERSE DATA,ACK COMMAND
3728                               ;
3729                               ;*****************************************************************
3730
3731 043412  012737  100401  043710        MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3732 043420  012704  043710        195$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3733 043424  010337  043716                MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3734 043430  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3735 043434  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3736 043440  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3737 043444  012702  100204                MOV     #SSR!SC!BIT2,R2                 ;SET UP EXPECTED
3738 043450  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3739 043452  001406                        BEQ     200$                    ;BR, IF OK
3740 043454  005237  002212                INC     FATFLG                  ;BUMP COUNT
3744 043460                                ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043460  104456                                                                TRAP    C$ERHRD
     043462  000747                                                                .WORD   487
     043464  046114                                                                .WORD   T24TRL
     043466  012136                                                                .WORD   PKTSSR
3745 043470                        200$:   CKLOOP                          ;LOOP IF SELECTED
     043470  104406                                                                TRAP    C$CLP1
3746 043472  013701  043626                MOV     T24BFR+14,R1            ;GET MESSAGE BUFFER (XST3)
3747 043476  010102                        MOV     R1,R2                   ;SET UP EXPECTED
3748 043500  052702  000001                BIS     #BIT0,R2                ;SET THE RIB BIT IN EXPECTED
3749 043504  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3750 043506  001406                        BEQ     210$                    ;BR, IF EQUAL (ALL IS WELL)
3751 043510  005237  002212                INC     FATFLG                  ;BUMP COUNT
3755 043514                                ERRHRD  ERRNO,T24LOR,EXPREC     ;THE RIB BIT WAS NOT SET IN XST0
     043514  104456                                                                TRAP    C$ERHRD
     043516  000750                                                                .WORD   488
     043520  044012                                                                .WORD   T24LOR
     043522  015564                                                                .WORD   EXPREC
3756 043524                        210$:   CKLOOP
     043524  104406                                                                TRAP    C$CLP1
3757 043526                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     043526                                                                      L10070:
     043526  104403                                                                TRAP    C$ESUB
3758 043530  023727  002212  000017                CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3759 043536  103402                                BLO     999$                            ;BR, IF LESS THAN 25
```

```
    60 043540  004737  017272                JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  3761 043544                          999$:
  3762                                 ;
  3763                                 ;
  3764                                 ;
  3765 043544  004737  016546                JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
  3766 043550  103002                        BCC     163$                    ;BR, IF NO LOOP REQUIRED
  3767 043552  000137  034362                JMP     T24LOOP                 ;EXECUTE AGAIN
  3768 043556                          163$:
  3769 043556                                EXIT    TST                     ;ALL DONE THIS TEST
       043556  104432                                                              TRAP    C$EXIT
       043560  002654                                                              .WORD   L10052-.
```

```
3771                                    ;+
3772                                    ;LOCAL STORAGE FOR THIS TEST
3773                                    ;-
3775            043570                          .=<.+10>&177770
3777 043570                             T24PACKET:                      ;COMMAND PACKET FOR TEST
3778 043570  100204                             .WORD   100204          ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
3779 043572  043600                             .WORD   T24DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
3780 043574  000000                             .WORD   0
3781 043576  000012                             .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
3782 043600                             T24DATA:                        ;CHARACTERISTICS DATA BLOCK
3783 043600  043612                             .WORD   T24BFR          ;ADDRESS OF MESSAGE BUFFER
3784 043602  000000                             .WORD   0
3785 043604  000024                             .WORD   20.             ;LENGTH OF MESSAGE BUFFER
3786 043606  000000                             .WORD   0
3787 043610  000000                     T24DSW: .WORD   0               ;DRIVE SELECTION BITS 2-0
3788 043612                             T24BFR: .BLKW   25.             ;MESSAGE BUFFER
3789                                    ;
3790                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
3791                                    ;
3793            043700                          .=<.+10>&177770
3795 043700                             T24PK2:
3796 043700  100206                             .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
3797 043702  043720                             .WORD   T24BF2          ;ADDRESS OF SELECT BLOCK DATA
3798 043704  000000                             .WORD   0
3799 043706  000006                             .WORD   6.              ;SIZE OF DATA PACKET
3800
3804 043710                             T24PK3:
3805 043710  100205                             .WORD   100205          ;READ COMMAND, IE AND ACK
3806 043712                             T24RB:
3807 043712  003114                     T24WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
3808 043714  000000                             .WORD   0
3809 043716  000000                     T24SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
3810                                            .EVEN
3811                                    ;
3812                                    ;
3813                                    ;
3814 043720                             T24BF2:
3815 043720     010                     T24BS0: .BYTE   10              ;BSEL0 AREA
3816 043721     200                     T24BS1: .BYTE   200             ;BSEL1 AREA
3817 043722  000000                     T24S2:  .WORD   0               ;SEL 2 AREA
3818 043724  000000                     T24S3:  .WORD   0               ;DATA AREA
3819                                    ;
3820                                    ;
3821                                            .EVEN
3822                                    ;TAPE MOTION PACKET COMMAND VALUES
3823
3824 043726  100005                     T24RN:  .WORD   100005          ;READ DATA (NEXT)
3825 043730  100405                     T24WDR: .WORD   100405          ;READ DATA RETRY
3826 043732  102005                     T24CON: .WORD   102005          ;WRITE CONTINOUS
3827 043734  177777                             .WORD   177777          ;END OF DATA
3828 043736  000000                     T24DLY: .WORD   0               ;DELAY STORAGE AREA
3829
3830
```

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

043740  116  105  106  T24NEF: .ASCIZ  'NEF Not Set After NON-EXECUTABLE FUNCTION'
044012  122  111  102  T24LOR: .ASCIZ  'RIB Not Set After READ REVERSE Into BOT'
044062  124  123  123  T24WDG: .ASCIZ  'TSSR Not Correct After Illegal Buffer Address Bits Set'
044151  124  123  123  T24NXM: .ASCIZ  'TSSR Not Correct After NXM Memory Address In Packet'
044235  124  123  123  T24WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
044312  111  154  154  T24ILA: .ASCIZ  'Illegal Address Bits, Failed To Set ILA Bit In XSTO'
044376  111  154  154  T24LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
044457  122  105  101  T24SSR: .ASCIZ  'READ COMMAND Not Accepted'
044511  124  123  123  T24WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
044563  124  141  160  T24BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
044630  104  141  164  T24DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
044716  122  105  101  T24EOT: .ASCIZ  'READ DATA OVER EOT GAVE NO TAPE STATUS ALERT'
044773  124  123  123  T24TM:  .ASCIZ  'TSSR Not Correct After READ COMMAND Reject'
045046  122  145  167  T24RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
045115  122  101  115  T24RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
045170  124  123  123  T24AM3: .ASCIZ  'TSSR Init. Failed After READ COMMAND'
045235  104  162  151  T24OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
045310  124  123  123  T24WDD: .ASCIZ  'TSSR Not Correct After READ DATA Command, SWB Bit Set'
045376  124  123  123  T24WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
045447  103  120  103  T24VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
045522  124  123  102  T24BA:  .ASCIZ  'TSBA Not Correct After READ DATA Command'
045573  127  122  111  T24WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
045662  122  145  141  T24LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
045744  122  145  141  T24LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
046026  122  145  163  T24PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
046114  122  145  141  T24TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
046202  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
                                        ;
                                        ;-

046250                                  T24REST:
046250                                          SAVREG                          ;SAVE THE REGISTERS
046254  012701  043570                          MOV     #T24PACKET,R1           ;START OF THE PACKET
046260  012721  100004                          MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
046264  012721  043600                          MOV     #T24DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
046270  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
046272  012721  000012                          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
046276  012721  0436.2                         MOV     #T24BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
046302  005021                                  CLR     (R1)+
046304  012721  000024                          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
046310  005021                                  CLR     (R1)+
046312  012711  000000                          MOV     #0,(R1)                 ;SELECT DRIVE ZERO
046316  012702  000030                          MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
046322  012762  177777  043612  64$:     MOV     #177777,T24BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
046330  005742                                  TST     -(R2)                   ;NEXT LOCATION
046332  022702  000000                          CMP     #0,R2                   ;CKECK FOR END OF LOOP
046336  001371                                  BNE     64$                     ;KEEP GOING UNTIL DONE
```

```
3889 046340  000207                    RTS     PC                  ;RETURN
3890
3891
3892 046342                        T24RT2:
3893 046342                            SAVREG                      ;SAVE THE REGISTERS
3894 046346  012701  043700            MOV     #T24PK2,R1          ;START OF THE PACKET
3895 046352  012721  100206            MOV     #100206,(R1)+       ;WRITE SUBSYSTEM MEM. WITH ACK, IE
3896 046356  012721  043720            MOV     #T24BF2,(R1)+       ;ADDRESS OF DATA BLOCK
3897 046362  005021                    CLR     (R1)+               ;EXTENDED ADDRESS
3898 046364  012721  000006            MOV     #6.,(R1)+           ;SIZE OF DATA BLOCK IN BYTES
3899 046370  005021                    CLR     (R1)+
3900 046372  012701  043720            MOV     #T24BF2,R1          ;POINT TO DATA SEL AREA
3901 046376  005021                    CLR     (R1)+
3902 046400  005011                    CLR     (R1)
3903 046402  000207                    RTS     PC                  ;RETURN
3904 046404                        T24RT3:
3905 046404                            SAVREG                      ;SAVE THE REGISTERS
3906 046410  012701  043710            MOV     #T24PK3,R1          ;START OF THE PACKET
3907 046414  012721  000000            MOV     #0,(R1)+            ;CLEAR AREA OUT
3908 046420  012721  000000            MOV     #0,(R1)+            ;ADDRESS OF DATA BLOCK
3909 046424  005021                    CLR     (R1)+               ;EXTENDED ADDRESS
3910 046426  012711  000000            MOV     #0,(R1)             ;SIZE OF DATA BLOCK IN BYTES
3911 046432  000207                    RTS     PC                  ;RETURN
3912 046434                            ENDTST
     046434
     046434  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
                                ;
                                ;
                                ;
                                ;-
046436                                  BGNTST
046436                                                                  T5::
046436  012737  006446  002170            MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
046444  004737  017364                    JSR     PC,KTOFF                ;DON'T NEED LOTS OF MEMORY
046450  012700  055150                    MOV     #TST25ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
046454  004737  016600                    JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
046460  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.
                                ;
                                ;
                                ;-
046466                          T25LOOP:
046466                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
046466                                                                          T5.1:
046466  104402                                                                  TRAP    C$BSUB
046470  004737  055166                    JSR     PC,T25REST              ;SET COMMAND PACKET
046474  005037  054000                    CLR     T25CNT                  ;CLEAR THE RECORD COUNTER AREA
046500  004737  055260                    JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
046504  004737  055322                    JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
046510  012737  176750  054002            MOV     #65000.,T25DLY          ;SET UP LOOP COUNTER
                                ;**************************************************** ********************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*************************************************************************
```

```
3972 046516  004737  016064          5$:     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3973 046522  103427                          BCS     10$                     ;BR IF INIT WAS OK
3974 046524                                   DELAY   250                     ;DELAY IF REQUIRED
     046524  012727  000250                                                          MOV     #250,(PC)+
     046530  000000                                                                  .WORD   0
     046532  013727  002116                                                          MOV     L$DLY,(PC)+
     046536  000000                                                                  .WORD   0
     046540  005367  177772                                                          DEC     -6(PC)
     046544  001375                                                                  BNE     .-4
     046546  005367  177756                                                          DEC     -22(PC)
     046552  001367                                                                  BNE     .-20
3975 046554  005337  054002                    DEC     T25DLY                  ;DEC DELAY COUNTER
3976 046560  001356                          BNE     5$                              ;BR, IF LOOP IS REQUIRED
3977 046562  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3981 046566  016501  000002                    MOV     TSSR(R5),R1             ;CONTENTS OF TSSR REGISTER
3982 046572                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     046572  104455                                                                  TRAP    C$ERDF
     046574  000765                                                                  .WORD   501
     046576  003650                                                                  .WORD   SFIERR
     046600  012124                                                                  .WORD   SFIMSG
3983 046602                                   10$:
3984 046602  013737  002172  053650              MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
3985 046610  012704  053630                    MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3986
3987                                          ;*************************************************************************
3988                                          ;
3989                                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3990                                          ;
3991                                          ;*************************************************************************
3992
3993 046614  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3994 046620  103407                          BCS     15$                     ;BR, IF COMMAND ISSUED OK
3995 046622  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3999 046626  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4000 046630                                   ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     046630  104456                                                                  TRAP    C$ERHRD
     046632  000766                                                                  .WORD   502
     046634  005054                                                                  .WORD   WRTMSG
     046636  012124                                                                  .WORD   SFIMSG
4001
4002                                          ;*************************************************************************
4003                                          ;
4004                                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4005                                          ;
4006                                          ;*************************************************************************
4007
4008 046640                                   15$:    CKLOOP
     046640  104406                                                                  TRAP    C$CLP1
4009 046642  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4010 046646  103407                          BCS     30$                     ;BR, IF NO PROBLEM
4011 046650  010001                          MOV     R0,R1                   ;SAVE TSSR
4012 046652  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4016 046656                                   ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     046656  104456                                                                  TRAP    C$ERHRD
     046660  000767                                                                  .WORD   503
     046662  054755                                                                  .WORD   T25RWN
     046664  012136                                                                  .WORD   PKTSSR
```

```
4017 046666                        30$:    CKLOOP                          ;LOOP IF SELECTED
     046666  104406                                                                TRAP    C$CLP1
4018
4019                               ;*****************************************************************
4020                               ;
4021                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4022                               ;
4023                               ;*****************************************************************
4024
4025 046670  013701  053660                MOV     T25BFR+6,R1             ;PICK UP XST0
4026 046674  010102                        MOV     R1,R2                   ;SET UP EXPECTED
4027 046676  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4028 046702  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
4029 046704  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
4030 046706  005237  002212                INC     FATFLG                  ;BUMP COUNT
4034 046712                                ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     046712  104456                                                                TRAP    C$ERHRD
     046714  000770                                                                .WORD   504
     046716  054145                                                                .WORD   T25BOT
     046720  015564                                                                .WORD   EXPREC
4035 046722                        40$:    CKLOOP                          ;LOOP IF SELECTED
     046722  104406                                                                TRAP    C$CLP1
4036 046724  012703  000400                MOV     #256.,R3                ;RECORD SIZE
4037 046730  013737  003114  053752        MOV     FREE,T25RB              ;STARTING WRITE BUFFER ADDRESS
4038
4039                               ;*****************************************************************
4040                               ;
4041                               ;WRITE DATA,ACK,CVC=1 COMMAND
4042                               ;
4043                               ;*****************************************************************
4044
4045 046736  012737  140005  053750        MOV     #140005,T25PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
4046 046744  012704  053750                MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4047 046750                        65$:
4048 046750  010337  053756                MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4049 046754  013777  054000  134132        MOV     T25CNT,@FREE            ;LOAD UP RECORD COUNTER IN WRT BUFFER
4050 046762  062737  000001  054000        ADD     #1,T25CNT               ;GET READY FOR NEXT RECORD
4051 046770  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4052 046774  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4053 047000  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4054 047004  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4055 047010  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4056 047012  001411                        BEQ     75$                     ;BR, IF OK
4057 047014  032701  000004                BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4058 047020  001014                        BNE     120$                    ;BR, IF TSA IS SET (SUSPECT IS EOT)
4059 047022  005237  002212                INC     FATFLG                  ;BUMP COUNT
4063 047026                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     047026  104456                                                                TRAP    C$ERHRD
     047030  000771                                                                .WORD   505
     047032  005111                                                                .WORD   WRTERR
     047034  012136                                                                .WORD   PKTSSR
4064 047036                        75$:    CKLOOP                          ;LOOP IF SELECTED
     047036  104406                                                                TRAP    C$CLP1
4065 047040  005203                        INC     R3                      ;BUMP RECORD SIZE
4066 047042  022703  001000                CMP     #512.,R3                ;END OF RECORD YET
4067 047046  001340                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
4068 047050  000415                        BR      125$                    ;ENOUGH RECORDS
```

```
4069 047052                          120$:
4070
4071                                 ;*****************************************************************
4072                                 ;
4073                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4074                                 ;
4075                                 ;*****************************************************************
4076
4077 047052  013701  053660                 MOV     T25BFR+6,R1             ;QUICK CHECK FOR EOT SET
4078 047056  010102                         MOV     R1,R2                   ;SET UP EXPECTED
4079 047060  052702  000001                 BIS     #BIT0,R2                ;SET THE EOT BIT XST0
4080 047064  020102                         CMP     R1,R2                   ;IS THE EOT BIT SET IN XST0
4081 047066  001406                         BEQ     125$                    ;BR, IF SET (GOOD)
4082 047070  005237  002212                 INC     FATFLG                  ;BUMP COUNT
4086 047074                                 ERRDF   ERRNO,T25NET,EXPREC     ;DEVICE FATAL NOT EOT FOUND ETC.
     047074  104455                                                                 TRAP    C$ERDF
     047076  000772                                                                 .WORD   506
     047100  054301                                                                 .WORD   T25NET
     047102  015564                                                                 .WORD   EXPREC
4087 047104                          125$:
4088
4089                                 ;*****************************************************************
4090                                 ;
4091                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4092                                 ;
4093                                 ;*****************************************************************
4094
4095 047104  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4096 047110  103407                         BCS     130$                    ;BR, IF NO PROBLEM
4097 047112  010001                         MOV     R0,R1                   ;SAVE TSSR
4098 047114  005237  002212                 INC     FATFLG                  ;BUMP COUNT
4102 047120                                 ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     047120  104456                                                                 TRAP    C$ERHRD
     047122  000773                                                                 .WORD   507
     047124  054755                                                                 .WORD   T25RWN
     047126  012136                                                                 .WORD   PKTSSR
4103 047130                          130$:  CKLOOP                          ;LOOP IF SELECTED
     047130  104406                                                                 TRAP    C$CLP1
4104 047132  012737  000007  053650         MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
4105 047140  012704  053630                 MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4106
4107                                 ;*****************************************************************
4108                                 ;
4109                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4110                                 ;
4111                                 ;*****************************************************************
4112
4113 047144  004737  010752                 JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4114 047150  103407                         BCS     140$                    ;BR, IF COMMAND ISSUED OK
4115 047152  005237  002212                 INC     FATFLG                  ;BUMP COUNT
4119 047156  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4120 047160                                 ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     047160  104456                                                                 TRAP    C$ERHRD
     047162  000774                                                                 .WORD   508
     047164  005054                                                                 .WORD   WRTMSG
     047166  012124                                                                 .WORD   SFIMSG
4121 047170                          140$:  CKLOOP                          ;SCOPE LOOP
```

```
                047170  104406                                                          TRAP    C$CLP1
4122            047172  005737  002216          TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES
4123            047176  001044                  BNE     160$                    ;BR IF SWITCH IS ON
4124
4125            047200  112737  000200  053761  MOVB    #200,T25BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
4126            047206  112737  000010  053760  MOVB    #10,T25BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
4127            047214  012704  053740          MOV     #T25PK2,R4              ;WRITE SUBSYS MEM PACKET
4128            047220  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4129            047224  004737  016426          JSR     PC,CHKTSSR              ;WAIT FOR SSR
4130            047230  103407                  BCS     150$                    ;BR, IF NO ERROR
4131            047232  010001                  MOV     R0,R1                   ;ERROR, SAVE TSSR
4132            047234  005237  002212          INC     FATFLG                  ;BUMP COUNT
4136            047240                          ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
                047240  104456                                                          TRAP    C$ERHRD
                047242  000775                                                          .WORD   509
                047244  054004                                                          .WORD   T25SSR
                047246  012136                                                          .WORD   PKTSSR
4137            047250                  150$:   CKLOOP                          ;LOOP IF SELECTED
                047250  104406                                                          TRAP    C$CLP1
4138            047252  012737  000007  053650          MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
4139            047260  012704  053630          MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4140
4141                            ;*****************************************************************
4142                            ;
4143                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4144                            ;
4145                            ;*****************************************************************
4146
4147            047264  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4148            047270  103407                  BCS     160$                    ;BR, IF COMMAND ISSUED OK
4149            047272  005237  002212          INC     FATFLG                  ;BUMP COUNT
4153            047276  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4154            047300                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                047300  104456                                                          TRAP    C$ERHRD
                047302  000776                                                          .WORD   510
                047304  005054                                                          .WORD   WRTMSG
                047306  012124                                                          .WORD   SFIMSG
4155            047310                  160$:   CKLOOP                          ;SCOPE LOOP
                047310  104406                                                          TRAP    C$CLP1
4156            047312  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4157            047316  032701  000100          BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4158            047322  001006                  BNE     170$                    ;BR, IF OFFLINE (GOOD)
4159            047324  005237  002212          INC     FATFLG                  ;BUMP COUNT
4163            047330                          ERRDF   ERRNO,T25OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                047330  104455                                                          TRAP    C$ERDF
                047332  000777                                                          .WORD   511
                047334  055024                                                          .WORD   T25OFL
                047336  012124                                                          .WORD   SFIMSG
4164            047340                  170$:   CKLOOP                          ;LOOP IF SELECTED
                047340  104406                                                          TRAP    C$CLP1
4165
4166                            ;*****************************************************************
4167                            ;
4168                            ;SPACE FORWARD COMMAND IN PLACE
4169                            ;
4170                            ;*****************************************************************
4171
```

```
4172 047342  012737  140010  053750  180$:   MOV     #140010,T25PK3          ;SPACE FORWARD COMMAND IN PLACE
4173 047350  012737  000001  053752          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE
4174 047356  012704  053750                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4175 047362  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4176 047366  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4177 047372  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4178 047376  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
4179 047402  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4180 047404  001406                          BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
4181 047406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4185 047412                                  ERRHRD  ERRNO,T25TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     047412  104456                                                                  TRAP    C$ERHRD
     047414  001000                                                                  .WORD   512
     047416  054212                                                                  .WORD   T25TM
     047420  012136                                                                  .WORD   PKTSSR
4186 047422                          190$:   CKLOOP                          ;LOOP IF SELECTED
     047422  104406                                                                  TRAP    C$CLP1
4187 047424                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     047424                                                                        L10072:
     047424  104403                                                                  TRAP    C$ESUB
4188 047426  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4189 047434  103402                          BLO     999$                            ;BR, IF LESS THAN 25
4190 047436  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4191 047442                          999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 5, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND WITH
                                        ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
                                        ;THE VOLUME CKECK (VCK) FLAG IS SET.
                                        ;
                                        ;
                                        ;
                                        ;-
047442                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
047442                                                                                  T5.2:
047442  104402                                                                          TRAP    C$BSUB
047444  004737  055166                            JSR     PC,T25REST              ;SET COMMAND PACKET
047450  004737  055322                            JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
047454  004737  055260                            JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET

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

047460  004737  016064                            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
047464  103407                                    BCS     10$                     ;BR IF INIT WAS OK
047466  005237  002212                            INC     FATFLG                  ;BUMP COUNT
047472  010001                                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
047474                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
047474  104455                                                                          TRAP    C$ERDF
047476  001001                                                                          .WORD   513
047500  003650                                                                          .WORD   SFIERR
047502  012124                                                                          .WORD   SFIMSG
047504  012737  000007  053650  10$:             MOV     #7,T25DSW               ;SET UP DRIVE NUMBER

047512  012704  053630                            MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

047516  004737  010752                            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
047522  103407                                    BCS     15$                     ;BR, IF COMMAND ISSUED OK
047524  005237  002212                            INC     FATFLG                  ;BUMP COUNT
047530  010001                                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
047532                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
047532  104456                                                                          TRAP    C$ERHRD
047534  001002                                                                          .WORD   514
047536  005054                                                                          .WORD   WRTMSG
047540  012124                                                                          .WORD   SFIMSG

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

```
                        ;*****************************************************************
                        15$:    CKLOOP
047542  104406                                                            TRAP    C$CLP1
                        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
                        BCS     30$                     ;BR, IF NO PROBLEM
                        MOV     R0,R1                   ;SAVE TSSR
                        INC     FATFLG                  ;BUMP COUNT
                        ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
047560  104456                                                            TRAP    C$ERHRD
047562  001003                                                            .WORD   515
047564  054755                                                            .WORD   T25RWN
047566  012136                                                            .WORD   PKTSSR
                        30$:    CKLOOP                  ;LOOP IF SELECTED
047570  104406                                                            TRAP    C$CLP1
                        140$:   TST     EXTFEA          ;CHECK FOR EXTENDED FEATURES SW SWITCH
                        BNE     160$                    ;BR IF SWITCH IS ON

                        MOVB    #200,T25BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
                        MOVB    #10,T25BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
                        MOV     #T25PK2,R4              ;WRITE SUBSYS MEM PACKET
                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
                        JSR     PC,CHKTSSR              ;WAIT FOR SSR
                        BCS     150$                    ;BR, IF NO ERROR
                        MOV     R0,R1                   ;ERROR, SAVE TSSR
                        INC     FATFLG                  ;BUMP COUNT
                        ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
047640  104456                                                            TRAP    C$ERHRD
047642  001004                                                            .WORD   516
047644  054004                                                            .WORD   T25SSR
047646  012136                                                            .WORD   PKTSSR
                        150$:   CKLOOP                  ;LOOP IF SELECTED
047650  104406                                                            TRAP    C$CLP1
                        MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
                        MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                        BCS     160$                    ;BR, IF COMMAND ISSUED OK
                        INC     FATFLG                  ;BUMP COUNT
                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
047700  104456                                                            TRAP    C$ERHRD
047702  001005                                                            .WORD   517
047704  005054                                                            .WORD   WRTMSG
047706  012124                                                            .WORD   SFIMSG
                        160$:   CKLOOP                  ;SCOPE LOOP
047710  104406                                                            TRAP    C$CLP1
                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
                        BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
                        BNE     170$                    ;BR, IF OFFLINE (GOOD)
                        INC     FATFLG                  ;BUMP COUNT
```

```
4299 047730                                ERRDF   ERRNO,T25OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     047730  104455                                                                TRAP    C$ERDF
     047732  001006                                                                .WORD   518
     047734  055024                                                                .WORD   T25OFL
     047736  012124                                                                .WORD   SFIMSG
4300 047740                          170$:   CKLOOP                          ;LOOP IF SELECTED
     047740  104406                                                                TRAP    C$CLP1
4301
4302                                 ;*************************************************************
4303                                 ;
4304                                 ;SPACE REVERSE COMMAND IN PLACE
4305                                 ;
4306                                 ;*************************************************************
4307
4308 047742  012737  100410  053750 180$:   MOV     #100410,T25PK3          ;SPACE REVERSE COMMAND IN PLACE
4309 047750  012737  000001  053752         MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE
4310 047756  012704  053750               MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4311 047762  010465  000000               MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4312 047766  004737  016340               JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4313 047772  016501  000002               MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4314 047776  012702  100306               MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
4315 050002  020102                       CMP     R1,R2                   ;ARE THEY EQUAL
4316 050004  001406                       BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
4317 050006  005237  002212               INC     FATFLG                  ;BUMP COUNT
4321 050012                               ERRHRD  ERRNO,T25TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     050012  104496                                                                TRAP    C$ERHRD
     050014  001007                                                                .WORD   519
     050016  054212                                                                .WORD   T25TM
     050020  012136                                                                .WORD   PKTSSR
4322 050022                          190$:   CKLOOP                          ;LOOP IF SELECTED
     050022  104406                                                                TRAP    C$CLP1
4323 050024                               ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     050024                                                                  L10073:
     050024  104403                                                                TRAP    C$ESUB
4324 050026  023727  002212  000017       CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4325 050034  103402                       BLO     999$                    ;BR, IF LESS THAN 25
4326 050036  004737  017272               JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4327 050042                          999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 5, SUBTEST 3
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE
                                        ;RECORD OFF BOT AND CAUSES BOT STATUS TO BE CLEARED.
                                        ;
                                        ;
                                        ;
                                        ;-
                                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T5.3:
050042  104402                                                                                    TRAP    C$BSUB
050044  004737  055166                            JSR     PC,T25REST              ;SET COMMAND PACKET
050050  004737  055260                            JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
050054  004737  055322                            JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

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

050060  004737  016064                            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
050064  103407                                    BCS     10$                     ;BR IF INIT WAS OK
050066  005237  002212                            INC     FATFLG                  ;BUMP COUNT
050072  010001                                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
050074                                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
050074  104455                                                                                    TRAP    C$ERDF
050076  001010                                                                                    .WORD   520
050100  003650                                                                                    .WORD   SFIERR
050102  012124                                                                                    .WORD   SFIMSG
050104  013737  002172  053650  10$:    MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER

050112  012704  053630                            MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

050116  004737  010752                            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
050122  103407                                    BCS     15$                     ;BR, IF COMMAND ISSUED OK
050124  005237  002212                            INC     FATFLG                  ;BUMP COUNT
050130  010001                                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
050132                                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
050132  104456                                                                                    TRAP    C$ERHRD
050134  001011                                                                                    .WORD   521
050136  005054                                                                                    .WORD   WRTMSG
050140  012124                                                                                    .WORD   SFIMSG

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

```
                                15$:    CKLOOP
050142  104406                                                          TRAP    C$CLP1
                                        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
                                        BCS     30$                     ;BR, IF NO PROBLEM
                                        MOV     R0,R1                   ;SAVE TSSR
                                        INC     FATFLG                  ;BUMP COUNT
                                        ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
050160  104456                                                          TRAP    C$ERHRD
050162  001012                                                          .WORD   522
050164  054755                                                          .WORD   T25RWN
050166  012136                                                          .WORD   PKTSSR
                                30$:    CKLOOP                          ;LOOP IF SELECTED
050170  104406                                                          TRAP    C$CLP1

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

050172  013701  053660                MOV     T25BFR+6,R1             ;PICK UP XST0
050176  010102                        MOV     R1,R2                   ;SET UP EXPECTED
050200  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
050204  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
050206  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
050210  005237  002212                INC     FATFLG                  ;BUMP COUNT
050214                                ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
050214  104456                                                          TRAP    C$ERHRD
050216  001013                                                          .WORD   523
050220  054145                                                          .WORD   T25BOT
050222  015564                                                          .WORD   EXPREC
050224                          40$:    CKLOOP                          ;LOOP IF SELECTED
050224  104406                                                          TRAP    C$CLP1
050226  012737  000001  053752        MOV     #000001,T25RB           ;NUMBER OF RECORDS TO SPACE OVER

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

050234  012737  140010  053750        MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
050242  012704  053750                MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
050246                          65$:
050246  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
050252  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
050256  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
050262  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
050266  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
050270  001411                        BEQ     75$                     ;BR, IF OK
050272  032701  000004                BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
050276  001006                        BNE     75$                     ;BR, IF TSA IS SET (SUSPECT IS EOT)
050300  005237  002212                INC     FATFLG                  ;BUMP COUNT
050304                                ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
050304  104456                                                          TRAP    C$ERHRD
050306  001014                                                          .WORD   524
```

```
                050310  054065                                                          .WORD   T25WDE
                050312  015564                                                          .WORD   EXPREC
4435            050314                          75$:    CKLOOP                          ;LOOP IF SELECTED
                050314  104406                                                          TRAP    C$CLP1
4436            050316                          120$:
4437
4438                                            ;*****************************************************************
4439                                            ;
4440                                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4441                                            ;
4442                                            ;*****************************************************************
4443
4444            050316  013701  053660                MOV     T25BFR+6,R1             ;QUICK CHECK FOR BOT SET
4445            050322  010102                        MOV     R1,R2                   ;SET UP EXPECTED
4446            050324  042702  000002                BIC     #BIT1,R2                ;CLEAR THE BOT BIT (XST0)
4447            050330  020102                        CMP     R1,R2                   ;IS THE EOT BIT SET IN XST0
4448            050332  001406                        BEQ     125$                    ;BR, IF SET (GOOD)
4449            050334  005237  002212                INC     FATFLG                  ;BUMP COUNT
4453            050340                                ERRHRD  ERRNO,T25BNC,EXPREC     ;BOT NOT CLEARED AFTER SPACE FROM BOT
                050340  104456                                                          TRAP    C$ERHRD
                050342  001015                                                          .WORD   525
                050344  054440                                                          .WORD   T25BNC
                050346  015564                                                          .WORD   EXPREC
4454            050350                          125$:   CKLOOP
                050350  104406                                                          TRAP    C$CLP1
4455            050352  004737  055322                JSR     PC,T25RT3               ;CLEAN UP PACKET
4456            050356  012737  000401  053756        MOV     #257.,T25SZ             ;SET THE CORRECT SIZE UP
4457
4458                                            ;*****************************************************************
4459                                            ;
4460                                            ;READ DATA COMMAND IN PLACE
4461                                            ;
4462                                            ;*****************************************************************
4463
4464            050364  012737  140001  053750        MOV     #140001,T25PK3          ;READ DATA COMMAND IN PLACE
4465            050372  013737  003114  053752        MOV     FREE,T25RB              ;READ BUFFER ADDRESS TO PACKET
4466            050400  012704  053750                MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4467            050404  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4468            050410  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4469            050414  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4470            050420  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4471            050424  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4472            050426  001406                        BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
4473            050430  005237  002212                INC     FATFLG                  ;BUMP COUNT
4477            050434                                ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA CMD
                050434  104456                                                          TRAP    C$ERHRD
                050436  001016                                                          .WORD   526
                050440  005204                                                          .WORD   RDERR
                050442  012136                                                          .WORD   PKTSSR
4478            050444                          190$:   CKLOOP                          ;LOOP IF SELECTED
                050444  104406                                                          TRAP    C$CLP1
4479            050446  017701  132442                MOV     @FREE,R1                ;GET FIRST WORD FROM BUFFER
4480            050452  012702  000001                MOV     #1,R2                   ;SET UP EXPECTED
4481            050456  020102                        CMP     R1,R2                   ;WAS RECORD NUMBERED 1
4482            050460  001406                        BEQ     200$                    ;BR, IF CORRECT RECORD
4483            050462  005237  002212                INC     FATFLG                  ;BUMP COUNT
4487            050466                                ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
```

```
        050466  104456                                                                  TRAP    C$ERHRD
        050470  001017                                                                  .WORD   527
        050472  054355                                                                  .WORD   T25WNG
        050474  015564                                                                  .WORD   EXPREC
   4488 050476                          200$:   CKLOOP
        050476  104406                                                                  TRAP    C$CLP1
   4489 050500                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        050500                                                                  L10074:
        050500  104403                                                                  TRAP    C$ESUB
   4490 050502  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
   4491 050510  103402                          BLO     999$                    ;BR, IF LESS THAN 25
   4492 050512  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
   4493 050516                          999$:
```

```
4495                                    ;+
4496                                    ;
4497                                    ;TEST 5, SUBTEST 4
4498                                    ;
4499                                    ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE BACK
4500                                    ;OVER THE FIRST RECORD ON TAPE.
4501                                    ;
4502                                    ;
4503                                    ;-
4504
4505 050516                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      050516                                                                                    T5.4:
      050516  104402                                                                              TRAP    C$BSUB
4506 050520  004737  055166                    JSR     PC,T25REST              ;SET COMMAND PACKET
4507 050524  004737  055260                    JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4508 050530  004737  055322                    JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4509
4510                                    ;*********************************************************************
4511                                    ;
4512                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4513                                    ;
4514                                    ;*********************************************************************
4515
4516 050534  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4517 050540  103407                            BCS     20$                     ;BR IF INIT WAS OK
4518 050542  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4522 050546  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4523 050550                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      050550  104455                                                                            TRAP    C$ERDF
      050552  001020                                                                            .WORD   528
      050554  003650                                                                            .WORD   SFIERR
      050556  012124                                                                            .WORD   SFIMSG
4524 050560  013737  002172  053650  20$:      MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
4525
4526 050566  012704  053630                    MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4527
4528                                    ;*********************************************************************
4529                                    ;
4530                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4531                                    ;
4532                                    ;*********************************************************************
4533
4534 050572  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4535 050576  103407                            BCS     25$                     ;BR, IF COMMAND ISSUED OK
4536 050600  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4540 050604  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4541 050606                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      050606  104456                                                                            TRAP    C$ERHRD
      050610  001021                                                                            .WORD   529
      050612  005054                                                                            .WORD   WRTMSG
      050614  012124                                                                            .WORD   SFIMSG
4542 050616                            25$:     CKLOOP                          ;LOOP IF SELECTED
      050616  104406                                                                            TRAP    C$CLP1
4543
4544                                    ;*********************************************************************
4545                                    ;
4546                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
```

```
                                ;
                                ;*****************************************************************
                                ;
050620  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
050624  103407                          BCS     30$                     ;BR, IF NO PROBLEM
050626  010001                          MOV     R0,R1                   ;SAVE TSSR
050630  005237  002212                  INC     FATFLG                  ;BUMP COUNT
050634                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
050634  104456                                                                  TRAP    C$ERHRD
050636  001022                                                                  .WORD   530
050640  054755                                                                  .WORD   T25RWN
050642  012136                                                                  .WORD   PKTSSR
050644                          30$:    CKLOOP                          ;LOOP IF SELECTED
050644  104406                                                                  TRAP    C$CLP1
                                ;
                                ;*****************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                                ;
                                ;*****************************************************************
                                ;
050646  013701  053660                  MOV     T25BFR+6,R1             ;PICK UP XST0
050652  010102                          MOV     R1,R2                   ;SET UP EXPECTED
050654  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
050660  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
050662  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
050664  005237  002212                  INC     FATFLG                  ;BUMP COUNT
050670                                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
050670  104456                                                                  TRAP    C$ERHRD
050672  001023                                                                  .WORD   531
050674  054145                                                                  .WORD   T25BOT
050676  015564                                                                  .WORD   EXPREC
050700                          40$:    CKLOOP                          ;LOOP IF SELECTED
050700  104406                                                                  TRAP    C$CLP1
                                ;
                                ;*****************************************************************
                                ;
                                ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
                                ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
                                ;
                                ;*****************************************************************
                                ;
050702  012703  000001                  MOV     #000001,R3              ;NUMBER OF RECORDS TO SPACE FORWARD
050706  004737  010556                  JSR     PC,SPACE                ;CALL SPACE COMMAND
050712  103410                          BCS     50$                     ;CHECK FOR ERROR
050714  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
050720  005237  002212                  INC     FATFLG                  ;BUMP COUNT
050724                                  ERRHRD  ERRNO,T25WDE,SFFMSG     ;SPACE FORWARD FAILED
050724  104456                                                                  TRAP    C$ERHRD
050726  001024                                                                  .WORD   532
050730  054065                                                                  .WORD   T25WDE
050732  012172                                                                  .WORD   SFFMSG
050734                          50$:    CKLOOP                          ;LOOP IF SELECTED
050734  104406                                                                  TRAP    C$CLP1
050736  012737  000001  053752          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
                                ;
                                ;*****************************************************************
```

```
4598                                    ;
4599                                    ;SPACE REVERSE,ALK,CVC=1 COMMAND
4600                                    ;
4601                                    ;*****************************************************************
4602
4603 050744  012737  140410  053750          MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
4604 050752  012704  053750                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4605 050756                             65$:
4606 050756  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4607 050762  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4608 050766  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4609 050772  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4610 050776  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4611 051000  001406                          BEQ     75$                     ;BR, IF OK
4612 051002  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4616 051006                                  ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     051006  104456                                                                  TRAP    C$ERHRD
     051010  001025                                                                  .WORD   533
     051012  054065                                                                  .WORD   T25WDE
     051014  012136                                                                  .WORD   PKTSSR
4617 051016                             75$:    CKLOOP                          ;LOOP IF SELECTED
     051016  104406                                                                  TRAP    C$CLP1
4618 051020                             120$:
4619 051020  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
4620 051024  013737  003114  053752          MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4621
4622                                    ;*****************************************************************
4623                                    ;
4624                                    ;READ DATA,ACK,CVC=1 COMMAND
4625                                    ;
4626                                    ;*****************************************************************
4627
4628 051032  012737  140001  053750          MOV     #140001,T25PK3          ;READ DATA,ACK,CVC=1 COMMAND
4629 051040  012704  053750             165$:MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4630 051044  010337  053756                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4631 051050  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4632 051054  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4633 051060  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4634 051064  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4635 051070  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4636 051072  001406                          BEQ     170$                    ;BR, IF OK
4637 051074  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4641 051100                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     051100  104456                                                                  TRAP    C$ERHRD
     051102  001026                                                                  .WORD   534
     051104  005204                                                                  .WORD   RDERR
     051106  012136                                                                  .WORD   PKTSSR
4642 051110                             170$:   CKLOOP                          ;LOOP IF SELECTED
     051110  104406                                                                  TRAP    C$CLP1
4643 051112  017701  131776                  MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4644 051116  012702  000000                  MOV     #0,R2                   ;SET UP EXPECTED
4645 051122  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED 1
4646 051124  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
4647 051126  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4651 051132                                  ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     051132  104456                                                                  TRAP    C$ERHRD
     051134  001027                                                                  .WORD   535
```

```
                                                                                                                    I 2
        051136  054355                                                                                      .WORD   T25WNG
        051140  015564                                                                                      .WORD   EXPREC
4652    051142                                  200$:   CKLOOP
        051142  104406                                                                                      TRAP    C$CLP1
4653    051144                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        051144                                                                                          L10075:
        051144  104403                                                                                      TRAP    C$ESUB
4654    051146  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4655    051154  103402                          BLO     999$                            ;BR, IF LESS THAN 25
4656    051156  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4657    051162                                  999$:
```

```
                                        ;+
                                        ;
                                        ;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.
                                        ;
                                        ;
                                        ;
                                        ;-

051162                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
051162                                                                                          T5.5:
051162  104402                                                                                          TRAP    C$BSUB
051164  004737  055166                        JSR     PC,T25REST              ;SET COMMAND PACKET
051170  004737  055260                        JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
051174  004737  055322                        JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
051200  013737  054000  053776                MOV     T25CNT,T25CN2           ;HOLD NUMBER OF RECORDS
051206  162737  000002  053776                SUB     #2,T25CN2               ;ACTUAL NUMBER OF RECORDS ON TAPE
051214  013737  054000  054002                MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER

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

051222  004737  016064                10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
051226  103427                                BCS     20$                     ;BR IF INIT WAS OK
051230                                        DELAY   250                     ;WAIT ABOUT .25 SECONDS
051230  012727  000250                                                                  MOV     #250,(PC)+
051234  000000                                                                          .WORD   0
051236  013727  002116                                                                  MOV     L$DLY,(PC)+
051242  000000                                                                          .WORD   0
051244  005367  177772                                                                  DEC     -6(PC)
051250  001375                                                                          BNE     .-4
051252  005367  177756                                                                  DEC     -22(PC)
051256  001367                                                                          BNE     .-20
051260  005337  054002                        DEC     T25DLY                  ;DEC COUNTER
051264  001356                                BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
051266  016501  000002                        MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
051272  005237  002212                        INC     FATFLG                  ;BUMP COUNT
051276                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
051276  104455                                                                          TRAP    C$ERDF
051300  001030                                                                          .WORD   536
051302  003650                                                                          .WORD   SFIERR
051304  012124                                                                          .WORD   SFIMSG
051306                                  20$:
051306  013737  002172  053650                MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
051314  012704  053630                        MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

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

051346  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
051352  103407                    BCS     30$                     ;BR, IF NO PROBLEM
051354  010001                    MOV     R0,R1                   ;SAVE TSSR
051356  005237  002212            INC     FATFLG                  ;BUMP COUNT
051362                            ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
051362  104456                                                                    TRAP    C$ERHRD
051364  001032                                                                    .WORD   538
051366  054755                                                                    .WORD   T25RWN
051370  012136                                                                    .WORD   PKTSSR
051372                          30$:    CKLOOP                  ;LOOP IF SELECTED
051372  104406                                                                    TRAP    C$CLP1
051374  013701  053776                  MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
051400  012702  177776                  MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
051404  020201                          CMP     R2,R1                   ;WHICH VALUE CAN WE USE
051406  003002                          BGT     46$                     ;BR, IF # WRITTEN > 64K
051410  010103                          MOV     R1,R3                   ;# WRITTEN CAN BE USED
051412  000401                          BR      47$                     ;MOVE ON
051414  010203                  46$:    MOV     R2,R3                   ;USE MAX NUMBER
051416  162703  000001          47$:    SUB     #1,R3                   ;DON'T GO ALL THE WAY YET
051422  010337  053752                  MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER

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

051426  012737  140010  053750        MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
051434  012704  053750                MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
051440                          65$:
051440  013737  053776  054002        MOV     T25CN2,T25DLY           ;NUMBER OF RECORDS USED AS DELAY COUNTER
051446  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
051452  004737  016340          67$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
051456  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
051462  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
051466  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
051470  001425                        BEQ     75$                     ;BR, IF OK
```

```
4758 051472                                DELAY   250                     ;DELAY .25 SECONDS
     051472  012727  000250                                                      MOV     #250,(PC)+
     051476  000000                                                             .WORD   0
     051500  013727  002116                                                     MOV     L$DLY,(PC)+
     051504  000000                                                             .WORD   0
     051506  005367  177772                                                     DEC     -6(PC)
     051512  001375                                                             BNE     .-4
     051514  005367  177756                                                     DEC     -22(PC)
     051520  001367                                                             BNE     .-20
4759 051522  005337  054002                DEC     T25DLY                  ;BUMP DOWN COUNTER
4760 051526  001351                        BNE     67$                     ;BR, IF NOT AT END OF DELAY
4761 051530  005237  002212                INC     FATFLG                  ;BUMP COUNT
4765 051534                                ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     051534  104456                                                             TRAP    C$ERHRD
     051536  001033                                                             .WORD   539
     051540  054065                                                             .WORD   T25WDE
     051542  012136                                                             .WORD   PKTSSR
4766 051544                        75$:    CKLOOP                          ;LOOP IF SELECTED
     051544  104406                                                             TRAP    C$CLP1
4767 051546  012703  010000                MOV     #4096.,R3               ;RECORD SIZE
4768 051552  013737  003114  053752        MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4769
4770                               ;*****************************************************************
4771                               ;
4772                               ;READ DATA,ACK COMMAND
4773                               ;
4774                               ;*****************************************************************
4775
4776 051560  012737  100001  053750        MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4777 051566  012704  053750        165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4778 051572  010337  053756                MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4779 051576  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4780 051602  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4781 051606  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4782 051612  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4783 051616  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4784 051620  001411                        BEQ     170$                    ;BR, IF OK
4785 051622  032701  000004                BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4786 051626  001006                        BNE     170$                    ;IF SET ALL IS WELL
4787 051630  005237  002212                INC     FATFLG                  ;BUMP COUNT
4791 051634                                ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     051634  104456                                                             TRAP    C$ERHRD
     051636  001034                                                             .WORD   540
     051640  005204                                                             .WORD   RDERR
     051642  012136                                                             .WORD   PKTSSR
4792 051644                        170$:   CKLOOP                          ;LOOP IF SELECTED
     051644  104406                                                             TRAP    C$CLP1
4793 051646  017701  131242                MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4794 051652  013702  053776                MOV     T25CN2,R2                       ;SET UP EXPECTED
4795 051656  162702  000001                SUB     #1,R2                   ;SHOULD BE LAST RECORD
4796 051662  020102                        CMP     R1,R2                   ;WAS RECORD NUMBERED R3
4797 051664  001406                        BEQ     200$                    ;BR, IF CORRECT RECORD
4798 051666  005237  002212                INC     FATFLG                  ;BUMP COUNT
4802 051672                                ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     051672  104456                                                             TRAP    C$ERHRD
     051674  001035                                                             .WORD   541
     051676  054355                                                             .WORD   T25WNG
```

```
      051700  015564
                                                                                .WORD   EXPREC
4803  051702                          200$:   CKLOOP
      051702  104406
                                                                                TRAP    C$CLP1
4804  051704                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      051704                                                                      L10076:
      051704  104403
                                                                                TRAP    C$ESUB
4805  051706  023727  002212  000017        CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4806  051714  103402                        BLO     999$                    ;BR, IF LESS THAN 25
4807  051716  004737  017272                JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4808  051722                          999$:
```

```
                                        ;+
                                        ;
                                        ;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.
                                        ;
                                        ;
                                        ;
                                        ;-
051722                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
051722                                                                                      T5.6:
051722  104402                                                                                      TRAP    C$BSUB
051724  004737  055166                          JSR     PC,T25REST              ;SET COMMAND PACKET
051730  013737  054000  053776                MOV     T25CNT,T25CN2           ;SET UP RECORD COUNTER
051736  004737  055260                          JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
051742  004737  055322                          JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
051746  013737  054000  054002                MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER

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

051754  004737  016064          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
051760  103427                          BCS     20$                     ;BR IF INIT WAS OK
051762                                  DELAY   250                     ;WAIT ABOUT .25 SECONDS
051762  012727  000250                                                                    MOV     #250,(PC)+
051766  000000                                                                            .WORD   0
051770  013727  002116                                                                    MOV     L$DLY,(PC)+
051774  000000                                                                            .WORD   0
051776  005367  177772                                                                    DEC     -6(PC)
052002  001375                                                                            BNE     .-4
052004  005367  177756                                                                    DEC     -22(PC)
052010  001367                                                                            BNE     .-20
052012  005337  054002                          DEC     T25DLY                  ;DEC COUNTER
052016  001356                          BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
052020  016501  000002                  MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
052024  005237  002212                          INC     FATFLG                  ;BUMP COUNT
052030                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
052030  104455                                                                            TRAP    C$ERDF
052032  001036                                                                            .WORD   542
052034  003650                                                                            .WORD   SFIERR
052036  012124                                                                            .WORD   SFIMSG
052040  013737  002172  053650  20$:     MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER

052046  012704  053630                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

```
 4857 052052  004737  010752                 JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 4858 052056  103407                         BCS     25$                     ;BR, IF COMMAND ISSUED OK
 4859 052060  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 4863 052064  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 4864 052066                                 ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      052066  104456                                                                 TRAP    C$ERHRD
      052070  001037                                                                 .WORD   543
      052072  005054                                                                 .WORD   WRTMSG
      052074  012124                                                                 .WORD   SFIMSG
 4865 052076                         25$:    CKLOOP                          ;LOOP IF SELECTED
      052076  104406                                                                 TRAP    C$CLP1
 4866
 4867                                ;*****************************************************************
 4868                                ;
 4869                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 4870                                ;
 4871                                ;*****************************************************************
 4872
 4873 052100  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 4874 052104  103407                         BCS     30$                     ;BR, IF NO PROBLEM
 4875 052106  010001                         MOV     R0,R1                   ;SAVE TSSR
 4876 052110  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 4880 052114                                 ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      052114  104456                                                                 TRAP    C$ERHRD
      052116  001040                                                                 .WORD   544
      052120  054755                                                                 .WORD   T25RWN
      052122  012136                                                                 .WORD   PKTSSR
 4881 052124                         30$:    CKLOOP                          ;LOOP IF SELECTED
      052124  104406                                                                 TRAP    C$CLP1
 4882
 4883                                ;*****************************************************************
 4884                                ;
 4885                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 4886                                ;
 4887                                ;*****************************************************************
 4888
 4889 052126  013701  053660                 MOV     T25BFR+6,R1             ;PICK UP XST0
 4890 052132  010102                         MOV     R1,R2                   ;SET UP EXPECTED
 4891 052134  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 4892 052140  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
 4893 052142  001406                         BEQ     40$                     ;BR, IF EQUAL (OK)
 4894 052144  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 4898 052150                                 ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      052150  104456                                                                 TRAP    C$ERHRD
      052152  001041                                                                 .WORD   545
      052154  054145                                                                 .WORD   T25BOT
      052156  015564                                                                 .WORD   EXPREC
 4899 052160                         40$:    CKLOOP                          ;LOOP IF SELECTED
      052160  104406                                                                 TRAP    C$CLP1
 4900 052162  013701  053776                 MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
 4901 052166  012702  177776                 MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
 4902 052172  020201                         CMP     R2,R1                   ;WHICH VALUE CAN WE USE
 4903 052174  003002                         BGT     46$                     ;BR, IF # WRITTEN > 64K
 4904 052176  010103                         MOV     R1,R3                   ;# WRITTEN CAN BE USED
 4905 052200  000401                         BR      47$                     ;MOVE ON
 4906 052202  010203                 46$:    MOV     R2,R3                   ;USE MAX NUMBER
 4907 052204                         47$:
```

```
4908 052204  010337  053752                MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4909
4910                                       ;*************************************************************
4911                                       ;
4912                                       ;SPACE FORWARD,ACK,CVC=1 COMMAND
4913                                       ;
4914                                       ;*************************************************************
4915
4916 052210  012737  140010  053750        MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4917 052216  012704  053750                MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4918 052222  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4919 052226  013737  053776  054002        MOV     T25CN2,T25DLY           ;SET UP DELAY COUNTER
4920 052234  004737  016340          48$:  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4921 052240  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4922 052244  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4923 052250  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4924 052252  001425                        BEQ     50$                     ;BR, IF OK
4925 052254                                DELAY   250                     ;WAIT .25 SECONDS
     052254  012727  000250                                                        MOV     #250,(PC)+
     052260  000000                                                                .WORD   0
     052262  013727  002116                                                        MOV     L$DLY,(PC)+
     052266  000000                                                                .WORD   0
     052270  005367  177772                                                        DEC     -6(PC)
     052274  001375                                                                BNE     .-4
     052276  005367  177756                                                        DEC     -22(PC)
     052302  001367                                                                BNE     .-20
4926 052304  005337  054002                DEC     T25DLY                  ;DEC THE DELAY COUNTER
4927 052310  001351                        BNE     48$                     ;BR, IF COUNTER HASN'T EXPIRED
4928 052312  005237  002212                INC     FATFLG                  ;BUMP COUNT
4932 052316                                ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     052316  104456                                                                TRAP    C$ERHRD
     052320  001042                                                                .WORD   546
     052322  054065                                                                .WORD   T25WDE
     052324  015564                                                                .WORD   EXPREC
4933 052326                          50$:  CKLOOP
     052326  104406                                                                TRAP    C$CLP1
4934 052330  013701  053776                MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
4935 052334  012702  177776                MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
4936 052340  020201                        CMP     R2,R1                   ;WHICH VALUE CAN WE USE
4937 052342  003002                        BGT     55$                     ;BR, IF # WRITTEN > 64K
4938 052344  010103                        MOV     R1,R3                   ;# WRITTEN CAN BE USED
4939 052346  000401                        BR      60$                     ;MOVE ON
4940 052350  010203                  55$:  MOV     R2,R3                   ;USE MAX NUMBER
4941 052352  162703  000001          60$:  SUB     #1,R3                   ;DON'T GO ALL THE WAY YET
4942 052356  010337  053752                MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4943
4944                                       ;*************************************************************
4945                                       ;
4946                                       ;SPACE REVERSE,ACK,CVC=1 COMMAND
4947                                       ;
4948                                       ;*************************************************************
4949
4950 052362  012737  140410  053750        MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
4951 052370  012704  053750                MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4952 052374  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4953 052400  013737  053776  054002        MOV     T25CN2,T25DLY           ;SET UP COUNTER
4954 052406  004737  016340          70$:  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

```
4955 052412  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4956 052416  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4957 052422  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4958 052424  001425                        BEQ     75$                     ;BR, IF OK
4959 052426                                DELAY   250                     ;WAIT ABOUT .25 SECONDS
     052426  012727  000250                                                        MOV     #250,(PC)+
     052432  000000                                                                .WORD   0
     052434  013727  002116                                                        MOV     L$DLY,(PC)+
     052440  000000                                                                .WORD   0
     052442  005367  177772                                                        DEC     -6(PC)
     052446  001375                                                                BNE     .-4
     052450  005367  177756                                                        DEC     -22(PC)
     052454  001367                                                                BNE     .-20
4960 052456  005337  054002                DEC     T25DLY                  ;BUMP COUNTER DOWN
4961 052462  001351                        BNE     70$                     ;BR, IF COUNTER HASN'T EXPIRED
4962 052464  005237  002212                INC     FATFLG                  ;BUMP COUNT
4966 052470                                ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     052470  104456                                                                TRAP    C$ERHRD
     052472  001043                                                                .WORD   547
     052474  054065                                                                .WORD   T25WDE
     052476  015564                                                                .WORD   EXPREC
4967 052500                        75$:    CKLOOP                          ;LOOP IF SELECTED
     052500  104406                                                                TRAP    C$CLP1
4968 052502  012703  010000                MOV     #4096.,R3               ;RECORD SIZE
4969 052506  013737  003114  053752        MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4970
4971                               ;*****************************************************************
4972                               ;
4973                               ;READ DATA,ACK COMMAND
4974                               ;
4975                               ;*****************************************************************
4976
4977 052514  012737  100001  053750        MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4978 052522  012704  053750        165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4979 052526  012700  177777                MOV     #177777,R0              ;SET ALL ONES INTO CORRECT REGISTER
4980 052532  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
4981 052536  010337  053756                MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4982 052542  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4983 052546  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4984 052552  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4985 052556  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4986 052562  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4987 052564  001411                        BEQ     170$                    ;BR, IF OK
4988 052566  032701  000004                BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4989 052572  001006                        BNE     170$                    ;BR, IF BIT SET
4990 052574  005237  002212                INC     FATFLG                  ;BUMP COUNT
4994 052600                                ERRHRD  ERRNO,RDERR,EXPREC      ;TSSR INCORRECT AFTER READ DATA
     052600  104456                                                                TRAP    C$ERHRD
     052602  001044                                                                .WORD   548
     052604  005204                                                                .WORD   RDERR
     052606  015564                                                                .WORD   EXPREC
4995 052610                        170$:   CKLOOP                          ;LOOP IF SELECTED
     052610  104406                                                                TRAP    C$CLP1
4996 052612  017701  130276                MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4997 052616  012702  000001                MOV     #1,R2                   ;SET UP EXPECTED
4998 052622  020102                        CMP     R1,R2                   ;WAS RECORD NUMBERED R3
4999 052624  001406                        BEQ     200$                    ;BR, IF CORRECT RECORD
```

```
5000 052626  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5004 052632                                  ERRHRD  ERRNO,T25WNH,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     052632  104456                                                              TRAP    C$ERHRD
     052634  001045                                                              .WORD   549
     052636  054530                                                              .WORD   T25WNH
     052640  015564                                                              .WORD   EXPREC
5005 052642                          200$:   CKLOOP
     052642  104406                                                              TRAP    C$CLP1
5006 052644                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     052644                                                                  L10077:
     052644  104403                                                              TRAP    C$ESUB
5007 052646  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5008 052654  103402                          BLO     999$                    ;BR, IF LESS THAN 25
5009 052656  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5010 052662                          999$:
```

```
                        ;+
                        ;
                        ;TEST 5, SUBTEST 7
                        ;
                        ;VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE THE
                        ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
                        ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
                        ;
                        ;
                        ;-
052662                          BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
052662                                                                      T5.7:
052662  104402                                                                  TRAP    C$BSUB
052664  004737  055166          JSR     PC,T25REST      ;SET COMMAND PACKET
052670  004737  055260          JSR     PC,T25RT2       ;SET UP OTHER COMMAND PACKET
052674  004737  055322          JSR     PC,T25RT3       ;SET UP OTHER COMMAND PACKET

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

052700  004737  016064          JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
052704  103407                  BCS     20$             ;BR IF INIT WAS OK
052706  005237  002212          INC     FATFLG          ;BUMP COUNT
052712  010001                  MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
052714                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
052714  104455                                                                  TRAP    C$ERDF
052716  001046                                                                  .WORD   550
052720  003650                                                                  .WORD   SFIERR
052722  012124                                                                  .WORD   SFIMSG
052724  013737  002172  053650  20$:     MOV     UNITN,T25DSW    ;SET UP UNIT NUMBER

052732  012704  053630          MOV     #T25PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS

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

052736  004737  010752          JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
052742  103407                  BCS     25$             ;BR, IF COMMAND ISSUED OK
052744  005237  002212          INC     FATFLG          ;BUMP COUNT
052750  010001                  MOV     R0,R1           ;SAVE CONTENTS OF TSSR
052752                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
052752  104456                                                                  TRAP    C$ERHRD
052754  001047                                                                  .WORD   551
052756  005054                                                                  .WORD   WRTMSG
052760  012124                                                                  .WORD   SFIMSG
052762                  25$:    CKLOOP                  ;LOOP IF SELECTED
052762  104406                                                                  TRAP    C$CLP1

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

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

052764  004737  011104               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
052770  103407                       BCS     30$                     ;BR, IF NO PROBLEM
052772  010001                       MOV     R0,R1                   ;SAVE TSSR
052774  005237  002212               INC     FATFLG                  ;BUMP COUNT
053000                               ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
053000  104456                                                               TRAP    C$ERHRD
053002  001050                                                               .WORD   552
053004  054755                                                               .WORD   T25RWN
053006  012136                                                               .WORD   PKTSSR
053010                          30$:    CKLOOP                  ;LOOP IF SELECTED
053010  104406                                                               TRAP    C$CLP1

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

053012  013701  053660               MOV     T25BFR+6,R1             ;PICK UP XST0
053016  010102                       MOV     R1,R2                   ;SET UP EXPECTED
053020  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
053024  020102                       CMP     R1,R2                   ;DOES EXP = REC'D
053026  001406                       BEQ     40$                     ;BR, IF EQUAL (OK)
053030  005237  002212               INC     FATFLG                  ;BUMP COUNT
053034                               ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
053034  104456                                                               TRAP    C$ERHRD
053036  001051                                                               .WORD   553
053040  054145                                                               .WORD   T25BOT
053042  015564                                                               .WORD   EXPREC
053044                          40$:    CKLOOP                  ;LOOP IF SELECTED
053044  104406                                                               TRAP    C$CLP1
053046  012737  000001  053752       MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER

                                ;*****************************************************************
                                ;
                                ;SPACE REVERSE,ACK COMMAND
                                ;
                                ;*****************************************************************

053054  012737  100410  053750       MOV     #100410,T25PK3          ;SPACE REVERSE,ACK COMMAND
053062  012704  053750               MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
053066                          65$:
053066  010465  000000               MOV     R4,TSDB(R5)             ;ISSUE COMMAND
053072  004737  016340               JSR     PC,WAITF                ;WAIT FOR SSR TO SET
053076  016501  000002               MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
053102  012702  100206               MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
053106  020102                       CMP     R1,R2                   ;ARE THEY EQUAL
053110  001406                       BEQ     75$                     ;BR, IF OK
053112  005237  002212               INC     FATFLG                  ;BUMP COUNT
053116                               ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
053116  104456                                                               TRAP    C$ERHRD
053120  001052                                                               .WORD   554
053122  054065                                                               .WORD   T25WDE
```

```
      053124  012136                                                                .WORD   PKTSSR
5117  053126                  75$:    CKLOOP                  ;LOOP IF SELECTED
      053126  104406                                                               TRAP    C$CLP1
5118
5119                          ;*************************************************************************
5120                          ;
5121                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5122                          ;
5123                          ;*************************************************************************
5124
5125  053130  013701  053660          MOV     T25BFR+6,R1             ;GET XST0 STATUS WORD
5126  053134  010102                  MOV     R1,R2                   ;SET UP EXPECTED
5127  053136  052702  002000          BIS     #BIT10,R2               ;SET THE NEF BIT
5128  053142  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
5129  053144  001406                  BEQ     170$                    ;BR, IF EQUAL (GOOD)
5130  053146  005237  002212          INC     FATFLG                  ;BUMP COUNT
5134  053152                          ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
      053152  104456                                                               TRAP    C$ERHRD
      053154  001053                                                               .WORD   555
      053156  054613                                                               .WORD   T25NEF
      053160  015564                                                               .WORD   EXPREC
5135  053162                  170$:   CKLOOP
      053162  104406                                                               TRAP    C$CLP1
5136  053164                          ENDSUB
      053164                                                                L10100:
      053164  104403                                                               TRAP    C$ESUB
5137  053166  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
5138  053174  103402                  BLO     999$                            ;BR, IF LESS THAN 25
5139  053176  004737  017272          JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5140  053202                  999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 5, SUBTEST 8
                                        ;
                                        ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT
                                        ;CUASES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT
                                        ;INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT
                                        ;TERMINATION AND SETS THE REVERSE INTO BOT (RIB)
                                        ;STATUS BIT
                                        ;
                                        ;
                                        ;-
5155 053202                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     053202                                                                             T5.8:
     053202  104402                                                                         TRAP    C$BSUB
5156 053204  004737  055166                     JSR     PC,T25REST              ;SET COMMAND PACKET
5157 053210  004737  055260                     JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
5158 053214  004737  055322                     JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
5159
5160                                    ;*****************************************************************
5161                                    ;
5162                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5163                                    ;
5164                                    ;*****************************************************************
5165
5166 053220  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5167 053224  103407                             BCS     20$                     ;BR IF INIT WAS OK
5168 053226  005237  002212                     INC     FATFLG                  ;BUMP COUNT
5172 053232  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5173 053234                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     053234  104455                                                                     TRAP    C$ERDF
     053236  001054                                                                     .WORD   556
     053240  003650                                                                     .WORD   SFIERR
     053242  012124                                                                     .WORD   SFIMSG
5174 053244  013737  002172  053650  20$:      MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
5175
5176 053252  012704  053630                     MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5177
5178                                    ;*****************************************************************
5179                                    ;
5180                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5181                                    ;
5182                                    ;*****************************************************************
5183
5184 053256  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5185 053262  103407                             BCS     25$                     ;BR, IF COMMAND ISSUED OK
5186 053264  005237  002212                     INC     FATFLG                  ;BUMP COUNT
5190 053270  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5191 053272                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     053272  104456                                                                     TRAP    C$ERHRD
     053274  001055                                                                     .WOPD   557
     053276  005054                                                                     .WORD   WRTMSG
     053300  012124                                                                     .WORD   SFIMSG
5192 053302                             25$:    CKLOOP                          ;LOOP IF SELECTED
     053302  104406                                                                     TRAP    C$CLP1
5193
```

```
5194                                    ;*****************************************************************
5195                                    ;
5196                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5197                                    ;
5198                                    ;*****************************************************************
5199
5200 053304  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5201 053310  103407                            BCS     30$                     ;BR, IF NO PROBLEM
5202 053312  010001                            MOV     R0,R1                   ;SAVE TSSR
5203 053314  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5207 053320                                    ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      053320  104456                                                                    TRAP    C$ERHRD
      053322  001056                                                                    .WORD   558
      053324  054755                                                                    .WORD   T25RWN
      053326  012136                                                                    .WORD   PKTSSR
5208 053330                            30$:    CKLOOP                          ;LOOP IF SELECTED
      053330  104406                                                                    TRAP    C$CLP1
5209
5210                                    ;*****************************************************************
5211                                    ;
5212                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5213                                    ;
5214                                    ;*****************************************************************
5215
5216 053332  013701  053660                    MOV     T25BFR+6,R1             ;PICK UP XST0
5217 053336  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5218 053340  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5219 053344  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5220 053346  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5221 053350  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5225 053354                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      053354  104456                                                                    TRAP    C$ERHRD
      053356  001057                                                                    .WORD   559
      053360  054145                                                                    .WORD   T25BOT
      053362  015564                                                                    .WORD   EXPREC
5226 053364                            40$:    CKLOOP
      053364  104406                                                                    TRAP    C$CLP1
5227 053366  012737  000001  053752            MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
5228
5229                                    ;*****************************************************************
5230                                    ;
5231                                    ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5232                                    ;
5233                                    ;*****************************************************************
5234
5235 053374  012737  140210  053750            MOV     #140210,T25PK3          ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5236 053402  012704  053750                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5237 053406  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5238 053412  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5239 053416  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5240 053422  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
5241 053426  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5242 053430  001406                            BEQ     75$                     ;BR, IF OK
5243 053432  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5247 053436                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
      053436  104456                                                                    TRAP    C$ERHRD
      053440  001060                                                                    .WORD   560
```

```
                053442  054065                                                          .WORD   T25WDE
                053444  015564                                                          .WORD   EXPREC
5248            053446                          75$:    CKLOOP                  ;LOOP IF SELECTED
                053446  104406                                                          TRAP    C$CLP1
5249            053450  012737  000020  053752          MOV     #20,T25RB       ;NUMBER OF RECORDS TO SPACE OVER
5250
5251                                            ;*************************************************************************
5252                                            ;
5253                                            ;SPACE REVERSE,IE,ACK COMMAND
5254                                            ;
5255                                            ;*************************************************************************
5256
5257            053456  012737  100610  053750          MOV     #100610,T25PK3  ;SPACE REVERSE,IE,ACK COMMAND
5258            053464  012704  053750                  MOV     #T25PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
5259            053470  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
5260            053474  004737  016340                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
5261            053500  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
5262            053504  012702  100204                  MOV     #SSR!BIT2!SC,R2 ;SET UP EXPECTED
5263            053510  020102                          CMP     R1,R2           ;ARE THEY EQUAL
5264            053512  001406                          BEQ     175$            ;BR, IF OK
5265            053514  005237  002212                  INC     FATFLG          ;BUMP COUNT
5269            053520                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
                053520  104456                                                          TRAP    C$ERHRD
                053522  001061                                                          .WORD   561
                053524  054065                                                          .WORD   T25WDE
                053526  015564                                                          .WORD   EXPREC
5270            053530                          175$:   CKLOOP                  ;LOOP IF SELECTED
                053530  104406                                                          TRAP    C$CLP1
5271            053532  013701  053666                  MOV     T25BFR+14,R1    ;GET XST3 STATUS WORD
5272            053536  010102                          MOV     R1,R2           ;SET UP EXPECTED
5273            053540  052702  000001                  BIS     #BIT0,R2        ;SET THE RIB BIT
5274            053544  020102                          CMP     R1,R2           ;ARE THEY EQUAL
5275            053546  001406                          BEQ     180$            ;BR, IF EQUAL (GOOD)
5276            053550  005237  002212                  INC     FATFLG          ;BUMP COUNT
5280            053554                                  ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
                053554  104456                                                          TRAP    C$ERHRD
                053556  001062                                                          .WORD   562
                053560  054613                                                          .WORD   T25NEF
                053562  015564                                                          .WORD   EXPREC
5281            053564                          180$:   CKLOOP
                053564  104406                                                          TRAP    C$CLP1
5282            053566                          ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                053566                                                                  L10101:
                053566  104403                                                          TRAP    C$ESUB
5283            053570  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5284            053576  103402                          BLO     999$                    ;BR, IF LESS THAN 25
5285            053600  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5286            053604                          999$:
5287                                            ;
5288                                            ;
5289                                            ;
5290            053604  004737  016546                  JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
5291            053610  103002                          BCC     193$            ;BR, IF NO LOOP REQUIRED
5292            053612  000137  046466                  JMP     T25LOOP         ;EXECUTE AGAIN
5293            053616                          193$:
5294            053616                          EXIT    TST                     ;ALL DONE THIS TEST
                053616  104432                                                          TRAP    C$EXIT
```

SEQ 0243

```
053620  001532                          .WORD   L10071-.
```

```
5296                                    ;+
5297                                    ;LOCAL STORAGE FOR THIS TEST
5298                                    ;-
5300            053630                          .=<.+10>&177770
5302 053630                             T25PACKET:
5303 053630  100004                             .WORD   100004          ;COMMAND PACKET FOR TEST
5304 053632  053640                             .WORD   T25DATA         ;WRITE CHARACTERISTICS COMMAND, WITH  ACK
5305 053634  000000                             .WORD   0               ;ADDRESS OF CHARACTERISTICS BLOCK
5306 053636  000010                             .WORD   8.              ;STARTING VALUE OF BLOCK SIZE
5307 053640                             T25DATA:                        ;CHARACTERISTICS DATA BLOCK
5308 053640  053652                             .WORD   T25BFR          ;ADDRESS OF MESSAGE BUFFER
5309 053642  000000                             .WORD   0
5310 053644  000012                             .WORD   10.             ;LENGTH OF MESSAGE BUFFER
5311 053646  000000                             .WORD   0
5312 053650  000000                     T25DSW: .WORD   0               ;SELECT DRIVE ZERO
5313 053652                             T25BFR: .BLKW   5.              ;MESSAGE BUFFER
5314                                    ;
5315                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
5316                                    ;
5318            053740                          .-<.+10>&177770
5320 053740                             T25PK2:
5321 053740  100006                             .WORD   100006          ;WRITE SUB SYS MEM COMMAND,  AND ACK
5322 053742  053760                             .WORD   T25BF2          ;ADDRESS OF SELECT BLOCK DATA
5323 053744  000000                             .WORD   0
5324 053746  000006                             .WORD   6.              ;SIZE OF DATA PACKET
5325
5329 053750                             T25PK3:
5330 053750  100005                             .WORD   100005          ;READ COMMAND, AND ACK
5331 053752                             T25RB:
5332 053752  003114                     T25WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
5333 053754  000000                             .WORD   0
5334 053756  000000                     T25SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
5335                                            .EVEN
5336                                    ;
5337                                    ;
5338                                    ;
5339 053760                             T25BF2:
5340 053760     010                     T25BS0: .BYTE   10              ;BSEL0 AREA
5341 053761     200                     T25BS1: .BYTE   200             ;BSEL1 AREA
5342 053762  000000                     T25S2:  .WORD   0               ;SEL 2 AREA
5343 053764  000000                     T25S3:  .WORD   0               ;DATA AREA
5344                                    ;
5345                                    ;
5346                                            .EVEN
5347                                    ;TAPE MOTION PACKET COMMAND VALUES
5348
5349 053766  100005                     T25RN:  .WORD   100005          ;READ DATA (NEXT)
5350 053770  100405                     T25WDR: .WORD   100405          ;READ DATA RETRY
5351 053772  102005                     T25CON: .WORD   102005          ;WRITE CONTINOUS
5352 053774  177777                             .WORD   177777          ;END OF DATA
5353
5354
```

```
5356 053776  000000                T25CN2: .WORD   0                       ;COUNTER FOR RECORDS
5357 054000  000000                T25CNT: .WORD   0                       ;COUNTER FOR RECORDS
5358 054002  000000                T25DLY: .WORD   0                       ;COUNTER FOR RECORDS
5359
5360                               ;+
5361                               ;LOCAL TEXT MESSAGES FOR TEST
5362                               ;-
5363
5364 054004     127     122     111  T25SSR: .ASCIZ  'WRITE SUBSYSTEM Miscellaneous Read Status Failed'
5365 054065     124     123     123  T25WDE: .ASCIZ  'TSSR Not Correct After POSITION (SPACE) Command'
5366 054145     124     141     160  T25BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
5367 054212     124     123     123  T25TM:  .ASCIZ  'TSSR Not Correct After POSITION (Space Command) Reject'
5368 054301     127     162     151  T25NET: .ASCIZ  'Write Tape, Status Alert, But No EOT Sensed'
5369 054355     123     160     141  T25WNG: .ASCIZ  'Space Forward Failed To Position On Correct Record'
5370 054440     123     160     141  T25BNC: .ASCIZ  'Space Forward, From BOT, Failed To Clear BOT Indication'
5371 054530     123     160     141  T25WNH: .ASCIZ  'Space Reverse Failed To Position On Correct Record'
5372 054613     123     160     141  T25NEF: .ASCIZ  'Space Reverse, At BOT, Failed To Set NEF (XST0)'
5373 054673     123     160     141  T25RIB: .ASCIZ  'Space Reverse, Into BOT, Failed To Set RIB (XST3)'
5374 054755     122     145     167  T25RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
5375 055024     104     162     151  T25OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
5376 055077     124     123     123  T25WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
5377 055150     123     160     141  TST25ID:        .ASCIZ  'Space Records'
5378                                        .EVEN
5379                               ;+
5380                               ;
5381                               ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
5382                               ;WRITE SUBSYSTEM MEMORY COMMAND
5383                               ;
5384                               ;-
5385
5386 055166                        T25REST:
5387 055166                                SAVREG                          ;SAVE THE REGISTERS
5388 055172  012701  053630                MOV     #T25PACKET,R1           ;START OF THE PACKET
5389 055176  012721  100004                MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
5390 055202  012721  053640                MOV     #T25DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
5391 055206  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5392 055210  012721  000012                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
5393 055214  012721  053652                MOV     #T25BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
5394 055220  005021                        CLR     (R1)+
5395 055222  012721  000024                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
5396 055226  005021                        CLR     (R1)+
5397 055230  012711  000000                MOV     #0,(R1)                 ;SELECT DRIVE ZERO
5398 055234  012702  000030                MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
5399 055240  012762  177777  053652  64$:  MOV     #177777,T25BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
5400 055246  005742                        TST     -(R2)                   ;NEXT LOCATION
5401 055250  022702  000000                CMP     #0,R2                   ;IS R2 AT ZERO YET
5402 055254  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
5403 055256  000207                        RTS     PC                      ;RETURN
5404
5405 055260                        T25RT2:
5406 055260                                SAVREG                          ;SAVE THE REGISTERS
5407 055264  012701  053740                MOV     #T25PK2,R1              ;START OF THE PACKET
5408 055270  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
5409 055274  012721  053760                MOV     #T25BF2,(R1)+           ;ADDRESS OF DATA BLOCK
5410 055300  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5411 055302  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
5412 055306  005021                        CLR     (R1)+
```

```
5413 055310  012701  053760          MOV     #T25BF2,R1          ;POINT TO DATA SEL AREA
5414 055314  005021                  CLR     (R1)+
5415 055316  005011                  CLR     (R1)
5416 055320  000207                  RTS     PC                  ;RETURN
5417 055322                  T25RT3:
5418 055322                          SAVREG                      ;SAVE THE REGISTERS
5419 055326  012701  053750          MOV     #T25PK3,R1          ;START OF THE PACKET
5420 055332  012721  000000          MOV     #0,(R1)+            ;WRITE SUBSYSTEM MEM. WITH ACK,
5421 055336  012721  000000          MOV     #0,(R1)+            ;ADDRESS OF DATA BLOCK
5422 055342  005021                  CLR     (R1)+               ;EXTENDED ADDRESS
5423 055344  012721  000000          MOV     #0,(R1)+            ;SIZE OF DATA BLOCK IN BYTES
5424 055350  000207                  RTS     PC                  ;RETURN
5425 055352                          ENDTST
     055352                                                  L10071:
     055352  104401                                              TRAP    C$ETST
```

```
                                        .SBTTL  TEST  6: REREADS
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT
                                ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
                                ;DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
                                ;SPACE IS AVAILIABLE), AND BYTE-SWAP (SWP) AND OPPOSITE (OPP)
                                ;CONRTOL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON
                                ;EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD
                                ;LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES,
                                ;AND DATA BUFFERS IN NONEXISTENT MEMORY.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 15 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
055354                                  BGNTST
055354                                                                  T6::
055354  012737  006446  002170          MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
055362  004737  017364                  JSR     PC,KTOFF                ;DON'T NEED KT11
055366  012700  074477                  MOV     #TST26ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
055372  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
055376  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
055404  004737  021366                  JSR     PC,MEMCK                ;CHECK FOR MEMORY
055410  005037  071746                  CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
                                ;+
                                ;
                                ;TEST 6, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
                                ;AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST
                                ;REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
                                ;RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
                                ;IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
                                ;TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
                                ;PREVIOUS COMMAND ISSUED. RESULTS (STATUS, DATA,
                                ;ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
                                ;PREVIOUS COMMAND IS SET TO THE LENGTH OF THE EXPECTED
                                ;RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                                ;
                                ;
                                ;-

055414                          T26LOOP:

055414                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
055414                                                                          T6.1:
055414  104402                                                                  TRAP    C$BSUB
055416  004737  074510                  JSR     PC,T26REST              ;SET COMMAND PACKET
055422  004737  074602                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
055426  004737  074644                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
055432  012737  176750  071754          MOV     #65000.,T26DLY                  ;SET UP DELAY COUNTER

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

```
5485                                    ;
5486                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5487                                    ;
5488                                    ;*****************************************************************
5489
5490 055440  004737  016064            10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5491 055444  103426                            BCS     20$                     ;BR IF INIT WAS OK
5492 055446                             .       DELAY   250                     ;DELAY FOR A REWIND TO FINISH
      055446  012727  000250                                                            MOV     #250,(PC)+
      055452  000000                                                                    .WORD   0
      055454  013727  002116                                                            MOV     L$DLY,(PC)+
      055460  000000                                                                    .WORD   0
      055462  005367  177772                                                            DEC     -6(PC)
      055466  001375                                                                    BNE     .-4
      055470  005367  177756                                                            DEC     -22(PC)
      055474  001367                                                                    BNE     .-20
5493 055476  005337  071754                    DEC     T26DLY                  ;DEC COUNTER
5494 055502  001356                            BNE     10$                     ;BR, IF DELAY NOT READY
5495 055504  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5499 055510  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5500 055512                             .       ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      055512  104455                                                                    TRAP    C$ERDF
      055514  001131                                                                    .WORD   601
      055516  003650                                                                    .WORD   SFIERR
      055520  012124                                                                    .WORD   SFIMSG
5501 055522                             20$:
5502 055522  013737  002172  071620            MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
5503 055530  012704  071600                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5504
5505                                    ;*****************************************************************
5506                                    ;
5507                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5508                                    ;
5509                                    ;*****************************************************************
5510
5511 055534  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5512 055540  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
5513 055542  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5517 055546  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5518 055550                             .       ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      055550  104456                                                                    TRAP    C$ERHRD
      055552  001132                                                                    .WORD   602
      055554  005054                                                                    .WORD   WRTMSG
      055556  012124                                                                    .WORD   SFIMSG
5519 055560                             26$:    CKLOOP                          ;LOOP IF SELECTED
      055560  104406                                                                    TRAP    C$CLP1
5520
5521                                    ;*****************************************************************
5522                                    ;
5523                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5524                                    ;
5525                                    ;*****************************************************************
5526
5527 055562  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5528 055566  103413                            BCS     30$                     ;BR, IF NO PROBLEM
5529 055570  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
5530 055574  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
```

```
5531 055600  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
5532 055602  005237  002212                INC     FATFLG                  ;BUMP COUNT
5536 055606                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     055606  104456                                                        TRAP    C$ERHRD
     055610  001133                                                        .WORD   603
     055612  073254                                                        .WORD   T26RWN
     055614  012136                                                        .WORD   PKTSSR
5537 055616                        30$:    CKLOOP                          ;LOOP IF SELECTED
     055616  104406                                                        TRAP    C$CLP1
5538
5539                               ;*****************************************************************
5540                               ;
5541                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5542                               ;
5543                               ;*****************************************************************
5544
5545 055620  013701  071630                MOV     T26BFR+6,R1             ;PICK UP XST0
5546 055624  010102                        MOV     R1,R2                   ;SET UP EXPECTED
5547 055626  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5548 055632  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
5549 055634  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
5550 055636  005237  002212                INC     FATFLG                  ;BUMP COUNT
5554 055642                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     055642  104456                                                        TRAP    C$ERHRD
     055644  001134                                                        .WORD   604
     055646  072765                                                        .WORD   T26BOT
     055650  015564                                                        .WORD   EXPREC
5555 055652                        40$:    CKLOOP                          ;LOOP IF SELECTED
     055652  104406                                                        TRAP    C$CLP1
5556 055654  012703  000400                MOV     #256.,R3                ;RECORD SIZE
5557 055660  013737  003114  071722        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
5558
5559                               ;*****************************************************************
5560                               ;
5561                               ;WRITE DATA,ACK,CVC=1 COMMAND
5562                               ;
5563                               ;*****************************************************************
5564
5565 055666  012737  140005  071720        MOV     #140005,T26PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
5566 055674  012704  071720                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5567 055700                        65$:
5568 055700  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5569 055702  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
5570 055706  010337  071726                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5571 055712  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5572 055716  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5573 055722  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5574 055726  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
5575 055732  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5576 055734  001406                        BEQ     75$                     ;BR, IF OK
5577 055736  005237  002212                INC     FATFLG                  ;BUMP COUNT
5581 055742                                ERRHRD  ERRNO,WRTERR,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA
     055742  104456                                                        TRAP    C$ERHRD
     055744  001135                                                        .WORD   605
     055746  005111                                                        .WORD   WRTERR
     055750  015564                                                        .WORD   EXPREC
5582 055752                        75$:    CKLOOP                          ;LOOP IF SELECTED
```

```
                055752  104406                                                          TRAP    C$CLP1
5583            055754  005723          TST     (R3)+                   ;BUMP RECORD SIZE
5584            055756  022703  000414  CMP     #268.,R3                ;END OF RECORD YET
5585            055762  001346          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
5586            055764          80$:    CKLOOP                          ;LOOP IF SELECTED
                055764  104406                                                          TRAP    C$CLP1
5587            055766          120$:
5588
5589                            ;*****************************************************************
5590                            ;
5591                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5592                            ;
5593                            ;*****************************************************************
5594
5595            055766  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5596            055772  103413          BCS     130$                    ;BR, IF NO PROBLEM
5597            055774  016501  000002  MOV     TSSR(R5),R1             ;GET TSSR
5598            056000  012702  000200  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5599            056004  010004          MOV     R0,R4                   ;PACKET ADDRESS SET UP
5600            056006  005237  002212  INC     FATFLG                  ;BUMP COUNT
5604            056012          ERRHRD  ERRNO,T26RWN,PKTSSR             ;REWIND NOT ACCEPTED
                056012  104456                                                          TRAP    C$ERHRD
                056014  001136                                                          .WORD   606
                056016  073254                                                          .WORD   T26RWN
                056020  012136                                                          .WORD   PKTSSR
5605            056022          130$:   CKLOOP                          ;LOOP IF SELECTED
                056022  104406                                                          TRAP    C$CLP1
5606
5607                            ;*****************************************************************
5608                            ;
5609                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5610                            ;
5611                            ;*****************************************************************
5612
5613            056024  013701  071630          MOV     T26BFR+6,R1             ;PICK UP XST0
5614            056030  010102          MOV     R1,R2                   ;SET UP EXPECTED
5615            056032  052702  000002  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5616            056036  020102          CMP     R1,R2                   ;DOES EXP = REC'D
5617            056040  001406          BEQ     140$                    ;BR, IF EQUAL (OK)
5618            056042  005237  002212  INC     FATFLG                  ;BUMP COUNT
5622            056046          ERRHRD  ERRNO,T26BOT,PKTSSR             ;TAPE NOT AT BOT AFTER REWIND
                056046  104456                                                          TRAP    C$ERHRD
                056050  001137                                                          .WORD   607
                056052  072765                                                          .WORD   T26BOT
                056054  012136                                                          .WORD   PKTSSR
5623            056056          140$:   CKLOOP                          ;LOOP IF SELECTED
                056056  104406                                                          TRAP    C$CLP1
5624            056060  012737  000400  071752  MOV     #256.,T26RSZ            ;SET RECORD SIZE
5625
5626                            ;*****************************************************************
5627                            ;
5628                            ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5629                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
5630                            ;
5631                            ;*****************************************************************
5632
5633            056066  012703  000001  145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
```

```
5634 056072  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
5635 056076  103412                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
5636 056100  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
5637 056104  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5638 056110  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5642 056114                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     056114  104456                                                          TRAP    C$ERHRD
     056116  001140                                                          .WORD   608
     056120  072367                                                          .WORD   T26SC
     056122  015564                                                          .WORD   EXPREC
5643 056124                          150$:   CKLOOP
     056124  104406                                                          TRAP    C$CLP1
5644 056126  013703  071752                  MOV     T26RSZ,R3               ;RECORD SIZE
5645 056132  013737  003114  071722          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5646
5647                                 ;*****************************************************************
5648                                 ;
5649                                 ;REREREAD DATA,CVC=1,ACK COMMAND
5650                                 ;
5651                                 ;*****************************************************************
5652
5653 056140  012737  141001  071720          MOV     #141001,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
5654 056146  012704  071720          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5655 056152  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5656 056156  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5657 056162  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5658 056166  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5659 056172  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5660 056176  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5661 056200  001406                          BEQ     170$                    ;BR, IF OK
5662 056202  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5666 056206                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     056206  104456                                                          TRAP    C$ERHRD
     056210  001141                                                          .WORD   609
     056212  073610                                                          .WORD   T26WDC
     056214  012136                                                          .WORD   PKTSSR
5667 056216                          170$:   CKLOOP                          ;LOOP IF SELECTED
     056216  104406                                                          TRAP    C$CLP1
5668 056220  013702  003114                  MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5669 056224  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
5670 056226  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5671 056232  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
5672 056234  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5673 056236  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
5674 056240  011401                          MOV     (R4),R1                 ;RECD DATA
5675 056242  010302                          MOV     R3,R2                   ;EXPECTED DATA
5676 056244  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5680 056250                                  ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     056250  104456                                                          TRAP    C$ERHRD
     056252  001142                                                          .WORD   610
     056254  073032                                                          .WORD   T26DTA
     056256  015564                                                          .WORD   EXPREC
5681 056260                          180$:   CKLOOP                          ;LOOP IF SELECTED
     056260  104406                                                          TRAP    C$CLP1
5682 056262  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
5683 056264  160204                          SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
5684 056266  020403                          CMP     R4,R3                   ;END OF RECORD YET
```

```
5685 056270  001360                    BNE     173$            ;BR, IF NOT AT END OF RECORD
5686 056272  005723                    TST     (R3)+           ;BUMP RECORD SIZE
5687 056274  010337  071752            MOV     R3,T26RSZ       ;RESET RECORD SIZE
5688 056300  022703  000412            CMP     #266.,R3        ;END OF RECORD YET
5689 056304  001270                    BNE     145$            ;BR, IF MORE RECORDS TO READ
5690 056306                    190$:   CKLOOP                  ;LOOP IF SELECTED
     056306  104406                                                    TRAP    C$CLP1
5691 056310                            ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     056310                                                          L10103:
     056310  104403                                                    TRAP    C$ESUB
5692 056312  023727  002212  000017    CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5693 056320  103402                    BLO     999$                    ;BR, IF LESS THAN 25
5694 056322  004737  017272            JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5695 056326                    999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
                                        ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
                                        ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
                                        ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
                                        ;SWAPPED BYTES.
                                        ;
                                        ;
                                        ;-
056326                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T6.2:
056326  104402                                                                                    TRAP    C$BSUB
056330  004737  074510                        JSR     PC,T26REST              ;SET COMMAND PACKET
056334  004737  074602                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
056340  004737  074644                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

056344  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
056350  103407                                BCS     20$                     ;BR IF INIT WAS OK
056352  005237  002212                        INC     FATFLG                  ;BUMP COUNT
056356  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
056360                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
056360  104455                                                                                    TRAP    C$ERDF
056362  001143                                                                                    .WORD   611
056364  003650                                                                                    .WORD   SFIERR
056366  012124                                                                                    .WORD   SFIMSG
056370  013737  002172  071620        20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

056376  012704  071600                        MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

056402  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
056406  103407                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
056410  005237  002212                        INC     FATFLG                  ;BUMP COUNT
056414  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
056416                                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
056416  104456                                                                                    TRAP    C$ERHRD
056420  001144                                                                                    .WORD   612
056422  005054                                                                                    .WORD   WRTMSG
056424  012124                                                                                    .WORD   SFIMSG
056426                          26$:    CKLOOP                                  ;LOOP IF SELECTED
056426  104406                                                                                    TRAP    C$CLP1
```

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

056430  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
056434  103413                    BCS     30$                     ;BR, IF NO PROBLEM
056436  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
056442  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
056446  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
056450  005237  002212            INC     FATFLG                  ;BUMP COUNT
056454                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
056454  104456                                                            TRAP    C$ERHRD
056456  001145                                                            .WORD   613
056460  073254                                                            .WORD   T26RWN
056462  012136                                                            .WORD   PKTSSR
056464                  30$:    CKLOOP                          ;LOOP IF SELECTED
056464  104406                                                            TRAP    C$CLP1

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

056466  013701  071630            MOV     T26BFR+6,R1             ;PICK UP XST0
056472  010102                    MOV     R1,R2                   ;SET UP EXPECTED
056474  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
056500  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
056502  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
056504  005237  002212            INC     FATFLG                  ;BUMP COUNT
056510                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
056510  104456                                                            TRAP    C$ERHRD
056512  001146                                                            .WORD   614
056514  072765                                                            .WORD   T26BOT
056516  015564                                                            .WORD   EXPREC
056520                  40$:    CKLOOP                          ;LOOP IF SELECTED
056520  104406                                                            TRAP    C$CLP1
056522  012703  000400            MOV     #256.,R3                ;RECORD SIZE
056526  013737  003114  071722    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

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

056534  012737  110005  071720    MOV     #110005,T26PK3          ;WRITE DATA,ACK,SWB COMMAND
056542  012704  071720            MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
056546                  65$:
056546  010300                    MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
056550  004737  017512            JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
056554  010337  071726            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
056560  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
056564  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
056570  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
5802 056574  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
5803 056600  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
5804 056602  001406                      BEQ     75$                     ;BR, IF OK
5805 056604  005237  002212              INC     FATFLG                  ;BUMP COUNT
5809 056610                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     056610  104456                                                              TRAP    C$ERHRD
     056612  001147                                                              .WORD   615
     056614  005111                                                              .WORD   WRTERR
     056616  012136                                                              .WORD   PKTSSR
5810 056620                      75$:    CKLOOP                          ;LOOP IF SELECTED
     056620  104406                                                              TRAP    C$CLP1
5811 056622  005723                      TST     (R3)+                   ;BUMP RECORD SIZE
5812 056624  022703  000414              CMP     #268.,R3                ;END OF RECORD YET
5813 056630  001346                      BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
5814 056632                      80$:    CKLOOP                          ;LOOP IF SELECTED
     056632  104406                                                              TRAP    C$CLP1
5815 056634                      120$:
5816
5817                             ;*****************************************************************
5818                             ;
5819                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5820                             ;
5821                             ;*****************************************************************
5822
5823 056634  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5824 056640  103413                      BCS     130$                    ;BR, IF NO PROBLEM
5825 056642  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
5826 056646  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5827 056652  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
5828 056654  005237  002212              INC     FATFLG                  ;BUMP COUNT
5832 056660                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     056660  104456                                                              TRAP    C$ERHRD
     056662  001150                                                              .WORD   616
     056664  073254                                                              .WORD   T26RWN
     056666  012136                                                              .WORD   PKTSSR
5833 056670                      130$:   CKLOOP                          ;LOOP IF SELECTED
     056670  104406                                                              TRAP    C$CLP1
5834
5835                             ;*****************************************************************
5836                             ;
5837                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5838                             ;
5839                             ;*****************************************************************
5840
5841 056672  013701  071630              MOV     T26BFR+6,R1             ;PICK UP XST0
5842 056676  010102                      MOV     R1,R2                   ;SET UP EXPECTED
5843 056700  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5844 056704  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
5845 056706  001406                      BEQ     140$                    ;BR, IF EQUAL (OK)
5846 056710  005237  002212              INC     FATFLG                  ;BUMP COUNT
5850 056714                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     056714  104456                                                              TRAP    C$ERHRD
     056716  001151                                                              .WORD   617
     056720  072765                                                              .WORD   T26BOT
     056722  015564                                                              .WORD   EXPREC
5851 056724                      140$:   CKLOOP                          ;LOOP IF SELECTED
     056724  104406                                                              TRAP    C$CLP1
```

```
5852 056726  012737  000400  071752          MOV     #256.,T26RSZ            ;SET UP RECORD SIZE
5853
5854                                 ;*****************************************************************
5855                                 ;
5856                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5857                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
5858                                 ;
5859                                 ;*****************************************************************
5860
5861 056734  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
5862 056740  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
5863 056744  103412                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
5864 056746  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
5865 056752  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5866 056756  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5870 056762                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     056762  104456                                                                  TRAP    C$ERHRD
     056764  001152                                                                  .WORD   618
     056766  072367                                                                  .WORD   T26SC
     056770  015564                                                                  .WORD   EXPREC
5871 056772                          150$:   CKLOOP
     056772  104406                                                                  TRAP    C$CLP1
5872 056774  013703  071752                  MOV     T26RSZ,R3               ;RECORD SIZE
5873 057000  013737  003114  071722          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5874
5875                                 ;*****************************************************************
5876                                 ;
5877                                 ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5878                                 ;
5879                                 ;*****************************************************************
5880
5881 057006  012737  151001  071720          MOV     #151001,T26PK3          ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5882 057014  012704  071720          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5883 057020  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5884 057024  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5885 057030  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5886 057034  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5887 057040  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5888 057044  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5889 057046  001406                          BEQ     170$                    ;BR, IF OK
5890 057050  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5894 057054                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     057054  104456                                                                  TRAP    C$ERHRD
     057056  001153                                                                  .WORD   619
     057060  073610                                                                  .WORD   T26WDC
     057062  012136                                                                  .WORD   PKTSSR
5895 057064                          170$:   CKLOOP                          ;LOOP IF SELECTED
     057064  104406                                                                  TRAP    C$CLP1
5896 057066  013702  003114                  MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5897 057072  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
5898 057074  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5899 057100  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
5900 057102  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5901 057104  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
5902 057106  011401                          MOV     (R4),R1                 ;RECD DATA
5903 057110  010302                          MOV     R3,R2                   ;EXPECTED DATA
5904 057112  005237  002212                  INC     FATFLG                  ;BUMP COUNT
```

```
5908 057116                                ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     057116  104456                                                                TRAP    C$ERHRD
     057120  001154                                                                .WORD   620
     057122  073032                                                                .WORD   T26DTA
     057124  015564                                                                .WORD   EXPREC
5909 057126                          180$:  CKLOOP                          ;LOOP IF SELECTED
     057126  104406                                                                TRAP    C$CLP1
5910 057130  005724                         TST     (R4)+                   ;BUMP TO NEXT LOCATION
5911 057132  160204                         SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
5912 057134  020403                         CMP     R4,R3                   ;END OF RECORD YET
5913 057136  001360                         BNE     173$                    ;BR, IF NOT AT END OF RECORD
5914 057140  005723                         TST     (R3)+                   ;BUMP RECORD SIZE
5915 057142  010337  071752                MOV     R3,T26RSZ               ;STORE RECORD SIZE
5916 057146  022703  000412                CMP     #266.,R3                ;END OF RECORD YET
5917 057152  001270                         BNE     145$                    ;BR, IF MORE RECORDS TO READ
5918 057154                          190$:  CKLOOP                          ;LOOP IF SELECTED
     057154  104406                                                                TRAP    C$CLP1
5919 057156                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     057156                                                                      L10104:
     057156  104403                                                                TRAP    C$ESUB
5920 057160  023727  002212  000017        CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
5921 057166  103402                         BLO     999$                        ;BR, IF LESS THAN 25
5922 057170  004737  017272                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
5923 057174                          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.
                        ;
                        ;
                        ;
                        ;
                        ;-
                        
057174                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
057174                                                                  T6.3:
057174  104402                                                          TRAP    C$BSUB
057176  004737  074510          JSR     PC,T26REST              ;SET COMMAND PACKET
057202  005037  071746          CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
057206  004737  074602          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
057212  004737  074644          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
                        
                        ;*****************************************************************
                        ;
                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                        ;
                        ;*****************************************************************
                        
057216  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
057222  103407                  BCS     20$                     ;BR IF INIT WAS OK
057224  005237  002212          INC     FATFLG                  ;BUMP COUNT
057230  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
057232                          ERRDF   ERRNO.SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
057232  104455                                                          TRAP    C$ERDF
057234  001155                                                          .WORD   621
057236  003650                                                          .WORD   SFIERR
057240  012124                                                          .WORD   SFIMSG
057242  013737  002172  071620  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
```

```
5979
5980 057250  012704  071600                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5981
5982                                         ;*************************************************************
5983                                         ;
5984                                         ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5985                                         ;
5986                                         ;*************************************************************
5987
5988 057254  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5989 057260  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
5990 057262  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5994 057266  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5995 057270                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     057270  104456                                                              TRAP    C$ERHRD
     057272  001156                                                              .WORD   622
     057274  005054                                                              .WORD   WRTMSG
     057276  012124                                                              .WORD   SFIMSG
5996 057300                                  26$:    CKLOOP                  ;LOOP IF SELECTED
     057300  104406                                                              TRAP    C$CLP1
5997
5998                                         ;*************************************************************
5999                                         ;
6000                                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6001                                         ;
6002                                         ;*************************************************************
6003
6004 057302    '737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6005 057306    ..  13                        BCS     30$                     ;BR, IF NO PROBLEM
6006 057310  )165.1  000002                  MOV     TSSR(R5),R1             ;GET TSSR
6007 057314  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6008 057320  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6009 057322  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6013 057326                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     057326  104456                                                              TRAP    C$ERHRD
     057330  001157                                                              .WORD   623
     057332  073254                                                              .WORD   T26RWN
     057334  012136                                                              .WORD   PKTSSR
6014 057336                                  30$:    CKLOOP                  ;LOOP IF SELECTED
     057336  104406                                                              TRAP    C$CLP1
6015
6016                                         ;*************************************************************
6017                                         ;
6018                                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6019                                         ;
6020                                         ;*************************************************************
6021
6022 057340  013701  071630                  MOV     T26BFR+6,R1             ;PICK UP XST0
6023 057344  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6024 057346  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6025 057352  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6026 057354  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
6027 057356  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6031 057362                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     057362  104456                                                              TRAP    C$ERHRD
     057364  001160                                                              .WORD   624
     057366  072765                                                              .WORD   T26BOT
```

```
                057370  015564                                                          .WORD   EXPREC
6032            057372                  40$:    CKLOOP                  ;LOOP IF SELECTED
                057372  104406                                                          TRAP    C$CLP1
6033 057374     012703  000400                  MOV     #256.,R3        ;RECORD SIZE
6034 057400     013737  003114  071722          MOV     FREE,T26RB      ;STARTING WRITE BUFFER ADDRESS
6035
6036                            ;*****************************************************************
6037                            ;
6038                            ;WRITE DATA,CVC=1,ACK COMMAND
6039                            ;
6040                            ;*****************************************************************
6041
6042 057406     012737  140005  071720          MOV     #140005,T26PK3  ;WRITE DATA,CVC=1,ACK COMMAND
6043 057414     012704  071720                  MOV     #T26PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
6044 057420                     65$:
6045 057420     010300                  MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6046 057422     004737  017512          JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6047 057426     010337  071726          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6048 057432     013777  071746  123454  MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
6049 057440     062737  000001  071746  ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
6050 057446     010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6051 057452     004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6052 057456     016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6053 057462     012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
6054 057466     020102                  CMP     R1,R2                   ;ARE THEY EQUAL
6055 057470     001406                  BEQ     75$                     ;BR, IF OK
6056 057472     005237  002212          INC     FATFLG                  ;BUMP COUNT
6060 057476             ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
                057476  104456                                                          TRAP    C$ERHRD
                057500  001161                                                          .WORD   625
                057502  005111                                                          .WORD   WRTERR
                057504  012136                                                          .WORD   PKTSSR
6061 057506                     75$:    CKLOOP                  ;LOOP IF SELECTED
                057506  104406                                                          TRAP    C$CLP1
6062 057510     005723                  TST     (R3)+                   ;BUMP THE RECORD SIZE
6063 057512     022703  000414          CMP     #268.,R3                ;MAXIMUM SIZE YET
6064 057516     001401                  BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
6065 057520     000737                  BR      65$                     ;WRITE MORE RECORDS
6066 057522                     120$:
6067 057522     005037  071746          CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
6068
6069                            ;*****************************************************************
6070                            ;
6071                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6072                            ;
6073                            ;*****************************************************************
6074
6075 057526     004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6076 057532     103413                  BCS     130$                    ;BR, IF NO PROBLEM
6077 057534     016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
6078 057540     012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6079 057544     010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
6080 057546     005237  002212          INC     FATFLG                  ;BUMP COUNT
6084 057552             ERRHRD  ERRNC,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                057552  104456                                                          TRAP    C$ERHRD
                057554  001162                                                          .WORD   626
                057556  073254                                                          .WORD   T26RWN
```

```
                                                                                .WORD   PKTSSR
6085 057562                     130$:   CKLOOP                          ;LOOP IF SELECTED
     057562  104406                                                             TRAP    C$CLP1
6086
6087                            ;*************************************************************
6088                            ;
6089                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6090                            ;
6091                            ;*************************************************************
6092
6093 057564  013701  071630            MOV     T26BFR+6,R1             ;PICK UP XST0
6094 057570  010102                    MOV     R1,R2                   ;SET UP EXPECTED
6095 057572  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6096 057576  020102                    CMP     F1,R2                   ;DOES EXP = REC'D
6097 057600  001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
6098 057602  005237  002212            INC     FATFLG                  ;BUMP COUNT
6102 057606                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     057606  104456                                                             TRAP    C$ERHRD
     057610  001163                                                             .WORD   627
     057612  072765                                                             .WORD   T26BOT
     057614  015564                                                             .WORD   EXPREC
6103 057616                     140$:   CKLOOP                          ;LOOP IF SELECTED
     057616  104406                                                             TRAP    C$CLP1
6104
6105                            ;*************************************************************
6106                            ;
6107                            ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
6108                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
6109                            ;
6110                            ;*************************************************************
6111
6112 057620  012703  000001            MOV     #1,R3                   ;SPACE 1 RECORD FORWARD
6113 057624  004737  010556            JSR     PC,SPACE                ;SPACE CALL
6114 057630  012703  000400            MOV     #256.,R3                ;RECORD SIZE
6115 057634  013737  003114  071722 150$:  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6116
6117                            ;*************************************************************
6118                            ;
6119                            ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6120                            ;
6121                            ;*************************************************************
6122
6123 057642  012737  161001  071720        MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6124 057650  012704  071720    165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6125 057654  010337  071726            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6126 057660  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6127 057664  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6128 057670  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6129 057674  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
6130 057700  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
6131 057702  001406                    BEQ     170$                    ;BR, IF OK
6132 057704  005237  002212            INC     FATFLG                  ;BUMP COUNT
6136 057710                            ERRHRD  ERRNO,T26RRG,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     057710  104456                                                             TRAP    C$ERHRD
     057712  001164                                                             .WORD   628
     057714  072272                                                             .WORD   T26RRG
     057716  012136                                                             .WORD   PKTSSR
```

```
6137 057720                          170$:   CKLOOP                          ;LOOP IF SELECTED
     057720  104406                                                                  TRAP    C$CLP1
6138 057722  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
6139 057724  062737  000001  071746        ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
6140
6141                                 ;*************************************************************
6142                                 ;
6143                                 ;READ DATA, CVC=1, ACK COMMAND
6144                                 ;
6145                                 ;*************************************************************
6146
6147 057732  012737  140001  071720        MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
6148 057740  010337  071726                MOV     R3,T26SZ                ;SET SIZE INTO PACKET
6149 057744  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
6150 057750  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR
6151 057754  016501  000002                MOV     TSSR(R5),R1             ;PICK UP THE TSSR
6152 057760  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
6153 057764  020102                        CMP     R1,R2                   ;IS THE TSSR OK
6154 057766  001406                        BEQ     195$                    ;BR, IF TSSR OK (GOOD)
6155 057770  005237  002212                INC     FATFLG                  ;BUMP COUNT
6159 057774                                ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
     057774  104456                                                                  TRAP    C$ERHRD
     057776  001165                                                                  .WORD   629
     060000  005204                                                                  .WORD   RDERR
     060002  012136                                                                  .WORD   PKTSSR
6160 060004                          195$:   CKLOOP                          ;LOOP IF SELECTED
     060004  104406                                                                  TRAP    C$CLP1
6161 060006  017701  123102                MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
6162 060012  013702  071746                MOV     T26CNT,R2               ;SET UP EXPECTED
6163 060016  020102                        CMP     R1,R2                   ;IS TAPE POSITION CORRECT
6164 060020  001406                        BEQ     197$                    ;KEEP GOING POSITION OK
6165 060022  005237  002212                INC     FATFLG                  ;BUMP COUNT
6169 060026                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     060026  104456                                                                  TRAP    C$ERHRD
     060030  001166                                                                  .WORD   630
     060032  071756                                                                  .WORD   T26WNG
     060034  015564                                                                  .WORD   EXPREC
6170 060036                          197$:   CKLOOP
     060036  104406                                                                  TRAP    C$CLP1
6171 060040  022703  000412                CMP     #266.,R3                ;AT MAX SIZE YET
6172 060044  001401                        BEQ     200$                    ;BR, IF AT END OF THE SUBTEST
6173 060046  000672                        BR      150$                    ;KEEP GOING MORE RECORDS
6174 060050                          200$:
6175 060050                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     060050                                                                        L10105:
     060050  104403                                                                  TRAP    C$ESUB
6176 060052  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
6177 060060  103402                        BLO     999$                            ;BR, IF LESS THAN 25
6178 060062  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
6179 060066                          999$:
```

```
                                ;+
                                ;
                                ;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.
                                ;
                                ;
                                ;
                                ;
                                ;-

060066                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                        T6.4:
060066  104402                                                                          TRAP    C$BSUB
060070  004737  074510                    JSR     PC,T26REST              ;SET COMMAND PACKET
060074  005037  071746                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
060100  004737  074602                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
060104  004737  074644                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

060110  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
060114  103407                            BCS     20$                     ;BR IF INIT WAS OK
060116  005237  002212                    INC     FATFLG                  ;BUMP COUNT
060122  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
060124                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
060124  104455                                                                          TRAP    C$ERDF
060126  001167                                                                          .WORD   631
060130  003650                                                                          .WORD   SFIERR
060132  012124                                                                          .WORD   SFIMSG
060134  013737  002172  071620  20$:       MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

060142  012704  071600                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

060146  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
060152  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
060154  005237  002212                    INC     FATFLG                  ;BUMP COUNT
060160  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
060162                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
060162  104456                                                                          TRAP    C$ERHRD
060164  001170                                                                          .WORD   632
060166  005054                                                                          .WORD   WRTMSG
060170  012124                                                                          .WORD   SFIMSG
```

```
6234 060172                        26$:    CKLOOP                          ;LOOP IF SELECTED
     060172  104406                                                                TRAP    C$CLP1
6235
6236                               ;*****************************************************************
6237                               ;
6238                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6239                               ;
6240                               ;*****************************************************************
6241
6242 060174  004737  011104               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6243 060200  103413                       BCS     30$                     ;BR, IF NO PROBLEM
6244 060202  016501  000002               MOV     TSSR(R5),R1             ;GET TSSR
6245 060206  012702  000200               MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6246 060212  010004                       MOV     R0,R4                   ;PACKET ADDRESS SET UP
6247 060214  005237  002212               INC     FATFLG                  ;BUMP COUNT
6251 060220                               ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     060220  104456                                                                TRAP    C$ERHRD
     060222  001171                                                                .WORD   633
     060224  073254                                                                .WORD   T26RWN
     060226  012136                                                                .WORD   PKTSSR
6252 060230                        30$:    CKLOOP                          ;LOOP IF SELECTED
     060230  104406                                                                TRAP    C$CLP1
6253
6254                               ;*****************************************************************
6255                               ;
625e                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6257                               ;
6258                               ;*****************************************************************
6259
6260 060232  013701  071630               MOV     T26BFR+6,R1             ;PICK UP XST0
6261 060236  010102                       MOV     R1,R2                   ;SET UP EXPECTED
6262 060240  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6263 060244  020102                       CMP     R1,R2                   ;DOES EXP = REC'D
6264 060246  001406                       BEQ     40$                     ;BR, IF EQUAL (OK)
6265 060250  005237  002212               INC     FATFLG                  ;BUMP COUNT
6269 060254                               ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     060254  104456                                                                TRAP    C$ERHRD
     060256  001172                                                                .WORD   634
     060260  07 :765                                                               .WORD   T26BOT
     060262  01 :564                                                               .WORD   EXPREC
6270 060264                        40$:    CKLOOP                          ;LOOP IF SELECTED
     060264  104406                                                                TRAP    C$CLP1
6271 060266  012703  000400               MOV     #256.,R3                ;RECORD SIZE
6272 060272  013737  003114  071722       MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6273
6274                               ;*****************************************************************
6275                               ;
6276                               ;WRITE DATA,CVC=1,ACK COMMAND
6277                               ;
6278                               ;*****************************************************************
6279
6280 060300  012737  140005  071720       MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6281 060306  012704  071720               MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6282 060312                        65$:
6283 060312  010300                       MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6284 060314  004737  017512               JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6285 060320  010337  071726               MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
```

```
 6286 060324  013777  071746  122562          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
 6287 060332  062737  000001  071746          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
 6288 060340  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6289 060344  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6290 060350  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6291 060354  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 6292 060360  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 6293 060362  001406                          BEQ     75$                     ;BR, IF OK
 6294 060364  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 6298 060370                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      060370  104456                                                                  TRAP    C$ERHRD
      060372  001173                                                                  .WORD   635
      060374  005111                                                                  .WORD   WRTERR
      060376  012136                                                                  .WORD   PKTSSR
 6299 060400                          75$:    CKLOOP                          ;LOOP IF SELECTED
      060400  104406                                                                  TRAP    C$CLP1
 6300 060402  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
 6301 060404  022703  000412                  CMP     #266.,R3                ;MAXIMUM SIZE YET
 6302 060410  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
 6303 060412  000737                          BR      65$                     ;WRITE MORE RECORDS
 6304 060414                          120$:
 6305 060414  005037  071746                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
 6306
 6307                                 ;*****************************************************************
 6308                                 ;
 6309                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 6310                                 ;
 6311                                 ;*****************************************************************
 6312
 6313 060420  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 6314 060424  103413                          BCS     130$                    ;BR, IF NO PROBLEM
 6315 060426  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
 6316 060432  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 6317 060436  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
 6318 060440  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 6322 060444                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      060444  104456                                                                  TRAP    C$ERHRD
      060446  001174                                                                  .WORD   636
      060450  073254                                                                  .WORD   T26RWN
      060452  012136                                                                  .WORD   PKTSSR
 6323 060454                          130$:   CKLOOP                          ;LOOP IF SELECTED
      060454  104406                                                                  TRAP    C$CLP1
 6324
 6325                                 ;*****************************************************************
 6326                                 ;
 6327                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 6328                                 ;
 6329                                 ;*****************************************************************
 6330
 6331 060456  013701  071630                  MOV     T26BFR+6,R1             ;PICK UP XST0
 6332 060462  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 6333 060464  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 6334 060470  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 6335 060472  001406                          BEQ     140$                    ;BR, IF EQUAL (OK)
 6336 060474  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 6340 060500                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      060500  104456                                                                  TRAP    C$ERHRD
```

```
        060502  001175                                                          .WORD   637
        060504  072765                                                          .WORD   T26BOT
        060506  015564                                                          .WORD   EXPREC
 6341   060510                          140$:   CKLOOP                  ;LOOP IF SELECTED
        060510  104406                                                          TRAP    C$CLP1
 6342
 6343                                   ;*****************************************************************
 6344                                   ;
 6345                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 6346                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 6347                                   ;
 6348                                   ;*****************************************************************
 6349
 6350   060512  012703  000001                 MOV     #1,R3                   ;SET UP SPACE FORWARD 1
 6351   060516  004737  010556                 JSR     PC,SPACE                ;ISSUE SPACE COMMAND
 6352   060522  012703  000400                 MOV     #256.,R3                ;RECORD SIZE
 6353   060526  013737  003114  071722  150$:  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 6354
 6355                                   ;*****************************************************************
 6356                                   ;
 6357                                   ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6358                                   ;
 6359                                   ;*****************************************************************
 6360
 6361   060534  012737  171001  071720         MOV     #171001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6362   060542  012704  071720         165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6363   060546  010337  071726                 MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6364   060552  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6365   060556  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6366   060562  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6367   060566  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
 6368   060572  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
 6369   060574  001406                         BEQ     170$                    ;BR, IF OK
 6370   060576  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 6374   060602                                 ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
        060602  104456                                                          TRAP    C$ERHRD
        060604  001176                                                          .WORD   638
        060606  072175                                                          .WORD   T26RRF
        060610  012136                                                          .WORD   PKTSSR
 6375   060612                          170$:   CKLOOP                  ;LOOP IF SELECTED
        060612  104406                                                          TRAP    C$CLP1
 6376   060614  017701  122274                 MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
 6377   060620  013702  071746                 MOV     T26CNT,R2               ;SET UP EXPECTED
 6378   060624  000302                         SWAB    R2                      ;SWAP BYTES IN EXPECTED
 6379   060626  020102                         CMP     R1,R2                   ;IS TAPE POSITION CORRECT
 6380   060630  001406                         BEQ     190$                    ;KEEP GOING POSITION OK
 6381   060632  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 6385   060636                                 ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
        060636  104456                                                          TRAP    C$ERHRD
        060640  001177                                                          .WORD   639
        060642  071756                                                          .WORD   T26WNG
        060644  015564                                                          .WORD   EXPREC
 6386   060646                          190$:   CKLOOP
        060646  104406                                                          TRAP    C$CLP1
 6387   060650  005723                 TST     (R3)+                   ;NEXT RECORD SIZE
 6388   060652  062737  000001  071746 ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
 6389
```

```
                        ;*****************************************************************
                        ;
                        ;READ DATA, CVC=1, ACK COMMAND
                        ;
                        ;*****************************************************************

060660  012737  140001  071720          MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
060666  010337  071726                  MOV     R3,T26SZ                ;SET SIZE INTO PACKET
060672  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
060676  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR
060702  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP THE TSSR
060706  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
060712  020102                          CMP     R1,R2                   ;IS THE TSSR OK
060714  001406                          BEQ     215$                    ;BR, IF TSSR OK (GOOD)
060716  005237  002212                  INC     FATFLG                  ;BUMP COUNT
060722                                  ERRHRD  ERRNO,T26RDF,PKTSSR     ;READ DATA COMMAND FAILED
060722  104456                                                                  TRAP    C$ERHRD
060724  001200                                                                  .WORD   640
060726  072126                                                                  .WORD   T26RDF
060730  012136                                                                  .WORD   PKTSSR
060732                          215$:   CKLOOP                          ;LOOP IF SELECTED
060732  104406                                                                  TRAP    C$CLP1
060734  017701  122154                  MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
060740  013702  071746                  MOV     T26CNT,R2               ;SET UP EXPECTED
060744  020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
060746  001406                          BEQ     217$                    ;KEEP GOING POSITION OK
060750  005237  002212                  INC     FATFLG                  ;BUMP COUNT
060754                                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
060754  104456                                                                  TRAP    C$ERHRD
060756  001201                                                                  .WORD   641
060760  071756                                                                  .WORD   T26WNG
060762  015564                                                                  .WORD   EXPREC
060764                          217$:   CKLOOP
060764  104406                                                                  TRAP    C$CLP1
060766  022703  000410                  CMP     #264.,R3                ;AT MAX SIZE YET
060772  001401                          BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
060774  000654                          BR      210$                    ;KEEP GOING MORE RECORDS
060776                          220$:
060776                          ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
060776                                                                          L10106:
060776  104403                                                                  TRAP    C$ESUB
061000  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
061006  103402                          BLO     999$                            ;BR, IF LESS THAN 25
061010  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
061014                          999$:
```

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


                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                        T6.5:
061014  104402                                                                          TRAP    C$BSUB
061016  004737  074510          JSR     PC,T26REST              ;SET COMMAND PACKET
061022  004737  074602          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
061026  004737  074644          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

061032  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
061036  103407                  BCS     20$                     ;BR IF INIT WAS OK
061040  005237  002212          INC     FATFLG                  ;BUMP COUNT
061044  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
061046                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
061046  104455                                                                  TRAP    C$ERDF
061050  001202                                                                  .WORD   642
061052  003650                                                                  .WORD   SFIERR
061054  012124                                                                  .WORD   SFIMSG
061056  013737  002172  071620  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

061064  012704  071600          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

061070  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
061074  103407                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
061076  005237  002212          INC     FATFLG                  ;BUMP COUNT
061102  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
061104                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
061104  104456                                                                  TRAP    C$ERHRD
061106  001203                                                                  .WORD   643
061110  005054                                                                  .WORD   WRTMSG
061112  012124                                                                  .WORD   SFIMSG
061114                  26$:    CKLOOP                          ;LOOP IF SELECTED
```

```
      061114  104406                                                    TRAP    C$CLP1
 6483
 6484                                ;*****************************************************************
 6485                                ;
 6486                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 6487                                ;
 6488                                ;*****************************************************************
 6489
 6490 061116  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 6491 061122  103413                        BCS     30$                     ;BR, IF NO PROBLEM
 6492 061124  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
 6493 061130  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 6494 061134  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
 6495 061136  005237  002212                INC     FATFLG                  ;BUMP COUNT
 6499 061142                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      061142  104456                                                    TRAP    C$ERHRD
      061144  001204                                                    .WORD   644
      061146  073254                                                    .WORD   T26RWN
      061150  012136                                                    .WORD   PKTSSR
 6500 061152                        30$:    CKLOOP                          ;LOOP IF SELECTED
      061152  104406                                                    TRAP    C$CLP1
 6501
 6502                                ;*****************************************************************
 6503                                ;
 6504                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 6505                                ;
 6506                                ;*****************************************************************
 6507
 6508 061154  013701  071630                MOV     T26BFR+6,R1             ;PICK UP XST0
 6509 061160  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 6510 061162  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 6511 061166  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 6512 061170  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
 6513 061172  005237  002212                INC     FATFLG                  ;BUMP COUNT
 6517 061176                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      061176  104456                                                    TRAP    C$ERHRD
      061200  001205                                                    .WORD   645
      061202  072765                                                    .WORD   T26BOT
      061204  015564                                                    .WORD   EXPREC
 6518 061206                        40$:    CKLOOP                          ;LOOP IF SELECTED
      061206  104406                                                    TRAP    C$CLP1
 6519 061210  012703  001000                MOV     #512.,R3                ;RECORD SIZE
 6520 061214  013737  003114  071722        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
 6521
 6522                                ;*****************************************************************
 6523                                ;
 6524                                ;WRITE DATA,CVC=1,ACK COMMAND
 6525                                ;
 6526                                ;*****************************************************************
 6527
 6528 061222  012737  140005  071720        MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 6529 061230  012704  071720                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6530 061234                        65$:
 6531 061234  010337  071726                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6532 061240  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6533 061244  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6534 061250  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
 6535 061254  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
 6536 061260  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
 6537 061262  001406                      BEQ     75$                     ;BR, IF OK
 6538 061264  005237  002212              INC     FATFLG                  ;BUMP COUNT
 6542 061270                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      061270  104456                                                              TRAP    C$ERHRD
      061272  001206                                                              .WORD   646
      061274  005111                                                              .WORD   WRTERR
      061276  012136                                                              .WORD   PKTSSR
 6543 061300                      75$:    CKLOOP                          ;LOOP IF SELECTED
      061300  104406                                                              TRAP    C$CLP1
 6544 061302  005303                      DEC     R3                      ;SET RECORD SIZE TO 511.
 6545 061304  013737  003114  071722      MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 6546
 6547                             ;******************************************************************************
 6548                             ;
 6549                             ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
 6550                             ;
 6551                             ;******************************************************************************
 6552
 6553 061312  012737  161001  071720      MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
 6554 061320  012704  071720      165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6555 061324  010337  071726              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6556 061330  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6557 061334  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6558 061340  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6559 061344  012702  100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 6560 061350  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
 6561 061352  001406                      BEQ     170$                    ;BR, IF OK
 6562 061354  005237  002212              INC     FATFLG                  ;BUMP COUNT
 6566 061360                              ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      061360  104456                                                              TRAP    C$ERHRD
      061362  001207                                                              .WORD   647
      061364  074332                                                              .WORD   T26TRL
      061366  012136                                                              .WORD   PKTSSR
 6567 061370                      170$:   CKLOOP                          ;LOOP IF SELECTED
      061370  104406                                                              TRAP    C$CLP1
 6568
 6569                             ;******************************************************************************
 6570                             ;
 6571                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 6572                             ;
 6573                             ;******************************************************************************
 6574
 6575 061372  013701  071630              MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
 6576 061376  010102                      MOV     R1,R2                   ;SET UP EXPECTED
 6577 061400  052702  010000              BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
 6578 061404  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
 6579 061406  001406                      BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
 6580 061410  005237  002212              INC     FATFLG                  ;BUMP COUNT
 6584 061414                              ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      061414  104456                                                              TRAP    C$ERHRD
      061416  001210                                                              .WORD   648
      061420  074100                                                              .WORD   T26LON
      061422  015564                                                              .WORD   EXPREC
 6585 061424                      180$:   CKLOOP                          ;LOOP IF SELECTED
      061424  104406                                                              TRAP    C$CLP1
```

```
 6586 061426  012703  000777                MOV     #511.,R3                ;SET RECORD SIZE
 6587 061432  013737  003114  071722        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 6588
 6589                                ;*****************************************************************
 6590                                ;
 6591                                ;REREAD DATA,CVC=1,ACK COMMAND
 6592                                ;
 6593                                ;*****************************************************************
 6594
 6595 061440  012737  141001  071720        MOV     #141001,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
 6596 061446  012704  071720        365$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6597 061452  010337  071726                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6598 061456  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6599 061462  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6600 061466  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6601 061472  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 6602 061476  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 6603 061500  001406                        BEQ     370$                    ;BR, IF OK
 6604 061502  005237  002212                INC     FATFLG                  ;BUMP COUNT
 6608 061506                                ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      061506  104456                                                                TRAP    C$ERHRD
      061510  001211                                                                .WORD   649
      061512  074332                                                                .WORD   T26TRL
      061514  012136                                                                .WORD   PKTSSR
 6609 061516                        370$:   CKLOOP                          ;LOOP IF SELECTED
      061516  104406                                                                TRAP    C$CLP1
 6610
 6611                                ;*****************************************************************
 6612                                ;
 6613                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 6614                                ;
 6615                                ;*****************************************************************
 6616
 6617 061520  013701  071630                MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
 6618 061524  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 6619 061526  052702  010000                BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
 6620 061532  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 6621 061534  001406                        BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
 6622 061536  005237  002212                INC     FATFLG                  ;BUMP COUNT
 6626 061542                                ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      061542  104456                                                                TRAP    C$ERHRD
      061544  001212                                                                .WORD   650
      061546  074100                                                                .WORD   T26LON
      061550  015564                                                                .WORD   EXPREC
 6627 061552                        380$:   CKLOOP
      061552  104406                                                                TRAP    C$CLP1
 6628 061554                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      061554                                                                    L10107:
      061554  104403                                                                TRAP    C$ESUB
 6629 061556  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 6630 061564  103402                        BLO     999$                            ;BR, IF LESS THAN 25
 6631 061566  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 6632 061572                        999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 6, SUBTEST 6
                                        ;
                                        ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
                                        ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
                                        ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
                                        ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
                                        ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
                                        ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;-
061572                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
061572                                                                                  T6.6:
061572  104402                                                                          TRAP    C$BSUB
061574  004737  074510                          JSR     PC,T26REST              ;SET COMMAND PACKET
061600  004737  074602                          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
061604  004737  074644                          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

061610  004737  016064                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
061614  103407                                  BCS     20$                     ;BR IF INIT WAS OK
061616  005237  002212                          INC     FATFLG                  ;BUMP COUNT
061622  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
061624                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
061624  104455                                                                          TRAP    C$ERDF
061626  001213                                                                          .WORD   651
061630  003650                                                                          .WORD   SFIERR
061632  012124                                                                          .WORD   SFIMSG
061634  013737  002172  071620  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

061642  012704  071600                          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

061646  004737  010752                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
061652  103407                                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
061654  005237  002212                          INC     FATFLG                  ;BUMP COUNT
061660  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
061662                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
061662  104456                                                                          TRAP    C$ERHRD
061664  001214                                                                          .WORD   652
061666  005054                                                                          .WORD   WRTMSG
```

```
                061670  012124                                                          .WORD   SFIMSG
6688            061672                  26$:    CKLOOP                  ;LOOP IF SELECTED
                061672  104406                                                          TRAP    C$CLP1
6689
6690                                    ;*************************************************************
6691                                    ;
6692                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6693                                    ;
6694                                    ;*************************************************************
6695
6696 061674    004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6697 061700    103413                          BCS     30$                     ;BR, IF NO PROBLEM
6698 061702    016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
6699 061706    012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6700 061712    010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6701 061714    005237  002212                  INC     FATFLG                  ;BUMP COUNT
6705 061720                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                061720  104456                                                          TRAP    C$ERHRD
                061722  001215                                                          .WORD   653
                061724  073254                                                          .WORD   T26RWN
                061726  012136                                                          .WORD   PKTSSR
6706 061730             30$:    CKLOOP                  ;LOOP IF SELECTED
                061730  104406                                                          TRAP    C$CLP1
6707
6708                                    ;*************************************************************
6709                                    ;
6710                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6711                                    ;
6712                                    ;*************************************************************
6713
6714 061732    013701  071630                  MOV     T26BFR+6,R1             ;PICK UP XST0
6715 061736    010102                          MOV     R1,R2                   ;SET UP EXPECTED
6716 061740    052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6717 061744    020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6718 061746    001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
6719 061750    005237  002212                  INC     FATFLG                  ;BUMP COUNT
6723 061754                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                061754  104456                                                          TRAP    C$ERHRD
                061756  001216                                                          .WORD   654
                061760  072765                                                          .WORD   T26BOT
                061762  015564                                                          .WORD   EXPREC
6724 061764             40$:    CKLOOP                  ;LOOP IF SELECTED
                061764  104406                                                          TRAP    C$CLP1
6725 061766    012703  000400                  MOV     #256.,R3                ;RECORD SIZE
6726 061772    013.  7 003114  071722          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6727
6728                                    ;*************************************************************
6729                                    ;
6730                                    ;WRITE DATA,CVC=1,ACK COMMAND
6731                                    ;
6732                                    ;*************************************************************
6733
6734 062000    012737  140005  071720          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6735 062006    012704  071720                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6736 062012                             65$:
6737 062012    010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6738 062016    010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

```
6739 062022  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6740 062026  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6741 062032  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
6742 062036  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
6743 062040  001406                    BEQ     75$                     ;BR, IF OK
6744 062042  005237  002212            INC     FATFLG                  ;BUMP COUNT
6748 062046                            ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     062046  104456                                                            TRAP    C$ERHRD
     062050  001217                                                            .WORD   655
     062052  005111                                                            .WORD   WRTERR
     062054  012136                                                            .WORD   PKTSSR
6749 062056                    75$:    CKLOOP                          ;LOOP IF SELECTED
     062056  104406                                                            TRAP    C$CLP1
6750 062060  012703  001000            MOV     #512.,R3                ;RECORD SIZE
6751 062064  013737  003114  071722    MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6752
6753                                   ;*****************************************************************
6754                                   ;
6755                                   ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
6756                                   ;
6757                                   ;*****************************************************************
6758
6759 062072  012737  161001  071720    MOV     #161001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
6760 062100  012704  071720    165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6761 062104  010337  071726            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6762 062110  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6763 062114  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6764 062120  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6765 062124  012702  100204            MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6766 062130  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
6767 062132  001406                    BEQ     170$                    ;BR, IF OK
6768 062134  005237  002212            INC     FATFLG                  ;BUMP COUNT
6772 062140                            ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     062140  104456                                                            TRAP    C$ERHRD
     062142  001220                                                            .WORD   656
     062144  074332                                                            .WORD   T26TRL
     062146  012136                                                            .WORD   PKTSSR
6773 062150                    170$:   CKLOOP                          ;LOOP IF SELECTED
     062150  104406                                                            TRAP    C$CLP1
6774
6775                                   ;*****************************************************************
6776                                   ;
6777                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6778                                   ;
6779                                   ;*****************************************************************
6780
6781 062152  013701  071630            MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6782 062156  010102                    MOV     R1,R2                   ;SET UP EXPECTED
6783 062160  052702  040000            BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
6784 062164  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
6785 062166  001406                    BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6786 062170  005237  002212            INC     FATFLG                  ;BUMP COUNT
6790 062174                            ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     062174  104456                                                            TRAP    C$ERHRD
     062176  001221                                                            .WORD   657
     062200  074162                                                            .WORD   T26LOP
     062202  015564                                                            .WORD   EXPREC
```

```
6791 062204                            180$:   CKLOOP
     062204  104406                                                                TRAP    C$CLP1
6792 062206  013701  071626                    MOV     T26BFR+4,R1          ;PICK UP RESIDUAL BYTE COUNTER
6793 062212  012702  000400                    MOV     #256.,R2             ;THIS SHOULD BE THE DIFFERENCE
6794 062216  020102                            CMP     R1,R2                ;IS THE DIFFERENCE CORRECT
6795 062220  001406                            BEQ     190$                 ;BR, IF CORRECT
6796 062222  005237  002212                    INC     FATFLG               ;BUMP COUNT
6800 062226                                    ERRHRD  ERRNO,T26PBP,EXPREC  ;RBPCR NOT CORRECT
     062226  104456                                                                TRAP    C$ERHRD
     062230  001222                                                                .WORD   658
     062232  074244                                                                .WORD   T26PBP
     062234  015564                                                                .WORD   EXPRFC
6801 062236                            190$:   CKLOOP                       ;LOOP IF SELECTED
     062236  104406                                                                TRAP    C$CLP1
6802 062240  012703  001000                    MOV     #512.,R3             ;RECORD SIZE
6803 062244  013737  003114  071722            MOV     FREE,T26RB           ;STARTING READ BUFFER ADDRESS
6804
6805                                   ;*****************************************************************
6806                                   ;
6807                                   ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
6808                                   ;
6809                                   ;*****************************************************************
6810
6811 062252  012737  141001  071720            MOV     #141001,T26PK3       ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
6812 062260  012704  071720                    MOV     #T26PK3,R4           ;SET UP R4 WITH PACKET ADDRESS
6813 062264  010337  071726                    MOV     R3,T26SZ             ;SET UP RECORD SIZE IN PACKET
6814 062270  010465  000000                    MOV     R4,TSDB(R5)          ;ISSUE COMMAND
6815 062274  004737  016340                    JSR     PC,WAITF             ;WAIT FOR SSR TO SET
6816 062300  016501  000002                    MOV     TSSR(R5),R1          ;GET TSSR CONTENTS
6817 062304  012702  100204                    MOV     #SSR!SC!BIT2,R2      ;SET UP EXPECTED
6818 062310  020102                            CMP     R1,R2                ;ARE THEY EQUAL
6819 062312  001406                            BEQ     270$                 ;BR, IF OK
6820 062314  005237  002212                    INC     FATFLG               ;BUMP COUNT
6824 062320                                    ERRHRD  ERRNO,T26TRL,PKTSSR  ;TSSR INCORRECT AFTER READ DATA
     062320  104456                                                                TRAP    C$ERHRD
     062322  001223                                                                .WORD   659
     062324  074332                                                                .WORD   T26TRL
     062326  012136                                                                .WORD   PKTSSR
6825 062330                            270$:   CKLOOP                       ;LOOP IF SELECTED
     062330  104406                                                                TRAP    C$CLP1
6826
6827                                   ;*****************************************************************
6828                                   ;
6829                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6830                                   ;
6831                                   ;*****************************************************************
6832
6833 062332  013701  071630                    MOV     T26BFP+6,R1          ;GET MESSAGE BUFFER
6834 062336  010102                            MOV     R1,R2                ;SET UP EXPECTED
6835 062340  052702  040000                    BIS     #BIT14,R2            ;SET THE RLS BIT IN EXPECTED
6836 062344  020102                            CMP     R1,R2                ;ARE THEY EQUAL
6837 062346  001406                            BEQ     280$                 ;BR, IF EQUAL (ALL IS WELL)
6838 062350  005237  002212                    INC     FATFLG               ;BUMP COUNT
6842 062354                                    ERRHRD  ERRNO,T26LOP,EXPREC  ;THE RLL BIT WAS NOT SET IN XST0
     062354  104456                                                                TRAP    C$ERHRD
     062356  001224                                                                .WORD   660
     062360  074162                                                                .WORD   T26LOP
```

```
      062362  015564                                                                .WORD   EXPREC
 6843 062364                  280$:   CKLOOP
      062364  104406                                                                TRAP    C$CLP1
 6844 062366  013701  071626          MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
 6845 062372  012702  000400          MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
 6846 062376  020102                  CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
 6847 062400  001405                  BEQ     290$                    ;BR, IF CORRECT
 6851 062404                          ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
      062404  104456                                                                TRAP    C$ERHRD
      062406  001224                                                                .WORD   660
      062410  074244                                                                .WORD   T26PBP
      062412  015564                                                                .WORD   EXPREC
 6852 062414                  290$:   CKLOOP                          ;LOOP IF SELECTED
      062414  104406                                                                TRAP    C$CLP1
 6853 062416                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      062416                                                                      L10110:
      062416  104403                                                                TRAP    C$ESUB
 6854 062420  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 6855 062426  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 6856 062430  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 6857 062434                  999$:
```

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

                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T6.7:
062434  104402                                                                      TRAP    C$BSUB
                                JSR     PC,T26REST              ;SET COMMAND PACKET
                                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
062466  104455                                                                     TRAP    C$ERDF
062470  001225                                                                     .WORD   661
062472  003650                                                                     .WORD   SFIERR
062474  012124                                                                     .WORD   SFIMSG
                        20$:    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
```

```
        062524  104456                                                          TRAP    C$ERHRD
        062526  001226                                                          .WORD   662
        062530  005054                                                          .WORD   WRTMSG
        062532  012124                                                          .WORD   SFIMSG
  6916  062534                  26$:    CKLOOP                  ;LOOP IF SELECTED
        062534  104406                                                          TRAP    C$CLP1
  6917
  6918                          ;*****************************************************************
  6919                          ;
  6920                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  6921                          ;
  6922                          ;*****************************************************************
  6923
  6924  062536  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  6925  062542  103413                  BCS     30$                     ;BR, IF NO PROBLEM
  6926  062544  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
  6927  062550  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
  6928  062554  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
  6929  062556  005237  002212          INC     FATFLG                  ;BUMP COUNT
  6933  062562                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
        062562  104456                                                          TRAP    C$ERHRD
        062564  001227                                                          .WORD   663
        062566  073254                                                          .WORD   T26RWN
        062570  012136                                                          .WORD   PKTSSR
  6934  062572                  30$:    CKLOOP                  ;LOOP IF SELECTED
        062572  104406                                                          TRAP    C$CLP1
  6935
  6936                          ;*****************************************************************
  6937                          ;
  6938                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
  6939                          ;
  6940                          ;*****************************************************************
  6941
  6942  062574  013701  071630          MOV     T26BFR+6,R1             ;PICK UP XST0
  6943  062600  010102                  MOV     R1,R2                   ;SET UP EXPECTED
  6944  062602  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
  6945  062606  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
  6946  062610  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
  6947  062612  005237  002212          INC     FATFLG                  ;BUMP COUNT
  6951  062616                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        062616  104456                                                          TRAP    C$ERHRD
        062620  001230                                                          .WORD   664
        062622  072765                                                          .WORD   T26BOT
        062624  015564                                                          .WORD   EXPREC
  6952  062626                  40$:    CKLOOP                  ;LOOP IF SELECTED
        062626  104406                                                          TRAP    C$CLP1
  6953  062630  012703  000400          MOV     #256.,R3                ;RECORD SIZE
  6954  062634  013737  003114  071722  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
  6955
  6956                          ;*****************************************************************
  6957                          ;
  6958                          ;WRITE DATA,CVC=1,ACK COMMAND
  6959                          ;
  6960                          ;*****************************************************************
  6961
  6962  062642  012737  140005  071720  MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
  6963  062650  012704  071720          MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

```
6964 062654
6965 062654  010300                    65$:
6966 062656  004737  017512                    MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6967 062662  010337  071726                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6968 062666  010465  000000                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6969 062672  004737  016340                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6970 062676  016501  000002                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6971 062702  012702  000200                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6972 062706  020102                           MOV     #SSR,R2                 ;SET UP EXPECTED
6973 062710  001406                           CMP     R1,R2                   ;ARE THEY EQUAL
6974 062712  005237  002212                    BEQ     75$                     ;BR, IF OK
6978 062716                                    INC     FATFLG                  ;BUMP COUNT
     062716  104456                           ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     062720  001231                                                                   TRAP    C$ERHRD
     062722  005111                                                                   .WORD   665
     062724  012136                                                                   .WORD   WRTERR
6979 062726                                                                         .WORD   PKTSSR
     062726  104406                    75$:    CKLOOP                          ;LOOP IF SELECTED
6980 062730  005723                                                                 TRAP    C$CLP1
6981 062732  022703  000414                    TST     (R3)+                   ;BUMP RECORD SIZE
6982 062736  001346                           CMP     #268.,R3                ;END OF RECORD YET
6983 062740                                    BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
     062740  104406                    80$:    CKLOOP                          ;LOOP IF SELECTED
6984 062742                                                                         TRAP    C$CLP1
6985                                   120$:
6986                                   ;*****************************************************************
6987                                   ;
6988                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6989                                   ;
6990                                   ;*****************************************************************
6991
6992 062742  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6993 062746  103413                           BCS     130$                    ;BR, IF NO PROBLEM
6994 062750  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
6995 062754  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6996 062760  010004                           MOV     R0,R4                   ;PACKET ADDRESS SET UP
6997 062762  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7001 062766                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     062766  104456                                                                TRAP    C$ERHRD
     062770  001232                                                                .WORD   666
     062772  073254                                                                .WORD   T26RWN
     062774  012136                                                                .WORD   PKTSSR
7002 062776                            130$:   CKLOOP                          ;LOOP IF SELECTED
     062776  104406                                                                TRAP    C$CLP1
7003
7004                                   ;*****************************************************************
7005                                   ;
7006                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7007                                   ;
7008                                   ;*****************************************************************
7009
7010 063000  013701  071630                    MOV     T26BFR+6,R1             ;PICK UP XST0
7011 063004  010102                           MOV     R1,R2                   ;SET UP EXPECTED
7012 063006  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7013 063012  020102                           CMP     R1,R2                   ;DOES EXP = REC'D
7014 063014  001406                           BEQ     140$                    ;BR, IF EQUAL (OK)
7015 063016  005237  002212                    INC     FATFLG                  ;BUMP COUNT
```

```
7019 063022                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063022  104456                                                              TRAP    C$ERHRD
     063024  001233                                                              .WORD   667
     063026  072765                                                              .WORD   T26BOT
     063030  015564                                                              .WORD   EXPREC
7020 063032                          140$:   CKLOOP                          ;LOOP IF SELECTED
     063032  104406                                                              TRAP    C$CLP1
7021 063034  012737  000400  071752        MOV     #256.,T26RSZ            ;STORE START RECORD SIZE
7022 063042  000420                        BR      150$                    ;SKIP THE SAPCE THIS TIME
7023
7024                                 ;*****************************************************************
7025                                 ;
7026                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7027                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7028                                 ;
7029                                 ;*****************************************************************
7030
7031 063044  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
7032 063050  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
7033 063054  103413                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
7034 063056  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7035 063062  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7036 063066  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7037 063070  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7041 063074                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     063074  104456                                                              TRAP    C$ERHRD
     063076  001234                                                              .WORD   668
     063100  072367                                                              .WORD   T26SC
     063102  015564                                                              .WORD   EXPREC
7042 063104                          150$:   CKLOOP
     063104  104406                                                              TRAP    C$CLP1
7043 063106  013703  071752                  MOV     T26RSZ,R3               ;RECORD SIZE
7044 063112  013737  003114  071722          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7045
7046                                 ;*****************************************************************
7047                                 ;
7048                                 ;REREREAD DATA,CVC=1,ACK COMMAND
7049                                 ;
7050                                 ;*****************************************************************
7051
7052 063120  012737  141401  071720          MOV     #141401,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
7053 063126  012704  071720          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7054 063132  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7055 063136  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7056 063142  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7057 063146  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7058 063152  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
7059 063156  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7060 063160  001406                          BEQ     170$                    ;BR, IF OK
7061 063162  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7065 063166                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     063166  104456                                                              TRAP    C$ERHRD
     063170  001235                                                              .WORD   669
     063172  073610                                                              .WORD   T26WDC
     063174  012136                                                              .WORD   PKTSSR
7066 063176                          170$:   CKLOOP                          ;LOOP IF SELECTED
     063176  104406                                                              TRAP    C$CLP1
```

```
7067 063200  013702  003114            MOV     FREE,R2          ;CURRENT BUFFER ADDRESS TO R2
7068 063204  010304                    MOV     R3,R4                    ;CURRENT RECORD SIZE
7069 063206  162704  000400            SUB     #256.,R4                 ;FIRST LOCATION IN BUFFER
7070 063212  060204              173$: ADD     R2,R4                    ;SET UP POINTER
7071 063214  021403                    CMP     (R4),R3                  ;CHECK DATA READ (R3=DATA ALSO)
7072 063216  001410                    BEQ     180$                     ;BR, IF ALL IS WELL
7073 063220  011401                    MOV     (R4),R1                  ;RECD DATA
7074 063222  010302                    MOV     R3,R2                    ;EXPECTED DATA
7075 063224  005237  002212            INC     FATFLG                   ;BUMP COUNT
7079 063230                            ERRHRD  ERRNO,T26DTA,EXPREC      ;DATA READ NOT = WRITTEN
     063230  104456                                                             TRAP    C$ERHRD
     063232  001236                                                             .WORD   670
     063234  073032                                                             .WORD   T26DTA
     063236  015564                                                             .WORD   EXPREC
7080 063240                      180$: CKLOOP                           ;LOOP IF SELECTED
     063240  104406                                                             TRAP    C$CLP1
7081 063242  005724                    TST     (R4)+                    ;BUMP TO NEXT LOCATION
7082 063244  160204                    SUB     R2,R4                    ;CORRECT RECORDS SIZE VALUE
7083 063246  020403                    CMP     R4,R3                    ;END OF RECORD YET
7084 063250  001360                    BNE     173$                     ;BR, IF NOT AT END OF RECORD
7085 063252  005723                    TST     (R3)+                    ;BUMP RECORD SIZE
7086 063254  010337  071752            MOV     R3,T26RSZ                ;STORE PRESENT RECORD SIZE
7087 063260  022703  000410            CMP     #264.,R3                 ;END OF RECORD YET
7088 063264  001267                    BNE     145$                     ;BR, IF MORE RECORDS TO READ
7089 063266                      190$: CKLOOP                           ;LOOP IF SELECTED
     063266  104406                                                             TRAP    C$CLP1
7090 063270                            ENDSUB                   ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     063270                                                                 L10111:
     063270  104403                                                             TRAP    C$ESUB
7091 063272  023727  002212  000017            CMP     FATFLG,#15.      ;IS ERROR COUNT AT 25
7092 063300  103402                    BLO     999$                     ;BR, IF LESS THAN 25
7093 063302  004737  017272            JSR     PC,CKDROP                ;TRY TO DROP THE UNIT
7094 063306                      999$:
```

```
                                        ;+
                                        ;
                                        ;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.
                                        ;
                                        ;
                                        ;-
063306                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
063306                                                                                  T6.8:
063306  104402                                                                          TRAP    C$BSUB
063310  004737  074510                    JSR     PC,T26REST                      ;SET COMMAND PACKET
063314  004737  074602                    JSR     PC,T26RT2                       ;SET UP OTHER COMMAND PACKET
063320  004737  074644                    JSR     PC,T26RT3                       ;SET UP OTHER COMMAND PACKET

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

063324  004737  016064                    JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
063330  103407                            BCS     20$                             ;BR IF INIT WAS OK
063332  005237  002212                    INC     FATFLG                          ;BUMP COUNT
063336  010001                            MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
063340                                  ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
063340  104455                                                                          TRAP    C$ERDF
063342  001237                                                                          .WORD   671
063344  003650                                                                          .WORD   SFIERR
063346  012124                                                                          .WORD   SFIMSG
063350  013737  002172  071620    20$:    MOV     UNITN,T26DSW                    ;SET UP UNIT NUMBER

063356  012704  071600                    MOV     #T26PACKET,R4                   ;SUBROUTINE NEEDS PACKET ADDRESS

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

063362  004737  010752                    JSR     PC,WRTCHR                       ;ISSUE WRITE CHARACTERISTICS
063366  103407                            BCS     26$                             ;BR, IF COMMAND ISSUED OK
063370  005237  002212                    INC     FATFLG                          ;BUMP COUNT
063374  010001                            MOV     R0,R1                           ;SAVE CONTENTS OF TSSR
063376                                  ERRHRD  ERRNO,WRTMSG,SFIMSG             ;WRITE CHARACTERISTISC FAILED
063376  104456                                                                          TRAP    C$ERHRD
063400  001240                                                                          .WORD   672
063402  005054                                                                          .WORD   WRTMSG
063404  012124                                                                          .WORD   SFIMSG
063406                          26$:    CKLOOP                                  ;LOOP IF SELECTED
063406  104406                                                                          TRAP    C$CLP1

```

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

063410  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
063414  103413                    BCS     30$                     ;BR, IF NO PROBLEM
063416  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
063422  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
063426  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
063430  005237  002212            INC     FATFLG                  ;BUMP COUNT
063434                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
063434  104456                                                                    TRAP    C$ERHRD
063436  001241                                                                    .WORD   673
063440  073254                                                                    .WORD   T26RWN
063442  012136                                                                    .WORD   PKTSSR
063444                          30$:    CKLOOP                  ;LOOP IF SELECTED
063444  104406                                                                    TRAP    C$CLP1

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

063446  013701  071630                MOV     T26BFR+6,R1             ;PICK UP XST0
063452  010102                    MOV     R1,R2                   ;SET UP EXPECTED
063454  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
063460  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
063462  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
063464  005237  002212            INC     FATFLG                  ;BUMP COUNT
063470                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
063470  104456                                                                    TRAP    C$ERHRD
063472  001242                                                                    .WORD   674
063474  072765                                                                    .WORD   T26BOT
063476  015564                                                                    .WORD   EXPREC
063500                          40$:    CKLOOP                  ;LOOP IF SELECTED
063500  104406                                                                    TRAP    C$CLP1
063502  012703  000400                MOV     #256.,R3                ;RECORD SIZE
063506  013737  003114  071722        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

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

063514  012737  150005  071720        MOV     #150005,T26PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
063522  012704  071720                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
063526                          65$:
063526  010300                    MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
063530  004737  017512            JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
063534  010337  071726            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
063540  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
063544  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
063550  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
7201 063554  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
7202 063560  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
7203 063562  001406                      BEQ     75$                     ;BR, IF OK
7204 063564  005237  002212              INC     FATFLG                  ;BUMP COUNT
7208 063570                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     063570  104456                                                              TRAP    C$ERHRD
     063572  001243                                                              .WORD   675
     063574  005111                                                              .WORD   WRTERR
     063576  012136                                                              .WORD   PKTSSR
7209 063600                      75$:    CKLOOP                          ;LOOP IF SELECTED
     063600  104406                                                              TRAP    C$CLP1
7210 063602  005723                      TST     (R3)+                   ;BUMP RECORD SIZE
7211 063604  022703  000414              CMP     #268.,R3                ;END OF RECORD YET
7212 063610  001346                      BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
7213 063612                      80$:    CKLOOP                          ;LOOP IF SELECTED
     063612  104406                                                              TRAP    C$CLP1
7214 063614                      120$:
7215
7216                             ;*****************************************************************
7217                             ;
7218                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7219                             ;
7220                             ;*****************************************************************
7221
7222 063614  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7223 063620  103413                      BCS     130$                    ;BR, IF NO PROBLEM
7224 063622  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
7225 063626  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7226 063632  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
7227 063634  005237  002212              INC     FATFLG                  ;BUMP COUNT
7231 063640                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     063640  104456                                                              TRAP    C$ERHRD
     063642  001244                                                              .WORD   676
     063644  073254                                                              .WORD   T26RWN
     063646  012136                                                              .WORD   PKTSSR
7232 063650                      130$:   CKLOOP                          ;LOOP IF SELECTED
     063650  104406                                                              TRAP    C$CLP1
7233
7234                             ;*****************************************************************
7235                             ;
7236                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7237                             ;
7238                             ;*****************************************************************
7239
7240 063652  013701  071630              MOV     T26BFR+6,R1             ;PICK UP XST0
7241 063656  010102                      MOV     R1,R2                   ;SET UP EXPECTED
7242 063660  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7243 063664  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
7244 063666  001406                      BEQ     140$                    ;BR, IF EQUAL (OK)
7245 063670  005237  002212              INC     FATFLG                  ;BUMP COUNT
7249 063674                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063674  104456                                                              TRAP    C$ERHRD
     063676  001245                                                              .WORD   677
     063700  072765                                                              .WORD   T26BOT
     063702  015564                                                              .WORD   EXPREC
7250 063704                      140$:   CKLOOP                          ;LOOP IF SELECTED
     063704  104406                                                              TRAP    C$CLP1
```

```
7251 063706  012737  000400  071752          MOV     #256.,T26RSZ            ;START RECORD SIZE
7252 063714  000420                          BR      150$                    ;SKIP SAPCE THIS TIME
7253
7254                                 ;*************************************************************************
7255                                 ;
7256                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7257                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7258                                 ;
7259                                 ;*************************************************************************
7260
7261 063716  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
7262 063722  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
7263 063726  103413                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
7264 063730  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7265 063734  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7266 063740  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7267 063742  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7271 063746                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     063746  104456                                                                  TRAP    C$ERHRD
     063750  001246                                                                  .WORD   678
     063752  072367                                                                  .WORD   T26SC
     063754  015564                                                                  .WORD   EXPREC
7272 063756                          150$:   CKLOOP
     063756  104406                                                                  TRAP    C$CLP1
7273 063760  013703  071752                  MOV     T26RSZ,R3               ;RECORD SIZE
7274 063764  013737  003114  071722          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7275
7276                                 ;*************************************************************************
7277                                 ;
7278                                 ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7279                                 ;
7280                                 ;*************************************************************************
7281
7282 063772  012737  151401  071720          MOV     #151401,T26PK3          ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7283 064000  012704  071720          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7284 064004  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7285 064010  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7286 064014  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7287 064020  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7288 064024  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
7289 064030  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7290 064032  001406                          BEQ     170$                    ;BR, IF OK
7291 064034  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7295 064040                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     064040  104456                                                                  TRAP    C$ERHRD
     064042  001247                                                                  .WORD   679
     064044  073610                                                                  .WORD   T26WDC
     064046  012136                                                                  .WORD   PKTSSR
7296 064050                          170$:   CKLOOP                          ;LOOP IF SELECTED
     064050  104406                                                                  TRAP    C$CLP1
7297 064052  013702  003114                  MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
7298 064056  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
7299 064060  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
7300 064064  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
7301 064066  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
7302 064070  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
7303 064072  011401                          MOV     (R4),R1                 ;RECD DATA
```

```
 7304 064074  010302                        MOV     R3,R2                   ;EXPECTED DATA
 7305 064076  005237  002212                INC     FATFLG                  ;BUMP COUNT
 7309 064102                                ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
      064102  104456                                                                TRAP    C$ERHRD
      064104  001250                                                                .WORD   680
      064106  073032                                                                .WORD   T26DTA
      064110  015564                                                                .WORD   EXPREC
 7310 064112                        180$:   CKLOOP                          ;LOOP IF SELECTED
      064112  104406                                                                TRAP    C$CLP1
 7311 064114  005724                        TST     (R4)+                   ;BUMP TO NEXT LOCATION
 7312 064116  160204                        SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
 7313 064120  020403                        CMP     R4,R3                   ;END OF RECORD YET
 7314 064122  001360                        BNE     173$                    ;BR, IF NOT AT END OF RECORD
 7315 064124  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
 7316 064126  010337  071752                MOV     R3,T26RSZ               ;STORE RECORD SIZE
 7317 064132  022703  000410                CMP     #264.,R3                ;END OF RECORD YET
 7318 064136  001267                        BNE     145$                    ;BR, IF MORE RECORDS TO WRITE
 7319 064140                        190$:   CKLOOP                          ;LOOP IF SELECTED
      064140  104406                                                                TRAP    C$CLP1
 7320 064142                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      064142                                                                    L10112:
      064142  104403                                                                TRAP    C$ESUB
 7321 064144  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 7322 064152  103402                        BLO     999$                            ;BR, IF LESS THAN 25
 7323 064154  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 7324 064160                        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.
                                        ;
                                        ;
                                        ;
                                        ;-
                                        
064160                                          BGNSUB                                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
064160                                                                                                  T6.9:
064160  104402                                                                                                  TRAP    C$BSUB
064162  004737  074510                        JSR     PC,T26REST                      ;SET COMMAND PACKET
064166  005037  071746                        CLR     T26CNT                          ;CLEAR TAPE RECORD COUNTER
064172  004737  074602                        JSR     PC,T26RT2                       ;SET UP OTHER COMMAND PACKET
064176  004737  074644                        JSR     PC,T26RT3                       ;SET UP OTHER COMMAND PACKET
                                        ;*****************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************************
064202  004737  016064                        JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
064206  103407                                BCS     20$                             ;BR IF INIT WAS OK
064210  005237  002212                        INC     FATFLG                          ;BUMP COUNT
064214  010001                                MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
064216                                          ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
064216  104455                                                                                          TRAP    C$ERDF
064220  001251                                                                                          .WORD   681
064222  003650                                                                                          .WORD   SFIERR
064224  012124                                                                                          .WORD   SFIMSG
064226  013737  002172  071620  20$:     MOV     UNITN,T26DSW                    ;SET UP UNIT NUMBER
```

```
7380
7381 064234  012704  071600                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7382
7383                                         ;*************************************************************
7384                                         ;
7385                                         ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7386                                         ;
7387                                         ;*************************************************************
7388
7389 064240  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7390 064244  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
7391 064246  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7395 064252  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7396 064254                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     064254  104456                                                          TRAP    C$ERHRD
     064256  001252                                                          .WORD   682
     064260  005054                                                          .WORD   WRTMSG
     064262  012124                                                          .WORD   SFIMSG
7397 064264                          26$:    CKLOOP                          ;LOOP IF SELECTED
     064264  104406                                                          TRAP    C$CLP1
7398
7399                                         ;*************************************************************
7400                                         ;
7401                                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7402                                         ;
7403                                         ;*************************************************************
7404
7405 064266  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7406 064272  103413                          BCS     30$                     ;BR, IF NO PROBLEM
7407 064274  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7408 064300  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7409 064304  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7410 064306  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7414 064312                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     064312  104456                                                          TRAP    C$ERHRD
     064314  001253                                                          .WORD   683
     064316  073254                                                          .WORD   T26RWN
     064320  012136                                                          .WORD   PKTSSR
7415 064322                          30$:    CKLOOP                          ;LOOP IF SELECTED
     064322  104406                                                          TRAP    C$CLP1
7416
7417                                         ;*************************************************************
7418                                         ;
7419                                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7420                                         ;
7421                                         ;*************************************************************
7422
7423 064324  013701  071630                  MOV     T26BFR+6,R1             ;PICK UP XST0
7424 064330  010102                          MOV     R1,R2                   ;SET UP EXPECTED
7425 064332  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7426 064336  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
7427 064340  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
7428 064342  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7432 064346                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     064346  104456                                                          TRAP    C$ERHRD
     064350  001254                                                          .WORD   684
     064352  072765                                                          .WORD   T26BOT
```

```
     064354  015564                                                                  .WORD   EXPREC
7433 064356                          40$:    CKLOOP                                 ;LOOP IF SELECTED
     064356  104406                                                                  TRAP    C$CLP1
7434 064360  012703  000400                  MOV     #256.,R3                       ;RECORD SIZE
7435 064364  013737  003114  071722          MOV     FREE,T26RB                     ;STARTING WRITE BUFFER ADDRESS
7436
7437                                 ;*****************************************************************
7438                                 ;
7439                                 ;WRITE DATA,CVC=1,ACK COMMAND
7440                                 ;
7441                                 ;*****************************************************************
7442
7443 064372  012737  140005  071720          MOV     #140005,T26PK3                 ;WRITE DATA,CVC=1,ACK COMMAND
7444 064400  012704  071720                  MOV     #T26PK3,R4                     ;SET UP R4 WITH PACKET ADDRESS
7445 064404                          65$:
7446 064404  010337  071726                  MOV     R3,T26SZ                       ;SET UP RECORD SIZE IN PACKET
7447 064410  013777  071746  116476          MOV     T26CNT,@FREE                   ;MOVE TAPE RECORD NUMBER TO BUFFER
7448 064416  062737  000001  071746          ADD     #1,T26CNT                      ;NUMBER READY FOR NEXT RECORD
7449 064424  010465  000000                  MOV     R4,T$DB(R5)                    ;ISSUE COMMAND
7450 064430  004737  016340                  JSR     PC,WAITF                       ;WAIT FOR SSR TO SET
7451 064434  016501  000002                  MOV     TSSR(R5),R1                    ;GET TSSR CONTENTS
7452 064440  012702  000200                  MOV     #SSR,R2                        ;SET UP EXPECTED
7453 064444  020102                          CMP     R1,R2                          ;ARE THEY EQUAL
7454 064446  001406                          BEQ     75$                            ;BR, IF OK
7455 064450  005237  002212                  INC     FATFLG                         ;BUMP COUNT
7459 064454                                  ERRHRD  ERRNO,WRTERR,PKTSSR            ;TSSR INCORRECT AFTER REREAD DATA
     064454  104456                                                                  TRAP    C$ERHRD
     064456  001255                                                                  .WORD   685
     064460  005111                                                                  .WORD   WRTERR
     064462  012136                                                                  .WORD   PKTSSR
7460 064464                          75$:    CKLOOP                                 ;LOOP IF SELECTED
     064464  104406                                                                  TRAP    C$CLP1
7461 064466  005723                          TST     (R3)+                          ;BUMP THE RECORD SIZE
7462 064470  022703  000414                  CMP     #268.,R3                       ;MAXIMUM SIZE YET
7463 064474  001401                          BEQ     120$                           ;BR, IF AT END OF WRITE SEQUENCE
7464 064476  000742                          BR      65$                            ;WRITE MORE RECORDS
7465 064500                          120$:
7466 064500  005037  071746                  CLR     T26CNT                         ;SET RECORD COUNTER BACK TO ZERO
7467
7468                                 ;*****************************************************************
7469                                 ;
7470                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7471                                 ;
7472                                 ;*****************************************************************
7473
7474 064504  004737  011104                  JSR     PC,REWIND                      ;CALL TAPE REWIND COMMAND
7475 064510  103411                          BCS     130$                           ;BR, IF NO PROBLEM
7476 064512  016501  000002                  MOV     TSSR(R5),R1                    ;GET TSSR
7477 064516  010004                          MOV     R0,R4                          ;PACKET ADDRESS SET UP
7478 064520  005237  002212                  INC     FATFLG                         ;BUMP COUNT
7482 064524                                  ERRHRD  ERRNO,T26RWN,PKTSSR            ;REWIND NOT ACCEPTED
     064524  104456                                                                  TRAP    C$ERHRD
     064526  001256                                                                  .WORD   686
     064530  073254                                                                  .WORD   T26RWN
     064532  012136                                                                  .WORD   PKTSSR
7483 064534                          130$:   CKLOOP                                 ;LOOP IF SELECTED
     064534  104406                                                                  TRAP    C$CLP1
```

```
7484
7485                                    ;*****************************************************************
7486                                    ;
7487                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7488                                    ;
7489                                    ;*****************************************************************
7490
7491 064536  013701  071630                    MOV     T26BFR+6,R1             ;PICK UP XST0
7492 064542  010102                            MOV     R1,R2                   ;SET UP EXPECTED
7493 064544  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7494 064550  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
7495 064552  001406                            BEQ     135$                    ;BR, IF EQUAL (OK)
7496 064554  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7500 064560                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     064560  104456                                                                    TRAP    C$ERHRD
     064562  001257                                                                    .WORD   687
     064564  072765                                                                    .WORD   T26BOT
     064566  015564                                                                    .WORD   EXPREC
7501 064570                            135$:   CKLOOP                          ;LOOP IF SELECTED
     064570  104406                                                                    TRAP    C$CLP1
7502 064572  012737  000400  071752            MOV     #256.,T26RSZ            ;STARTING RECORD SIZE
7503 064600  000420                            BR      140$                    ;SKIP OVER THE SAPCE THIS TIME
7504
7505                                    ;*****************************************************************
7506                                    ;
7507                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7508                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7509                                    ;
7510                                    ;*****************************************************************
7511
7512 064602  012703  000001            132$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
7513 064606  004737  010556                    JSR     PC,SPACE                ;CALL SPACE ROUTINE
7514 064612  103413                            BCS     140$                    ;BR, IF NO TROUBLE
7515 064614  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
7516 064620  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7517 064624  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
7518 064626  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7522 064632                                    ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
     064632  104456                                                                    TRAP    C$ERHRD
     064634  001260                                                                    .WORD   688
     064636  072367                                                                    .WORD   T26SC
     064640  012136                                                                    .WORD   PKTSSR
7523 064642                            140$:   CKLOOP                          ;LOOP IF SELECTED
     064642  104406                                                                    TRAP    C$CLP1
7524 064644  013703  071752                    MOV     T26RSZ,R3               ;RECORD SIZE
7525 064650  013737  003114  071722    150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7526
7527                                    ;*****************************************************************
7528                                    ;
7529                                    ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7530                                    ;
7531                                    ;*****************************************************************
7532
7533 064656  012737  161401  071720            MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7534 064664  012704  071720            165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7535 064670  010337  071726                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7536 064674  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

```
7537 064700  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7538 064704  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7539 064710  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
7540 064714  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
7541 064716  001406                            BEQ     170$                    ;BR, IF OK
7542 064720  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7546 064724                                    ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     064724  104456                                                                    TRAP    C$ERHRD
     064726  001261                                                                    .WORD   689
     064730  072175                                                                    .WORD   T26RRF
     064732  012136                                                                    .WORD   PKTSSR
7547 064734                            170$:   CKLOOP                          ;LOOP IF SELECTED
     064734  104406                                                                    TRAP    C$CLP1
7548 064736  017701  116152                    MOV     @FREE,R1                        ;FIRST WORD FROM READ BUFFER
7549 064742  013702  071746                    MOV     T26CNT,R2               ;SET UP EXPECTED
7550 064746  020102                            CMP     R1,R2                   ;IS TAPE POSITION CORRECT
7551 064750  001406                            BEQ     190$                    ;KEEP GOING POSITION OK
7552 064752  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7556 064756                                    ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     064756  104456                                                                    TRAP    C$ERHRD
     064760  001262                                                                    .WORD   690
     064762  071756                                                                    .WORD   T26WNG
     064764  015564                                                                    .WORD   EXPREC
7557 064766                            190$:   CKLOOP
     064766  104406                                                                    TRAP    C$CLP1
7558 064770  062737  000001  071746                ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
7559 064776  005723                            TST     (R3)+                   ;NEXT RECORD SIZE
7560 065000  010337  071752                    MOV     R3,T26RSZ               ;STORE RECORD SIZE
7561 065004  022703  000412                    CMP     #266.,R3                ;AT MAX SIZE YET
7562 065010  001402                            BEQ     200$                    ;BR, IF AT END OF THE SUBTEST
7563 065012  000137  064602                    JMP     132$                    ;KEEP GOING MORE RECORDS
7564 065016                            200$:
7565 065016                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     065016                                                                         L10113:
     065016  104403                                                                     TRAP    C$ESUB
7566 065020  023727  002212  000017                CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
7567 065026  103402                            BLO     999$                            ;BR, IF LESS THAN 25
7568 065030  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7569 065034                            999$:
```

```
                                        ;+
                                        ;
                                        ;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.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;-
                                        
065034                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
065034                                                                                  T6.10:
065034  104402                                                                          TRAP    C$BSUB
065036  004737  074510                        JSR     PC,T26REST              ;SET COMMAND PACKET
065042  005037  071746                        CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
065046  004737  074602                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
065052  004737  074644                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

065056  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
065062  103407                                BCS     20$                     ;BR IF INIT WAS OK
065064  005237  002212                        INC     FATFLG                  ;BUMP COUNT
065070  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
065072                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
065072  104455                                                                          TRAP    C$ERDF
065074  001263                                                                          .WORD   691
065076  003650                                                                          .WORD   SFIERR
065100  012124                                                                          .WORD   SFIMSG
065102  013737  002172  071620  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

065110  012704  071600                        MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

065114  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
065120  103407                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
065122  005237  002212                        INC     FATFLG                  ;BUMP COUNT
065126  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
065130                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
065130  104456                                                                          TRAP    C$ERHRD
065132  001264                                                                          .WORD   692
065134  005054                                                                          .WORD   WRTMSG
065136  012124                                                                          .WORD   SFIMSG
```

```
7624 065140                        26$:    CKLOOP                          ;LOOP IF SELECTED
     065140  104406                                                                TRAP    C$CLP1
7625
7626                               ;*****************************************************************
7627                               ;
7628                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7629                               ;
7630                               ;*****************************************************************
7631
7632 065142  004737  011104               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7633 065146  016501  000002               MOV     TSSR(R5),R1             ;GET TSSR
7634 065152  012702  000200               MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7635 065156  103407                       BCS     30$                     ;BR, IF NO PROBLEM
7636 065160  010004                       MOV     R0,R4                   ;PACKET ADDRESS SET UP
7637 065162  005237  002212               INC     FATFLG                  ;BUMP COUNT
7641 065166                               ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     065166  104456                                                                TRAP    C$ERHRD
     065170  001265                                                                .WORD   693
     065172  073254                                                                .WORD   T26RWN
     065174  012136                                                                .WORD   PKTSSR
7642 065176                        30$:    CKLOOP                          ;LOOP IF SELECTED
     065176  104406                                                                TRAP    C$CLP1
7643
7644                               ;*****************************************************************
7645                               ;
7646                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7647                               ;
7648                               ;*****************************************************************
7649
7650 065200  013701  071630               MOV     T26BFR+6,R1             ;PICK UP XST0
7651 065204  010102                       MOV     R1,R2                   ;SET UP EXPECTED
7652 065206  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7653 065212  020102                       CMP     R1,R2                   ;DOES EXP = REC'D
7654 065214  001406                       BEQ     40$                     ;BR, IF EQUAL (OK)
7655 065216  005237  002212               INC     FATFLG                  ;BUMP COUNT
7659 065222                               ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     065222  104456                                                                TRAP    C$ERHRD
     065224  001266                                                                .WORD   694
     065226  072765                                                                .WORD   T26BOT
     065230  015564                                                                .WORD   EXPREC
7660 065232                        40$:    CKLOOP                          ;LOOP IF SELECTED
     065232  104406                                                                TRAP    C$CLP1
7661 065234  012703  000400               MOV     #256.,R3                ;RECORD SIZE
7662 065240  013737  003114  071722       MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7663
7664                               ;*****************************************************************
7665                               ;
7666                               ;WRITE DATA,CVC=1,ACK COMMAND
7667                               ;
7668                               ;*****************************************************************
7669
7670 065246  012737  140005  071720       MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
7671 065254  012704  071720               MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7672 065260                        65$:
7673 065260  010337  071726               MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7674 065264  013777  071746  115622       MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
7675 065272  062737  000001  071746       ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
```

```
7676 065300  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7677 065304  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7678 065310  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7679 065314  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
7680 065320  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
7681 065322  001406                        BEQ     75$                     ;BR, IF OK
7682 065324  005237  002212                INC     FATFLG                  ;BUMP COUNT
7686 065330                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     065330  104456                                                                TRAP    C$ERHRD
     065332  001267                                                                .WORD   695
     065334  005111                                                                .WORD   WRTERR
     065336  012136                                                                .WORD   PKTSSR
7687 065340                        75$:    CKLOOP                          ;LOOP IF SELECTED
     065340  104406                                                                TRAP    C$CLP1
7688 065342  005723                        TST     (R3)+                   ;BUMP THE RECORD SIZE
7689 065344  022703  000414                CMP     #268.,R3                ;MAXIMUM SIZE YET
7690 065350  001401                        BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
7691 065352  000742                        BR      65$                     ;WRITE MORE RECORDS
7692 065354                        120$:
7693 065354  005037  071746                CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
7694
7695                               ;*****************************************************************
7696                               ;
7697                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7698                               ;
7699                               ;*****************************************************************
7700
7701 065360  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7702 065364  103411                        BCS     130$                    ;BR, IF NO PROBLEM
7703 065366  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
7704 065372  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
7705 065374  005237  002212                INC     FATFLG                  ;BUMP COUNT
7709 065400                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     065400  104456                                                                TRAP    C$ERHRD
     065402  001270                                                                .WORD   696
     065404  073254                                                                .WORD   T26RWN
     065406  012136                                                                .WORD   PKTSSR
7710 065410                        130$:   CKLOOP                          ;LOOP IF SELECTED
     065410  104406                                                                TRAP    C$CLP1
7711
7712                               ;*****************************************************************
7713                               ;
7714                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7715                               ;
7716                               ;*****************************************************************
7717
7718 065412  013701  071630                MOV     T26BFR+6,R1             ;PICK UP XST0
7719 065416  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7720 065420  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7721 065424  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7722 065426  001406                        BEQ     135$                    ;BR, IF EQUAL (OK)
7723 065430  005237  002212                INC     FATFLG                  ;BUMP COUNT
7727 065434                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     065434  104456                                                                TRAP    C$ERHRD
     065436  001271                                                                .WORD   697
     065440  072765                                                                .WORD   T26BOT
     065442  015564                                                                .WORD   EXPREC
```

```
7 28 065444                          135$:   CKLOOP                                  ;LOOP IF SELECTED
     065444  104406                                                                          TRAP    C$CLP1
7729 065446  012737  000400  071752          MOV     #256.,T26RSZ            ;START RECORD SIZE
7730 065454  000420                          BR      140$                    ;SKIP OVER SPACE
7731
7732                                 ;*****************************************************************
7733                                 ;
7734                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7735                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7736                                 ;
7737                                 ;*****************************************************************
7738
7739 065456  012703  000001          136$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
7740 065462  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
7741 065466  103413                          BCS     140$                    ;BR, IF NO TROUBLE
7742 065470  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7743 065474  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7744 065500  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7745 065502  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7749 065506                                  ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
     065506  104456                                                                          TRAP    C$ERHRD
     065510  001272                                                                          .WORD   698
     065512  072367                                                                          .WORD   T26SC
     065514  012136                                                                          .WORD   PKTSSR
7750 065516                          140$:   CKLOOP                          ;LOOP IF SELECTED
     065516  104406                                                                          TRAP    C$CLP1
7751 065520  013703  071752                  MOV     T26RSZ,R3               ;RECORD SIZE
7752 065524  013737  003114  071722  150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7753
7754                                 ;*****************************************************************
7755                                 ;
7756                                 ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7757                                 ;
7758                                 ;*****************************************************************
7759
7760 065532  012737  161401  071720          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7761 065540  012704  071720          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7762 065544  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7763 065550  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7764 065554  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7765 065560  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7766 065564  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
7767 065570  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7768 065572  001406                          BEQ     170$                    ;BR, IF OK
7769 065574  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7773 065600                                  ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     065600  104456                                                                          TRAP    C$ERHRD
     065602  001273                                                                          .WORD   699
     065604  072175                                                                          .WORD   T26RRF
     065606  012136                                                                          .WORD   PKTSSR
7774 065610                          170$:   CKLOOP                          ;LOOP IF SELECTED
     065610  104406                                                                          TRAP    C$CLP1
7775 065612  017701  115276                  MOV     @FREE,R1                        ;FIRST WORD FROM READ BUFFER
7776 065616  013702  071746                  MOV     T26CNT,R2               ;SET UP EXPECTED
7777 065622  020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
7778 065624  001406                          BEQ     190$                    ;KEEP GOING POSITION OK
7779 065626  005237  002212                  INC     FATFLG                  ;BUMP COUNT
```

```
7783 065632                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     065632  104456                                                                TRAP    C$ERHRD
     065634  001274                                                                .WORD   700
     065636  071756                                                                .WORD   T26WNG
     065640  015564                                                                .WORD   EXPREC
7784 065642                          190$:  CKLOOP                                 
     065642  104406                                                                TRAP    C$CLP1
7785 065644  062737  000001  071746        ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
7786 065652  005723                        TST     (R3)+                   ;NEXT RECORD SIZE
7787 065654  010337  071752                MOV     R3,T26RSZ               ;STORE RECORD SIZE
7788 065660  022703  000412                CMP     #266.,R3                ;AT MAX SIZE YET
7789 065664  001402                        BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
7790 065666  000137  065456                JMP     136$                    ;KEEP GOING MORE RECORDS
7791 065672                          220$:
7792 065672                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     065672                                                                      L10114:
     065672  104403                                                                TRAP    C$ESUB
7793 065674  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
7794 065702  103402                        BLO     999$                            ;BR, IF LESS THAN 25
7795 065704  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7796 065710                          999$:
```

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


065710                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
065710                                                                                  T6.11:
065710  104402                                                                          TRAP    C$BSUB
065712  004737  074510                        JSR     PC,T26REST              ;SET COMMAND PACKET
065716  004737  074602                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
065722  004737  074644                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

065726  004737  016064                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
065732  103407                                BCS     20$                     ;BR IF INIT WAS OK
065734  005237  002212                        INC     FATFLG                  ;BUMP COUNT
065740  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
065742                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
065742  104455                                                                          TRAP    C$ERDF
065744  001275                                                                          .WORD   701
065746  003650                                                                          .WORD   SFIERR
065750  012124                                                                          .WORD   SFIMSG
065752  013737  002172  071620        20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

065760  012704  071600                        MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

065764  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
065770  103407                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
065772  005237  002212                        INC     FATFLG                  ;BUMP COUNT
065776  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
066000                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
066000  104456                                                                          TRAP    C$ERHRD
066002  001276                                                                          .WORD   702
066004  005054                                                                          .WORD   WRTMSG
066006  012124                                                                          .WORD   SFIMSG
066010                          26$:    CKLOOP                          ;LOOP IF SELECTED
```

```
      066010  104406                                                        TRAP    C$CLP1
7851
7852                                ;*****************************************************************
7853                                :
7854                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7855                                :
7856                                ;*****************************************************************
7857
7858 066012  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7859 066016  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
7860 066022  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7861 066026  103407                      BCS     30$                     ;BR, IF NO PROBLEM
7862 066030  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
7863 066032  005237  002212              INC     FATFLG                  ;BUMP COUNT
7867 066036                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      066036  104456                                                        TRAP    C$ERHRD
      066040  001277                                                        .WORD   703
      066042  073254                                                        .WORD   T26RWN
      066044  012136                                                        .WORD   PKTSSR
7868 066046                     30$:     CKLOOP                          ;LOOP IF SELECTED
      066046  104406                                                        TRAP    C$CLP1
7869
7870                                ;*****************************************************************
7871                                :
7872                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7873                                :
7874                                ;*****************************************************************
7875
7876 066050  013701  071630              MOV     T26BFR+6,R1             ;PICK UP XST0
7877 066054  010102                      MOV     R1,R2                   ;SET UP EXPECTED
7878 066056  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7879 066062  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
7880 066064  001406                      BEQ     40$                     ;BR, IF EQUAL (OK)
7881 066066  005237  002212              INC     FATFLG                  ;BUMP COUNT
7885 066072                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      066072  104456                                                        TRAP    C$ERHRD
      066074  001300                                                        .WORD   704
      066076  072765                                                        .WORD   T26BOT
      066100  015564                                                        .WORD   EXPREC
7886 066102                     40$:     CKLOOP                          ;LOOP IF SELECTED
      066102  104406                                                        TRAP    C$CLP1
7887 066104  012703  001000              MOV     #512.,R3                ;RECORD SIZE
7888 066110  013737  003114  071722      MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7889
7890                                ;*****************************************************************
7891                                :
7892                                ;WRITE DATA,CVC=1,ACK COMMAND
7893                                :
7894                                ;*****************************************************************
7895
7896 066116  012737  140005  071720      MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
7897 066124  012704  071720              MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7898 066130                     65$:
7899 066130  010337  071726              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7900 066134  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7901 066140  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7902 066144  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
7903 066150  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
7904 066154  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
7905 066156  001406                      BEQ     75$                     ;BR, IF OK
7906 066160  005237  002212              INC     FATFLG                  ;BUMP COUNT
7910 066164                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     066164  104456                                                              TRAP    C$ERHRD
     066166  001301                                                              .WORD   705
     066170  005111                                                              .WORD   WRTERR
     066172  012136                                                              .WORD   PKTSSR
7911 066174                      75$:    CKLOOP                          ;LOOP IF SELECTED
     066174  104406                                                              TRAP    C$CLP1
7912
7913                             ;*****************************************************************
7914                             ;
7915                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7916                             ;
7917                             ;*****************************************************************
7918
7919 066176  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7920 066202  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
7921 066206  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7922 066212  103407                      BCS     130$                    ;BR, IF NO PROBLEM
7923 066214  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
7924 066216  005237  002212              INC     FATFLG                  ;BUMP COUNT
7928 066222                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     066222  104456                                                              TRAP    C$ERHRD
     066224  001302                                                              .WORD   706
     066226  073254                                                              .WORD   T26RWN
     066230  012136                                                              .WORD   PKTSSR
7929 066232                      130$:   CKLOOP                          ;LOOP IF SELECTED
     066232  104406                                                              TRAP    C$CLP1
7930
7931                             ;*****************************************************************
7932                             ;
7933                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7934                             ;
7935                             ;*****************************************************************
7936
7937 066234  013701  071630              MOV     T26BFR+6,R1             ;PICK UP XST0
7938 066240  010102                      MOV     R1,R2                   ;SET UP EXPECTED
7939 066242  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7940 066246  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
7941 066250  001406                      BEQ     140$                    ;BR, IF EQUAL (OK)
7942 066252  005237  002212              INC     FATFLG                  ;BUMP COUNT
7946 066256                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     066256  104456                                                              TRAP    C$ERHRD
     066260  001303                                                              .WORD   707
     066262  072765                                                              .WORD   T26BOT
     066264  015564                                                              .WORD   EXPREC
7947 066266                      140$:   CKLOOP                          ;LOOP IF SELECTED
     066266  104406                                                              TRAP    C$CLP1
7948 066270  005303                      DEC     R3                      ;SET RECORD SIZE TO 511.
7949 066272  013737  003114  071722      MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7950
7951                             ;*****************************************************************
7952                             ;
7953                             ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
```

```
7954                                    ;
7955                                    ;*****************************************************************
7956
7957 066300  012737  161401  071720          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
7958 066306  012704  071720      165$:       MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7959 066312  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7960 066316  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7961 066322  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7962 066326  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7963 066332  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
7964 066336  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7965 066340  001406                          BEQ     170$                    ;BR, IF OK
7966 066342  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7970 066346                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     066346  104456                                                                  TRAP    C$ERHRD
     066350  001304                                                                  .WORD   708
     066352  074332                                                                  .WORD   T26TRL
     066354  012136                                                                  .WORD   PKTSSR
7971 066356                              170$:   CKLOOP                          ;LOOP IF SELECTED
     066356  104406                                                                  TRAP    C$CLP1
7972
7973                                    ;*****************************************************************
7974                                    ;
7975                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7976                                    ;
7977                                    ;*****************************************************************
7978
7979 066360  013701  071630                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
7980 066364  010102                          MOV     R1,R2                   ;SET UP EXPECTED
7981 066366  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
7982 066372  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7983 066374  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
7984 066376  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7988 066402                                  ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     066402  104456                                                                  TRAP    C$ERHRD
     066404  001305                                                                  .WORD   709
     066406  074100                                                                  .WORD   T26LON
     066410  015564                                                                  .WORD   EXPREC
7989 066412                              180$:   CKLOOP
     066412  104406                                                                  TRAP    C$CLP1
7990 066414  012703  000777                  MOV     #511.,R3                ;SET UP SIZE OF RECORD
7991 066420  013737  003114  071722          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7992
7993                                    ;*****************************************************************
7994                                    ;
7995                                    ;REREAD DATA,CVC=1,ACK COMMAND
7996                                    ;
7997                                    ;*****************************************************************
7998
7999 066426  012737  141401  071720          MOV     #141401,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
8000 066434  012704  071720      365$:       MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8001 066440  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8002 066444  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8003 066450  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8004 066454  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8005 066460  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8006 066464  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
```

```
 8007 066466  001406                    BEQ     370$                    ;BR, IF OK
 8008 066470  005237  002212            INC     FATFLG                  ;BUMP COUNT
 8012 066474                            ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      066474  104456                                                            TRAP    C$ERHRD
      066476  001306                                                            .WORD   710
      066500  074332                                                            .WORD   T26TRL
      066502  012136                                                            .WORD   PKTSSR
 8013 066504                    370$:   CKLOOP                          ;LOOP IF SELECTED
      066504  104406                                                            TRAP    C$CLP1
 8014
 8015                           ;*************************************************************************
 8016                           ;
 8017                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8018                           ;
 8019                           ;*************************************************************************
 8020
 8021 066506  013701  071630            MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
 8022 066512  010102                    MOV     R1,R2                   ;SET UP EXPECTED
 8023 066514  052702  010000            BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
 8024 066520  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
 8025 066522  001406                    BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
 8026 066524  005237  002212            INC     FATFLG                  ;BUMP COUNT
 8030 066530                            ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      066530  104456                                                            TRAP    C$ERHRD
      066532  001307                                                            .WORD   711
      066534  074100                                                            .WORD   T26LON
      066536  015564                                                            .WORD   EXPREC
 8031 066540                    380$:   CKLOOP
      066540  104406                                                            TRAP    C$CLP1
 8032 066542                            ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      066542                                                            L10115:
      066542  104403                                                            TRAP    C$ESUB
 8033 066544  023727  002212  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 8034 066552  103402                            BLO     999$                    ;BR, IF LESS THAN 25
 8035 066554  004737  017272                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 8036 066560                    999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 6, SUBTEST 12
                                        ;
                                        ;VERIFIES THAT A REREAD NEXT COMMAND READING A
                                        ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
                                        ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
                                        ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
                                        ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
                                        ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;-
8055 066560                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     066560                                                                                       T6.12:
     066560  104402                                                                                 TRAP    C$BSUB
8056 066562  004737  074510                     JSR     PC,T26REST              ;SET COMMAND PACKET
8057 066566  004737  074602                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8058 066572  004737  074644                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8059
8060                                    ;*****************************************************************
8061                                    ;
8062                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8063                                    ;
8064                                    ;*****************************************************************
8065
8066 066576  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8067 066602  103407                             BCS     20$                     ;BR IF INIT WAS OK
8068 066604  005237  002212                     INC     FATFLG                  ;BUMP COUNT
8072 066610  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8073 066612                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     066612  104455                                                                              TRAP    C$ERDF
     066614  001310                                                                              .WORD   712
     066616  003650                                                                              .WORD   SFIERR
     066620  012124                                                                              .WORD   SFIMSG
8074 066622  013737  002172  071620  20$:       MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
8075
8076 066630  012704  071600                     MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8077
8078                                    ;*****************************************************************
8079                                    ;
8080                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8081                                    ;
8082                                    ;*****************************************************************
8083
8084 066634  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8085 066640  103407                             BCS     26$                     ;BR, IF COMMAND ISSUED OK
8086 066642  005237  002212                     INC     FATFLG                  ;BUMP COUNT
8090 066646  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8091 066650                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     066650  104456                                                                              TRAP    C$ERHRD
     066652  001311                                                                              .WORD   713
     066654  005054                                                                              .WORD   WRTMSG
```

```
      066656  012124                                                                .WORD   SFIMSG
8092  066660                        26$:    CKLOOP                  ;LOOP IF SELECTED
      066660  104406                                                                TRAP    C$CLP1
8093
8094                                ;*****************************************************************
8095                                ;
8096                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8097                                ;
8098                                ;*****************************************************************
8099
8100  066662  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8101  066666  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
8102  066672  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8103  066676  103407                      BCS     30$                     ;BR, IF NO PROBLEM
8104  066700  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
8105  066702  005237  002212              INC     FATFLG                  ;BUMP COUNT
8109  066706                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      066706  104456                                                                TRAP    C$ERHRD
      066710  001312                                                                .WORD   714
      066712  073254                                                                .WORD   T26RWN
      066714  012136                                                                .WORD   PKTSSR
8110  066716                        30$:    CKLOOP                  ;LOOP IF SELECTED
      066716  104406                                                                TRAP    C$CLP1
8111
8112                                ;*****************************************************************
8113                                ;
8114                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8115                                ;
8116                                ;*****************************************************************
8117
8118  066720  013701  071630              MOV     T26BFR+6,R1             ;PICK UP XST0
8119  066724  010102                      MOV     R1,R2                   ;SET UP EXPECTED
8120  066726  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8121  066732  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
8122  066734  001406                      BEQ     40$                     ;BR, IF EQUAL (OK)
8123  066736  005237  002212              INC     FATFLG                  ;BUMP COUNT
8127  066742                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      066742  104456                                                                TRAP    C$ERHRD
      066744  001313                                                                .WORD   715
      066746  072765                                                                .WORD   T26BOT
      066750  015564                                                                .WORD   EXPREC
8128  066752                        40$:    CKLOOP                  ;LOOP IF SELECTED
      066752  104406                                                                TRAP    C$CLP1
8129  066754  012703  000400              MOV     #256.,R3                ;RECORD SIZE
8130  066760  013737  003114  071722      MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8131
8132                                ;*****************************************************************
8133                                ;
8134                                ;WRITE DATA,CVC=1,ACK COMMAND
8135                                ;
8136                                ;*****************************************************************
8137
8138  066766  012737  140005  071720      MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
8139  066774  012704  071720              MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8140  067000                        65$:
8141  067000  010337  071726              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8142  067004  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

```
8143 067010  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8144 067014  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8145 067020  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
8146 067024  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
8147 067026  001406                  BEQ     75$                     ;BR, IF OK
8148 067030  005237  002212          INC     FATFLG                  ;BUMP COUNT
8152 067034                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     067034  104456                                                          TRAP    C$ERHRD
     067036  001314                                                          .WORD   716
     067040  005111                                                          .WORD   WRTERR
     067042  012136                                                          .WORD   PKTSSR
8153 067044                  75$:    CKLOOP                          ;LOOP IF SELECTED
     067044  104406                                                          TRAP    C$CLP1
8154 067046                  120$:
8155
8156                         ;*****************************************************************
8157                         ;
8158                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8159                         ;
8160                         ;*****************************************************************
8161
8162 067046  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8163 067052  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
8164 067056  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8165 067062  103407                  BCS     130$                    ;BR, IF NO PROBLEM
8166 067064  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
8167 067066  005237  002212          INC     FATFLG                  ;BUMP COUNT
8171 067072                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     067072  104456                                                          TRAP    C$ERHRD
     067074  001315                                                          .WORD   717
     067076  073254                                                          .WORD   T26RWN
     067100  012136                                                          .WORD   PKTSSR
8172 067102                  130$:   CKLOOP                          ;LOOP IF SELECTED
     067102  104406                                                          TRAP    C$CLP1
8173
8174                         ;*****************************************************************
8175                         ;
8176                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8177                         ;
8178                         ;*****************************************************************
8179
8180 067104  013701  071630          MOV     T26BFR+6,R1             ;PICK UP XST0
8181 067110  010102                  MOV     R1,R2                   ;SET UP EXPECTED
8182 067112  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8183 067116  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
8184 067120  001406                  BEQ     135$                    ;BR, IF EQUAL (OK)
8185 067122  005237  002212          INC     FATFLG                  ;BUMP COUNT
8189 067126                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     067126  104456                                                          TRAP    C$ERHRD
     067130  001316                                                          .WORD   718
     067132  072765                                                          .WORD   T26BOT
     067134  015564                                                          .WORD   EXPREC
8190 067136                  135$:   CKLOOP                          ;LOOP IF SELECTED
     067136  104406                                                          TRAP    C$CLP1
8191 067140  012703  001000          MOV     #512.,R3                ;RECORD SIZE
8192 067144  013737  003114  071722  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
8193
```

```
8194                                    ;*****************************************************************
8195                                    ;
8196                                    ;REREAD NEXT,ACK,CVC=1,OPP=1
8197                                    ;
8198                                    ;*****************************************************************
8199
8200 067152  012737  161401  071720          MOV     #161401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=1
8201 067160  012704  071720          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8202 067164  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8203 067170  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8204 067174  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8205 067200  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8206 067204  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8207 067210  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8208 067212  001406                          BEQ     170$                    ;BR, IF OK
8209 067214  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8213 067220                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     067220  104456                                                                  TRAP    C$ERHRD
     067222  001317                                                                  .WORD   719
     067224  074332                                                                  .WORD   T26TRL
     067226  012136                                                                  .WORD   PKTSSR
8214 067230                          170$:   CKLOOP                          ;LOOP IF SELECTED
     067230  104406                                                                  TRAP    C$CLP1
8215
8216                                    ;*****************************************************************
8217                                    ;
8218                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8219                                    ;
8220                                    ;*****************************************************************
8221
8222 067232  013701  071630                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8223 067236  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8224 067240  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8225 067244  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8226 067246  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
8227 067250  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8231 067254                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     067254  104456                                                                  TRAP    C$ERHRD
     067256  001320                                                                  .WORD   720
     067260  074162                                                                  .WORD   T26LOP
     067262  015564                                                                  .WORD   EXPREC
8232 067264                          180$:   CKLOOP
     067264  104406                                                                  TRAP    C$CLP1
8233 067266  013701  071626                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8234 067272  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8235 067276  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8236 067300  001405                          BEQ     190$                    ;BR, IF CORRECT
8240 067304                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     067304  104456                                                                  TRAP    C$ERHRD
     067306  001320                                                                  .WORD   720
     067310  074244                                                                  .WORD   T26PBP
     067312  015564                                                                  .WORD   EXPREC
8241 067314                          190$:   CKLOOP                          ;LOOP IF SELECTED
     067314  104406                                                                  TRAP    C$CLP1
8242 067316  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
8243 067322  013737  003114  071722          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
8244
```

```
8245                                    ;*****************************************************************
8246                                    ;
8247                                    ;REREAD NEXT,ACK,CVC=1,OPP=0
8248                                    ;
8249                                    ;*****************************************************************
8250
8251 067330  012737  141401  071720          MOV     #141401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=0
8252 067336  012704  071720                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8253 067342  010337  071726                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8254 067346  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8255 067352  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8256 067356  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8257 067362  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8258 067366  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8259 067370  001406                          BEQ     270$                    ;BR, IF OK
8260 067372  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8264 067376                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     067376  104456                                                                  TRAP    C$ERHRD
     067400  001321                                                                  .WORD   721
     067402  074332                                                                  .WORD   T26TRL
     067404  012136                                                                  .WORD   PKTSSR
8265 067406                          270$:   CKLOOP                          ;LOOP IF SELECTED
     067406  104406                                                                  TRAP    C$CLP1
8266
8267                                    ;*****************************************************************
8268                                    ;
8269                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8270                                    ;
8271                                    ;*****************************************************************
8272
8273 067410  013701  071630                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8274 067414  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8275 067416  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8276 067422  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8277 067424  001406                          BEQ     280$                    ;BR, IF EQUAL (ALL IS WELL)
8278 067426  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8282 067432                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     067432  104456                                                                  TRAP    C$ERHRD
     067434  001322                                                                  .WORD   722
     067436  074162                                                                  .WORD   T26LOP
     067440  015564                                                                  .WORD   EXPREC
8283 067442                          280$:   CKLOOP
     067442  104406                                                                  TRAP    C$CLP1
8284 067444  013701  071626                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8285 067450  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8286 067454  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8287 067456  001405                          BEQ     290$                    ;BR, IF CORRECT
8291 067462                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     067462  104456                                                                  TRAP    C$ERHRD
     067464  001322                                                                  .WORD   722
     067466  074244                                                                  .WORD   T26PBP
     067470  015564                                                                  .WORD   EXPREC
8292 067472                          290$:   CKLOOP                          ;LOOP IF SELECTED
     067472  104406                                                                  TRAP    C$CLP1
8293 067474                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     067474                                                                  L10116:
     067474  104403                                                                  TRAP    C$ESUB
```

```
 8294 067476  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 8295 067504  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 8296 067506  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 8297 067512                          999$:
```

```
 8299                                   ;+
 8300                                   ;
 8301                                   ;TEST 6, SUBTEST 13
 8302                                   ;
 8303                                   ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
 8304                                   ;NONEXISTENT MEMORY CAUSES RECOVERABLE ERROR
 8305                                   ;TERMINATION (TC=4 OR 5) WITH NXM=1 AND THAT THE TAPE
 8306                                   ;IS ULTIMATELY POSITIONED PROPERLY. ALL COMBINATIONS
 8307                                   ;OF REREAD PREVIOUS/NEXT AND OPP=0/1 ARE TESTED.
 8308                                   ;       ********************************************************************************
 8309                                   ;                                       CAUTION
 8310                                   ;
 8311                                   ;               The LSI BUS drivers for all available address lines(16-21)
 8312                                   ;       are only checked when running on a 11/23B system with more than
 8313                                   ;       128K words of memory!
 8314                                   ;       ********************************************************************************
 8315                                   ;-
 8316
 8317 067512                                   BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      067512                                                                                   T6.13:
      067512  104402                                                                                    TRAP    C$BSUB
 8318 067514  005737  003126                   TST     NXMFLG                  ;DO WE HAVE IT?
 8319 067520  001002                           BNE     10$                     ;BR, IF  ENOUGH
 8320 067522  000137  070504                   JMP     200$                    ;SKIP THIS TEST IF NOT
 8321 067526  004737  074510           10$:    JSR     PC,T26REST              ;SET COMMAND PACKET
 8322 067532  005037  071746                   CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
 8323 067536  004737  074602                   JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
 8324 067542  004737  074644                   JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
 8325
 8326                                   ;*****************************************************************************
 8327                                   ;
 8328                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 8329                                   ;
 8330                                   ;*****************************************************************************
 8331
 8332 067546  004737  016064                   JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 8333 067552  103407                           BCS     20$                     ;BR IF INIT WAS OK
 8334 067554  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 8338 067560  010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 8339 067562                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      067562  104455                                                                                    TRAP    C$ERDF
      067564  001323                                                                                    .WORD   723
      067566  003650                                                                                    .WORD   SFIERR
      067570  012124                                                                                    .WORD   SFIMSG
 8340 067572  013737  002172  071620   20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
 8341
 8342 067600  012704  071600                   MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 8343
 8344                                   ;*****************************************************************************
 8345                                   ;
 8346                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 8347                                   ;
 8348                                   ;*****************************************************************************
 8349
 8350 067604  004737  010752                   JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 8351 067610  103407                           BCS     26$                     ;BR, IF COMMAND ISSUED OK
 8352 067612  005237  002212                   INC     FATFLG                  ;BUMP COUNT
```

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8356 067616  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8357 067620                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     067620  104456                                                             TRAP    C$ERHRD
     067622  001324                                                             .WORD   724
     067624  005054                                                             .WORD   WRTMSG
     067626  012124                                                             .WORD   SFIMSG
8358 067630                     26$:    CKLOOP                          ;LOOP IF SELECTED
     067630  104406                                                             TRAP    C$CLP1
8359
8360                            ;*****************************************************************
8361                            ;
8362                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8363                            ;
8364                            ;*****************************************************************
8365
8366 067632  004737  021276            JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
8367 067636  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8368 067642  103411                    BCS     30$                     ;BR, IF NO PROBLEM
8369 067644  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
8370 067650  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
8371 067652  005237  002212            INC     FATFLG                  ;BUMP COUNT
8375 067656                             ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     067656  104456                                                             TRAP    C$ERHRD
     067660  001325                                                             .WORD   725
     067662  073254                                                             .WORD   T26RWN
     067664  012136                                                             .WORD   PKTSSR
8376 067666                     30$:    CKLOOP                          ;LOOP IF SELECTED
     067666  104406                                                             TRAP    C$CLP1
8377
8378                            ;*****************************************************************
8379                            ;
8380                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8381                            ;
8382                            ;*****************************************************************
8383
8384 067670  013701  071630            MOV     T26BFR+6,R1             ;PICK UP XST0
8385 067674  010102                    MOV     R1,R2                   ;SET UP EXPECTED
8386 067676  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8387 067702  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
8388 067704  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
8389 067706  005237  002212            INC     FATFLG                  ;BUMP COUNT
8393 067712                             ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     067712  104456                                                             TRAP    C$ERHRD
     067714  001326                                                             .WORD   726
     067716  072765                                                             .WORD   T26BOT
     067720  015564                                                             .WORD   EXPREC
8394 067722                     40$:    CKLOOP                          ;LOOP IF SELECTED
     067722  104406                                                             TRAP    C$CLP1
8395 067724  013737  003114  071722        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8396
8397                            ;*****************************************************************
8398                            ;
8399                            ;WRITE DATA,CVC=1,ACK COMMAND
8400                            ;
8401                            ;*****************************************************************
8402
8403 067732  012737  140005  071720        MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
```

```
8404 067740  012704  071720                    MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8405 067744  012737  000400  071726  65$:      MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8406 067752  013777  071746  113134            MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
8407 067760  062737  000001  071746            ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
8408 067766  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8409 067772  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8410 067776  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8411 070002  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
8412 070006  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
8413 070010  001406                            BEQ     75$                     ;BR, IF OK
8414 070012  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8418 070016                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     070016  104456                                                                    TRAP    C$ERHRD
     070020  001327                                                                    .WORD   727
     070022  005111                                                                    .WORD   WRTERR
     070024  012136                                                                    .WORD   PKTSSR
8419 070026                            75$:    CKLOOP                          ;LOOP IF SELECTED
     070026  104406                                                                    TRAP    C$CLP1
8420 070030  022737  000013  071746            CMP     #11.,T26CNT             ;CHECK NUMBER OF RECORDS WRITTEN
8421 070036  001401                            BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
8422 070040  000741                            BR      65$                     ;WRITE MORE RECORDS
8423 070042                            120$:
8424 070042  005037  071746                    CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
8425
8426                                   ;*****************************************************************
8427                                   ;
8428                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8429                                   ;
8430                                   ;*****************************************************************
8431
8432 070046  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8433 070052  103411                            BCS     130$                    ;BR, IF NO PROBLEM
8434 070054  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
8435 070060  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
8436 070062  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8440 070066                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     070066  104456                                                                    TRAP    C$ERHRD
     070070  001330                                                                    .WORD   728
     070072  073254                                                                    .WORD   T26RWN
     070074  012136                                                                    .WORD   PKTSSR
8441 070076                            130$:   CKLOOP                          ;LOOP IF SELECTED
     070076  104406                                                                    TRAP    C$CLP1
8442
8443                                   ;*****************************************************************
8444                                   ;
8445                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8446                                   ;
8447                                   ;*****************************************************************
8448
8449 070100  013701  071630                    MOV     T26BFR+6,R1             ;PICK UP XST0
8450 070104  010102                            MOV     R1,R2                   ;SET UP EXPECTED
8451 070106  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8452 070112  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
8453 070114  001406                            BEQ     140$                    ;BR, IF EQUAL (OK)
8454 070116  005237  002212                    INC     FATFLG                  ;BUMP COUNT
8458 070122                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     070122  104456                                                                    TRAP    C$ERHRD
```

```
        070124  001331                                                          .WORD   729
        070126  072765                                                          .WORD   T26BOT
        070130  015564                                                          .WORD   EXPREC
   8459 070132                          140$:   CKLOOP                          ;LOOP IF SELECTED
        070132  104406                                                          TRAP    C$CLP1
   8460 070134  012703  071736                  MOV     #T26RN,R3               ;COMMAND BUFFER ADDRESS
   8461 070140  013737  003130  071722  150$:   MOV     NXMLO,T26RB             ;STARTING READ BUFFER ADDRESS
   8462 070146  013737  003132  071724          MOV     NXMHI,T26RB+2           ;SET UP HIGH ORDER ADDRESS BITS
   8463
   8464                                 ;*****************************************************************
   8465                                 ;
   8466                                 ;REREAD DATA,IE,ACK, OPP COMMAND
   8467                                 ;
   8468                                 ;*****************************************************************
   8469
   8470 070154  011337  071720                  MOV     (R3),T26PK3             ;REREAD DATA,IE,ACK, OPP COMMAND
   8471 070160  012704  071720          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
   8472 070164  012737  000400  071726          MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
   8473 070172  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
   8474 070176  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
   8475 070202  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
   8476 070206  012702  104210                  MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
   8477 070212  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
   8478 070214  001414                          BEQ     170$                    ;BR, IF OK
   8479 070216  031327  001000                  BIT     (R3),#BIT9              ;CHECK FOR A READ COMMAND
   8480 070222  001403                          BEQ     168$                    ;BR, IF IT WAS A READ COMMAND
   8481 070224  030127  000002                  BIT     R1,#BIT1                ;WAS BIT1 SET
   8482 070230  001006                          BNE     170$                    ;BR, IF REREAD AND BIT1 SET
   8483 070232                          168$:
   8484 070232  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   8488 070236                                  ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
        070236  104456                                                          TRAP    C$ERHRD
        070240  001332                                                          .WORD   730
        070242  072175                                                          .WORD   T26RRF
        070244  012136                                                          .WORD   PKTSSR
   8489 070246                          170$:   CKLOOP                          ;LOOP IF SELECTED
        070246  104406                                                          TRAP    C$CLP1
   8490
   8491                                 ;*****************************************************************
   8492                                 ;
   8493                                 ;READ DATA, ACK,CVC=1 COMMAND
   8494                                 ;
   8495                                 ;*****************************************************************
   8496
   8497 070250  012737  140001  071720          MOV     #140001,T26PK3          ;READ DATA, ACK,CVC=1 COMMAND
   8498 070256  012737  000400  071726          MOV     #256.,T26SZ             ;SET SIZE INTO PACKET
   8499 070264  005037  071724                  CLR     T26RB+2                 ;CLEAR OUT HIGH ADDRESS BITS
   8500 070270  013737  003114  071722          MOV     FREE,T26RB              ;GIVE READ A GOOD BUFFER
   8501 070276  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
   8502 070302  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR
   8503 070306  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP THE TSSR
   8504 070312  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
   8505 070316  020102                          CMP     R1,R2                   ;IS THE TSSR OK
   8506 070320  001406                          BEQ     180$                    ;BR, IF TSSR OK (GOOD)
   8507 070322  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   8511 070326                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
        070326  104456                                                          TRAP    C$ERHRD
```

```
                070330  001333                                                  .WORD   731
                070332  005204                                                  .WORD   RDERR
                070334  012136                                                  .WORD   PKTSSR
8512            070336                  180$:   CKLOOP                  ;LOOP IF SELECTED
                070336  104406                                                  TRAP    C$CLP1
8513            070340  017701  112550          MOV     @FREE,R1        ;FIRST WORD FROM READ BUFFER
8514            070344  012702  000001          MOV     #1,R2           ;SET UP EXPECTED
8515            070350  020102                  CMP     R1,R2           ;IS TAPE POSITION CORRECT
8516            070352  001406                  BEQ     190$            ;KEEP GOING POSITION OK
8517            070354  005237  002212          INC     FATFLG          ;BUMP COUNT
8521            070360                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
                070360  104456                                                  TRAP    C$ERHRD
                070362  001334                                                  .WORD   732
                070364  071756                                                  .WORD   T26WNG
                070366  015564                                                  .WORD   EXPREC
8522            070370                  190$:   CKLOOP
                070370  104406                                                  TRAP    C$CLP1
8523
8524                                    ;*******************************************************************
8525                                    ;
8526                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8527                                    ;
8528                                    ;*******************************************************************
8529
8530            070372  004737  011104          JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
8531            070376  103411                  BCS     194$            ;BR, IF NO PROBLEM
8532            070400  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR
8533            070404  010004                  MOV     R0,R4           ;PACKET ADDRESS SET UP
8534            070406  005237  002212          INC     FATFLG          ;BUMP COUNT
8538            070412                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                070412  104456                                                  TRAP    C$ERHRD
                070414  001335                                                  .WORD   733
                070416  073254                                                  .WORD   T26RWN
                070420  012136                                                  .WORD   PKTSSR
8539            070422                  194$:   CKLOOP                  ;LOOP IF SELECTED
                070422  104406                                                  TRAP    C$CLP1
8540
8541                                    ;*******************************************************************
8542                                    ;
8543                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8544                                    ;
8545                                    ;*******************************************************************
8546
8547            070424  013701  071630          MOV     T26BFR+6,R1     ;PICK UP XST0
8548            070430  010102                  MOV     R1,R2           ;SET UP EXPECTED
8549            070432  052702  000002          BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
8550            070436  020102                  CMP     R1,R2           ;DOES EXP = REC'D
8551            070440  001406                  BEQ     196$            ;BR, IF EQUAL (OK)
8552            070442  005237  002212          INC     FATFLG          ;BUMP COUNT
8556            070446                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                070446  104456                                                  TRAP    C$ERHRD
                070450  001336                                                  .WORD   734
                070452  072765                                                  .WORD   T26BOT
                070454  015564                                                  .WORD   EXPREC
8557            070456                  196$:   CKLOOP                  ;LOOP IF SELECTED
                070456  104406                                                  TRAP    C$CLP1
8558            070460  010302                  MOV     R3,R2                   ;SAVE R3 FOR A MOMENT
```

```
 8559
 8560                                   ;*****************************************************************
 8561                                   ;
 8562                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 8563                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 8564                                   ;
 8565                                   ;*****************************************************************
 8566
 8567 070462  012703  000001                    MOV     #1,R3                   ;SPACE ONE RECORD
 8568 070466  004737  010556                    JSR     PC,SPACE                        ;CALL SPACE ROUTINE
 8569 070472  010203                            MOV     R2,R3                           ;RESTORE R3
 8570 070474  005723                            TST     (R3)+                   ;BUMP COUNTER
 8571 070476  021327  177777                    CMP     (R3),#177777            ;END OF COMMAND BUFFER YET
 8572 070502  001216                            BNE     150$                    ;MORE COMMANDS KEEP GOING
 8573 070504                            200$:
 8574 070504                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      070504                                                                                  L10117:
      070504  104403                                                                                    TRAP    C$ESUB
 8575 070506  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 8576 070514  103402                            BLO     999$                            ;BR, IF LESS THAN 25
 8577 070516  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 8578 070522                            999$:
```

```
 8580                                   ;+
 8581                                   ;
 8582                                   ;TEST 6, SUBTEST 14
 8583                                   ;
 8584                                   ;VERIFIES THAT REREAD PREVIOUS WITH OPP=0 (SPACE
 8585                                   ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
 8586                                   ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
 8587                                   ;POSITIONED AT BOT CAUSE FUNCTION REJECT TERMINATION
 8588                                   ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
 8589                                   ;
 8590                                   ;
 8591                                   ;
 8592                                   ;-
 8593 070522                                   BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      070522                                                                                    T6.14:
      070522  104402                                                                                      TRAP    C$BSUB
 8594 070524  005003                           CLR     R3                      ;CLEAR TEST COUNTER
 8595 070526  004737  074510                  JSR     PC,T26REST              ;SET COMMAND PACKET
 8596 070532  004737  074602                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
 8597 070536  004737  074644                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
 8598
 8599                                   ;*****************************************************************
 8600                                   ;
 8601                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 8602                                   ;
 8603                                   ;*****************************************************************
 8604
 8605 070542  004737  016064                   JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 8606 070546  103407                           BCS     20$                     ;BR IF INIT WAS OK
 8607 070550  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 8611 070554  010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 8612 070556                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      070556  104455                                                                           TRAP    C$ERDF
      070560  001337                                                                           .WORD   735
      070562  003650                                                                           .WORD   SFIERR
      070564  012124                                                                           .WORD   SFIMSG
 8613 070566  013737  002172  071620  20$:      MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
 8614
 8615 070574  012704  071600                   MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 8616
 8617                                   ;*****************************************************************
 8618                                   ;
 8619                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 8620                                   ;
 8621                                   ;*****************************************************************
 8622
 8623 070600  004737  010752                   JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 8624 070604  103407                           BCS     25$                     ;BR, IF COMMAND ISSUED OK
 8625 070606  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 8629 070612  010001                           MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 8630 070614                                   ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      070614  104456                                                                           TRAP    C$ERHRD
      070616  001340                                                                           .WORD   736
      070620  005054                                                                           .WORD   WRTMSG
      070622  012124                                                                           .WORD   SFIMSG
 8631 070624                           25$:      CKLOOP                          ;LOOP IF SELECTED
      070624  104406                                                                           TRAP    C$CLP1
```

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

070626  004737  011104  26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
070632  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR
070636  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
070642  103407                  BCS     30$                     ;BR, IF NO PROBLEM
070644  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
070646  005237  002212          INC     FATFLG                  ;BUMP COUNT
070652                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
070652  104456                                                          TRAP    C$ERHRD
070654  001341                                                          .WORD   737
070656  073254                                                          .WORD   T26RWN
070660  012136                                                          .WORD   PKTSSR
070662                  30$:    CKLOOP                          ;LOOP IF SELECTED
070662  104406                                                          TRAP    C$CLP1

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

070664  013701  071630          MOV     T26BFR+6,R1             ;PICK UP XST0
070670  010102                  MOV     R1,R2                   ;SET UP EXPECTED
070672  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
070676  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
070700  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
070702  005237  002212          INC     FATFLG                  ;BUMP COUNT
070706                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
070706  104456                                                          TRAP    C$ERHRD
070710  001342                                                          .WORD   738
070712  072765                                                          .WORD   T26BOT
070714  015564                                                          .WORD   EXPREC
070716                  40$:    CKLOOP                          ;LOOP IF SELECTED
070716  104406                                                          TRAP    C$CLP1
070720  012737  000400  071726  MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
070726  013737  003114  071722  MOV     FREE,T26RB              ;ADDRESS OF READ BUFFER
070734  005703                  TST     R3                      ;CHECK NUMBER OF TIMES THROUGH HERE
070736  001404                  BEQ     50$                     ;BR, IF FIRST TIME THROUGH HERE

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

070740  012737  161001  071720  MOV     #161001,T26PK3          ;REREAD,CVC=1,ACK COMMAND
070746  000403                  BR      55$                     ;SKIP NEXT COMMAND

                        ;*****************************************************************
                        ;
                        ;REREAD,ACK COMMAND
```

```
 8685                                   ;
 8686                                   ;*****************************************************************
 8687
 8688 070750  012737  141001  071720  50$:    MOV     #141001,T26PK3          ;REREAD,ACK COMMAND
 8689 070756                            55$:
 8690 070756  012704  071720                   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 8691 070762                            65$:
 8692 070762  010465  000000                   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 8693 070766  004737  016340                   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 8694 070772  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8695 070776  012702  100206                   MOV     #SSR!SC.BIT1!BIT2,R2    ;SET UP EXPECTED
 8696 071002  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
 8697 071004  001406                           BEQ     75$                     ;BR, IF OK
 8698 071006  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 8702 071012                                   ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      071012  104456                                                                  TRAP    C$ERHRD
      071014  001343                                                                  .WORD   739
      071016  072713                                                                  .WORD   T26WDE
      071020  012136                                                                  .WORD   PKTSSR
 8703 071022                            75$:    CKLOOP                          ;LOOP IF SELECTED
      071022  104406                                                                  TRAP    C$CLP1
 8704
 8705                                   ;*****************************************************************
 8706                                   ;
 8707                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8708                                   ;
 8709                                   ;*****************************************************************
 8710
 8711 071024  013701  071630                   MOV     T26BFR+6,R1             ;GET XST0 STATUS WORD
 8712 071030  010102                           MOV     R1,R2                   ;SET UP EXPECTED
 8713 071032  052702  002000                   BIS     #BIT10,R2               ;SET THE NEF BIT
 8714 071036  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
 8715 071040  001406                           BEQ     170$                    ;BR, IF EQUAL (GOOD)
 8716 071042  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 8720 071046                                   ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
      071046  104456                                                                  TRAP    C$ERHRD
      071050  001344                                                                  .WORD   740
      071052  072044                                                                  .WORD   T26NEF
      071054  015564                                                                  .WORD   EXPREC
 8721 071056                            170$:   CKLOOP
      071056  104406                                                                  TRAP    C$CLP1
 8722 071060  005103                           COM     R3                      ;RESET THE SWITCH
 8723 071062  001261                           BNE     26$                     ;BR, IF FIRST TIME THROUGH HERE
 8724 071064                                   ENDSUB
      071064                                                                   L10120:
      071064  104403                                                                  TRAP    C$ESUB
 8725 071066  023727  002212  000017                   CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 8726 071074  103402                                   BLO     999$                    ;BR, IF LESS THAN 25
 8727 071076  004737  017272                           JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 8728 071102                            999$:
```

```
                        ;+
                        ;
                        ;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.
                        ;
                        ;
                        ;-
071102                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
071102                                                                  T6.15:
071102  104402                                                          TRAP    C$BSUB
071104  005037  071750          CLR     T26CNU                  ;CLEAR OUT COUNTER
071110  004737  074510          JSR     PC,T26REST              ;SET COMMAND PACKET
071114  004737  074602          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
071120  004737  074644          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

071124  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
071130  103407                  BCS     20$                     ;BR IF INIT WAS OK
071132  005237  002212          INC     FATFLG                  ;BUMP COUNT
071136  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
071140                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
071140  104455                                                          TRAP    C$ERDF
071142  001345                                                          .WORD   741
071144  003650                                                          .WORD   SFIERR
071146  012124                                                          .WORD   SFIMSG
071150  013737  002172  071620  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

071156  012704  071600          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

071162  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
071166  103407                  BCS     25$                     ;BR, IF COMMAND ISSUED OK
071170  005237  002212          INC     FATFLG                  ;BUMP COUNT
071174  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
071176                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
071176  104456                                                          TRAP    C$ERHRD
071200  001346                                                          .WORD   742
071202  005054                                                          .WORD   WRTMSG
071204  012124                                                          .WORD   SFIMSG
071206                  25$:    CKLOOP                          ;LOOP IF SELECTED
```

```
      071206  104406                                                                TRAP    C$CLP1
 8783
 8784                                ;*****************************************************************
 8785                                ;
 8786                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 8787                                ;
 8788                                ;*****************************************************************
 8789
 8790 071210  004737  011104        26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 8791 071214  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
 8792 071220  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 8793 071224  103407                        BCS     30$                     ;BR, IF NO PROBLEM
 8794 071226  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
 8795 071230  005237  002212                INC     FATFLG                  ;BUMP COUNT
 8799 071234                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      071234  104456                                                                TRAP    C$ERHRD
      071236  001347                                                                .WORD   743
      071240  073254                                                                .WORD   T26RWN
      071242  012136                                                                .WORD   PKTSSR
 8800 071244                        30$:    CKLOOP                          ;LOOP IF SELECTED
      071244  104406                                                                TRAP    C$CLP1
 8801
 8802                                ;*****************************************************************
 8803                                ;
 8804                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8805                                ;
 8806                                ;*****************************************************************
 8807
 8808 071246  013701  071630                MOV     T26BFR+6,R1             ;PICK UP XST0
 8809 071252  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 8810 071254  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 8811 071260  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 8812 071262  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
 8813 071264  005237  002212                INC     FATFLG                  ;BUMP COUNT
 8817 071270                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      071270  104456                                                                TRAP    C$ERHRD
      071272  001350                                                                .WORD   744
      071274  072765                                                                .WORD   T26BOT
      071276  015564                                                                .WORD   EXPREC
 8818 071300                        40$:    CKLOOP
      071300  104406                                                                TRAP    C$CLP1
 8819
 8820                                ;*****************************************************************
 8821                                ;
 8822                                ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 8823                                ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 8824                                ;
 8825                                ;*****************************************************************
 8826
 8827 071302  012703  000001                MOV     #000001,R3              ;SET UP SPACE FORWARD 1 RECORD
 8828 071306  004737  010556                JSR     PC,SPACE                ;ISSUE SPACE COMMAND
 8829 071312  103411                        BCS     75$                     ;BR, IF OK
 8830 071314  016501  000002                MOV     TSSR(R5),R1             ;GET STATUS DATA
 8831 071320  010004                        MOV     R0,R4                   ;GET PACKET ADDRESS
 8832 071322  005237  002212                INC     FATFLG                  ;BUMP COUNT
 8836 071326                                ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      071326  104456                                                                TRAP    C$ERHRD
```

```
        071330  001351                                                          .WORD   745
        071332  072713                                                          .WORD   T26WDE
        071334  012136                                                          .WORD   PKTSSR
 8837   071336                          75$:    CKLOOP                          ;LOOP IF SELECTED
        071336  104406                                                          TRAP    C$CLP1
 8838
 8839                                   ;*****************************************************************
 8840                                   ;
 8841                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 8842                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 8843                                   ;
 8844                                   ;*****************************************************************
 8845
 8846   071340  012703  100001                 MOV     #100001,R3              ;SET SPACE REVERSE 1 RECORD
 8847   071344  004737  010556                 JSR     PC,SPACE                ;ISSUE COMMAND
 8848   071350  103411                          BCS     175$                    ;GO ON IF ALL IS WELL
 8849   071352  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8850   071356  010004                          MOV     R0,R4                   ;SET UP EXPECTED (PACKET CONTENTS)
 8851   071360  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 8855   071364                                 ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        071364  104456                                                          TRAP    C$ERHRD
        071366  001352                                                          .WORD   746
        071370  072713                                                          .WORD   T26WDE
        071372  012136                                                          .WORD   PKTSSR
 8856   071374                          175$:   CKLOOP                          ;LOOP IF SELECTED
        071374  104406                                                          TRAP    C$CLP1
 8857   071376  013737  003114  071722         MOV     FREE,T26RB              ;ADDRESS OF BUFFER
 8858   071404  005737  071750                 TST     T26CNU                  ;CHECK FOR TIMES THROUGH HERE
 8859   071410  001404                          BEQ     176$                    ;BR, IF FIRST TIME THROUGH
 8860
 8861                                   ;*****************************************************************
 8862                                   ;
 8863                                   ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
 8864                                   ;
 8865                                   ;*****************************************************************
 8866
 8867   071412  012737  161001  071720         MOV     #161001,T26PK3          ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
 8868   071420  000403                          BR      178$                    ;SKIP NEXT COMMAND
 8869
 8870                                   ;*****************************************************************
 8871                                   ;
 8872                                   ;REREAD ,ACK,OPP=1 COMMAND
 8873                                   ;
 8874                                   ;*****************************************************************
 8875
 8876   071422  012737  141001  071720  176$:   MOV     #141001,T26PK3          ;REREAD ,ACK,OPP=1 COMMAND
 8877   071430                          178$:
 8878   071430  012704  071720                 MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 8879   071434  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 8880   071440  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 8881   071444  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8882   071450  012702  100204                 MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 8883   071454  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 8884   071456  001406                          BEQ     180$                    ;BR, IF OK
 8885   071460  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 8889   071464                                 ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        071464  104456                                                          TRAP    C$ERHRD
```

```
        071466  001353                                                          .WORD   747
        071470  072713                                                          .WORD   T26WDE
        071472  012136                                                          .WORD   PKTSSR
  8890  071474                        180$:   CKLOOP                  ;LOOP IF SELECTED
        071474  104406                                                          TRAP    C$CLP1
  8891  071476  013701  071636               MOV     T26BFR+14,R1      ;GET XST3 STATUS WORD
  8892  071502  010102                       MOV     R1,R2             ;SET UP EXPECTED
  8893  071504  052702  000001               BIS     #BIT0,R2          ;SET THE NEF BIT
  8894  071510  020102                       CMP     R1,R2             ;ARE THEY EQUAL
  8895  071512  001406                       BEQ     190$              ;BR, IF EQUAL (GOOD)
  8896  071514  005237  002212               INC     FATFLG            ;BUMP COUNT
  8900  071520                               ERRHRD  ERRNO,T26NEF,EXPREC ;NEF SHOULD BE SET
        071520  104456                                                          TRAP    C$ERHRD
        071522  001354                                                          .WORD   748
        071524  072044                                                          .WORD   T26NEF
        071526  015564                                                          .WORD   EXPREC
  8901  071530                        190$:   CKLOOP
        071530  104406                                                          TRAP    C$CLP1
  8902  071532  005137  071750               COM     T26CNU            ;SET SWITCH THE OTHER WAY
  8903  071536  001224                       BNE     26$               ;BR, IF FIRST TIME THROUGH
  8904  071540                               ENDSUB                    ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        071540                                                                  L10121:
        071540  104403                                                          TRAP    C$ESUB
  8905  071542  023727  002212  000017       CMP     FATFLG,#15.               ;IS ERROR COUNT AT 25
  8906  071550  103402                       BLO     999$                      ;BR, IF LESS THAN 25
  8907  071552  004737  017272               JSR     PC,CKDROP                 ;TRY TO DROP THE UNIT
  8908  071556                       999$:
  8909                                 ;
  8910                                 ;
  8911                                 ;
  8912  071556  004737  016546               JSR     PC,TSTLOOP        ;DO WE NEED TO ITERATE TEST
  8913  071562  103002                       BCC     163$              ;BR, IF NO LOOP REQUIRED
  8914  071564  000137  055414               JMP     T26LOOP           ;EXECUTE AGAIN
  8915  071570                       163$:
  8916  071570                               EXIT    TST               ;ALL DONE THIS TEST
        071570  104432                                                          TRAP    C$EXIT
        071572  003102                                                          .WORD   L10102-.
```

```
 8918                                   ;+
 8919                                   ;LOCAL STORAGE FOR THIS TEST
 8920                                   ;-
 8922            071600                         .=<.+10>&177770
 8924 071600                            T26PACKET:                      ;COMMAND PACKET FOR TEST
 8925 071600  014004                            .WORD   14004           ;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
 8926 071602  071610                            .WORD   T26DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
 8927 071604  000000                            .WORD   0
 8928 071606  000012                            .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
 8929 071610                            T26DATA:                        ;CHARACTERISTICS DATA BLOCK
 8930 071610  071622                            .WORD   T26BFR          ;ADDRESS OF MESSAGE BUFFER
 8931 071612  000000                            .WORD   0
 8932 071614  000024                            .WORD   20.             ;LENGTH OF MESSAGE BUFFER
 8933 071616  000000                            .WORD   0
 8934 071620  000000                    T26DSW: .WORD   0               ;SELECT DRIVE 0
 8935 071622                            T26BFR: .BLKW   25.             ;MESSAGE BUFFER
 8936                                   ;
 8937                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
 8938                                   ;
 8940            071710                         .=<.+10>&177770
 8942 071710                            T26PK2:
 8943 071710  100006                            .WORD   100006          ;WRITE SUB SYS MEM COMMAND, AND ACK
 8944 071712  071730                            .WORD   T26BF2          ;ADDRESS OF SELECT BLOCK DATA
 8945 071714  000000                            .WORD   0
 8946 071716  000006                            .WORD   6.              ;SIZE OF DATA PACKET
 8947
 8951 071720                            T26PK3:
 8952 071720  140005                            .WORD   140005          ;REREAD COMMAND, CVC=1 AND ACK
 8953 071722                            T26RB:
 8954 071722  003114                    T26WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
 8955 071724  000000                            .WORD   0
 8956 071726  000000                    T26SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
 8957                                           .EVEN
 8958                                   ;
 8959                                   ;
 8960                                   ;
 8961 071730                            T26BF2:
 8962 071730     010                    T26BS0: .BYTE   10              ;BSEL0 AREA
 8963 071731     200                    T26BS1: .BYTE   200             ;BSEL1 AREA
 8964 071732  000000                    T26S2:  .WORD   0               ;SEL 2 AREA
 8965 071734  000000                    T26S3:  .WORD   0               ;DATA AREA
 8966                                   ;
 8967                                   ;
 8968                                           .EVEN
 8969                                   ;T?    MOTION PACKET COMMAND VALUES
 8970
 8971 071736  140001                    T.  RN: .WORD   140001          ;READ DATA
 8972 071740  141401                            .WORD   141401          ;REREAD NEXT OPP=0
 8973 071742  161401                            .WORD   161401          ;REREAD NEXT OPP=1
 8974 071744  177777                            .WORD   177777          ;END OF DATA
 8975
 8976                                   ;
 8977 071746  000000                    T26CNT: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA
 8978 071750  000000                    T26CNU: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA
 8979
 8980 071752  000000                    T26RSZ: .WORD   0               ;RECORD STORAGE SIZE  AREA
 8981
```

```
8982 071754  000000          T26DLY: .WORD   0                ;DELAY COUNTER AREA
8983
```

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

071756  124  141  160  T26WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
072044  122  105  122  T26NEF: .ASCIZ  'REREAD PREVIOUS, At BOT, Failed To Set NEF (XSTO)'
072126  124  123  123  T26RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
072175  122  105  122  T26RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
072272  122  105  122  T26RRG: .ASCIZ  'REREAD Previous (Read Reverse, Space Forward) Command Failed'
072367  120  117  123  T26SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
072451  122  111  102  T26LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
072521  124  123  123  T26WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
072576  111  154  154  T26LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
072657  122  105  122  T26SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
072713  124  123  123  T26WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
072765  124  141  160  T26BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
073032  104  141  164  T26DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
073120  122  105  122  T26EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
073177  124  123  123  T26TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
073254  122  145  167  T26RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
073323  122  101  115  T26RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
073376  124  123  123  T26AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
073445  104  162  151  T26OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
073520  124  123  123  T26WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
073610  124  123  123  T26WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
073663  103  126  103  T26VCK: .ASCIZ  'CVC Set, Didn't Reset VCK In Message Buffer'
073736  124  123  102  T26BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
074011  127  122  111  T26WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
074100  122  145  141  T26LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
074162  122  145  141  T26LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
074244  122  145  163  T26PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
074332  122  145  141  T26TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
074420  104  141  164  T26NEQ: .ASCIZ  'Data REREAD From Tape Not Correct, After SWB=1'
074477  122  145  162  TST26ID:        .ASCIZ  'Rereads'
                                        .EVEN
                                        ;+
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-

074510                                  T26REST:
074510                                          SAVREG                          ;SAVE THE REGISTERS
074514  012701  071600                          MOV     #T26PACKET,R1           ;START OF THE PACKET
074520  012721  140004                          MOV     #140004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, CVC=1
074524  012721  071610                          MOV     #T26DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
074530  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
074532  012721  000012                          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
074536  012721  071622                          MOV     #T26BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
074542  005021                                  CLR     (R1)+
074544  012721  000024                          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
074550  005021                                  CLR     (R1)+
074552  012711  000000                          MOV     #0,(R1)                 ;SELECT DRIVE ZERO (0)
074556  012702  000030                          MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
```

```
 9042 074562  012762  177777  071622  64$:    MOV     #177777,T26BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
 9043 074570  005742                          TST     -(R2)                   ;NEXT LOCATION
 9044 074572  020227  000000                  CMP     R2,#0                   ;CHECK FOR END OF LOOP
 9045 074576  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
 9046 074600  000207                          RTS     PC                      ;RETURN
 9047
 9048
 9049 074602                          T26RT2:
 9050 074602                                  SAVREG                          ;SAVE THE REGISTERS
 9051 074606  012701  071710                  MOV     #T26PK2,R1              ;START OF THE PACKET
 9052 074612  012721  140006                  MOV     #140006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,CVC=1,
 9053 074616  012721  071730                  MOV     #T26BF2,(R1)+           ;ADDRESS OF DATA BLOCK
 9054 074622  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 9055 074624  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
 9056 074630  005021                          CLR     (R1)+
 9057 074632  012701  071730                  MOV     #T26BF2,R1              ;POINT TO DATA SEL AREA
 9058 074636  005021                          CLR     (R1)+
 9059 074640  005011                          CLR     (R1)
 9060 074642  000207                          RTS     PC                      ;RETURN
 9061 074644                          T26RT3:
 9062 074644                                  SAVREG                          ;SAVE THE REGISTERS
 9063 074650  012701  071720                  MOV     #T26PK3,R1              ;START OF THE PACKET
 9064 074654  012721  000000                  MOV     #0,(R1)+                ;WRITE SUBSYSTEM MEM. WITH ACK,
 9065 074660  012721  000000                  MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
 9066 074664  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 9067 074666  012711  000000                  MOV     #0,(R1)         ;SIZE OF DATA BLOCK IN BYTES
 9068 074672  000207                          RTS     PC                      ;RETURN
 9069 074674                                  ENDTST
      074674                                                          L10102:
      074674  104401                                                          TRAP    C$ETST
```

```
                                        .SBTTL  TEST  7: WRITE DATA RETRY
                                ;+
                                ;
                                ;THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY
                                ;COMMAND (SPACE REVERSE, ERASE, WRITE DATA)
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 5 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
074676                                  BGNTST
074676                                                                  T7::
074676  012737  006446  002170            MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
074704  005037  003124                    CLR     KTENABLE                ;TURN OFF KT11
074710  004737  017364                    JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
074714  012700  104513                    MOV     #TST27ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
074720  004737  016600                    JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
074724  012737  000005  002206            MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
074732  005037  101556                    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:
074736                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
074736                                                                          T7.1:
074736  104402                                                                  TRAP    C$BSUB
074740  004737  104534                    JSR     PC,T27REST              ;SET COMMAND PACKET
074744  004737  104626                    JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
074750  004737  104670                    JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
074754  012737  176750  101562            MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
074762  005037  101556                    CLR     T27CNT                  ;CLEAR COUNTER
                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************
074766  004737  016064          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
074772  103426                          BCS     20$                     ;BR IF INIT WAS OK
074774                                  DELAY   250                     ;DELAY ABOUT .25 SEC
074774  012727  000250                                                          MOV     #250,(PC)+
075000  000000                                                                  .WORD   0
075002  013727  002116                                                          MOV     L$DLY,(PC)+
075006  000000                                                                  .WORD   0
```

```
075010  005367  177772                                                  DEC     -6(PC)
075014  001375                                                          BNE     .-4
075016  005367  177756                                                  DEC     -22(PC)
075022  001367                                                          BNE     .-20
9125 075024  005337  101562          DEC     T27DLY          ;BUMP COUNTER
9126 075030  001356                  BNE     10$             ;BR, IF COUNTER NOT DONE
9127 075032  005237  002212          INC     FATFLG          ;BUMP COUNT
9131 075036  010001                  MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
9132 075040                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
075040  104455                                                          TRAP    C$ERDF
075042  001275                                                          .WORD   701
075044  003650                                                          .WORD   SFIERR
075046  012124                                                          .WORD   SFIMSG
9133 075050  013737  002172  101430  20$:    MOV     UNITN,T27DSW    ;SET UP DRIVE NUMBER
9134 075056  012704  101410          MOV     #T27PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
9135
9136                                 ;*****************************************************************
9137                                 ;
9138                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
9139                                 ;
9140                                 ;*****************************************************************
9141
9142 075062  004737  010752          JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
9143 075066  103407                  BCS     25$             ;BR, IF COMMAND ISSUED OK
9144 075070  005237  002212          INC     FATFLG          ;BUMP COUNT
9148 075074  010001                  MOV     R0,R1           ;SAVE CONTENTS OF TSSR
9149 075076                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
075076  104456                                                          TRAP    C$ERHRD
075100  001276                                                          .WORD   702
075102  005054                                                          .WORD   WRTMSG
075104  012124                                                          .WORD   SFIMSG
9150 075106                  25$:    CKLOOP                  ;LOOP IF SELECTED
075106  104406                                                          TRAP    C$CLP1
9151
9152                                 ;*****************************************************************
9153                                 ;
9154                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9155                                 ;
9156                                 ;*****************************************************************
9157
9158 075110  004737  011104          JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
9159 075114  103407                  BCS     30$             ;BR, IF NO PROBLEM
9160 075116  010004                  MOV     R0,R4           ;SET UP REWIND PACKET ADDRESS
9161 075120  005237  002212          INC     FATFLG          ;BUMP COUNT
9165 075124                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
075124  104456                                                          TRAP    C$ERHRD
075126  001277                                                          .WORD   703
075130  102735                                                          .WORD   T27RWN
075132  012136                                                          .WORD   PKTSSR
9166 075134                  30$:    CKLOOP                  ;LOOP IF SELECTED
075134  104406                                                          TRAP    C$CLP1
9167
9168                                 ;*****************************************************************
9169                                 ;
9170                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9171                                 ;
9172                                 ;*****************************************************************
```

```
9173
9174 075136  013701  101440          MOV     T27BFR+6,R1             ;PICK UP XSTO
9175 075142  010102                  MOV     R1,R2                   ;SET UP EXPECTED
9176 075144  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9177 075150  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
9178 075152  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
9179 075154  005237  002212          INC     FATFLG                  ;BUMP COUNT
9183 075160                          ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     075160  104456                                                          TRAP    C$ERHRD
     075162  001300                                                          .WORD   704
     075164  102431                                                          .WORD   T27BOT
     075166  015564                                                          .WORD   EXPREC
9184 075170                  40$:    CKLOOP                          ;LOOP IF SELECTED
     075170  104406                                                          TRAP    C$CLP1
9185 075172  012737  000400  101536          MOV     #256.,T27SZ             ;SET UP RECORD SIZE
9186 075200  013737  003114  101532          MOV     FREE,T27WB              ;ADDRESS OF WRITE BUFFER
9187
9188                         ;*****************************************************************
9189                         ;
9190                         ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
9191                         ;
9192                         ;*****************************************************************
9193
9194 075206  012737  141005  101530          MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
9195 075214  012704  101530                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9196 075220  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9197 075224  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9198 075230  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9199 075234  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
9200 075240  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
9201 075242  001406                          BEQ     75$                     ;BR, IF OK
9202 075244  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9206 075250                                  ERRHRD  ERRNO,T27WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     075250  10445E                                                                  TRAP    C$ERHRD
     075252  00130?                                                                  .WORD   705
     075254  102342                                                                  .WORD   T27WDE
     075256  012136                                                                  .WORD   PKTSSR
9207 075260                  75$:    CKLOOP                          ;LOOP IF SELECTED
     075260  104406                                                                  TRAP    C$CLP1
9208
9209                         ;*****************************************************************
9210                         ;
9211                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9212                         ;
9213                         ;*****************************************************************
9214
9215 075262  013701  101440          MOV     T27BFR+6,R1             ;GET XSTO STATUS WORD
9216 075266  010102                  MOV     R1,R2                   ;SET UP EXPECTED
9217 075270  052702  002000          BIS     #BIT10,R2               ;SET THE NEF BIT
9218 075274  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
9219 075276  001406                  BEQ     170$                    ;BR, IF EQUAL (GOOD)
9220 075300  005237  002212          INC     FATFLG                  ;BUMP COUNT
9224 075304                          ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
     075304  104456                                                          TRAP    C$ERHRD
     075306  001302                                                          .WORD   706
     075310  104101                                                          .WORD   T27NEF
     075312  015564                                                          .WORD   EXPREC
```

```
9225 075314                          170$:   CKLOOP
     075314  104406                                                    TRAP    C$CLP1
9226 075316                                  ENDSUB
     075316                                                         L10123:
     075316  104403                                                  TRAP    C$ESUB
9227 075320  023727  002212  000017          CMP     FATFLG,#15.     ;IS ERROR COUNT AT 25
9228 075326  103402                          BLO     999$            ;BR, IF LESS THAN 25
9229 075330  004737  017272                  JSR     PC,CKDROP       ;TRY TO DROP THE UNIT
9230 075334                          999$:
```

```
 9232                                   ;+
 9233                                   ;
 9234                                   ;TEST 7, SUBTEST 2
 9235                                   ;
 9236                                   ;VERIFIES THAT WRITE DATA RETRY COMMAND ISSUED WHILE
 9237                                   ;THE TAPE IS POSITIONED BEFORE THE FIRST RECORD ON
 9238                                   ;TAPE (BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT
 9239                                   ;TERMINATION, WITH THE REVERSE INTO BOT (RIB) STATUS
 9240                                   ;ERROR BIT SET.
 9241                                   ;
 9242                                   ;
 9243                                   ;
 9244                                   ;-
 9245 075334                                   BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      075334                                                                                    T7.2:
      075334  104402                                                                                TRAP    C$BSUB
 9246 075336  004737  104534                   JSR     PC,T27REST              ;SET COMMAND PACKET
 9247 075342  004737  104626                   JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
 9248 075346  004737  104670                   JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
 9249
 9250                                   ;*****************************************************************
 9251                                   ;
 9252                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 9253                                   ;
 9254                                   ;*****************************************************************
 9255
 9256 075352  004737  016064                   JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 9257 075356  103407                           BCS     20$                     ;BR IF INIT WAS OK
 9258 075360  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 9262 075364  010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 9263 075366                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      075366  104455                                                                            TRAP    C$ERDF
      075370  001303                                                                           .WORD   707
      075372  003650                                                                           .WORD   SFIERR
      075374  012124                                                                           .WORD   SFIMSG
 9264 075376  013737  002172  101430  20$:     MOV     UNITN,T27DSW            ;SET UP DRIVE NUMBER
 9265 075404  012704  101410                   MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 9266
 9267                                   ;*****************************************************************
 9268                                   ;
 9269                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 9270                                   ;
 9271                                   ;*****************************************************************
 9272
 9273 075410  004737  010752                   JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 9274 075414  103407                           BCS     25$                     ;BR, IF COMMAND ISSUED OK
 9275 075416  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 9279 075422  010001                           MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 9280 075424                                   ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      075424  104456                                                                            TRAP    C$ERHRD
      075426  001304                                                                           .WORD   708
      075430  005054                                                                           .WORD   WRTMSG
      075432  012124                                                                           .WORD   SFIMSG
 9281 075434                           25$:     CKLOOP                          ;LOOP IF SELECTED
      075434  104406                                                                            TRAP    C$CLP1
 9282
 9283                                   ;*****************************************************************
```

```
9284                                    ;
9285                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9286                                    ;
9287                                    ;*****************************************************************
9288
9289 075436  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9290 075442  103411                            BCS     26$                     ;BR, IF NO PROBLEM
9291 075444  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9292 075446  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9293 075452  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9297 075456                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     075456  104456                                                                    TRAP    C$ERHRD
     075460  001305                                                                    .WORD   709
     075462  102735                                                                    .WORD   T27RWN
     075464  012136                                                                    .WORD   PKTSSR
9298 075466                            26$:    CKLOOP                          ;LOOP IF SELECTED
     075466  104406                                                                    TRAP    C$CLP1
9299 075470  012703  000400                    MOV     #256.,R3                        ;STARTING RECORD SIZE
9300 075474  013737  003114  101532            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
9301
9302                                    ;*****************************************************************
9303                                    ;
9304                                    ;WRITE DATA,CVC=1,ACK COMMAND
9305                                    ;
9306                                    ;*****************************************************************
9307
9308 075502  012737  140005  101530            MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
9309 075510  012704  101530                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9310 075514  010337  101536                    MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9311 075520  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9312 075524  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9313 075530  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9314 075534  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9315 075540  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9316 075542  001406                            BEQ     28$                     ;BR, IF OK
9317 075544  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9321 075550                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     075550  104456                                                                    TRAP    C$ERHRD
     075552  001306                                                                    .WORD   710
     075554  005111                                                                    .WORD   WRTERR
     075556  012136                                                                    .WORD   PKTSSR
9322 075560                            28$:    CKLOOP                          ;LOOP IF SELECTED
     075560  104406                                                                    TRAP    C$CLP1
9323
9324                                    ;*****************************************************************
9325                                    ;
9326                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9327                                    ;
9328                                    ;*****************************************************************
9329
9330 075562  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9331 075566  103411                            BCS     30$                     ;BR, IF NO PROBLEM
9332 075570  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9333 075574  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9334 075576  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9338 075602                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     075602  104456                                                                    TRAP    C$ERHRD
```

```
                                                                                .WORD   711
                                                                                .WORD   T27RWN
                                                                                .WORD   PKTSSR
9339 075612                     30$:    CKLOOP                  ;LOOP IF SELECTED
     075612  104406                                                              TRAP    C$CLP1
9340
9341                            ;*******************************************************************
9342                            ;
9343                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9344                            ;
9345                            ;*******************************************************************
9346
9347 075614  013701  101440            MOV     T27BFR+6,R1             ;PICK UP XST0
9348 075620  010102                    MOV     R1,R2                   ;SET UP EXPECTED
9349 075622  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9350 075626  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
9351 075630  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
9352 075632  005237  002212            INC     FATFLG                  ;BUMP COUNT
9356 075636                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     075636  104456                                                              TRAP    C$ERHRD
     075640  001310                                                              .WORD   712
     075642  102431                                                              .WORD   T27BOT
     075644  015564                                                              .WORD   EXPREC
9357 075646                     40$:    CKLOOP                  ;LOOP IF SELECTED
     075646  104406                                                              TRAP    C$CLP1
9358
9359                            ;*******************************************************************
9360                            ;
9361                            ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
9362                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
9363                            ;
9364                            ;*******************************************************************
9365
9366 075650  012703  000001            MOV     #1,R3                   ;PARAMETER SPACE FORWARD 1 RECORD
9367 075654  004737  010556            JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
9368 075660  103413                    BCS     50$                     ;BR, IF NO ERRORS
9369 075662  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9370 075666  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
9371 075672  010004                    MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9372 075674  005237  002212            INC     FATFLG                  ;BUMP COUNT
9376 075700                            ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
     075700  104456                                                              TRAP    C$ERHRD
     075702  001311                                                              .WORD   713
     075704  104177                                                              .WORD   T27SCF
     075706  012136                                                              .WORD   PKTSSR
9377 075710                     50$:    CKLOOP                  ;LOOP IF SELECTED
     075710  104406                                                              TRAP    C$CLP1
9378
9379                            ;*******************************************************************
9380                            ;
9381                            ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
9382                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
9383                            ;
9384                            ;*******************************************************************
9385
9386 075712  012703  100001            MOV     #100001,R3              ;PARAMETER SPACE REVERSE 1 RECORD
9387 075716  004737  010556            JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
```

```
 9388 075722  103413                        BCS     60$                     ;BR, IF NO ERRORS
 9389 075724  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9390 075730  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 9391 075734  010004                        MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9392 075736  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9396 075742                                ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
      075742  104456                                                                TRAP    C$ERHRD
      075744  001312                                                                .WORD   714
      075746  104177                                                                .WORD   T27SCF
      075750  012136                                                                .WORD   PKTSSR
 9397 075752                        60$:    CKLOOP                          ;LOOP IF SELECTED
      075752  104406                                                                TRAP    C$CLP1
 9398 075754  013737  003114  101532        MOV     FREE,T27RB              ;ADDRESS OF BUFFER
 9399
 9400                                       ;*************************************************************************
 9401                                       ;
 9402                                       ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9403                                       ;
 9404                                       ;*************************************************************************
 9405
 9406 075762  012737  141005  101530        MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9407 075770  012737  000400  101536        MOV     #256.,T27SZ             ;SET UP THE SIZE OF RECORD
 9408 075776  012704  101530                MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9409 076002  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9410 076006  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9411 076012  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9412 076016  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED TAPE STATUS ALERT
 9413 076022  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 9414 076024  001406                        BEQ     180$                    ;BR, IF OK
 9415 076026  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9419 076032                                ERRHRD  ERRNO,T27TSA,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      076032  104456                                                                TRAP    C$ERHRD
      076034  001313                                                                .WORD   715
      076036  104254                                                                .WORD   T27TSA
      076040  012136                                                                .WORD   PKTSSR
 9420 076042                        180$:   CKLOOP                          ;LOOP IF SELECTED
      076042  104406                                                                TRAP    C$CLP1
 9421 076044  013701  101446                MOV     T27BFR+14,R1            ;GET XST3 STATUS WORD
 9422 076050  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 9423 076052  052702  000001                BIS     #BIT0,R2                ;SET THE RIB BIT
 9424 076056  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 9425 076060  001406                        BEQ     190$                    ;BR, IF EQUAL (GOOD)
 9426 076062  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9430 076066                                ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
      076066  104456                                                                TRAP    C$ERHRD
      076070  001314                                                                .WORD   716
      076072  104101                                                                .WORD   T27NEF
      076074  015564                                                                .WORD   EXPREC
 9431 076076                        190$:   CKLOOP
      076076  104406                                                                TRAP    C$CLP1
 9432 076100                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      076100                                                                  L10124:
      076100  104403                                                                TRAP    C$ESUB
 9433 076102  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 9434 076110  103402                        BLO     999$                            ;BR, IF LESS THAN 25
 9435 076112  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 9436 076116                        999$:
```

```
 9438                                   ;+
 9439                                   ;
 9440                                   ;TEST 7, SUBTEST 3
 9441                                   ;
 9442                                   ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=0
 9443                                   ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
 9444                                   ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
 9445                                   ;BYTE COUNTS AND DATA PATTERNS ARE USED.
 9446                                   ;
 9447                                   ;
 9448                                   ;
 9449                                   ;-
 9450 076116                                   BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      076116                                                                                 T7.3:
      076116  104402                                                                            TRAP    C$BSUB
 9451 076120  004737  104534                   JSR     PC,T27REST              ;SET COMMAND PACKET
 9452 076124  004737  104626                   JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
 9453 076130  004737  104670                   JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
 9454
 9455                                   ;*************************************************************************
 9456                                   ;
 9457                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 9458                                   ;
 9459                                   ;*************************************************************************
 9460
 9461 076134  004737  016064                   JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 9462 076140  103407                           BCS     20$                     ;BR IF INIT WAS OK
 9463 076142  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 9467 076146  010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 9468 076150                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      076150  104455                                                                         TRAP    C$ERDF
      076152  001315                                                                        .WORD   717
      076154  003650                                                                        .WORD   SFIERR
      076156  012124                                                                        .WORD   SFIMSG
 9469 076160  013737  002172  101430  20$:     MOV     UNITN,T27DSW            ;SET UP UNIT NUMBER IN PACKET
 9470 076166  012704  101410                   MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 9471
 9472                                   ;*************************************************************************
 9473                                   ;
 9474                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 9475                                   ;
 9476                                   ;*************************************************************************
 9477
 9478 076172  004737  010752                   JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 9479 076176  103407                           BCS     23$                     ;BR, IF COMMAND ISSUED OK
 9480 076200  005237  002212                   INC     FATFLG                  ;BUMP COUNT
 9484 076204  010001                           MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 9485 076206                                   ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      076206  104456                                                                         TRAP    C$ERHRD
      076210  001316                                                                        .WORD   718
      076212  005054                                                                        .WORD   WRTMSG
      076214  012124                                                                        .WORD   SFIMSG
 9486 076216                            23$:    CKLOOP                          ;LOOP IF SELECTED
      076216  104406                                                                         TRAP    C$CLP1
 9487
 9488                                   ;*************************************************************************
 9489                                   ;
```

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

076220  004737  011104           JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
076224  103407                   BCS     30$                     ;BR, IF NO PROBLEM
076226  010004                   MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
076230  005237  002212           INC     FATFLG                  ;BUMP COUNT
076234                           ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
076234  104456                                                           TRAP    C$ERHRD
076236  001317                                                           .WORD   719
076240  102735                                                           .WORD   T27RWN
076242  012136                                                           .WORD   PKTSSR
076244                   30$:    CKLOOP                          ;LOOP IF SELECTED
076244  104406                                                           TRAP    C$CLP1
                        ;
                        ;*****************************************************************
                        ;
                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                        ;
                        ;*****************************************************************

076246  013701  101440           MOV     T27BFR+6,R1             ;PICK UP XST0
076252  010102                   MOV     R1,R2                   ;SET UP EXPECTED
076254  052702  000002           BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
076260  020102                   CMP     R1,R2                   ;DOES EXP = REC'D
076262  001406                   BEQ     40$                     ;BR, IF EQUAL (OK)
076264  005237  002212           INC     FATFLG                  ;BUMP COUNT
076270                           ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
076270  104456                                                           TRAP    C$ERHRD
076272  001320                                                           .WORD   720
076274  102431                                                           .WORD   T27BOT
076276  015564                                                           .WORD   EXPREC
076300                   40$:    CKLOOP                          ;LOOP IF SELECTED
076300  104406                                                           TRAP    C$CLP1
076302  012703  000024           MOV     #20.,R3                 ;STARTING RECORD SIZE
076306  013737  003114  101532   MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
                        ;
                        ;*****************************************************************
                        ;
                        ;WRITE DATA,CVC=1,ACK COMMAND
                        ;
                        ;*****************************************************************

076314  012737  140005  101530   65$:    MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
076322  012704  101530           MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
076326  010300                   MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
076330  004737  017512           JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
076334  010337  101536           MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
076340  010465  000000           MOV     R4,TSDB(R5)             ;ISSUE COMMAND
076344  004737  016340           JSR     PC,WAITF                ;WAIT FOR SSR TO SET
076350  016501  000002           MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
076354  012702  000200           MOV     #SSR,R2                 ;SET UP EXPECTED
076360  020102                   CMP     R1,R2                   ;ARE THEY EQUAL
076362  001406                   BEQ     80$                     ;BR, IF OK
076364  005237  002212           INC     FATFLG                  ;BUMP COUNT
076370                           ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
```

```
        076370  104456                                                          TRAP    C$ERHRD
        076372  001321                                                          .WORD   721
        076374  005111                                                          .WORD   WRTERR
        076376  012136                                                          .WORD   PKTSSR
 9546   076400                          80$:    CKLOOP                  ;LOOP IF SELECTED
        076400  104406                                                          TRAP    C$CLP1
 9547
 9548                                   ;*****************************************************************
 9549                                   ;
 9550                                   ;WRITE DATA RETRY,CVC=1,ACK COMMAND
 9551                                   ;
 9552                                   ;*****************************************************************
 9553
 9554   076402  012737  141005  101530          MOV     #141005,T27PK3          ;WRITE DATA RETRY,CVC=1,ACK COMMAND
 9555   076410  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9556   076414  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9557   076420  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9558   076424  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9559   076430  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9560   076432  001406                          BEQ     90$                     ;BR, IF OK
 9561   076434  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9565   076440                                  ERRHRD  ERRNO,T27WRF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA RETRY
        076440  104456                                                          TRAP    C$ERHRD
        076442  001322                                                          .WORD   722
        076444  104336                                                          .WORD   T27WRF
        076446  012136                                                          .WORD   PKTSSR
 9566   076450                          90$:    CKLOOP                  ;LOOP IF SELECTED
        076450  104406                                                          TRAP    C$CLP1
 9567   076452  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
 9568   076454  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
 9569   076460  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 9570
 9571                                   ;*****************************************************************
 9572                                   ;
 9573                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9574                                   ;
 9575                                   ;*****************************************************************
 9576
 9577   076462  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9578   076466  103407                          BCS     230$                    ;BR, IF NO PROBLEM
 9579   076470  010001                          MOV     R0,R1                   ;SAVE TSSR
 9580   076472  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9584   076476                                  ERRHRD  ERRNO,T27RWN,EXPREC     ;REWIND NOT ACCEPTED
        076476  104456                                                          TRAP    C$ERHRD
        076500  001323                                                          .WORD   723
        076502  102735                                                          .WORD   T27RWN
        076504  015564                                                          .WORD   EXPREC
 9585   076506                          230$:   CKLOOP                  ;LOOP IF SELECTED
        076506  104406                                                          TRAP    C$CLP1
 9586
 9587                                   ;*****************************************************************
 9588                                   ;
 9589                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9590                                   ;
 9591                                   ;*****************************************************************
 9592
 9593   076510  013701  101440                  MOV     T27BFR+6,R1             ;PICK UP XST0
```

```
 9594 076514  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 9595 076516  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9596 076522  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 9597 076524  001406                        BEQ     240$                    ;BR, IF EQUAL (OK)
 9598 076526  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9602 076532                                ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      076532  104456                                                        TRAP    C$ERHRD
      076534  001324                                                        .WORD   724
      076536  102431                                                        .WORD   T27BOT
      076540  015564                                                        .WORD   EXPREC
 9603 076542                        240$:   CKLOOP                          ;LOOP IF SELECTED
      076542  104406                                                        TRAP    C$CLP1
 9604 076544  012703  000024                MOV     #20.,R3                 ;STARTING RECORD SIZE
 9605 076550  013737  003114  101532        MOV     FREE,T27RB              ;STARTING READ BUFFER ADDRESS
 9606
 9607                               ;*************************************************************************
 9608                               ;
 9609                               ;READ DATA,ACK COMMAND
 9610                               ;
 9611                               ;*************************************************************************
 9612
 9613 076556  012737  100001  101530 265$:   MOV     #100001,T27PK3          ;READ DATA,ACK COMMAND
 9614 076564  012704  101530                MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9615 076570  010337  101536                MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9616 076574  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9617 076600  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9618 076604  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9619 076610  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 9620 076614  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 9621 076616  001406                        BEQ     280$                    ;BR, IF OK
 9622 076620  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9626 076624                                ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
      076624  104456                                                        TRAP    C$ERHRD
      076626  001325                                                        .WORD   725
      076630  005204                                                        .WORD   RDERR
      076632  012136                                                        .WORD   PKTSSR
 9627 076634                        280$:   CKLOOP                          ;LOOP IF SELECTED
      076634  104406                                                        TRAP    C$CLP1
 9628 076636  013702  003114                MOV     FREE,R2                 ;GET BUFFER ADDRESS
 9629 076642  010304                        MOV     R3,R4                   ;GET RECORD SIZE
 9630 076644  162704  000024                SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
 9631 076650  060204                285$:   ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
 9632 076652  021403                        CMP     (R4),R3                 ;DATA WRITTEN = READ
 9633 076654  001410                        BEQ     290$                    ;BR, IF DATA OK (GOOD)
 9634 076656  011401                        MOV     (R4),R1                 ;PICK UP BAD DATA
 9635 076660  010302                        MOV     R3,R2                   ;SET UP EXPECTED
 9636 076662  005237  002212                INC     FATFLG                  ;BUMP COUNT
 9640 076666                                ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
      076666  104456                                                        TRAP    C$ERHRD
      076670  001326                                                        .WORD   726
      076672  104416                                                        .WORD   T27DTA
      076674  015564                                                        .WORD   EXPREC
 9641 076676                        290$:   CKLOOP                          ;LOOP IF SELECTED
      076676  104406                                                        TRAP    C$CLP1
 9642 076700  005724                        TST     (R4)+                   ;BUMP TO NEXT ADDRESS
 9643 076702  160204                        SUB     R2,R4                   ;BACK TO RECORD SIZE
 9644 076704  020403                        CMP     R4,R3                   ;AT END OF RECORD YET
```

```
 9645 076706  001360                        BNE     285$                ;BR, IF MORE DATA TO CHECK
 9646 076710  005723                        TST     (R3)+               ;BUMP RECORD SIZE
 9647 076712  020327  000050                CMP     R3,#40.             ;DONE YET
 9648 076716  001317                        BNE     265$                ;BR, IF NOT DONE YET (MORE READS)
 9649 076720                        300$:   CKLOOP                      ;LOOP IF SELECTED
      076720  104406                                                            TRAP    C$CLP1
 9650 076722                        330$:
 9651 076722                        ENDSUB                      ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      076722                                                                  L10125:
      076722  104403                                                          TRAP    C$ESUB
 9652 076724  023727  002212  000017        CMP     FATFLG,#15.         ;IS ERROR COUNT AT 25
 9653 076732  103402                        BLO     999$                ;BR, IF LESS THAN 25
 9654 076734  004737  017272                JSR     PC,CKDROP           ;TRY TO DROP THE UNIT
 9655 076740                        999$:
```

```
                                        ;+
                                        ;
                                        ;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.
                                        ;
                                        ;
                                        ;-
 9669 076740                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      076740                                                                                    T7.4:
      076740  104402                                                                              TRAP    C$BSUB
 9670 076742  004737  104534                    JSR     PC,T27REST              ;SET COMMAND PACKET
 9671 076746  004737  104626                    JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
 9672 076752  004737  104670                    JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
 9673 076756  012737  176750  101562            MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
 9674
 9675                                   ;*************************************************************************
                                        ;
 9677                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
 9679                                   ;*************************************************************************
 9680
 9681 076764  004737  016064            10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 9682 076770  103426                            BCS     20$                     ;BR IF INIT WAS OK
 9683 076772                                    DELAY   250                     ;DELAY ABOUT .25 SEC
      076772  012727  000250                                                                    MOV     #250,(PC)+
      076776  000000                                                                            .WORD   0
      077000  013727  002116                                                                    MOV     L$DLY,(PC)+
      077004  000000                                                                            .WORD   0
      077006  005367  177772                                                                    DEC     -6(PC)
      077012  001375                                                                            BNE     .-4
      077014  005367  177756                                                                    DEC     -22(PC)
      077020  001367                                                                            BNE     .-20
 9684 077022  005337  101562                    DEC     T27DLY                  ;BUMP COUNTER
 9685 077026  001356                            BNE     10$                     ;BR, IF COUNTER NOT DONE
 9686 077030  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 9690 077034  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 9691 077036                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      077036  104455                                                                           TRAP    C$ERDF
      077040  001327                                                                           .WORD   727
      077042  003650                                                                           .WORD   SFIERR
      077044  012124                                                                           .WORD   SFIMSG
 9692 077046  013737  002172  101430  20$:      MOV     UNITN,T27DSW            ;SET UP UNIT (DRIVE) NUMBER
 9693 077054  012704  101410                    MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 9694
 9695                                   ;*************************************************************************
                                        ;
 9697                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
 9699                                   ;*************************************************************************
 9700
 9701 077060  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 9702 077064  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
```

```
9703 077066  005237  002212          INC     FATFLG                  ;BUMP COUNT
9707 077072  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
9708 077074                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     077074  104456                                                          TRAP    C$ERHRD
     077076  001330                                                          .WORD   728
     077100  005054                                                          .WORD   WRTMSG
     077102  012124                                                          .WORD   SFIMSG
9709 077104                  23$:    CKLOOP                          ;LOOP IF SELECTED
     077104  104406                                                          TRAP    C$CLP1
9710
9711                         ;*****************************************************************
9712                         ;
9713                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9714                         ;
9715                         ;*****************************************************************
9716
9717 077106  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9718 077112  103411                  BCS     30$                     ;BR, IF NO PROBLEM
9719 077114  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9720 077120  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
9721 077122  005237  002212          INC     FATFLG                  ;BUMP COUNT
9725 077126                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     077126  104456                                                          TRAP    C$ERHRD
     077130  001331                                                          .WORD   729
     077132  102735                                                          .WORD   T27RWN
     077134  012136                                                          .WORD   PKTSSR
9726 077136                  30$:    CKLOOP                          ;LOOP IF SELECTED
     077136  104406                                                          TRAP    C$CLP1
9727
9728                         ;*****************************************************************
9729                         ;
9730                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9731                         ;
9732                         ;*****************************************************************
9733
9734 077140  013701  101440          MOV     T27BFR+6,R1             ;PICK UP XST0
9735 077144  010102                  MOV     R1,R2                   ;SET UP EXPECTED
9736 077146  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9737 077152  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
9738 077154  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
9739 077156  005237  002212          INC     FATFLG                  ;BUMP COUNT
9743 077162                          ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     077162  104456                                                          TRAP    C$ERHRD
     077164  001332                                                          .WORD   730
     077166  102431                                                          .WORD   T27BOT
     077170  015564                                                          .WORD   EXPREC
9744 077172                  40$:    CKLOOP                          ;LOOP IF SELECTED
     077172  104406                                                          TRAP    C$CLP1
9745 077174  012703  000024          MOV     #20.,R3                 ;STARTING RECORD SIZE
9746 077200  013737  003114  101532  MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
9747
9748                         ;*****************************************************************
9749                         ;
9750                         ;WRITE DATA,CVC=1,ACK COMMAND
9751                         ;
9752                         ;*****************************************************************
9753
```

```
 9754 077206  012737  140005  101530  65$:    MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 9755 077214  012704  101530                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9756 077220  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 9757 077222  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 9758 077226  010337  101536                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9759 077232  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9760 077236  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9761 077242  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9762 077246  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9763 077252  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9764 077254  001406                          BEQ     80$                     ;BR, IF OK
 9765 077256  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9769 077262                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      077262  104456                                                                  TRAP    C$ERHRD
      077264  001333                                                                  .WORD   731
      077266  005111                                                                  .WORD   WRTERR
      077270  012136                                                                  .WORD   PKTSSR
 9770 077272                          80$:    CKLOOP                          ;LOOP IF SELECTED
      077272  104406                                                                  TRAP    C$CLP1
 9771
 9772                                 ;*****************************************************************
 9773                                 ;
 9774                                 ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 9775                                 ;
 9776                                 ;*****************************************************************
 9777
 9778 077274  012737  111005  101530          MOV     #111005,T27PK3          ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 9779 077302  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9780 077306  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9781 077312  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9782 077316  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9783 077322  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9784 077324  001406                          BEQ     90$                     ;BR, IF OK
 9785 077326  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9789 077332                                  ERRHRD  ERRNO,T27WRF,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA RETRY
      077332  104456                                                                  TRAP    C$ERHRD
      077334  001334                                                                  .WORD   732
      077336  104336                                                                  .WORD   T27WRF
      077340  015564                                                                  .WORD   EXPREC
 9790 077342                          90$:    CKLOOP                          ;LOOP IF SELECTED
      077342  104406                                                                  TRAP    C$CLP1
 9791 077344  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
 9792 077346  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
 9793 077352  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 9794
 9795                                 ;*****************************************************************
 9796                                 ;
 9797                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9798                                 ;
 9799                                 ;*****************************************************************
 9800
 9801 077354  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9802 077360  103411                          BCS     230$                    ;BR, IF NO PROBLEM
 9803 077362  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9804 077366  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
 9805 077370  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9809 077374                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
```

```
                077374  104456                                                          TRAP    C$ERHRD
                077376  001335                                                          .WORD   733
                077400  102735                                                          .WORD   T27RWN
                077402  012136                                                          .WORD   PKTSSR
   9810         077404                  230$:   CKLOOP                  ;LOOP IF SELECTED
                077404  104406                                                          TRAP    C$CLP1
   9811
   9812                                 ;*****************************************************************
   9813                                 ;
   9814                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
   9815                                 ;
   9816                                 ;*****************************************************************
   9817
   9818 077406  013701  101440                  MOV     T27BFR+6,R1         ;PICK UP XST0
   9819 077412  010102                          MOV     R1,R2               ;SET UP EXPECTED
   9820 077414  052702  000002                  BIS     #BIT1,R2            ;SET BOT BIT IN EXPECTED
   9821 077420  020102                          CMP     R1,R2               ;DOES EXP = REC'D
   9822 077422  001406                          BEQ     240$                ;BR, IF EQUAL (OK)
   9823 077424  005237  002212                  INC     FATFLG              ;BUMP COUNT
   9827 077430                                  ERRHRD  ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                077430  104456                                                          TRAP    C$ERHRD
                077432  001336                                                          .WORD   734
                077434  102431                                                          .WORD   T27BOT
                077436  015564                                                          .WORD   EXPREC
   9828 077440                  240$:   CKLOOP                  ;LOOP IF SELECTED
                077440  104406                                                          TRAP    C$CLP1
   9829 077442  012703  000024                  MOV     #20.,R3             ;STARTING RECORD SIZE
   9830 077446  013737  003114  101532          MOV     FREE,T27RB          ;STARTING READ BUFFER ADDRESS
   9831
   9832                                 ;*****************************************************************
   9833                                 ;
   9834                                 ;READ DATA,ACK COMMAND
   9835                                 ;
   9836                                 ;*****************************************************************
   9837
   9838 077454  012737  100001  101530  265$:   MOV     #100001,T27PK3      ;READ DATA,ACK COMMAND
   9839 077462  012704  101530                  MOV     #T27PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
   9840 077466  010337  101536                  MOV     R3,T27SZ            ;SET UP RECORD SIZE IN PACKET
   9841 077472  010465  000000                  MOV     R4,TSDB(R5)         ;ISSUE COMMAND
   9842 077476  004737  016340                  JSR     PC,WAITF            ;WAIT FOR SSR TO SET
   9843 077502  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
   9844 077506  012702  000200                  MOV     #SSR,R2             ;SET UP EXPECTED
   9845 077512  020102                          CMP     R1,R2               ;ARE THEY EQUAL
   9846 077514  001406                          BEQ     280$                ;BR, IF OK
   9847 077516  005237  002212                  INC     FATFLG              ;BUMP COUNT
   9851 077522                                  ERRHRD  ERRNO,RDERR,PKTSSR  ;TSSR INCORRECT AFTER READ DATA
                077522  104456                                                          TRAP    C$ERHRD
                077524  001337                                                          .WORD   735
                077526  005204                                                          .WORD   RDERR
                077530  012136                                                          .WORD   PKTSSR
   9852 077532                  280$:   CKLOOP                  ;LOOP IF SELECTED
                077532  104406                                                          TRAP    C$CLP1
   9853 077534  013702  003114                  MOV     FREE,R2             ;GET BUFFER ADDRESS
   9854 077540  010304                          MOV     R3,R4               ;GET RECORD SIZE
   9855 077542  162704  000024                  SUB     #20.,R4             ;POINT BACK TO 1ST RECORD
   9856 077546  060204                  285$:   ADD     R2,R4               ;POINT TO 1ST LOC IN BUFFER
   9857 077550  000303                          SWAB    R3                  ;SWAP BYTES SWB=1 ETC.
```

```
9858 077552  021403                    CMP     (R4),R3                 ;DATA WRITTEN = READ
9859 077554  001410                    BEQ     290$                    ;BR, IF DATA OK (GOOD)
9860 077556  011401                    MOV     (R4),R1                 ;PICK UP BAD DATA
9861 077560  010302                    MOV     R3,R2                   ;SET UP EXPECTED
9862 077562  005237  002212            INC     FATFLG                  ;BUMP COUNT
9866 077566                            ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
     077566  104456                                                            TRAP    C$ERHRD
     077570  001340                                                            .WORD   736
     077572  104416                                                            .WORD   T27DTA
     077574  015564                                                            .WORD   EXPREC
9867 077576                    290$:   CKLOOP                          ;LOOP IF SELECTED
     077576  104406                                                            TRAP    C$CLP1
9868 077600  005724                    TST     (R4)+                   ;BUMP TO NEXT ADDRESS
9869 077602  160204                    SUB     R2,R4                   ;BACK TO RECORD SIZE
9870 077604  000303                    SWAB    R3                      ;PUT R3 BACK INTO SHAPE
9871 077606  020403                    CMP     R4,R3                   ;AT END OF RECOR. YET
9872 077610  001356                    BNE     285$                    ;BR, IF MORE DATA TO CHECK
9873 077612  005723                    TST     (R3)+                   ;BUMP RECORD SIZE
9874 077614  020327  000046            CMP     R3,#38.                 ;DONE YET
9875 077620  001315                    BNE     265$                    ;BR, IF NOT DONE YET (MORE READS)
9876 077622                    300$:   CKLOOP                          ;LOOP IF SELECTED
     077622  104406                                                            TRAP    C$CLP1
9877 077624                            ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     077624                                                                 L10126:
     077624  104403                                                            TRAP    C$ESUB
9878 077626  023727  002212  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
9879 077634  103402                            BLO     999$                    ;BR, IF LESS THAN 25
9880 077636  004737  017272                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
9881 077642                    999$:
```

```
                                ;+
                                ;
                                ;TEST 7, SUBTEST 5
                                ;
                                ;VERIFIES THAT A WRITE DATA RETRY COMMAND IS
                                ;PERFORMING THE "ERASE" PART OF THE OPERATION BY
                                ;PERFORMING THE FOLLOWING SERIES OF STEPS.
                                ;
                                ;1.     THE TAPE IS REWOUND AND A SERIES OF RECORDS ARE
                                ;       WRITTEN WITH THE NORMAL WRITE DATA COMMAND. THIS
                                ;       SHOULD RESULT IN RECORDS SEPARATED BY THE
                                ;       STANDARD INTERRECORD GAP.
                                ;
                                ;2.     A PROGRAM TIMING VALUE IS CALIBRATED BY REWINDING
                                ;       THE TAPE AND THEN CONUTING THE NUMBER OF CYCLES
                                ;       THROUGH A PROGRAMMED LOOP REQUIRED TO SPACE OVER
                                ;       THE SERIES OF RECORDS WRITTEN IN PREVIOUS
                                ;       STEP
                                ;
                                ;3.     THE TAPE IS AGAIN REWOUND AND THE SAME SERIES OF
                                ;       RECORDS WRITTEN AGAIN, THIS TIME USING THE WRITE
                                ;       DATA RETRY COMMAND. THIS SHOULD RESULT IN
                                ;       RECORDS SEPARATED BY A LONG INTERRECORD GAP.
                                ;
                                ;4.     THE TAPE IS AGAIN REWOUND, THE SPACING COMMAND
                                ;       ISSUED, AND THE NUMBER OF TIMMING LOOP CYCLES
                                ;       COUNTED TO COMPLETE THE OPERATION.
                                ;
                                ;5.     THE TWO LOOP COUNTS ARE COMPARED, CHECKING TO SEE
                                ;       THAT THEY DIFFER BY A SIGNIFICANT AMOUNT.
                                ;
                                ;
                                ;
                                ;
                                ;
                                ;
                                ;-
077642                          BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
077642                                                                  T7.5:
077642  104402                                                                  TRAP    C$BSUB
077644  005037  002214          CLR     INTRECV         ;INTERRUPT INDICATOR
077650  005037  101556          CLR     T27CNT          ;TIMER FOR WRITE DATA SPACING
077654  005037  101560          CLR     T27CNU          ;TIMER FOR WRITE DATA RETRY SPACING
077660  004737  104534          JSR     PC,T27REST      ;SET COMMAND PACKET
077664  004737  104626          JSR     PC,T27RT2       ;SET UP OTHER COMMAND PACKET
077670  004737  104670          JSR     PC,T27RT3       ;SET UP OTHER COMMAND PACKET
077674  012737  176750  101562  MOV     #65000.,T27DLY  ;SET UP DELAY COUNTER
                                ;
                                ;*************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*************************************************************
                                ;
077702  004737  016064          10$:    JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
077706  103426                  BCS     20$             ;BR IF INIT WAS OK
077710                          DELAY   250             ;DELAY ABOUT .25 SEC
077710  012727  000250                                                  MOV     #250,(PC)+
```

```
        077714  000000                                                          .WORD   0
        077716  013727  002116                                                  MOV     L$DLY,(PC)+
        077722  000000                                                          .WORD   0
        077724  005367  177772                                                  DEC     -6(PC)
        077730  001375                                                          BNE     .-4
        077732  005367  177756                                                  DEC     -22(PC)
        077736  001367                                                          BNE     .-20
  9937  077740  005337  101562          DEC     T27DLY                  ;BUMP COUNTER
  9938  077744  001356                  BNE     10$                     ;BR, IF COUNTER NOT DONE
  9939  077746  005237  002212          INC     FATFLG                  ;BUMP COUNT
  9943  077752  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
  9944  077754                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        077754  104455                                                          TRAP    C$ERDF
        077756  001341                                                          .WORD   737
        077760  003650                                                          .WORD   SFIERR
        077762  012124                                                          .WORD   SFIMSG
  9945  077764  013737  002172  101430  20$:    MOV     UNITN,T27DSW            ;SET UP UNIT NUMBER
  9946
  9947  077772  012704  101410          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
  9948
  9949                          ;*************************************************************
  9950                          ;
  9951                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
  9952                          ;
  9953                          ;*************************************************************
  9954
  9955  077776  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
  9956  100002  103407                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
  9957  100004  005237  002212          INC     FATFLG                  ;BUMP COUNT
  9961  100010  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
  9962  100012                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        100012  104456                                                          TRAP    C$ERHRD
        100014  001342                                                          .WORD   738
        100016  005054                                                          .WORD   WRTMSG
        100020  012124                                                          .WORD   SFIMSG
  9963  100022                  23$:    CKLOOP                          ;LOOP IF SELECTED
        100022  104406                                                          TRAP    C$CLP1
  9964
  9965                          ;*************************************************************
  9966                          ;
  9967                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  9968                          ;
  9969                          ;*************************************************************
  9970
  9971  100024  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  9972  100030  103411                  BCS     30$                     ;BR, IF NO PROBLEM
  9973  100032  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
  9974  100036  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
  9975  100040  005237  002212          INC     FATFLG                  ;BUMP COUNT
  9979  100044                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
        100044  104456                                                          TRAP    C$ERHRD
        100046  001343                                                          .WORD   739
        100050  102735                                                          .WORD   T27RWN
        100052  012136                                                          .WORD   PKTSSR
  9980  100054                  30$:    CKLOOP                          ;LOOP IF SELECTED
        100054  104406                                                          TRAP    C$CLP1
  9981
```

```
 9982                                   ;*****************************************************************
 9983                                   ;
 9984                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9985                                   ;
 9986                                   ;*****************************************************************
 9987
 9988 100056  013701  101440                    MOV     T27BFR+6,R1             ;PICK UP XST0
 9989 100062  010102                            MOV     R1,R2                   ;SET UP EXPECTED
 9990 100064  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9991 100070  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
 9992 100072  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
 9993 100074  005237  002212                    INC     FATFLG                  ;BUMP COUNT
 9997 100100                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100100  104456                                                                    TRAP    C$ERHRD
      100102  001344                                                                    .WORD   740
      100104  102431                                                                    .WORD   T27BOT
      100106  015564                                                                    .WORD   EXPREC
 9998 100110                            40$:    CKLOOP                          ;LOOP IF SELECTED
      100110  104406                                                                    TRAP    C$CLP1
 9999 100112  012703  000144                    MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
10000 100116  013737  003114  101532            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10001
10002                                   ;*****************************************************************
10003                                   ;
10004                                   ;WRITE DATA,ACK,CVC=1 COMMAND
10005                                   ;
10006                                   ;*****************************************************************
10007
10008 100124  012737  140005  101530    65$:    MOV     #140005,T27PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
10009 100132  012704  101530                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10010 100136  012737  000024  101536            MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10011 100144  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10012 100150  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10013 100154  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10014 100160  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
10015 100164  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
10016 100166  001406                            BEQ     70$                     ;BR, IF OK
10017 100170  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10021 100174                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      100174  104456                                                                    TRAP    C$ERHRD
      100176  001345                                                                    .WORD   741
      100200  005111                                                                    .WORD   WRTERR
      100202  012136                                                                    .WORD   PKTSSR
10022 100204                            70$:    CKLOOP                          ;LOOP IF SELECTED
      100204  104406                                                                    TRAP    C$CLP1
10023 100206  005303                            DEC     R3                      ;DEC RECORD COUNTER
10024 100210  001345                            BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
10025
10026                                   ;*****************************************************************
10027                                   ;
10028                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10029                                   ;
10030                                   ;*****************************************************************
10031
10032 100212  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10033 100216  103411                            BCS     130$                    ;BR, IF NO PROBLEM
10034 100220  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
10035 100224  010004                        MOV     R0,R4                   ;GET PACKET ADDRESS
10036 100226  005237  002212                INC     FATFLG                  ;BUMP COUNT
10040 100232                                ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100232  104456                                                              TRAP    C$ERHRD
      100234  001346                                                              .WORD   742
      100236  102735                                                              .WORD   T27RWN
      100240  012136                                                              .WORD   PKTSSR
10041 100242                          130$:   CKLOOP                          ;LOOP IF SELECTED
      100242  104406                                                              TRAP    C$CLP1
10042
10043                                 ;*************************************************************
10044                                 ;
10045                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10046                                 ;
10047                                 ;*************************************************************
10048
10049 100244  013701  101440                MOV     T27BFR+6,R1             ;PICK UP XST0
10050 100250  010102                        MOV     R1,R2                   ;SET UP EXPECTED
10051 100252  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10052 100256  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
10053 100260  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
10054 100262  005237  002212                INC     FATFLG                  ;BUMP COUNT
10058 100266                                ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100266  104456                                                              TRAP    C$ERHRD
      100270  001347                                                              .WORD   743
      100272  102431                                                              .WORD   T27BOT
      100274  015564                                                              .WORD   EXPREC
10059 100276                          140$:   CKLOOP                          ;LOOP IF SELECTED
      100276  104406                                                              TRAP    C$CLP1
10060 100300  012704  101530                MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10061 100304  012737  000010  101532        MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10062
10063                                 ;*************************************************************
10064                                 ;
10065                                 ;ACK,CVC=1,SPACE FORWARD COMMAND
10066                                 ;
10067                                 ;*************************************************************
10068
10069 100312  012737  140010  101530          MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10070 100320  010465  000000        150$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10071 100324  005237  101556        152$:   INC     T27CNT                  ;BUMP TIMER
10072 100330                                DELAY   1                       ;DELAY ABOUT 100US
      100330  012727  000001                                                       MOV     #1,(PC)+
      100334  000000                                                              .WORD   0
      100336  013727  002116                                                      MOV     L$DLY,(PC)+
      100342  000000                                                              .WORD   0
      100344  005367  177772                                                      DEC     -6(PC)
      100350  001375                                                              BNE     .-4
      100352  005367  177756                                                      DEC     -22(PC)
      100356  001367                                                              BNE     .-20
10073 100360  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
10074 100364  032701  000200                BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10075 100370  001755                        BEQ     152$                    ;KEEP COUNTING UNTIL SET
10076 100372  016501  000002                MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10077 100376  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
10078 100402  020201                        CMP     R2,R1                   ;WAS EVERYTHING OK
10079 100404  001406                        BEQ     160$                    ;BR, IF ALL IS WELL
```

```
10080 100406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10084 100412                                  ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      100412  104456                                                          TRAP    C$ERHRD
      100414  001350                                                          .WORD   744
      100416  104177                                                          .WORD   T27SCF
      100420  012136                                                          .WORD   PKTSSR
10085 100422                        160$:   CKLOOP                          ;LOOP IF SELECTED
      100422  104406                                                          TRAP    C$CLP1
10086
10087                               ;*****************************************************************
10088                               ;
10089                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10090                               ;
10091                               ;*****************************************************************
10092
10093 100424  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10094 100430  004737  016426                  JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
10095 100434  103407                          BCS     170$                    ;BR, IF NO PROBLEM
10096 100436  010001                          MOV     R0,R1                   ;SAVE TSSR
10097 100440  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10101 100444                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100444  104456                                                          TRAP    C$ERHRD
      100446  001351                                                          .WORD   745
      100450  102735                                                          .WORD   T27RWN
      100452  012136                                                          .WORD   PKTSSR
10102 100454                        170$:   CKLOOP                          ;LOOP IF SELECTED
      100454  104406                                                          TRAP    C$CLP1
10103
10104                               ;*****************************************************************
10105                               ;
10106                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10107                               ;
10108                               ;*****************************************************************
10109
10110 100456  013701  101440                  MOV     T27BFR+6,R1             ;PICK UP XST0
10111 100462  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10112 100464  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10113 100470  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
10114 100472  001406                          BEQ     175$                    ;BR, IF EQUAL (OK)
10115 100474  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10119 100500                                  ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100500  104456                                                          TRAP    C$ERHRD
      100502  001352                                                          .WORD   746
      100504  102431                                                          .WORD   T27BOT
      100506  015564                                                          .WORD   EXPREC
10120 100510                        175$:   CKLOOP                          ;LOOP IF SELECTED
      100510  104406                                                          TRAP    C$CLP1
10121 100512  012703  000144                  MOV     #100.,R3                ;STARTING RECORD SIZE
10122 100516  013737  003114  101532  177$:   MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10123
10124                               ;*****************************************************************
10125                               ;
10126                               ;WRITE DATA,CVC=1,ACK COMMAND
10127                               ;
10128                               ;*****************************************************************
10129
10130 100524  012737  140005  101530          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
```

```
10131 100532  012704  101530                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10132 100536  012737  000024  101536          MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10133 100544  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10134 100550  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10135 100554  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10136 100560  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10137 100564  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10138 100566  001406                          BEQ     180$                    ;BR, IF OK
10139 100570  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10143 100574                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      100574  104456                                                                  TRAP    C$ERHRD
      100576  001353                                                                  .WORD   747
      100600  005111                                                                  .WORD   WRTERR
      100602  012136                                                                  .WORD   PKTSSR
10144 100604                          180$:   CKLOOP                          ;LOOP IF SELECTED
      100604  104406                                                                  TRAP    C$CLP1
10145 100606  005303                          DEC     R3                      ;COUNT NUMBER OF RECORDS
10146 100610  001342                          BNE     177$                    ;BR, IF MORE RECORDS TO WRITE
10147
10148                                 ;*************************************************************************
10149                                 ;
10150                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10151                                 ;
10152                                 ;*************************************************************************
10153
10154 100612  004737  011104                  JSR     PC,REWIND               ;ISSUE REWIND
10155 100616  103411                          BCS     182$                    ;BR, IF ALL IS WELL
10156 100620  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
10157 100622  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10158 100626  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10162 100632                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND FAILED
      100632  104456                                                                  TRAP    C$ERHRD
      100634  001354                                                                  .WORD   748
      100636  102735                                                                  .WORD   T27RWN
      100640  012136                                                                  .WORD   PKTSSR
10163 100642                          182$:   CKLOOP                          ;SELECT LOOP MAYBE
      100642  104406                                                                  TRAP    C$CLP1
10164
10165                                 ;*************************************************************************
10166                                 ;
10167                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
10168                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
10169                                 ;
10170                                 ;*************************************************************************
10171
10172 100644  012703  000001                  MOV     #1.,R3                  ;SPACE 1 RECORD FORWARD
10173 100650  004737  010556                  JSR     PC,SPACE                ;ISSUE SPACE COMMAND
10174 100654  103411                          BCS     185$                    ;BR, IF COMMAND OK
10175 100656  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
10176 100660  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR STATUS
10177 100664  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10181 100670                                  ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD COMMAND FAILED
      100670  104456                                                                  TRAP    C$ERHRD
      100672  001355                                                                  .WORD   749
      100674  104177                                                                  .WORD   T27SCF
      100676  012136                                                                  .WORD   PKTSSR
10182 100700                          185$:   CKLOOP                          ;LOOP IF SELECTED
```

```
        100700  104406                                                          TRAP    C$CLP1
10183   100702  012703  000144                  MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
10184   100706  013737  003114  101532          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10185
10186                                   ;*************************************************************************
10187                                   ;
10188                                   ;WRITE DATA RETRY,ACK COMMAND
10189                                   ;
10190                                   ;*************************************************************************
10191
10192   100714  012737  101005  101530  190$:   MOV     #101005,T27PK3          ;WRITE DATA RETRY,ACK COMMAND
10193   100722  012704  101530          MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10194   100726  012737  000024  101536  MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10195   100734  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10196   100740  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10197   100744  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10198   100750  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
10199   100754  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
10200   100756  001406                  BEQ     200$                    ;BR, IF OK
10201   100760  005237  002212          INC     FATFLG                  ;BUMP COUNT
10205   100764                          ERRHRD  ERRNO,T27WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        100764  104456                                                          TRAP    C$ERHRD
        100766  001356                                                          .WORD   750
        100770  103271                                                          .WORD   T27WDC
        100772  012136                                                          .WORD   PKTSSR
10206   100774                  200$:   CKLOOP                          ;LOOP IF SELECTED
        100774  104406                                                          TRAP    C$CLP1
10207   100776  013737  003114  101532          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10208
10209                                   ;*************************************************************************
10210                                   ;
10211                                   ;WRITE DATA,CVC=1,ACK COMMAND
10212                                   ;
10213                                   ;*************************************************************************
10214
10215   101004  012737  140005  101530          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10216   101012  012704  101530          MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10217   101016  012737  000024  101536  MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10218   101024  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10219   101030  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10220   101034  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10221   101040  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
10222   101044  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
10223   101046  001406                  BEQ     210$                    ;BR, IF OK
10224   101050  005237  002212          INC     FA1FLG                  ;BUMP COUNT
10228   101054                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        101054  104456                                                          TRAP    C$ERHRD
        101056  001357                                                          .WORD   751
        101060  005111                                                          .WORD   WRTERR
        101062  012136                                                          .WORD   PKTSSR
10229   101064                  210$:   CKLOOP                          ;LOOP IF SELECTED
        101064  104406                                                          TRAP    C$CLP1
10230   101066  005303                  DEC     R3                      ;BUMP DOWN RECORD COUNTER
10231   101070  001311                  BNE     190$                    ;BR, IF MORE RECORDS TO WRITE RETRY
10232
10233                                   ;*************************************************************************
10234                                   ;
```

```
10235                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10236                                   ;
10237                                   ;*****************************************************************
10238
10239 101072  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10240 101076  103411                            BCS     230$                    ;BR, IF NO PROBLEM
10241 101100  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10242 101104  010004                            MOV     R0,R4                   ;GET PACKET ADDRESS
10243 101106  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10247 101112                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
       101112  104456                                                                  TRAP    C$ERHRD
       101114  001360                                                                  .WORD   752
       101116  102735                                                                  .WORD   T27RWN
       101120  012136                                                                  .WORD   PKTSSR
10248 101122                            230$:   CKLOOP                          ;LOOP IF SELECTED
       101122  104406                                                                  TRAP    C$CLP1
10249
10250                                   ;*****************************************************************
10251                                   ;
10252                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10253                                   ;
10254                                   ;*****************************************************************
10255
10256 101124  013701  101440                    MOV     T27BFR+6,R1             ;PICK UP XST0
10257 101130  010102                            MOV     R1,R2                   ;SET UP EXPECTED
10258 101132  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10259 101136  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
10260 101140  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
10261 101142  005237  002212                    INC     FATFLG                  ;BUMP COUNT
10265 101146                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
       101146  104456                                                                  TRAP    C$ERHRD
       101150  001361                                                                  .WORD   753
       101152  102431                                                                  .WORD   T27BOT
       101154  015564                                                                  .WORD   EXPREC
10266 101156                            240$:   CKLOOP                          ;LOOP IF SELECTED
       101156  104406                                                                  TRAP    C$CLP1
10267 101160  012704  101530                    MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10268 101164  012737  000010  101532            MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10269
10270                                   ;*****************************************************************
10271                                   ;
10272                                   ;ACK,CVC=1,SPACE FORWARD COMMAND
10273                                   ;
10274                                   ;*****************************************************************
10275
10276 101172  012737  140010  101530            MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10277 101200  010465  000000            250$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10278 101204  005237  101560            252$:   INC     T27CNU                  ;BUMP TIMER
10279 101210                                    DELAY   1                       ;DELAY ABOUT 100US
       101210  012727  000001                                                          MOV     #1,(PC)+
       101214  000000                                                                  .WORD   0
       101216  013727  002116                                                          MOV     L$DLY,(PC)+
       101222  000000                                                                  .WORD   0
       101224  005367  177772                                                          DEC     -6(PC)
       101230  001375                                                                  BNE     .-4
       101232  005367  177756                                                          DEC     -22(PC)
       101236  001367                                                                  BNE     .-20
```

```
10280 101240  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
10281 101244  032701  000200                BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10282 101250  001755                        BEQ     252$                    ;KEEP COUNTING UNTIL SET
10283 101252  016501  000002                MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10284 101256  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
10285 101262  020201                        CMP     R2,R1                   ;WAS EVERYTHING OK
10286 101264  001406                        BEQ     260$                    ;BR, IF ALL IS WELL
10287 101266  005237  002212                INC     FATFLG                  ;BUMP COUNT
10291 101272                                ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      101272  104456                                                            TRAP    C$ERHRD
      101274  001362                                                            .WORD   754
      101276  104177                                                            .WORD   T27SCF
      101300  012136                                                            .WORD   PKTSSR
10292 101302                        260$:   CKLOOP                          ;LOOP IF SELECTED
      101302  104406                                                            TRAP    C$CLP1
10293 101304  013701  101556                MOV     T27CNT,R1               ;TIME FOR WRITE SPACING
10294 101310  013702  101560                MOV     T27CNU,R2               ;TIME FOR WRITE RETRY SPACING
10295 101314  160102                        SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10296 101316  160102                        SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10297 101320  160102                        SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10298 101322  042702  000077                BIC     #77,R2                  ;CLEAR LOW 6 BITS
10299 101326  042701  000777                BIC     #000777,R1              ;SETTING UP CONSTANTS
10300 101332  020102                        CMP     R1,R2                   ;CHECK FOR DIFFERENCE
10301 101334  001406                        BEQ     300$                    ;BR, IF GOOD aaaa CHECK aaaa
10302 101336  005237  002212                INC     FATFLG                  ;BUMP COUNT
10306 101342                                ERRHRD  ERRNO,T27TIM,EXPREC     ;TIME WAS NOT DIFFERENT ENOUGH
      101342  104456                                                            TRAP    C$ERHRD
      101344  001363                                                            .WORD   755
      101346  102524                                                            .WORD   T27TIM
      101350  015564                                                            .WORD   EXPREC
10307 101352                        300$:   CKLOOP                          ;LOOP IF SELECTED
      101352  104406                                                            TRAP    C$CLP1
10308 101354                                ENDSUB                          ;<<<<<<<<<<<<< END SUBTEST >>>>>>>>>>>>
      101354                                                                L10127:
      101354  104403                                                            TRAP    C$ESUB
10309 101356  023727  002212  000017                CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
10310 101364  103402                                BLO     999$                    ;BR, IF LESS THAN 25
10311 101366  004737  017272                        JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10312 101372                        999$:
10313                               ;
10314                               ;
10315                               ;
10316 101372  004737  016546                JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
10317 101376  103002                        BCC     163$                    ;BR, IF NO LOOP REQUIRED
10318 101400  000137  074736                JMP     T27LOOP                 ;EXECUTE AGAIN
10319 101404                        163$:
10320 101404                                EXIT    TST                     ;ALL DONE THIS TEST
      101404  104432                                                            TRAP    C$EXIT
      101406  003304                                                            .WORD   L10122-.
```

```
10322
10323
10324
10328 101410
10329 101410  100004          ;+
10330 101412  101420          ;LOCAL STORAGE FOR THIS TEST
10331 101414  000000          ;-
10332 101416  000012          T27PACKET:                      ;COMMAND PACKET FOR TEST
10333 101420                          .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
10334 101420  101432                  .WORD   T27DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
10335 101422  000000                  .WORD   0
10336 101424  000024                  .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
10337 101426  000000          T27DATA:                        ;CHARACTERISTICS DATA BLOCK
10338 101430  000000                  .WORD   T27BFR          ;ADDRESS OF MESSAGE BUFFER
10339 101432                          .WORD   0
10340                                 .WORD   20.             ;LENGTH OF MESSAGE BUFFER
10341                                 .WORD   0
10342                         T27DSW: .WORD   0               ;SELECT DRIVE 0
10344         101520          T27BFR: .BLKW   25.             ;MESSAGE BUFFER
10346 101520                  ;
10347 101520  100006          ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
10348 101522  101540          ;
10349 101524  000000                  .=<.+10>&177770
10350 101526  000006          T27PK2:
10351                                 .WORD   100006          ;WRITE SUB SYS MEM COMMAND,  AND ACK
10355 101530                          .WORD   T27BF2          ;ADDRESS OF SELECT BLOCK DATA
10356 101530  100005                  .WORD   0
10357 101532                          .WORD   6.              ;SIZE OF DATA PACKET
10358 101532  003114          T27PK3:
10359 101534  000000                  .WORD   100005          ;REREAD COMMAND, AND ACK
10360 101536  000000          T27RB:
10361                         T27WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
10362                                 .WORD   0
10363                         T27SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
10364                                 .EVEN
10365 101540                  ;
10366 101540     010          ;
10367 101541     200          ;
10368 101542  000000          T27BF2:
10369 101544  000000          T27BS0: .BYTE   10              ;BSEL0 AREA
10370                         T27BS1: .BYTE   200             ;BSEL1 AREA
10371                         T27S2:  .WORD   0               ;SEL 2 AREA
10372                         T27S3:  .WORD   0               ;DATA AREA
10373                         ;
10374                         ;
10375 101546  100205                  .EVEN
10376 101550  100605          ;TAPE MOTION PACKET COMMAND VALUES
10377 101552  102205
10378 101554  177777          T27RN:  .WORD   100205          ;REREAD DATA (NEXT)
10379                         T27WDR: .WORD   100605          ;REREAD DATA RETRY
10380                         T27CON: .WORD   102205          ;WRITE CONTINOUS
10381 101556  000000                  .WORD   177777          ;END OF DATA
10382 101560  000000          ;
10383 101562  000000          T27CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10384                         T27CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
                              T27DLY: .WORD   0               ;DELAY COUNTER
```

```
10386
10387                                   ;+
10388                                   ;LOCAL TEXT MESSAGES FOR TEST
10389                                   ;-
10390
10391
10392 101564      124     141     160  T27WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
10393 101652      124     123     123  T27RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
10394 101721      122     105     122  T27RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
10395 102016      120     117     123  T27SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
10396 102100      122     111     102  T27LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
10397 102150      124     123     123  T27WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
10398 102225      111     154     154  T27LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
10399 102306      122     105     122  T27SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
10400 102342      124     123     123  T27WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command,At BOT'
10401 102431      124     141     160  T27BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XSTO)'
10402 102524      127     122     111  T27TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
10403 102601      122     105     122  T27EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
10404 102660      124     123     123  T27TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
10405 102735      122     145     167  T27RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
10406 103004      122     101     115  T27RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
10407 103057      124     123     123  T27AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
10408 103126      104     162     151  T27OFL: .ASCIZ  'Drive 7 Select Failed To Set ''OFL'' In TSSR'
10409 103201      124     123     123  T27WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
10410 103271      124     123     123  T27WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
10411 103344      103     126     103  T27VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
10412 103417      124     123     102  T27BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
10413 103472      127     122     111  T27WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
10414 103561      122     145     141  T27LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
10415 103643      122     145     141  T27LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
10416 103725      122     145     163  T27PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
10417 104013      122     145     141  T27TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
10418 104101      127     122     111  T27NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
10419 104177      124     123     123  T27SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
10420 104254      124     123     123  T27TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
10421 104336      124     123     123  T27WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
10422 104416      104     141     164  T27DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
10423 104513      127     162     151  TST27ID:        .ASCIZ  'Write Data Retry'
10424                                           .EVEN
10425                                   ;+
10426                                   ;
10427                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
10428                                   ;WRITE SUBSYSTEM MEMORY COMMAND
10429                                   ;
10430                                   ;-
10431
10432 104534                           T27REST:
10433 104534                                   SAVREG                          ;SAVE THE REGISTERS
10434 104540  012701  101410                   MOV     #T27PACKET,R1           ;START OF THE PACKET
10435 104544  012721  100004                   MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
10436 104550  012721  101420                   MOV     #T27DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
10437 104554  005021                           CLR     (R1)+                   ;EXTENDED ADDRESS
10438 104556  012721  000012                   MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
10439 104562  012721  101432                   MOV     #T27BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
10440 104566  005021                           CLR     (R1)+
10441 104570  012721  000024                   MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
10442 104574  005021                           CLR     (R1)+
```

```
10443 104576  012711  000000                MOV     #0,(R1)                 ;SELECT DRIVE ZERO
10444 104602  012702  000030                MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
10445 104606  012762  177777  101432  64$:  MOV     #177777,T27BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
10446 104614  005742                        TST     -(R2)                   ;NEXT LOCATION
10447 104616  022702  000000                CMP     #0,R2                   ;AT END OF LOOP YET
10448 104622  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
10449 104624  000207                        RTS     PC                      ;RETURN
10450
10451
10452 104626                        T27RT2:
10453 104626                                SAVREG                          ;SAVE THE REGISTERS
10454 104632  012701  101520                MOV     #T27PK2,R1              ;START OF THE PACKET
10455 104636  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
10456 104642  012721  101540                MOV     #T27BF2,(R1)+           ;ADDRESS OF DATA BLOCK
10457 104646  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
10458 104650  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
10459 104654  005021                        CLR     (R1)+
10460 104656  012701  101540                MOV     #T27BF2,R1              ;POINT TO DATA SEL AREA
10461 104662  005021                        CLR     (R1)+
10462 104664  005011                        CLR     (R1)
10463 104666  000207                        RTS     PC                      ;RETURN
10464 104670                        T27RT3:
10465 104670                                SAVREG                          ;SAVE REGISTERS
10466 104674  012701  101530                MOV     #T27PK3,R1              ;SET UP POINTER ADDRESS
10467 104700  005021                        CLR     (R1)+                   ;COMMAND SPACE
10468 104702  005021                        CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
10469 104704  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
10470 104706  005011                        CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
10471 104710  000207                        RTS     PC                      ;RETURN
10472 104712                                ENDTST
      104712
      104712                                                    L10122:
      104712  104401                                              TRAP    C$ETST
```

```
                                        .SBTTL  TEST  8: WRITE/READ TAPE MARK
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES
                                ;PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE
                                ;BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE
                                ;TAPE MARK. IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST
                                ;SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED
                                ;THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT
                                ;FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 3 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
104714                                  BGNTST
104714                                                                          T8::
104714  012737  006446  002170         MOV     #EPRT2,EPRTSW          ;SECONDARY ERROR MESSAGE
104722  005037  003124                 CLR     KTENABLE               ;TURN KT11 OFF
104726  004737  017364                 JSR     PC,KTOFF               ;TURN KT11 BACK OFF IF THERE
104732  012700  112131                 MOV     #TST28ID,R0            ;ASCII MESSAGE TO IDENTIFY TEST
104736  004737  016600                 JSR     PC,TSTSETUP            ;DO INITIAL TEST SETUP
104742  012737  000005  002206         MOV     #5,LOOPCNT             ;PERFORM 5 ITERATIONS
                                ;+
                                ;
                                ;TEST 8, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A FORMAT COMMAND (WITH ANY LEGAL MODE
                                ;CODE) WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS
                                ;REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL
                                ;VALID MODE CODES ARE CHECKED.
                                ;
                                ;
                                ;-

104750                          T28LOOP:
104750                                  BGNSUB                         ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
104750                                                                                  T8.1:
104750  104402                                                                          TRAP    C$BSUB
104752  004737  112156                 JSR     PC,T28REST             ;SET COMMAND PACKET
104756  004737  112250                 JSR     PC,T28RT2              ;SET UP OTHER COMMAND PACKET
104762  004737  112312                 JSR     PC,T28RT3              ;SET UP OTHER COMMAND PACKET
104766  004737  016064                 JSR     PC,SOFINIT             ;DO INITIALIZE ON CONTROLLER
104772  103407                         BCS     20$                    ;BR IF INIT WAS OK
104774  005237  002212                 INC     FATFLG                 ;BUMP COUNT
105000  010001                         MOV     R0,R1                  ;CONTENTS OF TSSR REGISTER
105002                                 ERRDF   ERRNO,SFIERR,SFIMSG    ;FATAL ERROR TSSR WAS NOT OK
105002  104455                                                                  TRAP    C$ERDF
105004  001441                                                                  .WORD   801
105006  003650                                                                  .WORD   SFIERR
105010  012124                                                                  .WORD   SFIMSG
105012  012737  000007  110120  20$:    MOV     #7,T28DSW              ;SET UP DRIVE NUMBER
105020  012704  110100                 MOV     #T28PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
105024  004737  010752                 JSR     PC,WRTCHR              ;ISSUE WRITE CHARACTERISTICS
```

```
10531 105030  103407                    BCS     24$                     ;BR, IF COMMAND ISSUED OK
10532 105032  005237  002212            INC     FATFLG                  ;BUMP COUNT
10536 105036  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10537 105040                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      105040  104456                                                            TRAP    C$ERHRD
      105042  001442                                                            .WORD   802
      105044  005054                                                            .WORD   WRTMSG
      105046  012124                                                            .WORD   SFIMSG
10538 105050                    24$:    CKLOOP
      105050  104406                                                            TRAP    C$CLP1
10539 105052  005737  002216            TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
10540 105056  001044                    BNE     50$                     ;BR IF SWITCH IS ON
10541
10542 105060  112737  000200  110231    MOVB    #200,T28BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
10543 105066  112737  000010  110230    MOVB    #10,T28BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
10544 105074  012704  110210            MOV     #T28PK2,R4              ;WRITE SUBSYS MEM PACKET
10545 105100  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10546 105104  004737  016426            JSR     PC,CHKTSSR              ;WAIT FOR SSR
10547 105110  103407                    BCS     30$                     ;BR, IF NO ERROR
10548 105112  010001                    MOV     R0,R1                   ;ERROR, SAVE TSSR
10549 105114  005237  002212            INC     FATFLG                  ;BUMP COUNT
10553 105120                            ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
      105120  104456                                                            TRAP    C$ERHRD
      105122  001443                                                            .WORD   803
      105124  110725                                                            .WORD   T28SSR
      105126  012136                                                            .WORD   PKTSSR
10554 105130                    30$:    CKLOOP                          ;LOOP IF SELECTED
      105130  104406                                                            TRAP    C$CLP1
10555 105132  012704  110100            MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10556 105136  012737  000007  110120    MOV     #7,T28DSW               ;SELECT DRIVE 7
10557 105144  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10558 105150  103407                    BCS     50$                     ;BR, IF COMMAND ISSUED OK
10559 105152  005237  002212            INC     FATFLG                  ;BUMP COUNT
10563 105156  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10564 105160                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      105160  104456                                                            TRAP    C$ERHRD
      105162  001444                                                            .WORD   804
      105164  005054                                                            .WORD   WRTMSG
      105166  012124                                                            .WORD   SFIMSG
10565 105170                    50$:    CKLOOP                          ;SCOPE LOOP
      105170  104406                                                            TRAP    C$CLP1
10566 105172  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10567 105176  032701  000100            BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
10568 105202  001006                    BNE     60$                     ;BR, IF OFFLINE (GOOD)
10569 105204  005237  002212            INC     FATFLG                  ;BUMP COUNT
10573 105210                            ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
      105210  104455                                                            TRAP    C$ERDF
      105212  001445                                                            .WORD   805
      105214  111260                                                            .WORD   T28OFL
      105216  012124                                                            .WORD   SFIMSG
10574 105220                    60$:    CKLOOP                          ;LOOP IF SELECTED
      105220  104406                                                            TRAP    C$CLP1
10575 105222  012703  110246            MOV     #T28RN,R3               ;POINTER FOR COMMANDS
10576 105226  011337  110220    65$:    MOV     (R3),T28PK3             ;TAPE READ COMMAND IN PLACE
10577 105232  012704  110220            MOV     #T28PK3,R4              ;R4 = POINTER TO PACKET
10578 105236  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10579 105242  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

```
10580 105246  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10581 105252  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
10582 105256  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10583 105260  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
10584 105262  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10588 105266                                  ERRHRD  ERRNO,T28TM,PKTSSR      ;TSSR INCORRECT AFTER FORMAT CMD
      105266  104456                                                                  TRAP    C$ERHRD
      105270  001446                                                                  .WORD   806
      105272  111134                                                                  .WORD   T28TM
      105274  012136                                                                  .WORD   PKTSSR
10589 105276                          80$:    CKLOOP                          ;LOOP IF SELECTED
      105276  104406                                                                  TRAP    C$CLP1
10590 105300  005723                          TST     (R3)+           ;POINT TO NEXT COMMAND
10591 105302  022713  177777                  CMP     #177777,(R3)            ;END OF THE COMMANDS YET
10592 105306  001401                          BEQ     90$                     ;BR, IF DONE
10593 105310  000746                          BR      65$                     ;MORE COMMAND(S) TO GO
10594 105312                          90$:
10595 105312                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      105312                                                                        L10131:
      105312  104403                                                                  TRAP    C$ESUB
10596 105314  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
10597 105322  103402                          BLO     999$                    ;BR, IF LESS THAN 25
10598 105324  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10599 105330                          999$:
```

```
10601                                   ;+
10602                                   ;
10603                                   ;TEST 8, SUBTEST 2
10604                                   ;
10605                                   ;VERIFIES THAT A FORMAT COMMAND WITH AN ILLEGAL MODE
10606                                   ;CODE CAUSES FUNCTION REJECT TERMINATION WITH THE
10607                                   ;ILLEGAL COMMAND (ILC) ERROR BIT SET. ALL ILLEGAL
10608                                   ;MODE CODES ARE CHECKED.
10609                                   ;
10610                                   ;
10611                                   ;
10612                                   ;-
10613 105330                                   BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
       105330                                                                           T8.2:
       105330  104402                                                                    TRAP    C$BSUB
10614  105332  004737  112156                  JSR     PC,T28REST              ;SET COMMAND PACKET
10615  105336  004737  112250                  JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10616  105342  004737  112312                  JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10617  105346  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10618  105352  103407                          BCS     20$                     ;BR IF INIT WAS OK
10619  105354  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10623  105360  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10624  105362                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       105362  104455                                                                    TRAP    C$ERDF
       105364  001447                                                                    .WORD   807
       105366  003650                                                                    .WORD   SFIERR
       105370  012124                                                                    .WORD   SFIMSG
10625  105372  013737  002172  110120  20$:     MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
10626  105400  012704  110100                  MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10627  105404  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10628  105410  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
10629  105412  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10633  105416  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10634  105420                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       105420  104456                                                                    TRAP    C$ERHRD
       105422  001450                                                                    .WORD   808
       105424  005054                                                                    .WORD   WRTMSG
       105426  012124                                                                    .WORD   SFIMSG
10635  105430                          24$:    CKLOOP                          ;LOOP IF SELECTED
       105430  104406                                                                    TRAP    C$CLP1
10636  105432  012703  110236                  MOV     #T28IMV,R3              ;SET POINTER FOR COMMANDS
10637  105436  011337  110220          30$:    MOV     (R3),T28PK3             ;SET UP NEXT COMMAND
10638  105442  013737  003114  110222          MOV     FREE,T28RB              ;STARTING WRITE BUFFER ADDRESS
10639  105450  012704  110220                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10640  105454  012737  000400  110226          MOV     #256.,T28SZ             ;SET UP RECORD SIZE IN PACKET
10641  105462  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10642  105466  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
10643  105472  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10644  105476  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
10645  105502  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10646  105504  001406                          BEQ     75$                     ;BR, IF OK
10647  105506  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10651  105512                                  ERRHRD  ERRNO,T28WDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
       105512  104456                                                                    TRAP    C$ERHRD
       105514  001451                                                                    .WORD   809
       105516  110567                                                                    .WORD   T28WDF
       105520  012136                                                                    .WORD   PKTSSR
```

```
10652 105522                          75$:    CKLOOP                          ;LOOP IF SELECTED
      105522  104406                                                                  TRAP    C$CLP1
10653 105524  013701  110130                  MOV     T28BFR+6,R1             ;GET MESSAGE BUFFER
10654 105530  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10655 105532  052702  001000                  BIS     #BIT9,R2                ;SET THE ILC BIT IN EXPECTED
10656 105536  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10657 105540  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
10658 105542  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10662 105546                                  ERRHRD  ERRNO,T28LOG,EXPREC     ;THE ILC BIT WAS NOT SET IN XSTO
      105546  104456                                                                  TRAP    C$ERHRD
      105550  001452                                                                  .WORD   810
      105552  110644                                                                  .WORD   T28LOG
      105554  015564                                                                  .WORD   EXPREC
10663 105556                          180$:   CKLOOP
      105556  104406                                                                  TRAP    C$CLP1
10664 105560  005723                          TST     (R3)+           ;BUMP TO NEXT ADDRESS (COMMAND)
10665 105562  021327  177777                  CMP     (R3),#177777            ;CHECK FOR END OF COMMAND BUFFER
10666 105566  001323                          BNE     30$                     ;BR, IF MORE COMMANDS TO TRY
10667 105570                          190$:   CKLOOP                          ;LOOP IF SELECTED
      105570  104406                                                                  TRAP    C$CLP1
10668 105572                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      105572                                                                        L10132:
      105572  104403                                                                  TRAP    C$ESUB
10669 105574  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
10670 105602  103402                          BLO     999$                    ;BR, IF LESS THAN 25
10671 105604  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10672 105610                          999$:
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10674                   ;+
10675                   ;
10676                   ;TEST 8, SUBTEST 3
10677                   ;
10678                   ;VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE
10679                   ;PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED
10680                   ;TO DETECT THE WRITTEN TAPE MARKS TERMINATE WITH TAPE
10681                   ;STATUS ALERT WITH THE TAPE MARK DETECTED (TMK) STATUS
10682                   ;BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED.
10683                   ;
10684                   ;1.     THE CONTROLLER IS INITIALIZED AND TAPE REWOUND.
10685                   ;       THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
10686                   ;
10687                   ;2.     A WRITE TAPE MARK COMMAND WITH CVC=1 IS ISSUED
10688                   ;       AND PROPER TERMINATION AND STATUS IS VERIFIED
10689                   ;       (I.E. VCK=0 AND TMK=1).
10690                   ;
10691                   ;3.     SEVERAL MORE WRITE TAPE MARK COMMANDS, THESE WITH
10692                   ;       CVC=0 ARE ISSUED AND PROPER TERMINATION (NORMAL)
10693                   ;       AND STATUS (TMK) VERIFIED.
10694                   ;
10695                   ;4.     A READ REVERSE COMMAND IS ISSUED AND PROPER
10696                   ;       TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK)
10697                   ;       VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS
10698                   ;       TRANSFERRED INTO MEMORY.
10699                   ;
10700                   ;5.     A SPACE RECORDS REVERSE COMMAND IS ISSUED AND
10701                   ;       PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS
10702                   ;       (TMK) VERIFIED.
10703                   ;
10704                   ;6.     THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS
10705                   ;       ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT)
10706                   ;       AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED
10707                   ;       THAT NO DATA IS TRANSFERRED INTO MEMORY.
10708                   ;
10709                   ;7.     A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A
10710                   ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10711                   ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
10712                   ;       OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL
10713                   ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
10714                   ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
10715                   ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
10716                   ;       TO BE PREMATURELY TERMINATED. THIS SHOULD LEAVE
10717                   ;       THE POSITION JUST BEFORE THE FIRST RECORD ON
10718                   ;       TAPE.
10719                   ;
10720                   ;8.     TAPE POSITION IS VERIFIED BY ISSUING ANOTHER
10721                   ;       SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT
10722                   ;       TAPE STATUS ALERT TERMINATION OCCURS, WITH THE
10723                   ;       REVERSE INTO BOT (RIB) STATUS ERROR BIT SET.
10724                   ;
10725                   ;9.     A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A
10726                   ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10727                   ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
10728                   ;       OCCURED, TMK=1, AND THAT RBPCR (RESIDUAL
10729                   ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
10730                   ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
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10731                                   ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
10732                                   ;       TO BE PREMATURELY TERMINATED.
10733                                   ;
10734                                   ;
10735                                   ;
10736                                   ;
10737                                   ;
10738                                   ;
10739                                   ;-
10740 105610                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
       105610                                                                                     T8.3:
       105610  104402                                                                                       TRAP    C$BSUB
10741 105612  004737  112156                     JSR     PC,T28REST              ;SET COMMAND PACKET
10742 105616  004737  112250                     JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10743 105622  004737  112312                     JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10744 105626  012737  023420  110262             MOV     #10000.,T28DLY          ;SET UP DELAY ROUTINE
10745 105634  004737  016064             10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10746 105640  103426                             BCS     20$                     ;BR IF INIT WAS OK
10747 105642                                     DELAY   250                     ;DELAY ABOUT .25 SECONDS
       105642  012727  000250                                                                       MOV     #250,(PC)+
       105646  000000                                                                               .WORD   0
       105650  013727  002116                                                                       MOV     L$DLY,(PC)+
       105654  000000                                                                               .WORD   0
       105656  005367  177772                                                                       DEC     -6(PC)
       105662  001375                                                                               BNE     .-4
       105664  005367  177756                                                                       DEC     -22(PC)
       105670  001367                                                                               BNE     .-20
10748 105672  005337  110262                     DEC     T28DLY                  ;BUMP DELAY ROUTINE DOWN
10749 105676  001356                             BNE     10$                     ;BR, IF MORE DELAY TIME LEFT
10750 105700  005237  002212                     INC     FATFLG                  ;BUMP COUNT
10754 105704  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10755 105706                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       105706  104455                                                                               TRAP    C$ERDF
       105710  001453                                                                               .WORD   811
       105712  003650                                                                               .WORD   SFIERR
       105714  012124                                                                               .WORD   SFIMSG
10756 105716  013737  002172  110120     20$:    MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
10757 105724  012704  110100                     MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10758 105730  004737  010732                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10759 105734  103407                             BCS     23$                     ;BR, IF COMMAND ISSUED OK
10760 105736  005237  002212                     INC     FATFLG                  ;BUMP COUNT
10764 105742  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10765 105744                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       105744  104456                                                                               TRAP    C$ERHRD
       105746  001454                                                                               .WORD   812
       105750  005054                                                                               .WORD   WRTMSG
       105752  012124                                                                               .WORD   SFIMSG
10766 105754                             23$:    CKLOOP                          ;LOOP IF SELECTED
       105754  104406                                                                               TRAP    C$CLP1
10767 105756  004737  011104                     JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10768 105762  103411                             BCS     30$                     ;BR, IF NO PROBLEM
10769 105764  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR
10770 105770  010004                             MOV     R0,R4                   ;SAVE PACKET ADDRESS
10771 105772  005237  002212                     INC     FATFLG                  ;BUMP COUNT
10775 105776                                     ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
       105776  104456                                                                               TRAP    C$ERHRD
       106000  001455                                                                               .WORD   813
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        106002  111211                                                          .WORD   T28RWN
        106004  012136                                                          .WORD   PKTSSR
 10776  106006                          30$:    CKLOOP                  ;LOOP IF SELECTED
        106006  104406                                                          TRAP    C$CLP1
 10777  106010  013701  110130                  MOV     T28BFR+6,R1     ;PICK UP XSTO
 10778  106014  010102                          MOV     R1,R2           ;SET UP EXPECTED
 10779  106016  052702  000002                  BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
 10780  106022  020102                          CMP     R1,R2           ;DOES EXP = REC'D
 10781  106024  001406                          BEQ     40$             ;BR, IF EQUAL (OK)
 10782  106026  005237  002212                  INC     FATFLG          ;BUMP COUNT
 10786  106032                                  ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        106032  104456                                                          TRAP    C$ERHRD
        106034  001456                                                          .WORD   814
        106036  111067                                                          .WORD   T28BOT
        106040  015564                                                          .WORD   EXPREC
 10787  106042                          40$:    CKLOOP                  ;LOOP IF SELECTED
        106042  104406                                                          TRAP    C$CLP1
 10788  106044  005737  002216          42$:    TST     EXTFEA          ;CHECK FOR EXTENDED FEATURES SW SWITCH
 10789  106050  001024                          BNE     50$             ;BR IF SWITCH IS ON
 10790  106052  112737  000200  110231          MOVB    #200,T28BS1     ;WRITE MISCELLANEOUS CONT/READ STATUS
 10791  106060  112737  000010  110230          MOVB    #10,T28BS0      ;FUNC. SEL. BIT (TURN ON EXTFEA SWITCH)
 10792  106066  012704  110210                  MOV     #T28PK2,R4      ;WRITE SUBSYS MEM PACKET
 10793  106072  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
 10794  106076  004737  016426                  JSR     PC,CHKTSSR      ;WAIT FOR SSR
 10795  106102  103407                          BCS     50$             ;BR, IF NO ERROR
 10796  106104  010001                          MOV     R0,R1           ;ERROR, SAVE TSSR
 10797  106106  005237  002212                  INC     FATFLG          ;BUMP COUNT
 10801  106112                                  ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
        106112  104456                                                          TRAP    C$ERHRD
        106114  001457                                                          .WORD   815
        106116  110725                                                          .WORD   T28SSR
        106120  012136                                                          .WORD   PKTSSR
 10802  106122                          50$:    CKLOOP                  ;LOOP IF SELECTED
        106122  104406                                                          TRAP    C$CLP1
 10803  106124  012737  000007  110120          MOV     #7,T28DSW       ;SET UP DRIVE NUMBER
 10804  106132  012704  110100                  MOV     #T28PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
 10805  106136  004737  010752                  JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
 10806  106142  103407                          BCS     60$             ;BR, IF COMMAND ISSUED OK
 10807  106144  005237  002212                  INC     FATFLG          ;BUMP COUNT
 10811  106150  010001                          MOV     R0,R1           ;SAVE CONTENTS OF TSSR
 10812  106152                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        106152  104456                                                          TRAP    C$ERHRD
        106154  001460                                                          .WORD   816
        106156  005054                                                          .WORD   WRTMSG
        106160  012124                                                          .WORD   SFIMSG
 10813  106162                          60$:    CKLOOP                  ;SCOPE LOOP
        106162  104406                                                          TRAP    C$CLP1
 10814  106164  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
 10815  106170  032701  000100                  BIT     #OFL,R1         ;CHECK FOR THE OFFLINE BIT SET
 10816  106174  001006                          BNE     65$             ;BR, IF OFFLINE (GOOD)
 10817  106176  005237  002212                  INC     FATFLG          ;BUMP COUNT
 10821  106202                                  ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
        106202  104455                                                          TRAP    C$ERDF
        106204  001461                                                          .WORD   817
        106206  111260                                                          .WORD   T28OFL
        106210  012124                                                          .WORD   SFIMSG
 10822  106212                          65$:    CKLOOP                  ;LOOP IF SELECTED
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                106212  104406                                                          TRAP    C$CLP1
10823           106214  013737  002172  110120          MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
10824           106222  012704  110100                  MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10825           106226  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10826           106232  103407                          BCS     68$                     ;BR, IF COMMAND ISSUED OK
10827           106234  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10831           106240  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10832           106242                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                106242  104456                                                          TRAP    C$ERHRD
                106244  001462                                                          .WORD   818
                106246  005054                                                          .WORD   WRTMSG
                106250  012124                                                          .WORD   SFIMSG
10833           106252                          68$:    CKLOOP                          ;LOOP IF SELECTED
                106252  104406                                                          TRAP    C$CLP1
10834           106254  012737  140011  110220          MOV     #140011,T28PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
10835           106262  012704  110220                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10836           106266  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10837           106272  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10838           106276  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10839           106302  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10840           106306  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10841           106310  001406                          BEQ     70$                     ;BR, IF OK
10842           106312  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10846           106316                                  ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE TAPE MARK
                106316  104456                                                          TRAP    C$ERHRD
                106320  001463                                                          .WORD   819
                106322  111333                                                          .WORD   T28WDC
                106324  012136                                                          .WORD   PKTSSR
10847           106326                          70$:    CKLOOP                          ;LOOP IF SELECTED
                106326  104406                                                          TRAP    C$CLP1
10848           106330  013701  110130                  MOV     T28BFR+6,R1             ;PICK UP XSTO (VCK CHECK)
10849           106334  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10850           106336  042702  000020                  BIC     #BIT4,R2                ;VCK SHOULD BE 0
10851           106342  020102                          CMP     R1,R2                   ;IS VCK SET CORRECTLY
10852           106344  001406                          BEQ     80$                     ;BR, IF VCK IS CLEAR
10853           106346  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10857           106352                                  ERRHRD  ERRNO,T28VCK,EXPREC     ;VCK WAS NOT CLEAR AFTER CVC=1
                106352  104456                                                          TRAP    C$ERHRD
                106354  001464                                                          .WORD   820
                106356  111412                                                          .WORD   T28VCK
                106360  015564                                                          .WORD   EXPREC
10858           106362                          80$:    CKLOOP                          ;LOOP IF SELECTED
                106362  104406                                                          TRAP    C$CLP1
10859           106364  013701  110130                  MOV     T28BFR+6,R1             ;PICK UP XSTO (CHECK TMK)
10860           106370  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10861           106372  052702  100000                  BIS     #BIT15,R2               ;TMK SHOULD BE SET
10862           106376  020102                          CMP     R1,R2                   ;WAS TMK SET
10863           106400  001406                          BEQ     90$                     ;BR, IF TMK WAS SET
10864           106402  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10868           106406                                  ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK WAS NOT SET AFTER WRT TAPE MARK
                106406  104456                                                          TRAP    C$ERHRD
                106410  001465                                                          .WORD   821
                106412  111465                                                          .WORD   T28TMK
                106414  015564                                                          .WORD   EXPREC
10869           106416                          90$:    CKLOOP                          ;LOOP IF SELECTED
                106416  104406                                                          TRAP    C$CLP1
10870           106420  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
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10871 106424  103411                    BCS     130$                    ;BR, IF NO PROBLEM
10872 106426  010004                    MOV     R0,R4                   ;SAVE PACKET ADDRESS
10873 106430  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR STATUS
10874 106434  005237  002212            INC     FATFLG                  ;BUMP COUNT
10878 106440                            ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
      106440  104456                                                            TRAP    C$ERHRD
      106442  001466                                                            .WORD   822
      106444  111211                                                            .WORD   T28RWN
      106446  012136                                                            .WORD   PKTSSR
10879 106450                    130$:   CKLOOP                          ;LOOP IF SELECTED
      106450  104406                                                            TRAP    C$CLP1
10880 106452  013701  110130            MOV     T28BFR+6,R1             ;PICK UP XSTO
10881 106456  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10882 106460  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10883 106464  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10884 106466  001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
10885 106470  005237  002212            INC     FATFLG                  ;BUMP COUNT
10889 106474                            ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      106474  104456                                                            TRAP    C$ERHRD
      106476  001467                                                            .WORD   823
      106500  111067                                                            .WORD   T28BOT
      106502  015564                                                            .WORD   EXPREC
10890 106504                    140$:   CKLOOP                          ;LOOP IF SELECTED
      106504  104406                                                            TRAP    C$CLP1
10891 106506  012703  000012    150$:   MOV     #10.,R3                 ;NUMBER OF RECORDS TO WRITE TM
10892 106512  012737  140011  110220    MOV     #140011,T28PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
10893 106520  012704  110220            MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10894 106524  010465  000000    155$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10895 106530  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10896 106534  016501  000002            MOV     TSSR(R5),R1             ;PICK UP TSSR
10897 106540  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
10898 106544  020102                    CMP     R1,R2                   ;WAS STATUS GOOD
10899 106546  001406                    BEQ     165$                    ;BR, IF TERMINATION WAS GOOD
10900 106550  005237  002212            INC     FATFLG                  ;BUMP COUNT
10904 106554                            ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
      105554  104456                                                            TRAP    C$ERHRD
      106556  001470                                                            .WORD   824
      106560  111333                                                            .WORD   T28WDC
      106562  012136                                                            .WORD   PKTSSR
10905 106564                    165$:   CKLOOP                          ;LOOP IF SELECTED
      106564  104406                                                            TRAP    C$CLP1
10906 106566  013701  110130            MOV     T28BFR+6,R1             ;PICK UP XSTO
10907 106572  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10908 106574  052702  100000            BIS     #BIT15,R2               ;SET TMK BIT IN EXPECTED
10909 106600  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10910 106602  001406                    BEQ     180$                    ;BR, IF EQUAL (OK)
10911 106604  005237  002212            INC     FATFLG                  ;BUMP COUNT
10915 106610                            ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK NOT SET AFTER WRT TAPE MARK
      106610  104456                                                            TRAP    C$ERHRD
      106612  001471                                                            .WORD   825
      106614  111465                                                            .WORD   T28TMK
      106616  015564                                                            .WORD   EXPREC
10916 106620                    180$:   CKLOOP                          ;LOOP IF SELECTED
      106620  104406                                                            TRAP    C$CLP1
10917 106622  005303                    DEC     R3                      ;BUMP COUNTER DOWN
10918 106624  001337                    BNE     155$                    ;BR, IF LESS THAN 10 TAPE MARKS
10919 106626  012700  177777            MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
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10920 106632  004737  017512                    JSR     PC,FILLMEM          ;FILL MEM WITH ALL ONES
10921 106636  013737  003114  110222            MOV     FREE,T28WB          ;STARTING READ BUFFER ADDRESS
10922 106644  012737  140401  110220            MOV     #140401,T28PK3      ;READ REVERSE,ACK, COMMAND
10923 106652  012704  110220                    MOV     #T28PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
10924 106656  013737  000024  110226            MOV     20.,T28SZ           ;SET UP RECORD SIZE IN PACKET
10925 106664  010465  000000                    MOV     R4,TSDB(R5)         ;ISSUE COMMAND
10926 106670  004737  016340                    JSR     PC,WAITF            ;WAIT FOR SSR TO SET
10927 106674  016501  000002                    MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
10928 106700  012702  100204                    MOV     #SSR!SC!BIT2,R2     ;SET UP EXPECTED
10929 106704  020102                            CMP     R1,R2               ;ARE THEY EQUAL
10930 106706  001406                            BEQ     200$                ;BR, IF OK
10931 106710  005237  002212                    INC     FATFLG              ;BUMP COUNT
10935 106714                                    ERRHRD  ERRNO,T28RDF,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
      106714  104456                                                              TRAP    C$ERHRD
      106716  001472                                                              .WORD   826
      106720  110424                                                              .WORD   T28RDF
      106722  012136                                                              .WORD   PKTSSR
10936 106724                            200$:   CKLOOP                          ;LOOP IF SELECTED
      106724  104406                                                              TRAP    C$CLP1
10937 106726  013701  110130                    MOV     T28BFR+6,R1         ;PICK UP XSTO
10938 106732  010102                            MOV     R1,R2               ;SET UP EXPECTED
10939 106734  052702  100000                    BIS     #BIT15,R2           ;TMK SHOULD BE SET
10940 106740  020102                            CMP     R1,R2               ;IS TMK SET
10941 106742  001406                            BEQ     210$                ;BR, IF TMK WAS SET (GOOD)
10942 106744  005237  002212                    INC     FATFLG              ;BUMP COUNT
10946 106750                                    ERRHRD  ERRNO,T28RRM,EXPREC ;TMK NOT SET AFTER READ REV
      106750  104456                                                              TRAP    C$ERHRD
      106752  001473                                                              .WORD   827
      106754  111537                                                              .WORD   T28RRM
      106756  015564                                                              .WORD   EXPREC
10947 106760                            210$:   CKLOOP                          ;LOOP IF SELECTED
      106760  104406                                                              TRAP    C$CLP1
10948 106762  017701  074126                    MOV     @FREE,R1            ;FIRST LOC IN READ BUFFER
10949 106766  012702  177777                    MOV     #177777,R2          ;EXPECTED IF NO DATA TRANS.
10950 106772  020102                            CMP     R1,R2               ;DID ANY DATA GET TRANSFERRED
10951 106774  001406                            BEQ     220$                ;BR, IF NO DATA TRANS (GOOD)
10952 106776  005237  002212                    INC     FATFLG              ;BUMP COUNT
10956 107002                                    ERRHRD  ERRNO,T28DTR,EXPREC ;DATA TRANSFERRED ON READ TAPE MARK
      107002  104456                                                              TRAP    C$ERHRD
      107004  001474                                                              .WORD   828
      107006  111752                                                              .WORD   T28DTR
      107010  015564                                                              .WORD   EXPREC
10957 107012                            220$:   CKLOOP                          ;LOOP IF SELECTED
      107012  104406                                                              TRAP    C$CLP1
10958 107014  012737  100410  110220            MOV     #100410,T28PK3      ;SPACE REVERSE,ACK, COMMAND
10959 107022  012737  000001  110222            MOV     #1,T28RB            ;NUMBER OF RECORDS TO SPACE BACK
10960 107030  012704  110220                    MOV     #T28PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
10961 107034  010465  000000                    MOV     R4,TSDB(R5)         ;ISSUE COMMAND
10962 107040  004737  016340                    JSR     PC,WAITF            ;WAIT FOR SSR TO SET
10963 107044  016501  000002                    MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
10964 107050  012702  100204                    MOV     #SSR!SC!BIT2,R2     ;SET UP EXPECTED
10965 107054  020102                            CMP     R1,R2               ;ARE THEY EQUAL
10966 107056  001406                            BEQ     222$                ;BR, IF OK
10967 107060  005237  002212                    INC     FATFLG              ;BUMP COUNT
10971 107064                                    ERRHRD  ERRNO,T28RDG,PKTSSR ;TSSR INCORRECT AFTER SPACE CMD.
      107064  104456                                                              TRAP    C$ERHRD
      107066  001475                                                              .WORD   829
```

```
        107070  110505                                                          .WORD   T28RDG
        107072  012136                                                          .WORD   PKTSSR
10972   107074                  222$:   CKLOOP                  ;LOOP IF SELECTED
        107074  104406                                                          TRAP    C$CLP1
10973   107076  013701  110130          MOV     T28BFR+6,R1     ;PICK UP XSTO
10974   107102  010102                  MOV     R1,R2           ;SET UP EXPECTED
10975   107104  052702  100000          BIS     #BIT15,R2       ;TMK SHOULD BE SET
10976   107110  020102                  CMP     R1,R2           ;IS TMK SET
10977   107112  001406                  BEQ     226$            ;BR, IF TMK WAS SET (GOOD)
10978   107114  005237  002212          INC     FATFLG          ;BUMP COUNT
10982   107120                          ERRHRD  ERRNO,T28RRN,EXPREC     ;TMK NOT SET AFTER SPACE REV
        107120  104456                                                          TRAP    C$ERHRD
        107122  001476                                                          .WORD   830
        107124  111615                                                          .WORD   T28RRN
        107126  015564                                                          .WORD   EXPREC
10983   107130                  226$:   CKLOOP                  ;LOOP IF SELECTED
        107130  104406                                                          TRAP    C$CLP1
10984   107132  004737  011104          JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
10985   107136  103411                  BCS     230$            ;BR, IF NO PROBLEM
10986   107140  010004                  MOV     R0,R4           ;SAVE PACKET ADDRESS
10987   107142  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR
10988   107146  005237  002212          INC     FATFLG          ;BUMP COUNT
10992   107152                          ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
        107152  104456                                                          TRAP    C$ERHRD
        107154  001477                                                          .WORD   831
        107156  111211                                                          .WORD   T28RWN
        107160  012136                                                          .WORD   PKTSSR
10993   107162                  230$:   CKLOOP                  ;LOOP IF SELECTED
        107162  104406                                                          TRAP    C$CLP1
10994   107164  013701  110130          MOV     T28BFR+6,R1     ;PICK UP XSTO
10995   107170  010102                  MOV     R1,R2           ;SET UP EXPECTED
10996   107172  052702  000002          BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
10997   107176  020102                  CMP     R1,R2           ;DOES EXP = REC'D
10998   107200  001406                  BEQ     240$            ;BR, IF EQUAL (OK)
10999   107202  005237  002212          INC     FATFLG          ;BUMP COUNT
11003   107206                          ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        107206  104456                                                          TRAP    C$ERHRD
        107210  001500                                                          .WORD   832
        107212  111067                                                          .WORD   T28BOT
        107214  015564                                                          .WORD   EXPREC
11004   107216                  240$:   CKLOOP                  ;LOOP IF SELECTED
        107216  104406                                                          TRAP    C$CLP1
11005   107220  012700  177777          MOV     #177777,R0      ;VALUE TO WRITTEN TO MEMORY
11006   107224  004737  017512          JSR     PC,FILLMEM      ;FILL MEM WITH ALL ONES
11007   107230  013737  003114  110222  MOV     FREE,T28RB      ;STARTING READ BUFFER ADDRESS
11008   107236  012737  100001  110220  MOV     #100001,T28PK3  ;READ FORWARD,ACK, COMMAND
11009   107244  012704  110220          MOV     #T28PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
11010   107250  013737  000024  110226  MOV     20.,T28SZ       ;SET UP RECORD SIZE IN PACKET
11011   107256  010465  000000          MOV     R4,TSDB(R5)     ;ISSUE COMMAND
11012   107262  004737  016340          JSR     PC,WAITF        ;WAIT FOR SSR TO SET
11013   107266  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
11014   107272  012702  100204          MOV     #SSR!SC!BIT2,R2 ;SET UP EXPECTED
11015   107276  020102                  CMP     R1,R2           ;ARE THEY EQUAL
11016   107300  001406                  BEQ     245$            ;BR, IF OK
11017   107302  005237  002212          INC     FATFLG          ;BUMP COUNT
11021   107306                          ERRHRD  ERRNO,T28WDE,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        107306  104456                                                          TRAP    C$ERHRD
```

```
        107310  001501                                                          .WORD   833
        107312  110776                                                          .WORD   T28WDE
        107314  012136                                                          .WORD   PKTSSR
 11022  107316                          245$:   CKLOOP                  ;LOOP IF SELECTED
        107316  104406                                                          TRAP    C$CLP1
 11023  107320  013701  110130                  MOV     T28BFR+6,R1     ;PICK UP XSTO
 11024  107324  010102                          MOV     R1,R2           ;SET UP EXPECTED
 11025  107326  052702  100000                  BIS     #BIT15,R2       ;TMK SHOULD BE SET
 11026  107332  020102                          CMP     R1,R2           ;IS TMK SET
 11027  107334  001406                          BEQ     247$            ;BR, IF TMK WAS SET (GOOD)
 11028  107336  005237  002212                  INC     FATFLG          ;BUMP COUNT
 11032  107342                                  ERRHRD  ERRNO,T28RRP,EXPREC     ;TMK NOT SET AFTER READ REV
        107342  104456                                                          TRAP    C$ERHRD
        107344  001502                                                          .WORD   834
        107346  111674                                                          .WORD   T28RRP
        107350  015564                                                          .WORD   EXPREC
 11033  107352                          247$:   CKLOOP                  ;LOOP IF SELECTED
        107352  104406                                                          TRAP    C$CLP1
 11034  107354  017701  073534                  MOV     @FREE,R1                ;FIRST LOC IN READ BUFFER
 11035  107360  012702  177777                  MOV     #177777,R2      ;EXPECTED IF NO DATA TRANS.
 11036  107364  020102                          CMP     R1,R2           ;DID ANY DATA GET TRANSFERRED
 11037  107366  001406                          BEQ     250$            ;BR, IF NO DATA TRANS (GOOD)
 11038  107370  005237  002212                  INC     FATFLG          ;BUMP COUNT
 11042  107374                                  ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
        107374  104456                                                          TRAP    C$ERHRD
        107376  001503                                                          .WORD   835
        107400  111752                                                          .WORD   T28DTR
        107402  015564                                                          .WORD   EXPREC
 11043  107404                          250$:   CKLOOP                  ;LOOP IF SELECTED
        107404  104406                                                          TRAP    C$CLP1
 11044  107406  012737  100410  110220          MOV     #100410,T28PK3  ;SPACE REVERSE,ACK, COMMAND
 11045  107414  012737  000005  110222          MOV     #5,T28RB        ;NUMBER OF RECORDS TO SPACE BACK
 11046  107422  012704  110220                  MOV     #T28PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
 11047  107426  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
 11048  107432  004737  016340                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
 11049  107436  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
 11050  107442  012702  100204                  MOV     #SSR!SC!BIT2,R2 ;SET UP EXPECTED
 11051  107446  020102                          CMP     R1,R2           ;ARE THEY EQUAL
 11052  107450  001406                          BEQ     260$            ;BR, IF OK
 11053  107452  005237  002212                  INC     FATFLG          ;BUMP COUNT
 11057  107456                                  ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE REV CMD.
        107456  104456                                                          TRAP    C$ERHRD
        107460  001504                                                          .WORD   836
        107462  110505                                                          .WORD   T28RDG
        107464  012136                                                          .WORD   PKTSSR
 11058  107466                          260$:   CKLOOP                  ;LOOP IF SELECTED
        107466  104406                                                          TRAP    C$CLP1
 11059  107470  013701  110130                  MOV     T28BFR+6,R1     ;PICK UP XSTO
 11060  107474  010102                          MOV     R1,R2           ;SET UP EXPECTED
 11061  107476  052702  100000                  BIS     #BIT15,R2       ;TMK SHOULD BE SET
 11062  107502  020102                          CMP     R1,R2           ;IS TMK SET
 11063  107504  001406                          BEQ     270$            ;BR, IF TMK WAS SET (GOOD)
 11064  107506  005237  002212                  INC     FATFLG          ;BUMP COUNT
 11068  107512                                  ERRHRD  ERRNO,T28RRN,EXPREC     ;TMK NOT SET AFTER READ REV
        107512  104456                                                          TRAP    C$ERHRD
        107514  001505                                                          .WORD   837
        107516  111615                                                          .WORD   T28RRN
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        107520  015564                                                          .WORD   EXPREC
11069   107522                          270$:   CKLOOP                          ;LOOP IF SELECTED
        107522  104406                                                          TRAP    C$CLP1
11070   107524  013701  110126                  MOV     T28BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
11071   107530  012702  000004                  MOV     #4.,R2                  ;SHOULD BE THE DIFFERENCE
11072   107534  020102                          CMP     R1,R2                   ;IS COUNTER CORRECT
11073   107536  001406                          BEQ     280$                    ;BR, IF COUNTER CORRECT
11074   107540  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11078   107544                                  ERRHRD  ERRNO,T28PBP,EXPREC     ;RESIDUAL BYTE COUNTER NOT CORRECT
        107544  104456                                                          TRAP    C$ERHRD
        107546  001506                                                          .WORD   838
        107550  110341                                                          .WORD   T28PBP
        107552  015564                                                          .WORD   EXPREC
11079   107554                          280$:   CKLOOP                          ;LOOP IF SELECTED
        107554  104406                                                          TRAP    C$CLP1
11080   107556  012737  100410  110220          MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
11081   107564  012737  000001  110222          MOV     #1,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
11082   107572  012704  110220                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11083   107576  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11084   107602  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11085   107606  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11086   107612  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11087   107616  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11088   107620  001406                          BEQ     290$                    ;BR, IF OK
11089   107622  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11093   107626                                  ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
        107626  104456                                                          TRAP    C$ERHRD
        107630  001507                                                          .WORD   839
        107632  110505                                                          .WORD   T28RDG
        107634  012136                                                          .WORD   PKTSSR
11094   107636                          290$:   CKLOOP                          ;LOOP IF SELECTED
        107636  104406                                                          TRAP    C$CLP1
11095   107640  013701  110136                  MOV     T28BFR+14,R1            ;PICK UP XST3
11096   107644  010102                          MOV     R1,R2                   ;SET UP EXPECTED
11097   107646  052702  000001                  BIS     #BIT0,R2                ;RIB SHOULD BE SET
11098   107652  020102                          CMP     R1,R2                   ;IS RIB SET
11099   107654  001406                          BEQ     300$                    ;BR, IF RIB WAS SET (GOOD)
11100   107656  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11104   107662                                  ERRHRD  ERRNO,T28RIB,EXPREC     ;RIB NOT SET AFTER READ REV
        107662  104456                                                          TRAP    C$ERHRD
        107664  001510                                                          .WORD   840
        107666  110264                                                          .WORD   T28RIB
        107670  015564                                                          .WORD   EXPREC
 1105   107672                          300$:   CKLOOP                          ;LOOP IF SELECTED
        107672  104406                                                          TRAP    C$CLP1
11106   107674  012737  100010  110220          MOV     #100010,T28PK3          ;SPACE FORWARD,ACK, COMMAND
11107   107702  012737  000005  110222          MOV     #5,T28RB                ;NUMBER OF RECORDS TO SPACE FORW.
11108   107710  012704  110220                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11109   107714  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11110   107720  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11111   107724  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11112   107730  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11113   107734  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11114   107736  001406                          BEQ     310$                    ;BR, IF OK
11115   107740  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11119   107744                                  ERRHRD  ERRNO,T28RDF,EXPREC     ;TSSR INCORRECT AFTER SPACE CMD.
        107744  104456                                                          TRAP    C$ERHRD
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        107746  001511                                                  .WORD   841
        107750  110424                                                  .WORD   T28RDF
        107752  015564                                                  .WORD   EXPREC
 11120  107754                        310$:   CKLOOP                  ;LOOP IF SELECTED
        107754  104406                                                  TRAP    C$CLP1
 11121  107756  013701  110130              MOV     T28BFR+6,R1         ;PICK UP XSTO
 11122  107762  010102                      MOV     R1,R2               ;SET UP EXPECTED
 11123  107764  052702  100000              BIS     #BIT15,R2           ;TMK SHOULD BE SET
 11124  107770  020102                      CMP     R1,R2               ;IS TMK SET
 11125  107772  001406                      BEQ     320$                ;BR, IF TMK WAS SET (GOOD)
 11126  107774  005237  002212              INC     FATFLG              ;BUMP COUNT
 11130  110000                              ERRHRD  ERRNO,T28RRP,EXPREC ;TMK NOT SET AFTER READ REV
        110000  104456                                                  TRAP    C$ERHRD
        110002  001512                                                  .WORD   842
        110004  111674                                                  .WORD   T28RRP
        110006  015564                                                  .WORD   EXPREC
 11131  110010                        320$:   CKLOOP                  ;LOOP IF SELECTED
        110010  104406                                                  TRAP    C$CLP1
 11132  110012  013701  110126              MOV     T28&FR+4,R1         ;PICK UP RESIDUAL BYTE COUNTER
 11133  110016  012702  000004              MOV     #4.,R2              ;SHOULD BE THE DIFFERENCE
 11134  110022  020102                      CMP     R1,R2               ;IS COUNTER CORRECT
 11135  110024  001406                      BEQ     330$                ;BR, IF COUNTER CORRECT
 11136  110026  005237  002212              INC     FATFLG              ;BUMP COUNT
 11140  110032                              ERRHRD  ERRNO,T28PBP,EXPREC ;RESIDUAL BYTE COUNTER NOT CORRECT
        110032  104456                                                  TRAP    C$ERHRD
        110034  001513                                                  .WORD   843
        110036  110341                                                  .WORD   T28PBP
        110040  015564                                                  .WORD   EXPREC
 11141  110042                        330$:   CKLOOP                  ;LOOP IF SELECTED
        110042  104406                                                  TRAP    C$CLP1
 11142  110044                              ENDSUB                      ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
        110044                                                      L10133:
        110044  104403                                                  TRAP    C$ESUB
 11143  110046  023727  002212  000017          CMP     FATFLG,#15.         ;IS ERROR COUNT AT 25
 11144  110054  103402                          BLO     999$                ;BR, IF LESS THAN 25
 11145  110056  004737  017272                  JSR     PC,CKDROP           ;TRY TO DROP THE UNIT
 11146  110062                        999$:
 11147                                  :
 11148                                  :
 11149                                  :
 11150  110062  004737  016546              JSR     PC,TSTLOOP          ;DO WE NEED TO ITERATE TEST
 11151  110066  103002                      BCC     163$                ;BR, IF NO LOOP REQUIRED
 11152  110070  000137  104750              JMP     T28LOOP             ;EXECUTE AGAIN
 11153  110074                        163$:
 11154  110074                              EXIT    TST                 ;ALL DONE THIS TEST
        110074  104432                                                  TRAP    C$EXIT
        110076  002236                                                  .WORD   L10130-.
```

```
11156                                   ;+
11157                                   ;LOCAL STORAGE FOR THIS TEST
11158                                   ;-
11162 110100                            T28PACKET:                      ;COMMAND PACKET FOR TEST
11163 110100  100004                            .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
11164 110102  110110                            .WORD   T28DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
11165 110104  000000                            .WORD   0
11166 110106  000012                            .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
11167 110110                            T28DATA:                        ;CHARACTERISTICS DATA BLOCK
11168 110110  110122                            .WORD   T28BFR          ;ADDRESS OF MESSAGE BUFFER
11169 110112  000000                            .WORD   0
11170 110114  000024                            .WORD   20.             ;LENGTH OF MESSAGE BUFFER
11171 110116  000000                            .WORD   0
11172 110120  000000                    T28DSW: .WORD   0               ;SELECT DRIVE 0
11173 110122                            T28BFR: .BLKW   25.             ;MESSAGE BUFFER
11174                                   ;
11175                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
11176                                   ;
11178         110210                            .=<.+10>&177770
11180 110210                            T28PK2:
11181 110210  100006                            .WORD   100006          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
11182 110212  110230                            .WORD   T28BF2          ;ADDRESS OF SELECT BLOCK DATA
11183 110214  000000                            .WORD   0
11184 110216  000006                            .WORD   6.              ;SIZE OF DATA PACKET
11185
11189 110220                            T28PK3:
11190 110220  100005                            .WORD   100005          ;REREAD COMMAND,  AND ACK
11191 110222                            T28RB:
11192 110222  003114                    T28WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
11193 110224  000000                            .WORD   0
11194 110226  000000                    T28SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
11195                                           .EVEN
11196                                   ;
11197                                   ;
11198                                   ;
11199 110230                            T28BF2:
11200 110230     010                    T28BS0: .BYTE   10              ;BSEL0 AREA
11201 110231     200                    T28BS1: .BYTE   200             ;BSEL1 AREA
11202 110232  000000                    T28S2:  .WORD   0               ;SEL 2 AREA
11203 110234  000000                    T28S3:  .WORD   0               ;DATA AREA
11204                                   ;
11205                                   ;
11206                                           .EVEN
11207                                   ;TAPE MOTION PACKET COMMAND VALUES
11208
11209 110236                            T28IMV:
11210 110236  101411                            .WORD   101411          ;ILLEGAL MODE BITS TEST DATA
11211 110240  102011                            .WORD   102011
11212 110242  103411                            .WORD   103411
11213 110244  177777                            .WORD   177777
11214 110246  100011                    T28RN:  .WORD   100011          ;WRITE TAPE MARK COMMAND
11215 110250  100411                    T28WDR: .WORD   100411          ;ERASE COMMAND
11216 110252  101011                    T28CON: .WORD   101011          ;WRITE TAPE MARK RETRY
11217 110254  177777                            .WORD   177777          ;END OF DATA
11218
11219                                   ;
11220 110256  000000                    T28CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
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11221 110260  000000                T28CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
11222 110262  000000                T28DLY: .WORD   0               ;DELAY COUNTER
11223                                       .EVEN
11224
```

```
11226
11227                                   ;+
11228                                   ;LOCAL TEXT MESSAGES FOR TEST
11229                                   ;-
11230
11231
11232 110264      124     141     160   T28RIB: .ASCIZ  'Tape Position Not Correct, RIB Should Be Set'
11233 110341      122     145     163   T28PBP: .ASCIZ  'Residual Byte Counter Register (RBPCR) Not Correct'
11234 110424      124     123     123   T28RDF: .ASCIZ  'TSSR Incorrect After READ REVERSE Into TAPE MARK'
11235 110505      124     123     123   T28RDG: .ASCIZ  'TSSR Incorrect After SPACE Command Into TAPE MARK'
11236 110567      124     123     123   T28WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
11237 110644      111     154     154   T28LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
11238 110725      127     122     111   T28SSR: .ASCIZ  'WRITE MISCELLANEOUS Command Not Accepted'
11239 110776      124     123     123   T28WDE: .ASCIZ  'TSSR Not Correct After READ DATA Command, Into TAPE MARK'
11240 111067      124     141     160   T28BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
11241 111134      124     123     123   T28TM:  .ASCIZ  'TSSR Not Correct After FORMAT Command Reject'
11242 111211      122     145     167   T28RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
11243 111260      104     162     151   T28OFL: .ASCIZ  'Drive 7 Select Failed To Set ''OFL'' In TSSR'
11244 111333      124     123     123   T28WDC: .ASCIZ  'TSSR Not Correct After WRITE TAPE MARK Command'
11245 111412      103     126     103   T28VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
11246 111465      124     115     113   T28TMK: .ASCIZ  'TMK Not Set After WRITE TAPE MARK Command'
11247 111537      124     115     113   T28RRM: .ASCIZ  'TMK Not Set After READ REVERSE Into TAPE MARK'
11248 111615      124     115     113   T28RRN: .ASCIZ  'TMK Not Set After SPACE REVERSE Into TAPE MARK'
11249 111674      124     115     113   T28RRP: .ASCIZ  'TMK Not Set After READ FORWARD Into TAPE MARK'
11250 111752      104     141     164   T28DTR: .ASCIZ  'Data Transferred On READ REVERSE Into A TAPE MARK'
11251 112034      104     141     164   T28DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
11252 112131      127     162     151   TST28ID:        .ASCIZ  'Write/Read Tape Mark'
11253                                           .EVEN
11254                                   ;+
11255                                   ;
11256                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
11257                                   ;WRITE SUBSYSTEM MEMORY COMMAND
11258                                   ;
11259                                   ;-
11260
11261 112156                           T28REST:
11262 112156                                   SAVREG                          ;SAVE THE REGISTERS
11263 112162  012701  110100                   MOV     #T28PACKET,R1           ;START OF THE PACKET
11264 112166  012721  100004                   MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
11265 112172  012721  110110                   MOV     #T28DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
11266 112176  005021                           CLR     (R1)+                   ;EXTENDED ADDRESS
11267 112200  012721  000012                   MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
11268 112204  012721  110122                   MOV     #T28BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
11269 112210  005021                           CLR     (R1)+
11270 112212  012721  000024                   MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
11271 112216  005021                           CLR     (R1)+
11272 112220  012711  000000                   MOV     #0,(R1)                 ;SELECT DRIVE ZERO
11273 112224  012702  000030                   MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
11274 112230  012762  177777  110122  64$:     MOV     #177777,T28BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
11275 112236  005742                           TST     -(R2)                   ;NEXT LOCATION
11276 112240  020227  000000                   CMP     R2,#0                   ;CHECK FOR END
11277 112244  001371                           BNE     64$                     ;KEEP GOING UNTIL DONE
11278 112246  000207                           RTS     PC                      ;RETURN
11279
11280
11281 112250                           T28RT2:
11282 112250                                   SAVREG                          ;SAVE THE REGISTERS
```

```
11283 112254  012701  110210                  MOV     #T28PK2,R1          ;START OF THE PACKET
11284 112260  012721  100006                  MOV     #100006,(R1)+       ;WRITE SUBSYSTEM MEM. WITH ACK,
11285 112264  012721  110230                  MOV     #T28BF2,(R1)+       ;ADDRESS OF DATA BLOCK
11286 112270  005021                          CLR     (R1)+               ;EXTENDED ADDRESS
11287 112272  012721  000006                  MOV     #6.,(R1)+           ;SIZE OF DATA BLOCK IN BYTES
11288 112276  005021                          CLR     (R1)+
11289 112300  012701  110230                  MOV     #T28BF2,R1          ;POINT TO DATA SEL AREA
11290 112304  005021                          CLR     (R1)+
11291 112306  005011                          CLR     (R1)
11292 112310  000207                          RTS     PC                  ;RETURN
11293 112312                          T28RT3:
11294 112312                                  SAVREG
11295 112316  012701  110220                  MOV     #T28PK3,R1          ;GET PACKET ADDRESS
11296 112322  005021                          CLR     (R1)+               ;CLEAR COMMAND AREA
11297 112324  005021                          CLR     (R1)+               ;CLEAR ADDRESS AREA
11298 112326  005021                          CLR     (R1)+               ;CLEAR EXTENDED ADDRESS AREA
11299 112330  005011                          CLR     (R1)                ;SIZE OF DATA TRANSFER
11300 112332  000207                          RTS     PC                          ;RETURN
11301 112334                                  ENDTST
      112334
      112334  104401                                          L10130:
                                                                      TRAP    C$ETST
11302 112336                                  ENDMOD
```

```
                                        .TITLE  TSV6 - PARAMETER CODING


                                        BGNMOD  TSV6
                                TSV6::


                                        .SBTTL  HARDWARE PARAMETER CODING SECTION

                                ;++
                                ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WI 4 THE OPERATOR.
                                ;--
                                        BGNHRD
112336  000010                          .WORD L10134-L$HARD/2
112340                          L$HARD::

112340                                  GPRMA   HPM1,0,0,160010,177776,YES      ;GET TSBA/TSDB REGISTER ADDRESS.
112340  000031                          .WORD   T$CODE
112342  112360                          .WORD   HPM1
112344  160010                          .WORD   T$LOLIM
112346  177776                          .WORD   T$HILIM
112350                                  GPRMA   HPM2,2,0,0,776,YES              ;GET VECTOR ADDRESS.
112350  001031                          .WORD   T$CODE
112352  112414                          .WORD   HPM2
112354  000000                          .WORD   T$LOLIM
112356  000776                          .WORD   T$HILIM
                                        ;GPRMD  HPM3,4,0,340,0,7,YES            ;GET INTERRUPT PRIORITY.
112360                                  ENDHRD
                                        .EVEN
112360                          L10134:
112360      104     105     126 HPM1:   .ASCIZ  'DEVICE ADDRESS (TSBA/TSDB) '
112414      111     116     124 HPM2:   .ASCIZ  'INTERRUPT VECTOR   '
112440      111     116     124 HPM3:   .ASCIZ  'INTERRUPT PRIORITY     '
                                        .EVEN
```

```
                                        .SBTTL  SOFTWARE PARAMETER CODING SECTION

                                ;++
                                ; THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;--
112470                                  BGNSFT
112470  000003                          .WORD L10135-L$SOFT/2
112472                          L$SOFT::
                                ;       GPRML   SPM1,0,-1,YES                   ; GET TRANSPORT TEST FLAG.
112472                                  GPRML   SPM4,2,-1,YES                   ; GET ITERATION CONTROL.
112472  001130                          .WORD   T$CODE
112474  112530                          .WORD   SPM4
112476  177777                          .WORD   -1
                                ;       GPRMD   SPM6,4,D,7777,0,7777,YES        ; GET LOCAL ERROR LIMIT
                                ;       GPRMD   SPM7,6,D,7777,0,7777,YES        ; GET GLOBAL ERROR LIMIT
112500                                  ENDSFT
                                        .EVEN
112500                          L10135:

112500  105  116  101  SPM1:   .ASCIZ  'ENABLE TRANSPORT TESTS '
112530  111  116  110  SPM4:   .ASCIZ  'INHIBIT ITERATIONS     '
112560  120  105  122  SPM6:   .ASCIZ  'PER TEST ERROR LIMIT   '
112610  120  105  122  SPM7:   .ASCIZ  'PER UNIT ERROR LIMIT   '
                                        .SBTTL  PATCH AREA

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

112640                          PATCH::

112640                                  .BLKW   32.

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

```
ADDSSR  012216 G        C$AU   = 000052        DEVDRO  023466          FREE    003114 G        INCERK  017134
ADR    = 000020 G        C$AUTO= 000061        DEVNRD  023405          FREEHI  003120          INTCPC  016240
AMBTSS  006725           C$BRK  = 000022        DEVNXR  023323          FRESIZ  003116 G        INTFLA  016235
ASSEMB= 000010           C$BSEG= 000004        DEVONL  023253          FUSI    004115          INTMAS  016234
A1716  = 000003          C$BSUB= 000002        DEVSUM  023216          F$AU   = 000015          INTR    016306 G
BADDAT  003146 G         C$CEFG= 000045        DFPTBL  002146 G        F$AUTO= 000020          INTREC  002214 G
BADSSR  015770 G         C$CLCK= 000062        DIAGMC= 000000          F$BGN  = 000040          INTVEC  016236
BDVPCR= 177520 G         C$CLEA= 000012        DICEC  = 000001         F$CLEA= 000007          INTX    004276
BENBSW  002220 G         C$CLOS= 000035        DSBINT  016274          F$DU   = 000016          INVERT  021276 G
BIE    = 040000          C$CLP1= 000006        DUAD12  004641          F$END  = 000041          IOKCKI= 000200
BIT0   = 000001 G        C$CVEC= 000036        DUFLG   003102 G        F$HARD= 000004          IOKSTP= 000001
BIT00  = 000001 G        C$DCLN= 000044        DUMMY   003052          F$HW   = 000013          IPRI    002202 G
BIT01  = 000002 G        C$DODU= 000051        EF.CON= 000036 G        F$INIT= 000006          ISR    - 000100 G
BIT02  = 000004 G        C$DRPT= 000024        EF.NEW= 000035 G        F$JMP  = 000050          IVEC    002200 G
BIT03  = 000010 G        C$DU   = 000053        EF.PWR= 000034 G        F$MOD  = 000000          IXE    = 004000 G
BIT04  = 000020 G        C$EDIT= 000003        EF.RES= 000037 G        F$MSG  = 000011          I$AU   = 000041
BIT05  = 000040 G        C$ERDF= 000055        EF.STA= 000040 G        F$PROT= 000021          I$AUTO= 000041
BIT06  = 000100 G        C$ERHR= 000056        EMAXDU  017067          F$PWR  = 000017          I$CLN  = 000041
BIT07  = 000200 G        C$ERRO= 000060        EN     = 000000         F$RPT  = 000012          I$DU   = 000041
BIT08  = 000400 G        C$ERSF= 000054        ENAINT  016242          F$SEG  = 000003          I$HRD  = 000041
BIT09  = 001000 G        C$ERSO= 000057        ENVIRN  020720          F$SOFT= 000005          I$INIT= 000041
BIT1   = 000002 G        C$ESCA= 000010        EPRTSW  002170 G        F$SRV  = 000010          I$MOD  = 000041
BIT10  = 002000 G        C$ESEG= 000005        EPRT1   006356          F$SUB  = 000002          I$MSG  = 000041
BIT11  = 004000 G        C$ESUB= 000003        EPRT2   006446          F$SW   = 000014          I$PROT= 000040
BIT12  = 010000 G        C$ETST= 000001        ERCM    012023          F$TEST= 000001          I$PTAB= 000041
BIT13  = 020000 G        C$EXIT= 000032        ERRHI   002226 G        GDDAT   003150 G        I$PWR  = 000041
BIT14  = 040000 G        C$GETB= 000026        ERRK    017046          GERRMA  002164 G        I$RPT  = 000041
BIT15  = 100000 G        C$GETW= 000027        ERRLO   002230 G        GETPAT  020264 G        I$SEG  = 000041
BIT2   = 000004 G        C$GMAN= 000043        ERRNO  = 001513         GETSEL  020346 G        I$SETU= 000041
BIT3   = 000010 G        C$GPHR= 000042        ERRVEC= 000004 G        G$CNTO= 000200          I$SFT  = 000041
BIT4   = 000020 G        C$GPLO= 000030        ERTABE  003366          G$DELM= 000372          I$SRV  = 000041
BIT5   = 000040 G        C$GPRI= 000040        ERTABL  003166          G$DISP= 000003          I$SUB  = 000041
BIT6   = 000100 G        C$INIT= 000011        ESUM    017050          G$EXCP= 000400          I$TST  = 000041
BIT7   = 000200 G        C$INLP= 000020        EVL    = 000004 G       G$HILI= 000002          J$JMP  = 000167
BIT8   = 000400 G        C$MANI= 000050        EXBCNT= 000010          G$LOLI= 000001          KIPAR0= 172340
BIT9   = 001000 G        C$MEM  = 000031        EXIT    034174          G$NO   = 000000          KIPAR1= 172342
BOE    = 000400 G        C$MSG  = 000023        EXPBRE  015572 G        G$OFFS= 000400          KIPAR2= 172344
BRINIT  004455           C$OPEN= 000034        EXPD    002222 G        G$OFSI= 000376          KIPAR3= 172346
BSEL0  = 000000          C$PNTB= 000014        EXPGOT  004531          G$PRMA= 000001          KIPAR4= 172350
BSEL1  = 000001          C$PNTF= 000017        EXPGT2  004565          G$PRMD= 000002          KIPAR5= 172352
CHKAMB  016134           C$PNTS= 000016        EXPMSG  002312 G        G$PRML= 000000          KIPAR6= 172354
CHKMAN  020570 G         C$PNTX= 000015        EXPREC  015564 G        G$RADA= 000140          KIPAR7= 172356
CHKTSS  016426           C$QIO  = 000377        EXTA    005770          G$RADB= 000000          KIPDR0= 172300
CKDROP  017272           C$RDBU= 000007        EXTEND  005766          G$RADD= 000040          KIPDR1= 172302
CKEMAX  017172           C$REFG= 000047        EXTFEA  002216 G        G$RADL= 000120          KIPDR2= 172304
CKMSG   011450 G         C$RESE= 000033        E$END  = 002100         G$RADO= 000020          KIPDR3= 172306
CKMSG2  011570 G         C$REVI= 000003        E$LOAD= 000035          G$XFER= 000004          KIPDR4= 172310
CKRAM   011204 G         C$RFLA= 000021        FATAL   034274          G$YES  = 000010          KIPDR5= 172312
CKRAM2  011314 G         C$RPT  = 000025        FATERR= 000060          HIADDR= 001400          KIPDR6= 172314
CMDPKT  021350 G         C$SEFG= 000046        FATFLG  002212 G        HOE    = 100000 G        KIPDR7= 172316
CMPMEM  017750           C$SPRI= 000041        FERCM   012012          HPM1    112360          KTENAB  003124 G
CONFIG  017340           C$SVEC= 000037        FIFEXP  012260 G        HPM2    112414          KTFLG   003122 G
COUNT   002300 G         C$TPRI= 000013        FIF1MS  012332          HPM3    112440          KTINIT  021144
CSRADD  002176 G         DATA    002302 G      FIF2MS  012401          IBE    = 010000 G        KTOFF   017364
CTAB    003154 G         DATASC  020322         FILLME  017512          IDU    = 000040 G        KTON    017346
CTABE   003166 G         DEBUGM  011722         FNOINT  004213          IER    = 020000 G        LERRMA  002162 G
CTABM   003154 G         DEVCNT  002210 G       FORCER  002166 G        IFAULT  004254          LISTAL= 000001
```

```
LOE    = 040000 G      L$UNIT  002012 G      L10071  055352      M8189   005643      PRBEXP  015560
LOOPCN  002206 G       L10000  002154        L10072  047424      NBA    = 002000     PRBMSG  015426
LOOPCO  013216         L10001  002166        L10073  050024      NEWPAS  022100      PRBREC  015562
LOOPFL  003152 G       L10002  005764        L10074  050500      NODEV   003104 G    PRBTOT  015513
LOT    = 000010 G      L10003  012134        L10075  051144      NOINIT  004333      PRBYTE  015212 G
L$ACP   002110 G       L10004  012152        L10076  051704      NOINTR  004217      PRI    = 002000 G
L$APT   002036 G       L10005  012170        L10077  052644      NOITS   002160 G    PRIADD  010250
L$AU    022442 G       L10006  012176        L10100  053164      NOMAN   020624      PRIAO   010320
L$AUT   002070 G       L10007  012214        L10101  053566      NOMEM   005456      PRIBXO  007702 G
L$AUTO  022646 G       L10010  012232        L10102  074674      NP.IR = 000200      PRIEQU  010150
L$CCP   002106 G       L10011  012256        L10103  056310      NP.LOO= 000040      PRIPKT  007460 G
L$CLEA  022726 G       L10012  012330        L10104  057156      NP.OUT= 000100      PRIRAM  010156
L$CO    002032 G       L10013  012500        L10105  060050      NP.WRP= 000020      PRITAD  010364
L$DEPO  002011 G       L10014  013214        L10106  060776      NSI     004150      PRITSS  006022
L$DESC  003400 G       L10015  014042        L10107  061554      NSINIT  004405      PRITO   010446
L$DESP  002076 G       L10016  014064        L10110  062416      NUL     004525      PRIT1   010511
L$DEVP  002060 G       L10017  015570        L10111  063270      NULCR   004526      PRIXOR  010032 G
L$DISP  002124 G       L10020  015576        L10112  064142      NXM    = 004000     PRIOO  = 000000 G
L$DLY   002116 G       L10021  015604        L10113  065016      NXMFLG  003126 G    PRIO1  = 0( )040 G
L$DTP   002040 G       L10022  015616        L10114  065672      NXMHI   003132 G    PRIO2  = 000100 G
L$DTYP  002034 G       L10023  015640        L10115  066542      NXMLO   003130 G    PRIO3  = 000140 G
L$DU    022540 G       L10024  015666        L10116  067474      NXMTST  021542      PRIO4  = 000200 G
L$DUT   002072 G       L10025  016026        L10117  070504      NXR     003736      PRIO5  = 000240 G
L$DVTY  003372 G       L10026  016336        L10120  071064      NXRERR  005734 G    PRIO6  = 000300 G
L$EF    002052 G       L10030  022372        L10121  071540      NXRX    003775      PRIO7  = 000340 G
L$ENVI  002044 G       L10031  022536        L10122  104712      NXTU    022112      PRMESS  014332
L$ETP   002102 G       L10032  022644        L10123  075316      OFL    = 000100     PRMNO   002310 G
L$EXP1  002046 G       L10033  022724        L10124  076100      ONEFIL= 000000      PRMSGE  014642 G
L$EXP4  002064 G       L10034  022752        L10125  076722      O$APTS= 000000      PRMSGO  015022
L$EXP5  002066 G       L10035  023214        L10126  077624      O$AU   = 000001     PRMSG1  015067
L$HARD  112340 G       L10036  024650        L10127  101354      O$BGNR= 000001      PRMSG2  015125
L$HIME  002120 G       L10037  027330        L10130  112334      O$BGNS= 000001      PROASC  014510
L$HPCP  002016 G       L10040  025256        L10131  105312      O$DU   = 000001     PR1ASC  014555
L$HPTP  002022 G       L10041  025600        L10132  105572      O$ERRT= 000000      PST32W  003142 G
L$HW    002146 G       L10042  026160        L10133  110044      O$GNSW= 000001      PUNIT   022374
L$ICP   002104 G       L10043  034320        L10134  112360      O$POIN= 000001      PW.D11= 000021
L$INIT  021646 G       L10044  027732        L10135  112500      O$SETU= 000000      PW.D13= 000022
L$LADP  002026 G       L10045  030602        MEMADD  014044 G    PASRPT  022144      PW.D22= 000020
L$LAST  113004 G       L10046  031422        MEMCK   021366 G    PATCH   112640 G    PW.NOP= 000000
L$LOAD  002100 G       L10047  031636        MENASC  020537      PATDAT  020320      PW.NO1= 000023
L$LUN   002074 G       L10050  032070        MENERR  020464      PC.ERA= 002400      PW.RDE= 000024
L$MREV  002050 G       L10051  032402        MENRES  020566      PC.IER= 002000      PW.RDR= 000001
L$NAME  002000 G       L10052  046434        MMVEC  = 000250     PC.NOO= 001000      PW.RDS= 000005
L$PRIO  002042 G       L10053  034766        MSA.FR= 000006      PC.REL= 000000      PW.RFI= 000003
L$PROT  021636 G       L10054  035546        MSA.NO= 000000      PC.REW= 000400      PW.WCT= 000006
L$PRT   002112 G       L10055  036322        MSA.NR= 000004      PKBCNT= 000006      PW.WFI= 000004
L$REPP  002062 G       L10056  037024        MSA.VO= 000002      PKHI   = 000004     PW.WFM= 000007
L$REV   002010 G       L10057  037470        MSGEXP  012234 G    PKLOW  = 000002     PW.WMI= 000010
L$RPT   022754 G       L10060  040124        MSGLOO  013154 G    PKTADD  007644      PW.WNP= 000011
L$SOFT  112472 G       L10061  040560        MSGSTA  012440 G    PKTFRM  007606      PW.WTR= 000002
L$SPC   002056 G       L10062  041152        MSGSUB  014032 G    PKTGET  012154 G    P.ACK  = 100000
L$SPCP  002020 G       L10063  041570        MS.ATT= 000006      PKTMES  012200 G    P.CMD  = 000037
L$SPTP  002024 G       L10064  042034        MS.EXT= 000200      PKTRAM  004743 G    P.CONT= 000012
L$STA   002030 G       L10065  042306        MS.RSD= 000001      PKTSSR  012136 G    P.CVC  = 040000
L$SW    002156 G       L10066  042542        MS.RSF= 000020      PNT    = 001000 G    P.FMT  = 000140
L$TEST  002114 G       L10067  043042        MS.RST= 000010      PRAMPK  014066      P.FORM= 000011
L$TIML  002014 G       L10070  043526        M8186   005552      PRASC   014613      P.GETS= 000017
```

```
P.IE  = 000200          SPM6    112560          TSREJ = 000006          T$$CLE= 010034          T22WRT  026350
P.INIT= 000013          SPM7    112610          TSSDEF  006676          T$$DU = 010032          T23A    003134 G
P.MODE= 007400          SR0   = 177572          TSSR  = 000002 G        T$$HAR= 010134          T23AM3  033210
P.OPP = 020000          SR1   = 177574          TSSRBI  003500 G        T$$HW = 010000          T23B    003136 G
P.POSI= 000010          SR2   = 177576          TSSRFO  006505          T$$INI= 010030          T23BA   033575
P.READ= 000001          SR3   = 172516          TSSRH = 000003 G        T$$MSG= 010025          T23BFR  032462
P.SWB = 010000          SSR   = 000200          TSSX    004016          T$$PRO= 010027          T23BF2  032572
P.WRIT= 000005          STATCO  012502          TSTBLK  002742 G        T$$RPT= 010035          T23BS0  032572
P.WRTC= 000004          SVCGBL= 000000          TSTCNT  002204 G        T$$SOF= 010135          T23BS1  032573
P.WRTS= 000006          SVCINS= 000000          TSTEND  017010          T$$SRV= 010026          T23CHK  034132
QVP     002174 G        SVCSUB= 000001          TSTFLA  002304 G        T$$SUB= 010133          T23CON  032610
RAMASC  014246          SVCTAG= 000000          TSTLOO  016546 G        T$$SW = 010001          T23DAT  032450
RAMDAT  002232 G        SVCTST= 000001          TSTPTR  002306 G        T$$TES= 010130          T23DSW  032460
RAMERR  015600 G        S$LSYM= 010000          TSTSET  016600 G        T1      023536 G        T23EOT  032734
RAMEXP  015620 G        S0.IDB= 000010          TST21I  024474          T2      024652 G        T23ET   032647
RAMFOR  010206          S0.IFB= 000002          TST22I  027137          T2.1    024702          T23LOO  027376
RAMSIZ  002272 G        S0.IFP= 000001          TST23I  033736          T2.2    025274          T23OFL  033256
RAMTAD  015606 G        S0.ILD= 000020          TST24I  046202          T2.3    025616          T23PAC  032440
RCVHIA  002274 G        S0.ION= 000040          TST25I  055150          T21AM3  024353          T23PK2  032550
RCVLOA  002276 G        S0.IRD= 000100          TST26I  074477          T21BFR  024154          T23PK3  032560
RDERR   005204          S0.IRW= 000004          TST27I  104513          T21BF2  024250          T23RES  033752
RECMSG  002456 G        S0.ISP= 000200          TST28I  112131          T21BS0  024250          T23RNC  033135
RECV    002224 G        S1.ICE= 002000          TSV2    002000 G        T21BS1  024251          T23RSZ  032570
REGSAV  020230          S1.IEO= 010000          TSV3    002166 G        T21DAT  024140          T23RT2  034044
RETERR  005370          S1.IFM= 001000          TSV4    021636 G        T21DLY  024152          T23RT3  034106
RETRY   034176          S1.IHE= 000400          TSV6    112336 G        T21DSW  024150          T23RWN  033066
REWIND  011104 G        S1.IID= 004000          TSV7    023536 G        T21LOO  023566          T23SSR  032614
RMCHBE= 000167          S1.I1R= 020000          TTIBFR= 177562 G        T21OFL  024453          T23SZ   032566
RMCHEN= 000200          S1.I2R= 040000          TTICSR= 177560 G        T21PAC  024130          T23S2   032574
RMMSGB= 000215          S1.PAR= 100000          TTIVEC= 000060 G        T21PK2  024240          T23S3   032576
RMMSGE= 000234          S2.ATI= 000010          T$ARGC= 000003          T21RES  024516          T23TM   033012
RMPKTB= 000201          S2.BTI= 000004          T$CODE= 001130          T21RT2  024606          T23TMP  032600
RMPKTE= 000210          S2.DIM= 000200          T$ERRN= 001513          T21SSR  024256          T23VCK  033522
RMR   = 010000          S2.ILW= 000100          T$EXCP= 000000          T21S2   024252          T23WB   032562
RWPACK  011200          S2.INR= 000020          T$FLAG= 000040          T21S3   024254          T23WD   032604
SC    = 100000          S2.OUT= 000040          T$GMAN= 000000          T22AM3  026455          T23WDC  033420
SCE   = 020000          S2.UND= 000003          T$HILI= 000776          T22BFR  026242          T23WDD  033331
SCHERR  005276          TBLEND= 003052 G        T$LAST= 000001          T22BF2  026340          T23WDR  032606
SCME    005011          TCOASC  006566          T$LOLI= 000000          T22BS0  026340          T23WRT  032602
SDELAY  010750          TCOCOD  006766          T$LSYM= 010000          T22BS1  026341          T23WSS  033647
SELASC  020532          TEMP1   003106 G        T$LTNO= 000010          T22DAT  026230          T24AM3  045170
SELDAT= 000004          TEMP2   003110 G        T$NEST= 177777          T22FOR  026354          T24BA   045522
SEL2  = 000002          TERCLS= 000016          T$NS0 = 000000          T22LOO  024702          T24BFR  043612
SETMAP  017406          TESTNO= 000010          T$NS1 = 000005          T22OFL  026555          T24BF2  043720
SETU    022176          TEXASC  006525          T$NS2 = 000002          T22PAC  026220          T24BOT  044563
SFFMSG  012172 G        TFCASC  006627          T$PTNU= 000000          T22PK2  026330          T24BS0  043720
SFHERR  003703          TIMEXP  015642 G        T$SAVL= 177777          T22POS  026352          T24BS1  043721
SFIERR  003650          TIMSGO  015670          T$SEGL= 177777          T22RD   026346          T24CON  043732
SFIMSG  012124 G        TINERR  012111          T$SUBN= 000003          T22RES  027172          T24DAT  043600
SFPTBL  002156 G        TMPBFR  002622 G        T$TAGL= 177777          T22RT2  027264          T24DLY  043736
SIFLAG  003144 G        TNAM    016774          T$TAGN= 010136          T22RWJ  026724          T24DSW  043610
SIMSG   012056          TRANST  002156 G        T$TEMP= 000000          T22SSR  026360          T24DTA  044630
SKIPT   003370          TSBA  = 000000 G        T$TEST= 000010          T22S2   026342          T24EOT  044716
SOFINI  016064 G        TSBAH = 000001 G        T$TSTM= 177777          T22S3   026344          T24ILA  044312
SPACE   010556 G        TSDB  = 000000 G        T$TSTS= 000001          T22TM   026630          T24LON  045662
SPM1    112500          TSDBH = 000001 G        T$$AU = 010031          T22VCK  026777          T24LOO  034362
SPM4    112530          TSFCOD  007326          T$$AUT= 010033          T22WLK  027052          T24LOP  045744
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T24LOQ  044376        T25SSR  054004        T26WDC  073610        T27WDR  101550        T4      034322 G
T24LOR  044012        T25SZ   053756        T26WDD  073520        T27WNG  101564        T4.1    034362
T24NEF  043740        T25S2   053762        T26WDE  072713        T27WRF  104336        T4.10   041606
T24NXM  044151        T25S3   053764        T26WDF  072521        T27WSS  103472        T4.11   042052
T24OFL  045235        T25TM   054212        T26WNG  071756        T28BFR  110122        T4.12   042324
T24PAC  043570        T25WB   053752        T26WSS  074011        T28BF2  110230        T4.13   042560
T24PBP  046026        T25WDC  055077        T27AM3  103057        T28BOT  111067        T4.14   043060
T24PK2  043700        T25WDE  054065        T27BA   103417        T28BS0  110230        T4.2    035004
T24PK3  043710        T25WDR  053770        T27BFR  101432        T28BS1  110231        T4.3    035564
T24RB   043712        T25WNG  054355        T27BF2  101540        T28CNT  110256        T4.4    036340
T24RES  046250        T25WNH  054530        T27BOT  102431        T28CNU  110260        T4.5    037042
T24RN   043726        T26AM3  073376        T27BS0  101540        T28CON  110252        T4.6    037506
T24RNC  045115        T26BA   073736        T27BS1  101541        T28DAT  110110        T4.7    040142
T24RT2  046342        T26BFR  071622        T27CNT  101556        T28DLY  110262        T4.8    040576
T24RT3  046404        T26BF2  071730        T27CNU  101560        T28DSW  110120        T4.9    041170
T24RWN  045046        T26BOT  072765        T27CON  101552        T28DTA  112034        T5      046436 G
T24SSR  044457        T26BS0  071730        T27DAT  101420        T28DTR  111752        T5.1    046466
T24SZ   043716        T26BS1  071731        T27DLY  101562        T28IMV  110236        T5.2    047442
T24S2   043722        T26CNT  071746        T27DSW  101430        T28LOO  104750        T5.3    050042
T24S3   043724        T26CNU  071750        T27DTA  104416        T28LOQ  110644        T5.4    050516
T24TM   044773        T26DAT  071610        T27EOT  102601        T28OFL  111260        T5.5    051162
T24TRL  046114        T26DLY  071754        T27LON  103561        T28PAC  110100        T5.6    051722
T24VCK  045447        T26DSW  071620        T27LOO  074736        T28PBP  110341        T5.7    052662
T24WB   043712        T26DTA  073032        T27LOP  103643        T28PK2  110210        T5.8    053202
T24WDC  045376        T26EOT  073120        T27LOQ  102225        T28PK3  110220        T6      055354 G
T24WDD  045310        T26LON  074100        T27LOR  102100        T28RB   110222        T6.1    055414
T24WDE  044511        T26LOO  055414        T27NEF  104101        T28RDF  110424        T6.10   065034
T24WDF  044235        T26LOP  074162        T27OFL  103126        T28RDG  110505        T6.11   065710
T24WDG  044062        T26LOQ  072576        T27PAC  101410        T28RES  112156        T6.12   066560
T24WDR  043730        T26LOR  072451        T27PBP  103725        T28RIB  110264        T6.13   067512
T24WSS  045573        T26NEF  072044        T27PK2  101520        T28RN   110246        T6.14   070522
T25BFR  053652        T26NEQ  074420        T27PK3  101530        T28RRM  111537        T6.15   071102
T25BF2  053760        T26OFL  073445        T27RB   101532        T28RRN  111615        T6.2    056326
T25BNC  054440        T26PAC  071600        T27RDF  101652        T28RRP  111674        T6.3    057174
T25BOT  054145        T26PBP  074244        T27RES  104534        T28RT2  112250        T6.4    060066
T25BS0  053760        T26PK2  071710        T27RN   101546        T28RT3  112312        T6.5    061014
T25BS1  053761        T26PK3  071720        T27RNC  103004        T28RWN  111211        T6.6    061572
T25CNT  054000        T26RB   071722        T27RRF  101721        T28SSR  110725        T6.7    062434
T25CN2  053776        T26RDF  072126        T27RT2  104626        T28SZ   110226        T6.8    063306
T25CON  053772        T26RES  074510        T27RT3  104670        T28S2   110232        T6.9    064160
T25DAT  053640        T26RN   071736        T27RWN  102735        T28S3   110234        T7      074676 G
T25DLY  054002        T26RNC  073323        T27SC   102016        T28TM   111134        T7.1    074736
T25DSW  053650        T26RRF  072175        T27SCF  104177        T28TMK  111465        T7.2    075334
T25LOO  046466        T26RRG  072272        T27SSR  102306        T28VCK  111412        T7.3    076116
T25NEF  054613        T26RSZ  071752        T27SZ   101536        T28WB   110222        T7.4    076740
T25NET  054301        T26RT2  074602        T27S2   101542        T28WDC  111333        T7.5    077642
T25OFL  055024        T26RT3  074644        T27S3   101544        T28WDE  110776        T8      104714 G
T25PAC  053630        T26RWN  073254        T27TIM  102524        T28WDF  110567        T8.1    104750
T25PK2  053740        T26SC   072367        T27TM   102660        T28WDR  110250        T8.2    105330
T25PK3  053750        T26SSR  072657        T27TRL  104013        T3      027332 G      T8.3    105610
T25RB   053752        T26SZ   071726        T27TSA  104254        T3BFLG  003140 G      UAM   = 000200 G
T25RES  055166        T26S2   071732        T27VCK  103344        T3.1    027376        UNITN   002172 G
T25RIB  054673        T26S3   071734        T27WB   101532        T3.2    027750        UNREC = 000006
T25RN   053766        T26TM   073177        T27WDC  103271        T3.3    030620        USI     004121
T25RT2  055260        T26TRL  074332        T27WDD  103201        T3.4    031440        WAITF   016340 G
T25RT3  055322        T26VCK  073663        T27WDE  102342        T3.5    031654        WC.IFA= 000200
T25RWN  054755        T26WB   071722        T27WDF  102150        T3.6    032106        WC.IFE= 000002
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WC.IGO= 000001          WRTERR  005111          XSOILA= 000400          X$FALS= 000040          X2.UNI= 000007
WC.IRE= 000010          WRTMSG  005054          XSOILC= 001000          X$OFFS= 000400          X2.WCF= 002000
WC.IRW= 000004          WSMBK   021360 G        XSOLET= 020000          X$TRUE= 000020          X3.DCK= 000010
WC.IOT= 000100          XFERAS  016030          XSOMOT= 000200          X1.COR= 020000          X3.MBZ= 000006
WC.I1T= 000040          XNXM    016466          XSONEF= 002000          X1.DLT= 100000          X3.MDE= 177400
WC.ISR= 000020          XORBFO  007764          XSOONL= 000100          X1.MBZ= 017375          X3.OPI= 000100
WF.IED= 000010          XORFOR  010102          XSOPED= 000010          X1.RBP= 000400          X3.REV= 000040
WF.IER= 000004          XST0  = 000006 G        XSORLL= 010000          X1.SPA= 040000          X3.RIB= 000001
WF.IHI= 000200          XST1  = 000010 G        XSORLS= 040000          X1.UNC= 000002          X3.SPA= 000200
WF.IRF= 000040          XST2  = 000012 G        XSOTMK= 100000          X2.BUF= 000100          X3.TRF= 000020
WF.IWF= 000020          XST3  = 000014 G        XSOVCK= 000020          X2.EXT= 000200          X4.HSP= 100000
WF.IWR= 000100          XST4  = 000016 G        XSOWLE= 004000          X2.OPM= 100000          X4.MBZ= 017400
WF.I3R= 000002          XSOBOT= 000002          XSOWLK= 000004          X2.RCE= 040000          X4.RCE= 040000
WF.I4R= 000001          XSOEOT= 000001          XXCOMM  003112 G        X2.REV= 000077          X4.TSM= 020000
WRTCHR  010752 G        XSOIE = 000040          X$ALWA= 000000          X2.SPA= 035400          X4.WRC= 000377

. ABS.  113004      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  31544 WORDS  ( 124 PAGES)
DYNAMIC MEMORY:  20346 WORDS  ( 78 PAGES)
ELAPSED TIME:  00:49:06
CVTSCA0,CVTSCA0/-SP=SVC/ML,TSV1C,TSV22C,TSV3B,TSV4,TSV7A,TSV6
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