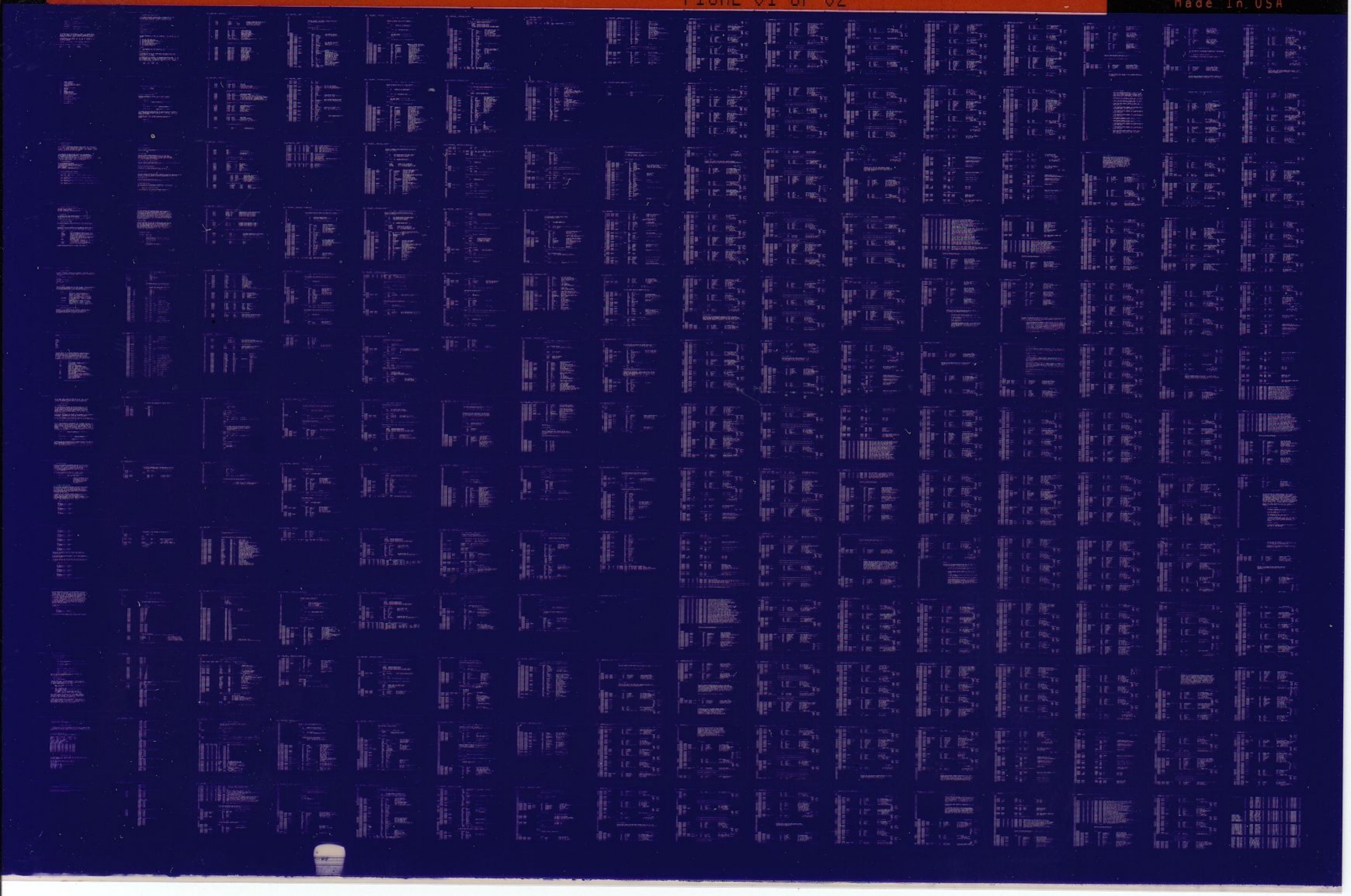
TSV05

TSV05 CTRL LT4
CVTSDCO

AH-T100C-MC
FICHE 01 OF 02

APR 1985
digital
Made In USA



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IDENTIFICATION

PRODUCT ID: AC-T099C-MC

PRODUCT TITLE: CV;SDCO TSV05 CTRL LT4

DECO/DEPO: 1.0

DEPARTMENT: COMPUTER SPECIAL SYSTEMS/PPG

DATE: JUNE 4, 1984

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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 AND 4K RESERVED FOR I/O PAGE)
TSV05 MAGTAPE SUBSYSTEM (DRIVE AND CONTROLLER)
CONSOLE TERMINAL
PDP-11 DIAGNOSTIC SUPERVISOR (MSAAA.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,CVTSBA AND CVTSCA 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 XXDP MEDIA

```
.R VTSD??
DIAG. RUN-TIME SERVICES REV D. APR 79
CVTSD-B-0
****TSV05 LOGIC DIAGNOSTIC****
UNIT IS TSV05
>DR
```

2.2 SWITCHES

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

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

EXAMPLE OF SWITCH USAGE:

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

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

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

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

2.3 FLAGS

FLAGS ARE USED TO SET UP CERTAIN OPERATIONAL PARAMETERS SUCH AS LOOPING ON ERROR. ALL FLAGS ARE CLEARED AT STARTUP AND REMAIN CLEARED UNTIL EXPLICITLY SET USING THE FLAGS SWITCH. FLAGS ARE ALSO CLEARED AFTER A START COMMAND UNLESS SET USING THE FLAG SWITCH. THE ZFLAGS COMMAND MAY ALSO BE USED TO CLEAR ALL FLAGS. WITH THE EXCEPTION OF THE START AND ZFLAGS COMMANDS, NO COMMANDS AFFECT THE STATE OF THE FLAGS; THEY REMAIN SET OR CLEARED AS SPECIFIED BY THE LAST FLAG SWITCH.

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

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

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

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

2.4 HARDWARE QUESTIONS

WHEN A DIAGNOSTIC IS STARTED, THE RUNTIME SERVICES WILL PROMPT THE USER FOR HARDWARE INFORMATION BY TYPING "CHANGE HW (L) ?" YOU MUST ANSWER "Y" AFTER A START COMMAND UNLESS THE HARDWARE INFORMATION HAS BEEN "PRELOADED" USING THE SETUP UTILITY (SEE CHAPTER 14 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 TO CHANGE ANY PARAMETERS, ANSWER BY TYPING "Y". THE SOFTWARE QUESTIONS AND THE DEFAULT VALUES ARE DESCRIBED IN THE NEXT PARAGRAPH(S).

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

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

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

2.6 EXTENDED P-TABLE DIALOGUE

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

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

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

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

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

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

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

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

        UNIT 8
        CSR ADDRESS (0)  160000<CR>
        SUB-DEVICE # (0) ?  7<CR>
        Q-FACTOR (0) 1 ?  <CR>
```

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

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

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

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

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

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

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

AS YOU CAN SEE IN THE ABOVE DIALOGUE, THE RUNTIME SERVICES WILL

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

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

```
        # UNITS (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 "IXE" 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
CVTSD HRD ERR 01610 ON UNIT 00 TST 016 SUB 002 PC: 040624
FIFO STATUS (IN WORD  9) INCORRECT AFTER WRITE FIFO

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

ERROR MESSAGE EXAMPLE 2

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

```
CVTSD 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 REWIND
WITH EXTENDED FEATURES MODE ENABLED.

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

4.0 PERFORMANCE AND PROGRESS REPORTS

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

SUCCESSFUL RUN EXAMPLE (PDP-11/23)

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

 UNITS (D) ?  1

 UNIT 0

 DEVICE ADDRESS  (0) 172520 ? <CR>

 VECTOR (0) 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 SKIP TAPE MARKS TEST
TST: 002 NO-OP AND INITIALIZE TEST
TST: 003 ERASE AND OPERATION INCOMPLETE TEST
TST: 004 DATA PARITY TEST
TST: 005 TEST OF OPERATIONS AT EOT TEST
TST: 006 EXTENDED-MODE FUNCTIONS TEST
TST: 007 RECORD BUFFERING TEST
TST: 008 FUNCTION TIMING 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	1	2	1
2	1	1	0

3	1	1	0
4	1	1	0
5	1	1	0
6	1	1	0
7	1	1	0
8	1	1	0

THE TIMES REQUIRED TO RUN TESTS 1 THROUGH 37 IN ONE COMMAND:

Q.V.	15 SECONDS
DEFAULT	16 SECONDS

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  (0) 172520 ? <ENTER THE ADDRESS OF THE
                                      TSBA/TSDB REGISTER>

        VECTOR (0) 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: WRITE TAPE MARK RETRY

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

TEST 2: SKIP TAPE MARKS

THIS TEST VERIFIES PROPER OPERATION OF THE SKIP TAPE MARKS FORWARD AND SKIP TAPE MARKS REVERSE COMMANDS. PROPER OPERATION UNDER CONTROL OF ALL COMBINATIONS OF THE ENABLE SKIP TAPE MARKS STOP (ESS) AND ENABLE TAPE MARKS STOP OFF BOT (ENB) BITS SPECIFIED BY THE WRITE CHARACTERISTICS COMMAND.

TEST 3: NO-OP ("CLEAN TAPE") AND INITIALIZE

THIS TEST VERIFIES PROPER OPERATION OF THE NO-OP ("CLEAN TAPE") AND INITIALIZE COMMAND (SPACE REVERSE, ERASE, WRITE DATA)

TEST 4: ERASE AND OPERATION INCOMPLETE

VERIFIES THAT AN ERASE COMMAND ISSUED WHEN THE TAPE IS POSITIONED AT BOT OPERATES PROPERLY AND ACTUALLY ERASES TAPE.

TEST 5: DATA PARITY TEST

THIS TEST VERIFIES THAT THE DATA PARITY CIRCUITRY IN BOTH THE CONTROLLER AND THE TRANSPORT IS OPERATING PROPERLY BY FORCING DATA RECORDS WITH WRONG PARITY TO BE WRITTEN ONTO TAPE AND CHECKING THE RESULTS OBTAINED WHEN THE DATA IS READ.

TEST 6: OPERATIONS AT EOT

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

TEST 7: EXTENDED MODE FEATURES

THIS TEST VERIFIES THE OPERATION OF COMMANDS ONLY AVAILABLE WHEN THE CONTROLLER IS IN THE EXTENDED FEATURES MODE. THESE COMMANDS ARE:

REWIND WITH IMMEDIATE INTERRUPT

IF THE CONTROLLER IS NOT ALREADY IN EXTENDED FEATURES MODE, IT IS PLACED THERE VIA A WRITE SUBSYSTEM MEMORY COMMAND.

TEST 8: RECORD BUFFERING

THIS TEST VERIFIES THAT RECORD BUFFERING, USED FOR WRITE DATA AND READ NEXT COMMANDS, OPERATES PROPERLY AND IS PROPERLY CONTROLLED BY THE EXTENDED CHARACTERISTICS DATA WORD. IF THE M7196 CONTROLLER MODULE IS NOT ALREADY IN EXTENDED FEATURES MODE (AS CONTROLLED BY THE DIP SWITCH ON THE MODULE), IT IS PLACED INTO THAT MODE BY INVERTING THE SENSE OF THE SWITCH USING THE WRITE SUBSYSTEM MEMORY COMMAND. NOTE THAT RECORD BUFFERING HAS BEEN ENABLED IN PREVIOUS TESTS OF READ AND WRITE AND SO HAS BEEN PARTIALLY TESTED ALREADY. THIS TEST VERIFIES THAT BUFFERING IS ACTUALLY OPERATING.

TEST 9: FUNCTION TIMING

THIS TEST VERIFIES THAT THE TAPE TRANSPORT SEEMS TO BE WRITING RECORDS, GAPS, AND EXTENDED GAPS OF THE PROPER LENGTH. BOTH LOW AND HIGH SPEED MODES ARE TESTED. IT IS ALSO VERIFIED THAT A SKIP TAPE MARKS COMMAND WITH A COUNT OF 6 OF MORE, OPERATE THE TAPE IN HIGH-SPEED MODE. THIS TEST CAN ONLY BE RUN IF A REAL-TIME CLOCK IS AVAILIABLE ON THE SYSTEM. THE TEST OPERATES BY TIMING VARIOUS TAPE-MOTION OPERATIONS, USING A NUMBER OF DIFFERENT TEST RECORD LENGTHS.

7.0 MAINTENANCE HISTORY

REVISION A - MARCH 1982

REVISION B - APRIL 1983

- FIXED TWO PROBLEMS, ONE IN TEST 1 AND THE OTHER IN TEST 8.
REF. DOYLE TO GRASKY "TSV05 CVTSDA DIAGNOSTIC PATCH"; 23-DEC-82.

REVISION C - JUNE 1984

MINOR CHANGES FOR "ORION" CPU
ELIMINATED CPU ID MESSAGE.

-

```
                                        .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.
                                ;--

                                        POINTER BGNSW,BGNSFT,BGNAU,BGNDU,BGNRPT
002000                                  HEADER  CVTSD,C,0,655.,0
002000                          L$NAME::                ;DIAGNOSTIC NAME
002000  103                             .ASCII  /C/
002001  126                             .ASCII  /V/
002002  124                             .ASCII  /T/
002003  123                             .ASCII  /S/
002004  104                             .ASCII  /D/
002005  000                             .BYTE   0
002006  000                             .BYTE   0
002007  000                             .BYTE   0
002010                          L$REV::                 ;REVISION LEVEL
002010  103                             .ASCII  /C/
002011                          L$DEPO::                ;0
002011  060                             .ASCII  /0/
002012                          L$UNIT::                ;NUMBER OF UNITS
002012  000000                          .WORD   0
002014                          L$TIML::                ;LONGEST TEST TIME
002014  001217                          .WORD   655.
002016                          L$HPCP::                ;POINTER TO H.W. QUES.
002016  105476                          .WORD   L$HARD
002020                          L$SPCP::                ;POINTER TO S.W. QUES.
002020  105630                          .WORD   L$SOFT
002022                          L$HPTP::                ;PTR. TO DEF. H.W. PTABLE
002022  002150                          .WORD   L$HW
002024                          L$SPTP::                ;PTR. TO S.W. PTABLE
002024  002160                          .WORD   L$SW
002026                          L$LADP::                ;DIAG. END ADDRESS
002026  106404                          .WORD   L$LAST
002030                          L$STA::                 ;RESERVED FOR APT STATS
002030  000000                          .WORD   0
002032                          L$CO::
002032  000000                          .WORD   0
002034                          L$DTYP::                ;DIAGNOSTIC TYPE
002034  000000                          .WORD   0
002036                          L$APT::                 ;APT EXPANSION
002036  000000                          .WORD   0
002040                          L$DTP::                 ;PTR. TO DISPATCH TABLE
002040  002124                          .WORD   L$DISPATCH
002042                          L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
```

PROGRAM HEADER

```
002042  000000                          .WORD   0
002044                          L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
002044  000000                          .WORD   0
002046                          L$EXP1::                ;EXPANSION WORD
002046  000000                          .WORD   0
002050                          L$MREV::                ;SVC REV AND EDIT #
002050      003                         .BYTE   C$REVISION
002051      003                         .BYTE   C$EDIT
002052                          L$EF::                  ;DIAG. EVENT FLAGS
002052  000000                          .WORD   0
002054  000000                          .WORD   0
002056                          L$SPC::
002056  000000                          .WORD   0
002060                          L$DEVP::                ; POINTER TO DEVICE TYPE LIST
002060  003374                          .WORD   L$DVTYP
002062                          L$REPP::                ;PTR. TO REPORT CODE
002062  022700                          .WORD   L$RPT
002064                          L$EXP4::
002064  000000                          .WORD   0
002066                          L$EXP5::
002066  000000                          .WORD   0
002070                          L$AUT::                 ;PTR. TO ADD UNIT CODE
002070  022366                          .WORD   L$AU
002072                          L$DUT::                 ;PTR. TO DROP UNIT CODE
002072  022464                          .WORD   L$DU
002074                          L$LUN::                 ;LUN FOR EXERCISERS TO FILL
002074  000000                          .WORD   0
002076                          L$DESP::                ;POINTER TO DIAG. DESCRIPTION
002076  003402                          .WORD   L$DESC
002100                          L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
002100  104035                          EMT     E$LOAD
002102                          L$ETP::                 ;POINTER TO ERRTBL
002102  000000                          .WORD   0
002104                          L$ICP::                 ;PTR. TO INIT CODE
002104  021572                          .WORD   L$INIT
002106                          L$CCP::                 ;PTR. TO CLEAN-UP CODE
002106  022652                          .WORD   L$CLEAN
002110                          L$ACP::                 ;PTR. TO AUTO CODE
002110  022572                          .WORD   L$AUTO
002112                          L$PRT::                 ;PTR. TO PROTECT TABLE
002112  021562                          .WORD   L$PROT
002114                          L$TEST::                ;TEST NUMBER
002114  000000                          .WORD   0
002116                          L$DLY::                 ;DELAY COUNT
002116  000000                          .WORD   0
002120                          L$HIME::                ;PTR. TO HIGH MEM
002120  000000                          .WORD   0
```

DISPATCH TABLE

```
                                        .SBTTL  DISPATCH TABLE

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

                                        DISPATCH 9
002122  000011                          .WORD   9
002124                          L$DISPATCH::
002124  023462                          .WORD   T1
002126  032264                          .WORD   T2
002130  041362                          .WORD   T3
002132  046720                          .WORD   T4
002134  052776                          .WORD   T5
002136  055772                          .WORD   T6
002140  063344                          .WORD   T7
002142  073274                          .WORD   T8
002144  101050                          .WORD   T9
```

```
                                .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.
                        ;--
002146                          BGNHW   DFPTBL          ;DEFAULT HARD-P-TABLE
002146  000003                  .WORD   L10000-L$HW/2
002150                  L$HW::
002150                  DFPTBL::

002150  172520                  .WORD   172520          ; 1ST (OF 2) REGISTERS.
002152  000224                  .WORD   224             ; INTERRUPT VECTOR
002154  000200                  .WORD   PRI04           ; INTERRUPT PRIORITY.
002156                          ENDHW
002156                  L10000:
```

```
                                        .SBTTL  SOFTWARE P-TABLE

                                ;++
                                ; THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
                                ; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
                                ;--
002156                                  BGNSW   SFPTBL
002156  000004                          .WORD   L10001-L$SW/2
002160                          L$SW::
002160                          SFPTBL::

002160  000000                  TRANSTST::      .WORD   0       ; ENABLE TEST OF TRANSPORT(S) IF =1
002162  000000                  NOITS::         .WORD   0       ; INHIBIT ITERATION OPTION.
                                                                ; ... 0 = ITERATE.
                                                                ; ...NZ = INHIBIT ITERATE.
002164  000017                  LERRMAX::       .WORD   15.     ; LOCAL (PER TEST) ERROR LIMIT
002166  000310                  GERRMAX::       .WORD   200.    ; GLOBAL (PER UNIT) ERROR LIMIT
002170                                  ENDSW
002170                          L10001:

                                        ENDMOD
```

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

002170                          BGNMOD  TSV3
002170                  TSV3::

                                .SBTTL  GLOBAL EQUATES SECTION

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

002170                          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
```

L2


```
                        ;
000340                  PRI07== 340
000300                  PRI06== 300
000240                  PRI05== 240
000200                  PRI04== 200
000140                  PRI03== 140
000100                  PRI02== 100
000040                  PRI01== 40
000000                  PRI00== 0
                        ;
                        ;OPERATOR FLAG BITS
                        ;
000004                  EVL==       4
000010                  LOT==      10
000020                  ADR==      20
000040                  IDU==      40
000100                  ISR==     100
000200                  UAM==     200
000400                  BOE==     400
001000                  PNT==    1000
002000                  PRI==    2000
004000                  IXE==    4000
010000                  IBE==   10000
020000                  IER==   20000
040000                  LOE==   40000
100000                  HOE==  100000
33
34 002170                       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
```

```
MEMORY MANAGEMENT DEFINITIONS

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

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

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

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

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

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

000006                          XST0==  6               ;EXTENDED STATUS REGISTER 0 (WORD 4)
000010                          XST1==  8.              ;EXTENDED STATUS REGISTER 1 (WORD 5)
000012                          XST2==  10.             ;EXTENDED STATUS REGISTER 2 (WORD 6)
000014                          XST3==  12.             ;EXTENDED STATUS REGISTER 3 (WORD 7)
000016                          XST4==  14.             ;EXTENDED STATUS REGISTER 4 (WORD 8)

                                ;+
                                ;
                                ;OFFSETS TO WORD LOCATIONS IN PACKET DEFINITIONS
                                ;
                                ;-

000002                                  PKLOW   = 2     ;LOW ORDER CHARACTERISTIC DATA POINTER
000004                                  PKHI    = 4     ;HIGH ORDER CHARACTERISTIC DATA POINTER
000006                                  PKBCNT  = 6     ;NUMBER OF BYTES IN DATA PACKET

000010                                  EXBCNT=10       ;NUMBER OF BYTES IN EXTENDED DATA PACKET

                                ;+
                                ;DATA PACKET OFFSETS FOR WRITE SUBSYTEM COMMAND
                                ;-
000000                                  BSEL0   = 0     ;BYTE 0
000001                                  BSEL1   = 1     ;BYTE 1
000002                                  SEL2    = 2     ;WORD 2
000004                                  SELDATA = 4     ;WORD 3
```

```
                        ;+
                        ;BSEL0 SELECT CODES FOR WRITE SUBSYSTEM COMMAND
                        ;-
000000                  PW.NOP          = 0             ;NO-OP
000001                  PW.RDRAM        = 1             ;READ RAM
000002                  PW.WTRAM        = 2             ;WRITE RAM
000003                  PW.RFIFO        = 3             ;READ FIFO
000004                  PW.WFIFO        = 4             ;WRITE FIFO
000005                  PW.RDSTAT       = 5             ;READ STATUS
000006                  PW.WCTL         = 6             ;WRITE TAPE CONTROL
000007                  PW.WFMT         = 7             ;WRITE TAPE FORMAT
000010                  PW.WMISC        = 10            ;WRITE MISCELLANEOUS
000011                  PW.WNPR         = 11            ;WRITE NPR CONTROL
000020                  PW.D22          = 20            ;DO MICROTEST 22
000021                  PW.D11          = 21            ;DO MICROTEST 11
000022                  PW.D13          = 22            ;DO MICROTEST 13
000023                  PW.NO1311       = 23            ;DISABLE MICROTEST 11 AND 13
000024                  PW.RDEXT        = 24            ;READ EXT. TAPE STATUS (NOT SUPPORTED BY ALL TRANSPORTS

                        ;+
                        ;BSEL1 CODES FOR WRITE TAPE CONTROL
                        ;-
000200                  WC.IFAD         = BIT7          ;IFAD - FORMATTER ADDRESS
000100                  WC.IOTAD        = BIT6          ;ITAD0  - TRANSPORT ADDRESS BIT 0
000040                  WC.I1TAD        = BIT5          ;ITAD1  - TRANSPORT ADDRESS BIT 1
000020                  WC.I5RESV       = BIT4          ;IRESV5 - RESERVED #5
000010                  WC.IREW         = BIT3          ;IREW   - REWIND
000004                  WC.IRWU         = BIT2          ;IRWU   - REWIND AND UNLOAD
000002                  WC.IFEN         = BIT1          ;IFEN   - FORMATTER ENABLE
000001                  WC.IGO          = BIT0          ;GO

                        ;+
                        ;BSEL1 CODES FOR WRITE FORMAT
                        ;-
000200                  WF.IHISP        = BIT7          ;IHISP  - HIGH SPEED
000100                  WF.IWRT         = BIT6          ;IWRT   - WRITE
000040                  WF.IREV         = BIT5          ;IREV   - REVERSE
000020                  WF.IWFM         = BIT4          ;IWFM   - WRITE FILE MARK
000010                  WF.IEDIT        = BIT3          ;IEDIT  - EDIT
000004                  WF.IERASE       = BIT2          ;IERASE - ERASE
000002                  WF.I3RESV       = BIT1          ;IRESV3 - RESERVED #3
000001                  WF.I4RESV       = BIT0          ;IRESV4 - RESERVED #4

                        ;+
                        ;BSEL1 CODES FOR WRITE MISCELLANEOUS SUBCOMMAND
                        ;-
000200                  MS.EXT          = BIT7          ;INVERT SENSE OF EXTENDED FEATURES SWITCH
000020                  MS.RSFIFO       = BIT4          ;RESET FIFO AND INPUT PARITY ERRORR
000010                  MS.RSTAPE       = BIT3          ;RESET TAPE STATUS IN 2 FLIP-FLOPS
000006                  MS.ATTN         = BIT2!BIT1     ;ATTENTION TRIGGER FIELD
000001                  MS.RSD          = BIT0          ;RESET TIMER A,B THEN DELAY TIMES IN SEL2
```

```
                        ;+
                        ; MS.ATTN SUBCODES
                        ;-
000000                          MSA.NOP = 0*2           ;NO-OP (NOTHING TRIGGERED)
000002                          MSA.VOL = 1*2           ;SIMULATE ON-LINE/OFF-LINE TRANSISTION
000004                          MSA.NRAM= 2*2           ;FORCE NON-FATAL RAM ERROR (FORCES ERRCODE 54)
000006                          MSA.FRAM= 3*2           ;FORCE FATAL RAM ERROR (CAUSES SCE TO SET)
                        ;+
                        ; WRITE SUBSYSTEM WRITE NPR BSEL1 BIT DEFINITIONS
                        ;-
000200                  NP.IR           = BIT7          ;INTERRUPT REQUEST (0-1 TRANSITION)
000100                  NP.OUT          = BIT6          ;TAPE DATA DIRECTION OUT (0= IN)
000040                  NP.LOOP         = BIT5          ;ENABLE TRANSPORT LOOPBACK
000020                  NP.WRP          = BIT4          ;WRITE CORRECT PARITY (SET=0 TO WRITE WRONG)
                        ;+
                        ; READ STATUS MESSAGE BUFFER BIT DEFINITIONS
                        ;-

000200                  S2.DIM          = BIT7          ;WORD #9 BYTE 2 DATA IN MISS
000100                  S2.ILW          = BIT6          ;               ILW H
000040                  S2.OUTRDY       = BIT5          ;               OUT RDY H
000020                  S2.INRDY        = BIT4          ;               IN RDY H
000010                  S2.ATIMR        = BIT3          ;               TIMER A FLAG H
000004                  S2.BTIMR        = BIT2          ;               TIMER B FLAG H
000003                  S2.UNDEF        = BIT1+BIT0     ;(UNDEFINED)
100000                  S1.PARIN        = BIT15         ;WORD #8 BYTE 1 PARIN H
040000                  S1.I2RESV       = BIT14         ;               IRESV2
020000                  S1.I1RESV       = BIT13         ;               IRESV1
010000                  S1.IEOT         = BIT12         ;               IEOT L
004000                  S1.IIDENT       = BIT11         ;               IIDENT H
002000                  S1.ICER         = BIT10         ;               ICER H
001000                  S1.IFMK         = BIT9          ;               IFMK H
000400                  S1.IHER         = BIT8          ;               IHER H
000200                  S0.ISPEED       = BIT7          ;WORD #8 BYTE 0 ISPEED H
000100                  S0.IRDY         = BIT6          ;               IRDY L
000040                  S0.IONL         = BIT5          ;               IONL L
000020                  S0.ILDP         = BIT4          ;               ILDP L
000010                  S0.IDBY         = BIT3          ;               IDBY L
000004                  S0.IRWD         = BIT2          ;               IRWD L
000002                  S0.IFBY         = BIT1          ;               IFBY L
000001                  S0.IFPT         = BIT0          ;               IFPT L
```

```
                        .SBTTL  SPECIAL MACROS AND OPDEFS.

                ;+
                ;SAVE GENERAL REGS 1 TO 5
                ;-

                        .MACRO  SAVREG
                        JSR     R5,REGSAV
                        .ENDM

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

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

002170  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.
                        ;
002172  000000          EPRTSW::        .WORD   0       ;PRINT SWITCH
002174  000000          UNITN::         .WORD   0       ;UNIT # UNDER TEST.
002176  000000          QVP::           .WORD   0       ;QUICK VERIFY FLAG.
002200  000000          CSRADDR::       .WORD   0       ;ADDRESS OF CSR FOR CURRENT DEVICE
002202  000224          IVEC::          .WORD   224     ;INTERRUPT VECTOR
002204  000200          IPRI::          .WORD   PRI04   ;INTERRUPT PRIORITY.
002206  000000          TSTCNT::        .WORD   0       ;NUMBER OF TESTS RUN IN THIS PASS
002210  000000          LOOPCNT::       .WORD   0       ;REMAINING ITERATION COUNT FOR TEST
002212  000000          DEVCNT::        .WORD   0       ;NUMBER OF DEVICE UNDER TEST
002214  000000          FATFLG::        .WORD   0       ;SET IF FATAL ERROR IS DETECTED IN TEST
002216  000000          INTRECV::       .WORD   0       ;SET IF TAPE INTERRUPT WAS RECEIVED
002220  000000          EXTFEA::        .WORD   0       ;EXTENDED FEATURES SOFTWARE SW 0=OFF;1=ON
002222  000000          BENBSW::        .WORD   0       ;BUFFER ENABLE SWITCH SW 0=OFF;1=ON
002224  000000          EXPD::          .WORD   0       ;EXPECTED RAM DATA FOR PRAMPKT ROUTINE
002226  000000          RECV::          .WORD   0       ;RECEIVED RAM DATA FOR PRAMPKT ROUTINE
002230  000000          ERRHI::         .WORD   0       ;HIGH ADDRESS MEMORY ERROR
002232  000000          ERRLO::         .WORD   0       ;LOW ADDRESS MEMORY ERROR
002234                  RAMDATA::       .BLKW   16.     ;DATA READ FROM RAM PACKET OR MESSAGE BUF AREA
002274  000000          RAMSIZ::        .WORD   0       ;RAM DATA SIZE FOR PRAMPKT ROUTINE
002276  000000          RCVHIADD::      .WORD   0       ;RECEIVED BUFFER HIGH ADDRESS
002300  000000          RCVLOADD::      .WORD   0       ;RECEIVED BUFFER LOW ADDRESS
002302  000000          COUNT::         .WORD   0       ;TEST COUNT PATTERN
002304  000000          DATA::          .WORD   0       ;TEST DATA
002306  000000          TSTFLAG::       .WORD   0       ;TEST FLAG WORD
002310  000000          TSTPTR::        .WORD   0       ;TSTBLK POINTER
002312  000000          PRMNO::         .WORD   0       ;PRINT ROUTINE TEMP
002314                  EXPMSG::        .BLKB   100.    ;EXPECTED MESSAGE BUFFER DATA
002460                  RECMSG::        .BLKB   100.    ;RECEIVED MESSAGE BUFFER DATA
002624                  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
                        ;
                        ;-

002744                  TSTBLK::
002744  000000                  .WORD   0               ;ALL ZEROS
002746  177777                  .WORD   177777          ;ALL ONES
002750  000001                  .WORD   BIT0            ;DATA FOR WALKING ONES
002752  000002                  .WORD   BIT1
002754  000004                  .WORD   BIT2
002756  000010                  .WORD   BIT3
002760  000020                  .WORD   BIT4
002762  000040                  .WORD   BIT5
002764  000100                  .WORD   BIT6
002766  000200                  .WORD   BIT7
002770  000400                  .WORD   BIT8
002772  001000                  .WORD   BIT9
002774  002000                  .WORD   BIT10
002776  004000                  .WORD   BIT11
003000  010000                  .WORD   BIT12
003002  020000                  .WORD   BIT13
003004  040000                  .WORD   BIT14
003006  100000                  .WORD   BIT15
003010  177776                  .WORD   ^CBIT0          ;DATA FOR WALKING ZEROS
003012  177775                  .WORD   ^CBIT1
003014  177773                  .WORD   ^CBIT2
003016  177767                  .WORD   ^CBIT3
003020  177757                  .WORD   ^CBIT4
003022  177737                  .WORD   ^CBIT5
003024  177677                  .WORD   ^CBIT6
003026  177577                  .WORD   ^CBIT7
003030  177377                  .WORD   ^CBIT8
003032  176777                  .WORD   ^CBIT9
003034  175777                  .WORD   ^CBIT10
003036  173777                  .WORD   ^CBIT11
003040  167777                  .WORD   ^CBIT12
003042  157777                  .WORD   ^CBIT13
003044  137777                  .WORD   ^CBIT14
003046  077777                  .WORD   ^CBIT15
003050  125252                  .WORD   125252          ;ALTERNATING ONES, ZEROS
003052  052525                  .WORD   052525          ;ALTERNATING ONES, ZERO OPPOSITE FROM ABOVE
003054          TBLEND==.
```

```
                                        .SBTTL  GLOBAL ENVIRONMENT STORAGE
                                ;
                                ;STORAGE FOR DEVICE REGISTERS
                                ;
003054  000000  100000  000000 DUMMY:  0,100000,0,0    ;DUMMY DEVICE REGISTERS...
003064  000000  000000  000000         0,0,0,0,0,0,0,0
                                                       ;...FOR MULTI-UNIT CHECKOUT.

003104  000000                 DUFLG::         .WORD   0               ;"DROPPED UNIT" FLAG.
                                                                       ;INHIBITS CODE IN "CLEAN-UP".
003106  000000                 NODEV::         .WORD   0               ;FLAG TO SAY NO DEVICE.

003110  000000                 TEMP1::         .WORD   0               ;SOME TEMP LOCATIONS.
003112  000000                 TEMP2::         .WORD   0
003114  000000                 XXCOMM::        .WORD   0               ;XXDP+ COMM BLOCK POINTER.
003116  000000                 FREE::          .WORD   0               ;1ST FREE MEMORY ADDRESS...
003120  000000                 FRESIZ::        .WORD   0               ;...AND SIZE (IN WORDS).
003122  000000                 FREEHI: .WORD   0               ;LAST WORD IN FREE SPACE
003124  000000                 KTFLG::         .WORD   0               ;KT11, MEM AVAIL FLAG -
                                                                       ;- .WORD        0 = <24K OR NO KT -
                                                                       ;- NZ = >24K AND KT.
003126  000000                 KTENABLE::      .WORD   0               ;SET BY TEST ROUTINES TO FLAG >28K UNDER TEST
003130  000000                 NXMFLG::        .WORD   0               ;SET IF WE CAN TEST CLEARED OTHERWISE
003132  000000                 NXMLO::         .WORD   0               ;NXM LO ADDRESS BITS
003134  000000                 NXMHI::         .WORD   0               ;NXM HI ADDRESS BITS FOR DAL'S 16-21
003136  000000                 T23A::          .WORD   0               ;11/23A FLAG
003140  000000                 T23B::          .WORD   0               ;11/23B FLAG
003142  000000                 T3BFLG::        .WORD   0               ;TEST 3B FLAG ↑O
003144  002000                 PST32W::        .WORD   2000            ;32W BLOCK ADDRESS FOR 32K START
003146  000000                 SIFLAG::        .WORD   0               ;
003150  000000                 BADDAT::        .WORD   0               ;ACTUAL DATA
003152  000000                 GDDAT::         .WORD   0               ;EXPECTED DATA
003154  000000                 LOOPFL::        .WORD   0
003156                         CTAB::                                  ;CONFIGURATION TABLES.
003156  000000                 CTABM::         .WORD   0               ;CONFIG WORK.
003160  000000                                 .WORD   0
003162  000000                                 .WORD   0
003164  000000                                 .WORD   0
003166  177777                                 .WORD   -1              ;END OF MEM TABLE.
003170                         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
                                ;
003170                         ERTABL:         .BLKW   64.
003370  000000                 ERTABE:         .WORD   0

003372  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
                                ;-
003374                                  DEVTYP  <TSV05>
003374                          L$DVTYP::
003374  124  123  126                    .ASCIZ  /TSV05/
                                        .EVEN

                                ;+
                                ;TEST DESCRIPTION
                                ;-
003402                                  DESCRIPT <**** TSV05 LOGIC DIAGNOSTIC - CHECK TRANSPORT IF ERROR ****>
003402                          L$DESC::
003402  052  052  052                    .ASCIZ  /**** TSV05 LOGIC DIAGNOSTIC - CHECK TRANSPORT IF ERROR ****/
                                        .EVEN

                                ;+
                                ;BIT TO ASCII CONVERSION FOR TSSR REGISTER
                                ;-
003476  003536  003541  003545  TSSRBIT::       .WORD   1$,2$,3$,4$,5$,6$,7$,8$
003516  003577  003603  003607                  .WORD   9$,10$,11$,12$,13$,14$,15$,16$
003536     123     103     000  1$:     .ASCIZ  'SC'
003541     102     111     105  2$:     .ASCIZ  'BIE'
003545     123     103     105  3$:     .ASCIZ  'SCE'
003551     122     115     122  4$:     .ASCIZ  'RMR'
003555     116     130     115  5$:     .ASCIZ  'NXM'
003561     116     102     101  6$:     .ASCIZ  'NBA'
003565     102     111     124  7$:     .ASCIZ  'BIT9'
003572     102     111     124  8$:     .ASCIZ  'BIT8'
003577     123     123     122  9$:     .ASCIZ  'SSR'
003603     117     106     114  10$:    .ASCIZ  'OFL'
003607     102     111     124  11$:    .ASCIZ  'BIT5'
003614     102     111     124  12$:    .ASCIZ  'BIT4'
003621     102     111     124  13$:    .ASCIZ  'BIT3'
003626     102     111     124  14$:    .ASCIZ  'BIT2'
003633     102     111     124  15$:    .ASCIZ  'BIT1'
003640     102     111     124  16$:    .ASCIZ  'BIT0'
                                .EVEN
003646     124     123     123  SFIERR: .ASCIZ  'TSSR ERROR AFTER SOFT INIT'
003701     124     123     123  SFHERR: .ASCIZ  'TSSR ERRCR AFTER BUS RESET'
003734     040     040     116  NXR:    .ASCIZ  /  NON-EXISTANT DEVICE REGISTER/
003773     045     101     040  NXRX:   .ASCIZ  /%A  ADDRESS: %O6/
004014     045     101     040  TSSX:   .ASCII  /%A  TSBA,TSSR EXP'D: %O6%A,%O6%N/
004054     045     101     040          .ASCIZ  /%A  TSBA,TSSR REC'D: %O6%A,%O6/
004113     045     116     045  FUSI:   .ASCII  /%N%A/
004117     040     040     125  USI:    .ASCIZ  /  UNEXPECTED INTERRUPT/
004146     040     040     111  NSI:    .ASCIZ  /  INTERRUPT EXPECTED, NOT RECEIVED/
004211     045     116     045  FNOINTR:        .ASCII  /%N%A/
004215     040     040     116  NOINTR: .ASCIZ  /  NO INTERRUPT WAS GENERATED/
004252     040     040     111  IFAULT: .ASCIZ  /  INTERRUPT FAULT/
004274     045     101     040  INTX:   .ASCIZ  /%A  CPU PC: %O6%A  TSBA: %O6/
```

```
004331    040    040    042  NOINIT: .ASCIZ  /  "BUS-INIT" DIDN'T INITIALIZE CONTROLLER/
004403    040    040    042  NSINIT: .ASCIZ  /  "SOFT-INIT" DIDN'T INITIALIZE THE DPU/
004453    040    040    042  BRINIT: .ASCIZ  /  "BUS-RESET" DIDN'T INITIALIZE THE DPU/
004523    000                NUL:    .ASCIZ  //
004524    045    116    000  NULCR:  .ASCIZ  /%N/
004527    045    101    040  EXPGOT: .ASCIZ  /%A EXP'D: %06%A, REC'D: %06/
004563    045    116    045  EXPGT2: .ASCIZ  /%N%A EXP'D: %06%A, %06%N%A REC'D: %0%A, %06/
004637    045    101    040  DUAD12: .ASCIZ  /%A REG(W) WRITTEN TO: %06%A REG(R) READ; EXP'D: %06%A, REC'D: %06/
004741    122    101    115  PKTRAM::        .ASCIZ  'RAM Contents Do Not Match Packet Sent'
005007    040    040    103  SCME:   .ASCIZ  /  CONFIG DOESN'T MATCH MFG. MASTER/
005052    127    122    111  WRTMSG: .ASCIZ  'WRITE CHARACTERISTICS Failed'
005107    124    123    123  WRTERR: .ASCIZ  'TSSR Incorrect After WRITE Command, More Bits Set Than SSR'
005202    124    123    123  RDERR:  .ASCIZ  'TSSR Incorrect After READ Command, More Bits Set Than SSR'
005274    106    101    124  SCHERR: .ASCIZ  'FATAL ERROR IN SUBTEST - CHECK TAPE,CABLES,TRANSPORT etc.'
005366    105    122    122  RETERR: .ASCIZ  'ERROR IN SUBTEST - WRITE DATA RETRY FIVE TIMES FAILED'
005454    045    116    045  NOMEM:  .ASCIZ  '%N%A ***** NO NXM ADDRESS--CANNOT TEST NXM TIMEOUT. *****%N'
005550    045    116    045  M8186:  .ASCIZ  '%N%A ****************** 11/23A SYSTEM ******************%N'
005641    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.
                             ;--
005732                               BGNMSG  NXRERR          ;NON-EXISTANT DEVICE REGISTER.
005732                       NXRERR::
005732                               PRINTX  #NXRX,NODEV     ;NODEV = NEXM ADDRESS.
005732  013746  003106               MOV     NODEV,-(SP)
005736  012746  003773               MOV     #NXRX,-(SP)
005742  012746  000002               MOV     #2,-(SP)
005746  010600                       MOV     SP,R0
005750  104415                       TRAP    C$PNTX
005752  062706  000006               ADD     #6,SP
005756  004737  005764               JSR     PC,EXTEND       ; PRINT EXTENSION IF REQUIRED.
005762                               ENDMSG
005762                       L10002:
005762  104423                       TRAP    C$MSG
                             ;
                             ; THIS ROUTINE APPENDS A UNIQUE EXTENSION (IF REQUIRED)
                             ; TO ANY OF THE ABOVE ERROR SIGNATURES.
                             ;
005764  005727               EXTEND: TST     (PC)+
005766  000000               EXTA:   0                       ; 0 = NO EXTENSION.
005770  001402                       BEQ     1$
005772  004777  177770               JSR     PC,@EXTA        ; APPEND EXTENSION TEXT.
005776                       1$:     PRINTX  #NULCR          ; PRINT A BLANK LINE
005776  012746  004524               MOV     #NULCR,-(SP)
006002  012746  000001               MOV     #1,-(SP)
006006  010600                       MOV     SP,R0
006010  104415                       TRAP    C$PNTX
006012  062706  000004               ADD     #4,SP
006016  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
                        ;
                        ;-

006020                  PRITSSR:
006020                          SAVREG                          ;SAVE GENERAL REGISTERS
006024  010104                  MOV     R1,R4                   ;SAVE THE TSSR CONTENTS
006026                          PRINTB  #TSSRFOR,R4             ;PRINT THE CONTENTS OF TSSR
006026  010446                  MOV     R4,-(SP)
006030  012746  006473          MOV     #TSSRFOR,-(SP)
006034  012746  000002          MOV     #2,-(SP)
006040  010600                  MOV     SP,R0
006042  104414                  TRAP    C$PNTB
006044  062706  000006          ADD     #6,SP
006050  010400                  MOV     R4,R0                   ;GET TSSR BACK FOR CHKAMB
006052  004737  016124          JSR     PC,CHKAMB               ;ARE CONTENTS AMBIGUOUS ?
006056  103410                  BCS     5$                      ;BRANCH IF NOT
006060                          PRINTX  #AMBTSSR                ;SHOW CONTENTS ARE AMBIGUOUS
006060  012746  006713          MOV     #AMBTSSR,-(SP)
006064  012746  000001          MOV     #1,-(SP)
006070  010600                  MOV     SP,R0
006072  104415                  TRAP    C$PNTX
006074  062706  000004          ADD     #4,SP
006100  010403          5$:     MOV     R4,R3                   ;CONTENTS OF TSSR
006102  042703  001476          BIC     #MIADDR!FATERR!TERCLS,R3        ;CLEAR ALL MULTIPLE BIT FIELDS
006106  001434                  BEQ     20$                     ;NO BITS ARE SET
006110  012702  002624          MOV     #TMPBFR,R2              ;TEMPORARY ASCII BUFFER
006114  012701  003476          MOV     #TSSRBIT,R1             ;ASCII EQUIVALENT OF BITS
006120  005703          10$:    TST     R3                      ;REMAINING BITS TO CONVERT
006122  001413                  BEQ     15$                     ;BRANCH WHEN ALL ARE DONE
006124  000241                  CLC                             ;CLEAR CARRY FOR SHIFT
006126  006103                  ROL     R3                      ;SHIFT NEXT BIT TO CARRY
006130  103006                  BCC     13$                     ;BRANCH IF BIT NOT SET
006132  011100                  MOV     (R1),R0                 ;POINTER TO BIT DEFINITION
006134  112022          11$:    MOVB    (R0)+,(R2)+             ;MOVE ASCIZ TO BUFFER
006136  001376                  BNE     11$                     ;MOVE ALL BITS
006140  112762  000054  177777  MOVB    #',,-1(R2)              ;INSERT A COMMA TO TERMINATE
006146  005721          13$:    TST     (R1)+                   ;POINT TO NEXT DESCRIPTION
006150  000763                  BR      10$                     ;GET THE REMAINING BITS
006152  105042          15$:    CLRB    -(R2)                   ;TERMINATE THE LINE
006154                          PRINTX  #TSSDEF,#TMPBFR         ;PRINT THE BIT DEFINITIONS
006154  012746  002624          MOV     #TMPBFR,-(SP)
006160  012746  006664          MOV     #TSSDEF,-(SP)
```

```
                006164  012746  000002          MOV     #2,-(SP)
                006170  010600                  MOV     SP,R0
                006172  104415                  TRAP    C$PNTX
                006174  062706  000006          ADD     #6,SP
    718
    719         006200  010403          20$:    MOV     R4,R3           ;GET THE TSSR CONTENTS
    720         006202  042703  177761          BIC     #^CTERCLS,R3    ;CLEAR ALL BUT TERMINATION
    721         006206  016303  006754          MOV     TCOCOD(R3),R3   ;GET THE TERMINATION CODE MEANING
    722         006212                          PRINTX  #TCOASC,R3      ;PRINT THE TERMINATION CODE
                006212  010346                  MOV     R3,-(SP)
                006214  012746  006554          MOV     #TCOASC,-(SP)
                006220  012746  000002          MOV     #2,-(SP)
                006224  010600                  MOV     SP,R0
                006226  104415                  TRAP    C$PNTX
                006230  062706  000006          ADD     #6,SP
    723         006234  010403                  MOV     R4,R3           ;TSSR CONTENTS AGAIN
    724         006236  042703  177717          BIC     #^CFATERR,R3    ;CLEAR ALL BUT FATAL TERMINATION
    725         006242  001416                  BEQ     25$             ;DON'T PRINT IF ZERO
    726         006244  006203                  ASR     R3
    727         006246  006203                  ASR     R3
    728         006250  006203                  ASR     R3              ;ALINE TERMINATION CODE FOR INDEX
    729         006252  016303  007314          MOV     TSFCOD(R3),R3   ;GET THE FATAL TERMINATION CODE
    730         006256                          PRINTX  #TFCASC,R3      ;PRINT THE FATAL TERMINATION CODE
                006256  010346                  MOV     R3,-(SP)
                006260  012746  006615          MOV     #TFCASC,-(SP)
                006264  012746  000002          MOV     #2,-(SP)
                006270  010600                  MOV     SP,R0
                006272  104415                  TRAP    C$PNTX
                006274  062706  000006          ADD     #6,SP
    731         006300  042704  176377  25$:    BIC     #^CHIADDR,R4    ;CLEAR ALL BUT EXTENDED ADDRESS
    732         006304  001411                  BEQ     30$             ;DON'T PRINT IF ZERO
    733         006306                          PRINTX  #TEXASC,R4      ;PRINT THE EXTENDED ADDRESS BITS
                006306  010446                  MOV     R4,-(SP)
                006310  012746  006513          MOV     #TEXASC,-(SP)
                006314  012746  000002          MOV     #2,-(SP)
                006320  010600                  MOV     SP,R0
                006322  104415                  TRAP    C$PNTX
                006324  062706  000006          ADD     #6,SP
    734         006330  013703  002172  30$:    MOV     EPRTSW,R3               ;PRINT MEAASGE BUFFER ADDRESS
    735         006334                          PRINTX  R3                      ;PRINT PROPER MESSAGE
                006334  010346                  MOV     R3,-(SP)
                006336  012746  000001          MOV     #1,-(SP)
                006342  010600                  MOV     SP,R0
                006344  104415                  TRAP    C$PNTX
                006346  062706  000004          ADD     #4,SP
    736         006352  000207                  RTS     PC              ;RETURN TO CALLER
```

```
    752 006354  045  116  045  EPRT1:   .ASCIZ  '%N%A *****CHECK TRANSPORT*****'
    753 006413  045  116  045  EPRT2:   .ASCIZ  '%N%A *****CHECK PARITY SWITCH IN TRANSPORT*****'
    755 006473  045  116  045  TSSRFOR:         .ASCIZ  '%N%A TSSR = %O6'
    756 006513  045  116  045  TEXASC:          .ASCIZ  '%N%A Extended Address Bits = %O6'
    757 006554  045  116  045  TCOASC:          .ASCIZ  '%N%A Termination Class Code = %T'
    758 006615  045  116  045  TFCASC:          .ASCIZ  '%N%A Fatal Termination Class Code = %T'
    759 006664  045  116  045  TSSDEF:          .ASCIZ  '%N%A TSSR Bits Set: %T'
    760 006713  045  116  045  AMBTSSR:         .ASCIZ  '%N%A TSSR Contents Are Ambiguous'
    761                                  .EVEN
    762 006754  006774  007017  007045  TCOCOD: .WORD   1$,2$,3$,4$,5$,6$,7$,8$
    763 006774  116  157  162  1$:     .ASCIZ  'Normal Termination'
    764 007017  124  145  162  2$:     .ASCIZ  'Termination Condition'
    765 007045  124  141  160  3$:     .ASCIZ  'Tape Status Alert'
    766 007067  106  165  156  4$:     .ASCIZ  'Function Reject'
    767 007107  122  145  143  5$:     .ASCIZ  'Recoverable Error - Tape Position One Record Down'
    768 007171  122  145  143  6$:     .ASCIZ  'Recoverable Error - Tape Was Not Moved'
    769 007240  125  156  162  7$:     .ASCIZ  'Unrecoverable Error'
    770 007264  106  141  164  8$:     .ASCIZ  'Fatal Controller Error'
    771                                  .EVEN
    772
    773 007314  007324  007360  007371  TSFCOD: .WORD   1$,2$,3$,4$
    774 007324  111  156  164  1$:     .ASCIZ  'Internal Diagnostic Failure'
    775 007360  122  145  163  2$:     .ASCIZ  'Reserved'
    776 007371  102  165  163  3$:     .ASCIZ  'Bus Interface or Sanity Check Error'
    777 007435  122  145  163  4$:     .ASCIZ  'Reserved'
    778                                  .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.
                                ;-

007446                          PRIPKT::
007446                                  SAVREG                  ;SAVE THE REGISTERS
007452  010005                          MOV     R0,R5           ;SAVE NO. OF WORDS IN PACKET
007454  005737  003125                  TST     KTENABLE        ;ABOVE 28K UNDER TEST?
007460  001001                          BNE     10$             ;BR IF YES
007462  005003                          CLR     R3              ;SET HIGH ORDER ADDRESS TO 0
007464  010301                  10$:    MOV     R3,R1           ;COPY HIGH ORDER ADDRESS
007466  010400                          MOV     R4,R0           ;GET LOWER ADDRESS
007470  006100                          ROL     R0              ;SHIFT BIT 15 INTO C BIT
007472  006101                          ROL     R1              ;AND INTO HIGH ORDER.
007474                                  PRINTB  @PKTADD,R1,R4   ;PRINT PACKET ADDRESS
007474  010446                          MOV     R4,-(SP)
007476  010146                          MOV     R1,-(SP)
007500  012746  007632                  MOV     @PKTADD,-(SP)
007504  012746  000003                  MOV     #3,-(SP)
007510  010600                          MOV     SP,R0
007512  104414                          TRAP    C$PNTB
007514  062706  000010                  ADD     #10,SP
007520  010300                  15$:    MOV     R3,R0           ;GET HIGH ORDER ADDRESS
007522  001404                          BEQ     20$             ;BR IF NOT ABOVE 28K.
007524  010401                          MOV     R4,R1           ;GET LOW ORDER ADDRESS
007526  004737  017376                  JSR     PC,SETMAP       ;SETUP PAR6 MAPPING FOR 18 BIT ADDRESS
007532  010004                          MOV     R0,R4           ;GET RETURNED PAR6 ADDRESS BIAS
007534  005001                  20$:    CLR     R1              ;SAVE WORD NUMBER
007536  012402                  25$:    MOV     (R4)+,R2        ;GET PACKET CONTENTS
007540                                  PRINTB  @PKTFRM,R1,R2   ;PRINT THE DATA
007540  010246                          MOV     R2,-(SP)
007542  010146                          MOV     R1,-(SP)
007544  012746  007574                  MOV     @PKTFRM,-(SP)
007550  012746  000003                  MOV     #3,-(SP)
007554  010600                          MOV     SP,R0
007556  104414                          TRAP    C$PNTB
007560  062706  000010                  ADD     #10,SP
007564  005201                          INC     R1              ;NEXT WORD NUMBER
007566  020105                          CMP     R1,R5           ;DONE ALL PACKET WORDS?
007570  002762                          BLT     25$             ;LOOP TILL ALL DONE
007572  000207                          RTS     PC              ;RETURN

007574      045     116     045 PKTFRM: .ASCIZ   '%N%A Packet Word #%D1%A = %06'
007632      045     116     045 PKTADD: .ASCIZ   '%N%A Packet Address = %01%05'
                                        .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
                        ;-
007670                  PRIBXOR::
007670                          SAVREG                          ;SAVE THE REGISTERS
007674  010203                  MOV     R2,R3                   ;EXPECTED DATA
007676                          XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
007706  012700  177400          MOV     #^C<377>,R0             ;BYTE MASK
007712  040001                  BIC     R0,R1                   ;SAVE LOW BYTE RECV
007714  040002                  BIC     R0,R2                   ;SAVE LOW BYTE EXPD
007716  040003                  BIC     R0,R3                   ;SAVE LOW BYTE XOR
007720                          PRINTB  #XORBFOR,R2,R1,R3 ;PRINT THE MESSAGE
007720  010346                  MOV     R3,-(SP)
007722  010146                  MOV     R1,-(SP)
007724  010246                  MOV     R2,-(SP)
007726  012746  007752          MOV     #XORBFOR,-(SP)
007732  012746  000004          MOV     #4,-(SP)
007736  010600                  MOV     SP,R0
007740  104414                  TRAP    C$PNTB
007742  062706  000012          ADD     #12,SP
007746  010300                  MOV     R3,R0                   ;R0 HAS XOR ON RETURN
007750  000207                  RTS     PC                      ;RETURN TO CALLER

007752      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
                        ;-
010020                  PRIXOR::
010020                          SAVREG                          ;SAVE THE REGISTERS
010024  010203                  MOV     R2,R3                   ;EXPECTED DATA
010026                          XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
010036                          PRINTB  #XORFOR,R2,R1,R3 ;PRINT THE MESSAGE
```

```
TSV3 - GLOBAL AREAS     MACRO M1113  14-JUN-84 16:41                                    SEQ 0045
PRIXOR  - PRINT EXPD, RECV AND XOR

        010036  010346                          MOV     R3,-(SP)
        010040  010146                          MOV     R1,-(SP)
        010042  010246                          MOV     R2,-(SP)
        010044  012746  010070                  MOV     #XORFOR,-(SP)
        010050  012746  000004                  MOV     #4,-(SP)
        010054  010600                          MOV     SP,R0
        010056  104414                          TRAP    C$PNTB
        010060  062706  000012                  ADD     #12,SP
    872 010064  010300                          MOV     R3,R0           ;R0 HAS XOR ON RETURN
    873 010066  000207                          RTS     PC              ;RETURN TO CALLER
    874
    875 010070      045     116     045 XORFOR: .ASCIZ  '<N><A EXPD: <06><A RECV: <06><A XOR: <06'
    876                                 .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
                                ;
                                ;-
010136                          PRIEQU:
010136                                  SAVREG                          ;SAVE THE REGISTERS
010142  000207                          RTS     PC                      ;RETURN TO CALLER

                                        .SBTTL  PRIRAM  - PRINT RAM ADDRESS
                                ;+
                                ;
                                ;PRINT CONTROLLER RAM ADDRESS.
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                                ;
                                ;INPUTS:
                                ;
                                ;       R4      RAM ADDRESS
                                ;
                                ;-
010144                          PRIRAM:
010144                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
010150                                  PRINTB  @RAMFOR,R4              ;PRINT RAM ADDRESS IN ERROR
010150  010446                          MOV     R4,-(SP)
010152  012746  010174                  MOV     @RAMFOR,-(SP)
010156  012746  000002                  MOV     #2,-(SP)
010162  010600                          MOV     SP,R0
010164  104414                          TRAP    C$PNTB
010166  062706  000006                  ADD     #6,SP
010172  000207                          RTS     PC                      ;RETURN

010174      045     116     045 RAMFOR: .ASCIZ  '%N%A CONTROLLER RAM ADDRESS = %O6'
                                        .EVEN
```

```
                                        .SBTTL  PRIADD  - PRINT MEMORY ERROR ADDRESS
                                ;*
                                ;
                                ;PRINT MEMORY ADDRESS
                                ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
                                ;
                                ; IMPLICIT INPUTS
                                ;
                                ;       ERRHI   - HIGH ORDER ADDRESS
                                ;       ERRLO   - LOW ORDER ADDRESS
                                ;
                                ;-
010236                          PRIADD:
010236                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
010242  013700  002230                  MOV     ERRHI,R0        ;GET HIGH ADDRESSS
010246  013701  002232                  MOV     ERRLO,R1        ;GET LOW ADDRESS
010252  010102                          MOV     R1,R2           ;COPY LOW ADDRESS
010254  006101                          ROL     R1              ;SHIFT BIT 15 TO C BIT
010256  006100                          ROL     R0              ;SHIFT INTO HIGH ORDER
010260                                  PRINTB  #PRIA0,R0,R2    ;PRINT MEMORY ADDRESS IN ERROR
010260  010246                          MOV     R2,-(SP)
010262  010046                          MOV     R0,-(SP)
010264  012746  010306                  MOV     #PRIA0,-(SP)
010270  012746  000003                  MOV     #3,-(SP)
010274  010600                          MOV     SP,R0
010276  104414                          TRAP    C$PNTB
010300  062706  000010                  ADD     #10,SP
010304  000207                          RTS     PC              ;RETURN

010306      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
                                ;
                                ;-
010352                          PRITADD:
010352                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
010356  013702  002230                  MOV     ERRHI,R2        ;GET HIGH ADDRESSS
010362  013701  002232                  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
010366                                  PRINTB  #PRIT0,R1       ;PRINT MEMORY ADDRESS LOW IN ERROR
010366  010146                          MOV     R1,-(SP)
010370  012746  010434                  MOV     #PRIT0,-(SP)
010374  012746  000002                  MOV     #2,-(SP)
010400  010600                          MOV     SP,R0
010402  104414                          TRAP    C$PNTB
```

```
TSV3 - GLOBAL AREAS     MACRO M1113  14-JUN-84 16:41                                    SEQ 0048
PRITADD - PRINT MEMORY TEST ADDRESS

        010404  062706  000006                  ADD     #6,SP
    960 010410                                  PRINTB  #PRIT1,R2       ;PRINT MEMORY ADDRESS HIGH IN ERROR
        010410  010246                          MOV     R2,-(SP)
        010412  012746  010477                  MOV     #PRIT1,-(SP)
        010416  012746  000002                  MOV     #2,-(SP)
        010422  010600                          MOV     SP,R0
        010424  104414                          TRAP    C$PNTB
        010426  062706  000006                  ADD     #6,SP
    961 010432  000207                          RTS     PC              ;RETURN
    962
    963 010434     045     116     045  PRIT0:  .ASCIZ  '<N><A MEMORY TEST ADDRESS LOW = <06>'
    964 010477     045     116     045  PRIT1:  .ASCIZ  '<N><A MEMORY TEST ADDRESS HIGH = <06>'
    965                                         .EVEN
```

```
                        .SBTTL  SPACE   - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

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

                SPACE::
010544                  SAVREG                          ;SAVE THE GENERAL REGISTERS
010544  012737  000764  010740      MOV     #500.,SDELAY            ;SET UP DELAY
010550  012737  140010  010730      MOV     #140010,80$             ;SET UP COMMAND, SPACE FORWARD
010556  005703                      TST     R3                      ;CHECK FOR DIRECTION
010560  100403                      BMI     5$                      ;BR, IF REVERSE INDICATED
010562  010337  010732              MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
010566  000407                      BR      10$                     ;GO DO COMMAND
010570  042703  100000      5$:     BIC     #BIT15,R3               ;CLEAR DIRECTION BIT
010574  010337  010732              MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
010600  052737  000400  010730      BIS     #BIT8,80$               ;SET REVERSE BIT IN COMMAND PACKET
010606  012704  010730      10$:    MOV     #80$,R4                 ;SET UP R4 WITH PACKET ADDRESS
010612  010465  000000              MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010616  004737  016330      15$:    JSR     PC,WAITF                ;WAIT FOR SSR
010622  103420                      BCS     20$                     ;BR, IF SSR IS SET AND OK
010624                              DELAY   250             ;DELAY ABOUT .25 SECONDS
010624  012727  000250              MOV     #250,(PC)+
010630  000000                      .WORD   0
010632  013727  002116              MOV     L$DLY,(PC)+
010636  000000                      .WORD   0
010640  005367  177772              DEC     -6(PC)
010644  001375                      BNE     .-4
```

```
        010654  005367  177756                  DEC     -22(PC)
        010660  001367                          BNE     .-20
   1018 010662  005337  010740                  DEC     SDELAY                  ;BUMP DELAY COUNTER DOWN
   1019 010666  001356                          BNE     15$                     ;BR, IF MORE DELAY
   1020 010670  000411                          BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
   1021 010672  016501  000002          20$:    MOV     TSSR(R5),R1             ;READ TSSR
   1022 010676  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
   1023 010702  020201                  25$:    CMP     R2,R1                   ;ARE THEY OK
   1024 010704  001401                          BEQ     40$                     ;BR, IF EQUAL = OK
   1025 010706  000402                          BR      60$                     ;TROUBLE EXIT
   1026 010710  000261                  40$:    SEC                             ;SET CARRY NO TROUBLE
   1027 010712  000401                          BR      70$                     ;EXIT
   1028 010714  000241                  60$:    CLC                             ;CARRY CLEAR = ERROR
   1029 010716                          70$:
   1030 010716  010400                          MOV     R4,R0                   ;PASS PACKET ADDRESS
   1031 010720  000207                          RTS     PC                      ;RETURN
   1032                                 ;
   1033                                 ;
   1034                                 ;
   1035                                 ;PACKET FOR SPACE COMMAND
   1036                                 ;
   1038         010730                          .=<.+10>&177770
   1040                                 ;
   1041                                 ;COMMAND WORD
   1042 010730  000000                  80$:    .WORD
   1043                                 ;NUMBER OF RECORDS TO BE SPACED OVER WORD
   1044 010732  000000                  90$:    .WORD
   1045 010734  000000                          .WORD
   1046 010736  000000                          .WORD
   1047 010740  000000                  SDELAY: .WORD   0                       ;DELAY COUNTER
   1048                                         .EVEN
   1049                                         .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:
                        ;-
010742                  WRTCHR::
010742                          SAVREG                          ;SAVE THE GENERAL REGISTERS
010746  005037  002222          CLR     BENBSW          ;CLEAR BUFFER ENABLE SWITCH
010752  005037  002220          CLR     EXTFEA                  ;CLEAR EXTENDED FEATURES SW SWITCH
010756  010465  000000  10$:    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010762  004737  016416          JSR     PC,CHKTSSR              ;WAIT FOR SSR
010766  103401                  BCS     20$                     ;BR, IF SSR IS SET AND OK
010770  000435                  BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
010772  016501  000002  20$:    MOV     TSSR(R5),R1             ;READ TSSR
010776  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
011002  032701  000100          BIT     #OFL,R1                 ;WAS OFF LINE SET IN TSSR
011006  001402                  BEQ     25$                     ;BR, IF NO OFL SET
011010  052702  000100          BIS     #OFL,R2                 ;MAKE THEM LOOK ALIKE
011014  020201          25$:    CMP     R2,R1                   ;ARE THEY OK
011016  001401                  BEQ     40$                     ;BR, IF EQUAL = OK
011020  000421                  BR      60$                     ;TROUBLE EXIT
011022  062704  000010  40$:    ADD     #8.,R4                  ;POINT TO WRT CHARA DATA PACKET
011026  011403                  MOV     (R4),R3                 ;GET ADDRESS OF MESSAGE BUFFER
011030  032763  000200  000012  BIT     #X2.EXTF,XST2(R3)       ;EXTENDED FEATURES BIT SET?
011036  001402                  BEQ     45$                     ;BR IF NO
011040  005237  002220          INC     EXTFEA                  ;SET EXTENDED FEATURES SW SWITCH
011044                  45$:
011044  032763  000100  000012  BIT     #X2.BUFE,XST2(R3)       ;BUFFER ENABLE SWITCH SET
011052  001402                  BEQ     50$                     ;BR, IF SWITCH NOT SET
011054  005237  C02222          INC     BENBSW                  ;SET SOFTWARE SWITCH FOR ENABLED
011060                  50$:
011060  000261                  SEC                             ;SET CARRY NO TROUBLE
011062  000401                  BR      70$                     ;EXIT
011064  000241          60$:    CLC                             ;CARRY CLEAR = ERROR
011066  016500  000002  70$:    MOV     TSSR(R5),R0             ;RETURN TSSR CONTENTS
011072  000207                  RTS     PC                      ;RETURN
```

```
                                .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
                        ;
                        ;
                        ;-
011074                  REWIND::
011074                          SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011100  012704  011170          MOV     @RWPACK,R4              ;GET PACKET ADDRESS
011104  010465  000000          MOV     R4,TSDB(R5)             ;SEND PACKET ADDRESS TO EXECUTE
011110  012703  000550          MOV     @360.,R3                ;ENOUGH TIME FOR 2400' REEL TO REWIND
011114  004737  016330  10$:     JSR     PC,WAITF                ;WAIT FOR SSR TO SET
011120  103417                  BCS     20$                     ;LEAVE WHEN SSR IS SET
011122                          DELAY   250.                    ;WAIT FOR .25 SECONDS
011122  012727  000372          MOV     @250.,(PC)+
011126  000000                  .WORD   0
011130  013727  002116          MOV     L$DLY,(PC)+
011134  000000                  .WORD   0
011136  005367  177772          DEC     -6(PC)
011142  001375                  BNE     .-4
011144  005367  177756          DEC     -22(PC)
011150  001367                  BNE     .-20
011152  005303                  DEC     R3                      ;BUMP COUNTER DOWN
011154  001357                  BNE     10$                     ;KEEP GOING
011156  000241                  CLC                             ;CLEAR CARRY TO SET ERROR
011160  010400          20$:    MOV     R4,R0                   ;PASS THE PACKET ADDRESS
011162  000207                  RTS     PC                      ;RETURN

                                .=<.+10>&177770
011170                  RWPACK:
011170  102010                  .WORD   102010                  ;POSTION COMMAND (REWIND)
011172  000000                  .WORD   0                       ;NOT USED
```

```
                        .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
                ;
                ;-

011174          CKRAM::
011174                  SAVREG                          ;SAVE THE GENERAL REGISTERS
011200  012701  002234          MOV     #RAMDATA,R1     ;ADDRESS TO SAVE THE RAM DATA
011204  012702  000201          MOV     #RMPKTBEG,R2    ;BYTE ADDRESS OF FIRST RAM DATA
011210  005003                  CLR     R3              ;CLEAR THE ERROR FLAG
011212  004737  016416          JSR     PC,CHKTSSR      ;WAIT FOR SSR
011216  112765  000000  000000  MOVB    #0,TSDB(R5)     ;SET MAINTENANCE MODE
011224  004737  016416  10$:    JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
011230  010265  000000          MOV     R2,TSDB(R5)     ;SELECT NEXT RAM ADDRESS
011234  004737  016416          JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
011240  116511  000000          MOVB    TSBA(R5),(R1)   ;READ THE RAM DATA
011244  122124                  CMPB    (R1)+,(R4)+     ;COMPARE TO EXPECTED
011246  001401                  BEQ     20$             ;BRANCH IF OK
011250  005203                  INC     R3              ;SET ERROR FLAG
011252  005202          20$:    INC     R2              ;ADDRESS OF NEXT RAM LOCATION
011254  020227  000210          CMP     R2,#RMPKTEND    ;REACHED END YET ?
011260  003761                  BLE     10$             ;BRANCH TILL ALL READ
011262  005703                  TST     R3              ;WAS AN ERROR FOUND ?
011264  001402                  BEQ     30$             ;BRANCH IF NOT
011266  000241                  CLC                     ;CLEAR CARRY TO SHOW ERROR
011270  000401                  BR      50$             ;AND EXIT
011272  000261          30$:    SEC                     ;SHOW GOOD COMPARE
011274  012737  000010  002274  50$:    MOV     #8.,RAMSIZ      ;SETUP RAMSIZ FOR PRAMPKT ROUTINE
011302  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
                ;-
011304          CKRAM2::
011304                  SAVREG                          ;SAVE THE GENERAL REGISTERS
011310  012701  002234          MOV     #RAMDATA,R1     ;ADDRESS TO SAVE THE RAM DATA
011314  012702  000167          MOV     #RMCHBEG,R2     ;BYTE ADDRESS OF FIRST RAM DATA
011320  005003                  CLR     R3              ;CLEAR THE ERROR FLAG
011322  004737  016416          JSR     PC,CHKTSSR      ;WAIT FOR SSR
011326  112765  000000  000000  MOVB    #0,TSDB(R5)     ;SET MAINTENANCE MODE
011334  004737  016416  10$:    JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
011340  010265  000000          MOV     R2,TSDB(R5)     ;SELECT NEXT RAM ADDRESS
011344  004737  016416          JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
011350  116511  000000          MOVB    TSBA(R5),(R1)   ;READ THE RAM DATA
011354  122124                  CMPB    (R1)+,(R4)+     ;COMPARE TO EXPECTED
011356  001401                  BEQ     20$             ;BRANCH IF OK
011360  005203                  INC     R3              ;SET ERROR FLAG
011362  005202          20$:    INC     R2              ;ADDRESS OF NEXT RAM LOCATION
011364  012737  000010  002274  MOV     #8.,RAMSIZ      ;ASSUME EXTFEA NOT SET
011372  005737  002220          TST     EXTFEA          ;IS THE SOFTWARE EXTENDED FEATURES SET
011376  001407                  BEQ     25$             ;BR, IF NOT SET
011400  012737  000012  002274  MOV     #10.,RAMSIZ     ;SET RAMSIZ FOR EXTEND FEATURES
011406  020227  000200          CMP     R2,#RMCHEND     ;AT END OF EXTENDED BUFFER
011412  003750                  BLE     10$             ;BR, IF NOT AT END YET
011414  000403                  BR      27$             ;AT END BRANCH
011416  020227  000176  25$:    CMP     R2,#RMCHEND-2   ;REACHED END YET ?
011422  003744                  BLE     10$             ;BRANCH TILL ALL READ
011424  005703          27$:    TST     R3              ;WAS AN ERROR FOUND ?
011426  001402                  BEQ     30$             ;BRANCH IF NOT
011430  000241                  CLC                     ;CLEAR CARRY TO SHOW ERROR
011432  000401                  BR      50$             ;AND EXIT
011434  000261          30$:    SEC                     ;SHOW GOOD COMPARE
011436  000207          50$:    RTS     PC              ;RETURN
```

```
                        .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
                        MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
                        MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
                        TST     KTENABLE                ;TESTING ABOVE 28K?
                        BEQ     10$                     ;BR IF NO
                        JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
                        MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
                10$:    CLR     R4                      ;WORD IN BUFFER
                        CLR     R3                      ;CLEAR ERROR SEEN FLAG
                        MOV     R2,R5                   ;GET EXPD BUFFER ADDRESS
                15$:    MOV     (R2),EXPMSG(R4)         ;SAVE EXPD FOR ERROR REPORT
                        MOV     (R1),RECMSG(R4)         ;SAVE RECV FOR ERROR REPORT
                        CMP     (R2)+,(R1)+             ;EXPD EQUAL RECV?
                        BEQ     25$                     ;BR IF YES
                        INC     R3                      ;SET ERROR SEEN FLAG
                25$:    ADD     #2,R4                   ;POINT TO NEXT WORD ADDRESS
                        CMP     R4,#14                  ;DONE FIRST 7 WORDS?
                        BLE     15$                     ;BR IF NO
                        BIT     #X2.EXTF,XST2(R5);IS EXTENDED FEATURES SET IN EXPD?
                        BEQ     50$                     ;BR IF NO
                        CMP     R4,#16                  ;DONE EXTENDED FEATURES WORD?
                        BLE     15$                     ;BR IF NO
                50$:    TST     R3                      ;ANY ERRORS SEEN?
                        BEQ     55$                     ;BR IF NO
                        CLC                             ;SET FAILURE
                        BR      60$                     ;
                55$:    SEC                             ;SET SUCCESS
                60$:    RTS     PC                      ;RETURN
```

```
                                        .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
                                ;-
011560                          CKMSG2::
011560                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011564  020327  000144                  CMP     R3,#RECMSG-EXPMSG;@@D IS COUNT ABOVE MAX ALLOWED?
011570  003412                          BLE     5$                      ;@@D BR IF NO
011572  012703  000144                  MOV     #RECMSG-EXPMSG,R3;@@D
011576                                  PRINTF  #DEBUGMSG               ;@@D
011576  012746  011712                  MOV     #DEBUGMSG,-(SP)
011602  012746  000001                  MOV     #1,-(SP)
011606  010600                          MOV     SP,R0
011610  104417                          TRAP    C$PNTF
011612  062706  000004                  ADD     #4,SP
011616  010037  002276          5$:     MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
011622  010137  002300                  MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
011626  005737  003126                  TST     KTENABLE                ;TESTING ABOVE 28K?
011632  001403                          BEQ     10$                     ;BR IF NO
011634  004737  017376                  JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
011640  010001                          MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
011642  005004          10$:    CLR     R4                      ;WORD IN BUFFER
011644  005005                  CLR     R5                      ;CLEAR ERROR SEEN FLAG
011646  111264  002314  15$:    MOVB    (R2),EXPMSG(R4)         ;SAVE EXPD FOR ERROR REPORT
011652  111164  002460          MOVB    (R1),RECMSG(R4)         ;SAVE RECV FOR ERROR REPORT
011656  122221                  CMPB    (R2)+,(R1)+             ;EXPD EQUAL RECV?
011660  001401                  BEQ     25$                     ;BR IF YES
011662  005205                  INC     R5                      ;SET ERROR SEEN FLAG
011664  062704  000001  25$:    ADD     #1,R4                   ;POINT TO NEXT BYTE
011670  020403                  CMP     R4,R3                   ;DONE ALL BYTES?
011672  002001                  BGE     50$                     ;BR IF YES
011674  000764                  BR      15$                     ;DO NEXT BYTE
011676  005705          50$:    TST     R5                      ;ANY ERRORS SEEN?
011700  001402                  BEQ     55$                     ;BR IF NO
011702  000241                  CLC                             ;SET FAILURE
011704  000401                  BR      60$                     ;
011706  000261          55$:    SEC                             ;SET SUCCESS
011710  000207          60$:    RTS     PC                      ;RETURN
```

```
                                                DEBUGMSG: .ASCIZ 'PROGRAM INTERNAL ERROR -CKMSG2 MESSAGE BUFFER EXCEEDED-';@@D
                                                FERCM:  .ASCII  /%N%A  ***/
                                                ERCM:   .ASCIZ  /  TSSR ERROR CODE REC'D = /
                                                SIMSG:  .ASCIZ  /.... AFTER DOING SOFT INIT/
                                                TINERR: .ASCIZ  /TEST: .../
                                                        .EVEN
                                                ;+
                                                ;
                                                ;PRINT ROUTINE TO FATAL SOFT INIT ERRORS
                                                ;
                                                ;INPUT:
                                                ;
                                                ;       R1      CONTENTS OF TSSR AT ERROR
                                                ;
                                                ;SIDE EFFECTS:
                                                ;
                                                ;       EXECUTES DROP UNIT TO CEASE TESTING
                                                ;
                                                ;-

012114                                                  BGNMSG  SFIMSG
012114                                          SFIMSG::
012114  004737  006020                                  JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
012120  004737  017262                                  JSR     PC,CKDROP       ;DROP UNIT, IF ALLOWED
012124                                                  ENDMSG
012124                                          L10003:
012124  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
                                                ;
                                                ;-

012126                                                  BGNMSG  PKTSSR
012126                                          PKTSSR::
012126  004737  006020                                  JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012132  012700  000004                                  MOV     #4,R0           ;NO. OF WORDS IN PACKET
012136  004737  007446                                  JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
012142                                                  ENDMSG
012142                                          L10004:
012142  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
012144                          PKTGETS::
012144  004737  006020                  JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012150  012700  000002                  MOV     #2,R0           ;NO. OF WORDS IN GET STATUS PACKET
012154  004737  007446                  JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
012160                                  ENDMSG
012160                          L10005:
012160  104423                          TRAP    C$MSG
                                ;+
                                ;PRINT TSSR ERRORS FOR INITIALIZATION TESTS
                                ;
                                ;INPUTS:
                                ;       R1      TSSR CONTENTS
                                ;       R4      ADDRESS OF COMMAND PACKET
                                ;-
                                        BGNMSG  SFFMSG
012162                          SFFMSG::
012162  004737  006020                  JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
012166                                  ENDMSG
012166                          L10006:
012166  104423                          TRAP    C$MSG
                                        .SBTTL  PKTMES  - PRINT TSSR AND MESSAGE BUFFER
                                ;+
                                ;PRINT ROUTINE TO PRINT THE CONTENTS OF TSSR AND MESSAGE
                                ;BUFFER FOR ERROR REPORTS
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      CONTENTS OF TSSR
                                ;       R2      LOW ORDER MESSAGE BUFFER
                                ;       R3      HIGH ORDER MESSAGE BUFFER ADDRESS
                                ;       NOTE: R3 IS IGNORED IF KTENABLE FLAG IS CLEAR
                                ;-
                                        BGNMSG  PKTMES
012170                          PKTMES::
012170  004737  006020                  JSR     PC,PRITSSR              ;PRINT CONTENTS OF TSSR
012174  010200                          MOV     R2,R0                   ;LOW ORDER ADDRESS
012176  010301                          MOV     R3,R1                   ;HIGH ORDER ADDRESS
012200  004737  014322                  JSR     PC,PRMESS               ;PRINT THE MESSAGE BUFFER
012204                                  ENDMSG
012204                          L10007:
012204  104423                          TRAP    C$MSG
```

```
                                        .SBTTL  ADDSSR  - PRINT TEST ADDRESS AND TSSR
                                ;+
                                ;PRINT ROUTINE TO PRINT THE CONTENTS OF
                                ;TSSR AND A MEMORY TEST ADDRESS
                                ;
                                ;INPUTS:
                                ;
                                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                                ;       ERRHI   HIGH ORDER MEMORY TEST ADDRESS
                                ;       ERRLO   LOW ORDER MEMORY TEST ADDRESS
                                ;-
                                        BGNMSG  ADDSSR
012206                          ADDSSR::
012206  004737  010352                  JSR     PC,PRITADD      ;PRINT MEMORY TEST ADDRESS
012212  016501  000002                  MOV     TSSR(R5),R1     ;GET CURRENT TSSR
012216  004737  006020                  JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012222                                  ENDMSG
012222                          L10010:
012222  104423                          TRAP    C$MSG
                                        .SBTTL  MSGEXP - PRINT WRITE CHAR. EXPD-RECV MESSAGE BUFFERS
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT WRITE CHARACTERISTIC MESSAGE BUFFER
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;-
                                        BGNMSG  MSGEXP
012224                          MSGEXP::
012224  012700  000007                  MOV     #7,R0           ;ASSUME NO EXT FEATURES
012230  005737  002220                  TST     EXTFEA          ;EXT FEATURES SET?
012234  001402                          BEQ     5$              ;BR IF NO
012236  012700  000010                  MOV     #8.,R0          ;EXT FEATURE BUFFER IS 8 WORDS
012242  004737  014632          5$:     JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
012246                                  ENDMSG
012246                          L10011:
012246  104423                          TRAP    C$MSG
```

```
                        .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
012250          FIFEXP::
                        PRINTX  #FIF1MSG,R1     ;PRINT BYTES TRANSFERRED
012250  010146          MOV     R1,-(SP)
012252  012746  012322  MOV     #FIF1MSG,-(SP)
012256  012746  000002  MOV     #2,-(SP)
012262  010600          MOV     SP,R0
012264  104415          TRAP    C$PNTX
012266  062706  000006  ADD     #6,SP
                        PRINTX  #FIF2MSG        ;PRINT HEADER MSG
012272  012746  012371  MOV     #FIF2MSG,-(SP)
012276  012746  000001  MOV     #1,-(SP)
012302  010600          MOV     SP,R0
012304  104415          TRAP    C$PNTX
012306  062706  000004  ADD     #4,SP
012312  010100          MOV     R1,R0           ;GET BYTE COUNT
012314  004737  015202  JSR     PC,PRBYTEXP     ;PRINT FIFO BYTES IN ERROR
                        ENDMSG
012320          L10012:
012320  104423          TRAP    C$MSG
012322  045  116  045  FIF1MSG: .ASCIZ  '%N%A NUMBER OF BYTES TRANSFERRED = %D2'
012371  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
                                ;-
012430                                  BGNMSG  MSGSTAT
012430                          MSGSTAT::
012430  012701  012472                    MOV     #STATCOD,R1     ;ASCII ADDRESS TABLE
012434  012100                  10$:      MOV     (R1)+,R0        ;DONE ALL MSG LINES?
012436  001410                            BEQ     20$             ;BR IF YES
012440                                    PRINTX  R0              ;PRINT STATUS BIT NAMES
012440  010046                            MOV     R0,-(SP)
012442  012746  000001                    MOV     #1,-(SP)
012446  010600                            MOV     SP,R0
012450  104415                            TRAP    C$PNTX
012452  062706  000004                    ADD     #4,SP
012456  000766                            BR      10$             ;DO ANOTHER MSG LINE
012460  012700  000012          20$:      MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
012464  004737  014632                    JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
012470                                    ENDMSG
012470                          L10013:
012470  104423                            TRAP    C$MSG
                                ;
012472  012510  012552  012643  STATCOD:         .WORD   1$,2$,3$,4$,5$,6$,0
012510    045     116     045   1$:.ASCIZ  '<NL><NL>A Tape Bus Signals in Word #8:'
012552    045     116     045   2$:.ASCIZ  '<NL><NL>A        PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>'
012643    045     116     045   3$:.ASCIZ  '<NL><NL>A        IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>'
012734    045     116     045   4$:.ASCIZ  '<NL><NL>A        IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>'
013025    045     116     045   5$:.ASCIZ  '<NL><NL>A Tape Bus Signals in Word #9:'
013067    045     116     045   6$:.ASCIZ  '<NL><NL>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
                                ;-
013144                                  BGNMSG  MSGLOOP
013144                          MSGLOOP::
013144  012701  013206                  MOV     #LOOPCOD,R1     ;ASCII ADDRESS TABLE
013150  012100                  10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
013152  001410                          BEQ     20$             ;BR IF YES
013154                                  PRINTX  R0              ;PRINT STATUS BIT NAMES
013154  010046                          MOV     R0,-(SP)
013156  012746  000001                  MOV     #1,-(SP)
013162  010600                          MOV     SP,R0
013164  104415                          TRAP    C$PNTX
013166  062706  000004                  ADD     #4,SP
013172  000766                          BR      10$             ;DO ANOTHER MSG LINE
013174  012700  000012          20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
013200  004737  014632                  JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
013204                                  ENDMSG
013204                          L10014:
013204  104423                          TRAP    C$MSG

013206  013226  013301  013400  LOOPCOD:        .WORD   1$,2$,3$,4$,5$,6$,7$,0
013226    045     116     045   1$:.ASCIZ  '<N><A Tape Bus Loopback Signals in Word #8:'
013301    045     116     045   2$:.ASCIZ  '<N><A       PARERR<15>          IRESV2<14>          IRESV1<13>'
013400    045     116     045   3$:.ASCIZ  '<N><A IHISP=>IEOT<12>    IWRT=>IIDENT<11>    IREV  =>ICER  <10>'
013477    045     116     045   4$:.ASCIZ  '<N><A IWFM =>IFMK<09>    IEDIT=>IHER <08>    IFAD  =>ISPEED<07>'
013576    045     116     045   5$:.ASCIZ  '<N><A ITADO=>IRDY<06>    ITAD1=>IONL <05>    IERASE=>ILDP  <04>'
013675    045     116     045   6$:.ASCIZ  '<N><A IREW =>IDBY<03>    IRWU =>IRWD <02>    IFEN  =>IFBY  <01>'
013774    045     116     045   7$:.ASCIZ  '<N><A IGO  =>IFPT<00>'
                                        .EVEN
```

```
                                        .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
                                ;-
014022                                  BGNMSG  MSGSUB
014022                          MSGSUB::
014022  012700  000012                    MOV     #10.,R0         ;SIZE OF WRITE SUBSYSTEM BUFFER
014026  004737  014632                    JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
014032                                  ENDMSG
014032                          L10015:
014032  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
                                ;-
014034                                  BGNMSG  MEMADD
014034                          MEMADD::
014034  004737  010236                    JSR     PC,PRIADD       ;PRINT MEMORY ADDRESS IN ERROR
014040  013701  002224                    MOV     EXPD,R1         ;GET EXPD DATA
014044  013702  002226                    MOV     RECV,R2         ;GET RECEIVED DATA
014050  004737  010020                    JSR     PC,PRIXOR       ;PRINT EXPD/RECV
014054                                  ENDMSG
014054                          L10016:
014054  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
                                ;-
014056                          PRAMPKT:
014056                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
014062  012701  002234                  MOV     @RAMDATA,R1             ;DATA FROM THE RAM
014066  005002                          CLR     R2                      ;INIT BYTE NUMBER
014070  122124                  5$:     CMPB    (R1)+,(R4)+             ;COMPARE EXPECTED, RECEIVED
014072  001005                          BNE     7$                      ;BR IF NO MATCH
014074                                  FORCERROR       7$,NOTSSR
014104  000436                          BR      10$                     ;BRD
014106  116105  177777          7$:     MOVB    -1(R1),R5               ;GET RECV RAM DATA
014112  116403  177777                  MOVB    -1(R4),R3               ;GET EXPD PACKET DATA
014116                                  XOR     R5,R3                   ;XOR EXPD/RECV
014126  042703  177400                  BIC     #177400,R3              ;LOW BYTE ONLY
014132  116137  177777  002226          MOVB    -1(R1),RECV             ;GET RECEIVED RAM DATA
014140  116437  177777  002224          MOVB    -1(R4),EXPD             ;GET EXPECTED RAM DATA
014146                                  PRINTB  @RAMASC,R2,RECV,EXPD,R3
014146  010346                          MOV     R3,-(SP)
014150  013746  002224                  MOV     EXPD,-(SP)
014154  013746  002226                  MOV     RECV,-(SP)
014160  010246                          MOV     R2,-(SP)
014162  012746  014236                  MOV     @RAMASC,-(SP)
014166  012746  000005                  MOV     #5,-(SP)
014172  010600                          MOV     SP,R0
014174  104414                          TRAP    C$PRNTB
014176  062706  000014                  ADD     #14,SP
014202  005202                  10$:    INC     R2                      ;UPDATE BYTE COUNT
014204  005737  002274                  TST     RAMSIZ                  ;DEFAULT TO 8.?
014210  001404                          BEQ     15$                     ;BR IF YES
014212  020237  002274                  CMP     R2,RAMSIZ               ;DONE ALL BYTES?
014216  003724                          BLE     5$                      ;BR IF NO
014220  000403                          BR      25$                     ;
014222  020227  000010          15$:    CMP     R2,#8.                  ;DONE DEFAULT NUMBER OF BYTES?
014226  002720                  20$:    BLT     5$                      ;BR IF NO
014230  005037  002274          25$:    CLR     RAMSIZ                  ;SET DEFAULT RAMSIZ
014234  000207                          RTS     PC                      ;RETURN

014236      045     116     045 RAMASC: .ASCIZ  '%N%A  BYTE: %D2%A RAM: %03%A Packet: %03%A XOR:%03'
                                        .EVEN
```

```
                                        .SBTTL  PRMESS  - PRINT CONTENTS OF MESSAGE BUFFER
                                ;+
                                ;THIS ROUTINE PRINTS THE CONTENTS OF
                                ;THE 7 OR 8 WORD MESSAGE BUFFER RETURNED BY THE TSV-05.
                                ;
                                ;INPUT:
                                ;       R0      LOW ORDER ADDRESS OF MESSAGE BUFFER
                                ;       R1      HIGH ORDER ADDRESS OF MESSAGE BUFFER
                                ;       NOTE: R1 IS IGNORED IF KTENABLE FLAG IS CLEAR
                                ;THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                                ;-
014322                          PRMESS: SAVREG                  ;SAVE THE REGISTERS
014326  010005                          MOV     R0,R5           ;SAVE LOW ORDER ADDRESS
014330  005737  003126                  TST     KTENABLE        ;ADDRESS ABOVE 28K?
014334  001001                          BNE     10$             ;BR IF YES
014336  005001                          CLR     R1              ;SET HIGH ORDER ADDRESS TO 0
014340  010103                  10$:    MOV     R1,R3           ;SAVE HIGH ORDER ADDRESS
014342  006100                          ROL     R0              ;SHIFT BIT15 TO C BIT
014344  006101                          ROL     R1              ;SHIFT TO HIGH ORDER FOR PRINTOUT
014346                                  PRINTX  #PROASC,R1,R5   ;PRINT MESSAGE BUFFER ADDRESS
014346  010546                          MOV     R5,-(SP)
014350  010146                          MOV     R1,-(SP)
014352  012746  014500                  MOV     #PROASC,-(SP)
014356  012746  000003                  MOV     #3,-(SP)
014362  010600                          MOV     SP,R0
014364  104415                          TRAP    C$PNTX
014366  062706  000010                  ADD     #10,SP
014372                                  PRINTX  #PR1ASC         ;PRINT HEADER FOR CONTENTS
014372  012746  014545                  MOV     #PR1ASC,-(SP)
014376  012746  000001                  MOV     #1,-(SP)
014402  010600                          MOV     SP,R0
014404  104415                          TRAP    C$PNTX
014406  062706  000004                  ADD     #4,SP
014412  005004                          CLR     R4              ;NUMBER OF THE NEXT WORD
014414  010501                          MOV     R5,R1           ;COPY LOW ORDER ADDRESS
014416  010300                          MOV     R3,R0           ;COPY HIGH ORDER ADDRESS
014420  001403                          BEQ     20$             ;BR IF NOT ABOVE 28K
014422  004737  017376                  JSR     PC,SETMAP       ;SETUP PAR ADDRESS IN R0
014426  010005                          MOV     R0,R5           ;GET PAR FORMAT ADDRESS ABOVE 28K
014430                          20$:    PRINTX  #PRASC,R4,(R5)+ ;PRINT THE CONTENTS OF MEMORY BUFFER
014430  012546                          MOV     (R5)+,-(SP)
014432  010446                          MOV     R4,-(SP)
014434  012746  014603                  MOV     #PRASC,-(SP)
014440  012746  000003                  MOV     #3,-(SP)
014444  010600                          MOV     SP,R0
014446  104415                          TRAP    C$PNTX
014450  062706  000010                  ADD     #10,SP
014454  005204                          INC     R4              ;NUMBER OF THE NEXT
014456  020427  000007                  CMP     R4,#7           ;DONE ALL YET ?
014462  003005                          BGT     50$             ;BRANCH IF ALL DONE
014464  002761                          BLT     20$             ;PRINT FIRST 7 WORDS
014466  032763  000200  000012          BIT     #X2.EXTF,XST2(R3);EXTENDED FEATUTES ON ?
014474  001355                          BNE     20$             ;PRINT EXTENDED STATUS WORD
014476  000207                  50$:    RTS     PC              ;RETURN
014500     045     116     045  PROASC: .ASCIZ  '<N><A Message Buffer Address = <01><05>'
014545     045     116     045  PR1ASC: .ASCIZ  '<N><A Message Buffer Contents:'
014603     045     116     045  PRASC:  .ASCIZ  '<N><A    Word<D1><A: <0>'
```

```
                                        .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
                                ;-
014632                          PRMSGEXP::
014632                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
014636  010005                          MOV     R0,R5                   ;SAVE NUMBER OF WORDS
014640  013700  002300                  MOV     RCVLOADD,R0             ;GET RECV LOW ADDRESS
014644  010004                          MOV     R0,R4                   ;COPY LOW ADDRESS
014646  013701  002276                  MOV     RCVHIADD,R1             ;GET RECV HIGH ADDRESS
014652  006100                          ROL     R0                      ;SHIFT BIT15 TO C BIT
014654  006101                          ROL     R1                      ;SHIFT TO HIGH ORDER FOR PRINTOUT
014656                                  PRINTX  #PRMSG0,R1,R4           ;PRINT MESSAGE BUFFER ADDRESS
014656  010446                          MOV     R4,-(SP)
014660  010146                          MOV     R1,-(SP)
014662  012746  015012                  MOV     #PRMSG0,-(SP)
014666  012746  000003                  MOV     #3,-(SP)
014672  010600                          MOV     SP,R0
014674  104415                          TRAP    C$PNTX
014676  062706  000010                  ADD     #10,SP
014702                                  PRINTX  #PRMSG1                 ;PRINT HEADER FOR CONTENTS
014702  012746  015057                  MOV     #PRMSG1,-(SP)
014706  012746  000001                  MOV     #1,-(SP)
014712  010600                          MOV     SP,R0
014714  104415                          TRAP    C$PNTX
014716  062706  000004                  ADD     #4,SP
015000  005004                          CLR     R4                      ;NUMBER OF THE CURRENT WORD
015002  012701  002314                  MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
015006  012702  002460                  MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
015012  011100                  20$:    MOV     (R1),R0                 ;GET EXPD
015014  011203                          MOV     (R2),R3                 ;GET RECV
015016                                  XOR     R0,R3                   ;XOR EXPD/RECV
015020                                  PRINTX  #PRMSG2,R4,(R1)+,(R2)+,R3
015020  010346                          MOV     R3,-(SP)
015022  012246                          MOV     (R2)+,-(SP)
015024  012146                          MOV     (R1)+,-(SP)
015026  010446                          MOV     R4,-(SP)
015030  012746  015115                  MOV     #PRMSG2,-(SP)
015034  012746  000005                  MOV     #5,-(SP)
015040  010600                          MOV     SP,R0
015042  104415                          TRAP    C$PNTX
015044  062706  000014                  ADD     #14,SP
015050  005204                          INC     R4                      ;NUMBER OF THE NEXT
015052  020405                          CMP     R4,R5                   ;DONE ALL YET?
015054  002001                          BGE     50$                     ;BR IF YES
015056  000752                          BR      20$                     ;DO ANOTHER
015060  000207                  50$:    RTS     PC                      ;RETURN
015062     045     116     045  PRMSG0: .ASCIZ  '%N%A Message Buffer Address = %01%05'
015107     045     116     045  PRMSG1: .ASCIZ  '%N%A Message Buffer Contents:'
015165     045     116     045  PRMSG2: .ASCIZ  '%N%A   WORD #%D2%A  EXPD: %06%A  RECV: %06%A  XOR: %06'
```

```
                                        .EVEN
                                        .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
                                ;-
015202                          PRBYTEXP::
015202                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
015206  010005                          MOV     R0,R5                   ;SAVE NUMBER OF BYTES
015210  005037  002312                  CLR     PRMNO                   ;INIT ERROR COUNT
015214  005004                          CLR     R4                      ;NUMBER OF THE CURRENT BYTE
015216  012701  002314                  MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
015222  012702  002460                  MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
015226  111100                  20$:    MOVB    (R1),R0                 ;GET EXPD BYTE
015230  042700  177400                  BIC     #^C<377>,R0             ;CLEAR UPPER BYTE
015234  110037  015550                  MOVB    R0,PRBEXP               ;SAVE FOR ERROR REPORT
015240  111203                          MOVB    (R2),R3                 ;GET RECV BYTE
015242  042703  177400                  BIC     #^C<377>,R3             ;CLEAR UPPER BYTE
015246  110337  015552                  MOVB    R3,PRBREC               ;FOR ERROR REPORT
015252                                  XOR     R0,R3                   ;XOR EXPD/RECV
015262  122122                          CMPB    (R1)+,(R2)+             ;EXPD = RECV?
015264  001431                          BEQ     30$                     ;BR IF YES
015266  005237  002312                  INC     PRMNO                   ;UPDATE ERROR COUNT
015272  023727  002312  000010          CMP     PRMNO,#8.               ;PRINTED 8?
015300  101023                          BHI     30$                     ;BR IF YES
015302                          27$:    PRINTX  #PRBMSG,R4,PRBEXP,PRBREC,R3
015302  010346                          MOV     R3,-(SP)
015304  013746  015552                  MOV     PRBREC,-(SP)
015310  013746  015550                  MOV     PRBEXP,-(SP)
015314  010446                          MOV     R4,-(SP)
015316  012746  015416                  MOV     #PRBMSG,-(SP)
015322  012746  000005                  MOV     #5,-(SP)
015326  010600                          MOV     SP,R0
015330  104415                          TRAP    C$PNTX
015332  062706  000014                  ADD     #14,SP
015336                                  FORCEXIT        50$             ;BSD
015346  000404                          BR      35$                     ;BSD
015350                          30$:
015350                                  FORCERROR  27$,NOTSSR           ;BSD
015360                          35$:                                    ;BSD
015360  005204                          INC     R4                      ;NUMBER OF THE NEXT
015362  020405                          CMP     R4,R5                   ;DONE ALL YET?
015364  002001                          BGE     50$                     ;BR IF YES
015366  000717                          BR      20$                     ;DO ANOTHER
015370                          50$:    PRINTX  #PRBTOT,PRMNO           ;PRINT TOTAL ERROR COUNT
015370  013746  002312                  MOV     PRMNO,-(SP)
015374  012746  015503                  MOV     #PRBTOT,-(SP)
015400  012746  000002                  MOV     #2,-(SP)
015404  010600                          MOV     SP,R0
```

```
                015406  104415                          TRAP    C$PNTX
                015410  062706  000006                  ADD     #6,SP
     1783       015414  000207                          RTS     PC              ;RETURN
     1784
     1785       015416      045     116     045  PRBMSG: .ASCIZ  '%N%A   BYTE #%D2%A  EXPD: %03%A  RECV: %03%A  XOR: %03'
     1786       015503      045     116     045  PRBTOT: .ASCIZ  '%N%A NUMBER OF BYTES IN ERROR = %D2'
     1787                                               .EVEN
     1788       015550  000000                  PRBEXP: .WORD   0               ;EXPD
     1789       015552  000000                  PRBREC: .WORD   0               ;RECV
     1790                                               .SBTTL  EXPREC  - PRINT EXPD/RECV WORD DATA
     1791                                       ;+
     1792                                       ;
     1793                                       ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
     1794                                       ;
     1795                                       ;INPUTS:
     1796                                       ;
     1797                                       ;       R1      RECEIVED DATA
     1798                                       ;       R2      EXPECTED DATA
     1799                                       ;
     1800                                       ;-
     1801
     1802       015554                                  BGNMSG  EXPREC
                015554                          EXPREC::
     1803       015554  004737  010020                  JSR     PC,PRIXOR               ;PRINT THE DATA
     1804       015560                                  ENDMSG
                015560                          L10017:
                015560  104423                          TRAP    C$MSG
     1805                                               .SBTTL  EXPBREC - PRINT EXPD/RECV BYTE DATA
     1806                                       ;+
     1807                                       ;
     1808                                       ;PRINT ROUTINE TO DISPLAY BYTE EXPD/RECV DATA
     1809                                       ;
     1810                                       ;
     1811                                       ;INPUTS:
     1812                                       ;
     1813                                       ;       R1      RECEIVED DATA BYTE
     1814                                       ;       R2      EXPECTED DATA BYTE
     1815                                       ;
     1816                                       ;-
     1817
     1818       015562                                  BGNMSG  EXPBREC
                015562                          EXPBREC::
     1819       015562  004737  007670                  JSR     PC,PRIBXOR              ;PRINT THE DATA
     1820       015566                                  ENDMSG
                015566                          L10020:
                015566  104423                          TRAP    C$MSG
     1821
     1822
     1823                                               .SBTTL  RAMERR  - PRINT RAM AND PACKET DATA
     1824                                       ;+
     1825                                       ;
     1826                                       ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
     1827                                       ;
     1828                                       ;INPUTS:
     1829                                       ;
     1830                                       ;       R4      POINTER TO COMMAND PACKET
     1831                                       ;
```

```
                                ;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
015570                          RAMERR::
015570
015570  004737  014056                  JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
015574                                  ENDMSG
015574                          L10021:
015574  104423                          TRAP    C$MSG
                                        .SBTTL  RAMTADD - PRINT TEST ADDRESS, RAM AND PACKET DATA
                                ;*
                                ;
                                ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                                ;
                                ;INPUTS:
                                ;
                                ;       R4      POINTER TO COMMAND PACKET
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       RAMDATA         DATA AS READ FROM THE RAM
                                ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                                ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                                ;       ERRHI           HIGH ORDER TEST ADDRESS
                                ;       ERRLO           LOW ORDER TEST ADDRESS
                                ;
                                ;IMPLICIT OUTPUTS:
                                ;
                                ;       RAMSIZ  SET TO 0
                                ;-
                                        BGNMSG  RAMTADD
015576                          RAMTADD::
015576
015576  004737  010352                  JSR     PC,PRITADD      ;PRINT TEST ADDRESS
015602  004737  014056                  JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
015606                                  ENDMSG
015606                          L10022:
015606  104423                          TRAP    C$MSG
                                        .SBTTL  RAMEXP  - PRINT RAM EXPD/RECV DATA
                                ;*
                                ;
                                ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
```

```
                                ;       R4      CONTROLLER RAM ADDRESS
                                ;-
                                
                                        BGNMSG  RAMEXP
                                RAMEXP::
015610  042701  177400                  BIC     #^C<377>,R1             ;SAVE EXPD RAM DATA BYTE
015614  042702  177400                  BIC     #^C<377>,R2             ;SAVE EXPD RAM DATA BYTE
015620  004737  010144                  JSR     PC,PRIRAM               ;PRINT THE RAM ADDRESS
015624  004737  010020                  JSR     PC,PRIXOR               ;PRINT THE DATA
                                        ENDMSG
                                L10023:
015630  104423                          TRAP    C$MSG
                                
                                        .SBTTL  TIMEXP  - PRINT TIMER A,B AND EXP/REC
                                ;+
                                ;
                                ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                                ;AND TIMER A,B HEADER MESSAGE
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
                                ;-
                                
                                        BGNMSG  TIMEXP
                                TIMEXP::
                                        PRINTX  #TIMSG0                 ;PRINT HEADER
015632  012746  015660                  MOV     #TIMSG0,-(SP)
015636  012746  000001                  MOV     #1,-(SP)
015642  010600                          MOV     SP,R0
015644  104415                          TRAP    C$PNTX
015646  062706  000004                  ADD     #4,SP
015652  004737  010020                  JSR     PC,PRIXOR               ;PRINT THE DATA
                                        ENDMSG
                                L10024:
015656  104423                          TRAP    C$MSG
                                
015660  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::
015760  010246                          MOV     R2,-(SP)                ;SAVE DATA TRANSFERRED
015762  042702  177400                  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
                                XFERASC:        .ASCIZ  '<N><A Data Transferred = <03>'
```

GLOBAL SUBROUTINES SECTION

```
                                .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
016060  012765  000000  000002          MOV     #0,TSSR(R5)             ; DO THE INIT.
016066  004737  016330                  JSR     PC,WAITF                ; WAIT FOR SSR
016072  016500  000002                  MOV     TSSR(R5),R0             ;GET THE TSSR REGISTER
016076  010004                          MOV     R0,R4                   ;TSSR CONTENTS
016100  042704  176277                  BIC     #^C<HIADDR!OFL>,R4
016104  052704  002200                  BIS     #SSR!NBA,R4             ;R4 HAS EXPECTED CONTENTS
016110  020400                          CMP     R4,R0                   ;ONLY EXPECTED BITS SET ?
016112  001402                          BEQ     5$                      ;BRANCH IF OKAY
016114  000241                          CLC                             ;CLEAR THE CARRY FOR ERROR
016116  000401                          BR      10$                     ;GO TO EXIT
016120  000261                  5$:     SEC                             ;SET THE CARRY BIT
016122  000207                  10$:    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
                                ;
                                ;-

016124                          CHKAMB:
016124                                  SAVREG                          ;SAVE THE GENERAL REGISTERS
016130  010004                          MOV     R0,R4                   ;CONTENTS OF TSSR
016132  032700  100000                  BIT     #SC,R0                  ;IS BIT 15 SET ?
016136  001004                          BNE     5$                      ;BRANCH IF YES
016140  032700  174077                  BIT     #^C<NBA!OFL!SSR!HIADDR>,R0      ;ANY OTHER BITS SET ?
016144  001023                          BNE     40$                     ;MUST BE AN ERROR
016146  000424                          BR      45$                     ;RETURN WITH SUCCESS
016150  032700  000200          5$:     BIT     #SSR,R0                 ;IS READY BIT SET ?
016154  001011                          BNE     10$                     ;BRANCH IF READY BIT IS SET.
016156  032700  000040                  BIT     #BIT5,R0                ;IS FATAL ERROR BIT SET ?
016162  001414                          BEQ     40$                     ;ERROR IF NOT
016164  042704  177761                  BIC     #^CTERCLS,R4            ;CLEAR ALL BUT TERMINATION CODE
016170  020427  000016                  CMP     R4,#16                  ;ALL THREE BITS MUST BE SET
016174  001007                          BNE     40$                     ;ERROR IF NOT SET
016176  000410                          BR      45$                     ;OK IF ALL ARE SET
016200  032700  000040          10$:    BIT     #BIT5,R0                ;IS FATAL ERROR BIT SET ?
016204  001405                          BEQ     45$                     ;ERROR IF BIT IS SET WITH SSR
016206  032700  000006                  BIT     #BIT2!BIT1,R0           ;IS THIS A FUNCTION REJECT
016212  001002                          BNE     45$                     ;BR, IF TSSR IS OK
016214  000241                  40$:    CLC                             ;AMBIGUOUS CONTENTS
016216  000401                          BR      50$
016220  000261                  45$:    SEC                             ;SHOW SUCCESS - NO AMBIGUITY
016222  000207                  50$:    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
016224   000                   INTMASK:        .BYTE   0
                                ;INTERRUPT FLAG -- SAYS WE GOT ONE (IF POSITIVE)
016225   000                   INTFLAG:        .BYTE   0

                                ;SAVED INTERRUPT VECTOR:
016226  000000                  INTVEC: .WORD   0
                                ;SAVE CPU PC
016230  000000                  INTCPC: .WORD   0

                                ;SUBROUTINE TO ENABLE INTERRUPTS:
016232  010046                  ENAINT: MOV     R0,-(SP)        ;SAVE R0
016234  013700  002202                  MOV     IVEC,R0         ;GET POINTER TO VECTORS
016240  012720  016276                  MOV     #INTR,(R0)+     ;SET UP INTERRUPT VECTOR
016244  012720  000340                  MOV     #PRI07,(R0)+
016250  012600                          MOV     (SP)+,R0        ;RESTORE R0
016252  011646                          MOV     (SP),-(SP)
016254  012766  000000  000002          MOV     #0,2(SP)        ;SET CPU TO LEVEL 0
016262  000002                          RTI

                                ;SUBROUTINE TO DISABLE INTERRUPTS (RAISE PRIORITY TO LEVEL 7)
016264  011646                  DSBINT: MOV     (SP),-(SP)
016266  012766  000340  000002          MOV     #PRI07,2(SP)
016274  000002                          RTI
                                        .SBTTL  INTR    - INTERRUPT HANDLERS

                                        BGNSRV  INTR            ;DEFINE INTERRUPT ENTRY
016276
016276                          INTR::
016276  012737  000001  002216          MOV     #1,INTRECV      ;SET FLAG TO SHOW INTERRUPT RECEIVED
016304  105037  016225                  CLRB    INTFLAG         ;CLEAR FLAG TO SAY WE GOT INTERRUPT
016310  132737  000001  016224          BITB    #IOKSTP,INTMASK ;EXPECTING STOP INTERRUPT?
016316  001003                          BNE     1$              ;BR IF YES
016320  152737  000001  016225          BISB    #IOKSTP,INTFLAG ;NO. SET THE ERROR FLAG.

                                ;SAVE REGISTERS, MSG BUFFER, ETC.
016326                          1$:
016326                                  ENDSRV
016326                          L10026:
016326  000002                          RTI
```

```
                                        .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
                                ;
016330  000401                  WAITF:: BR      1$              ;NOP WHEN SUPER FIXED
016332                                  BREAK                   ; DO A SUPVSR BREAK FIRST.
016332  104422                          TRAP    C$BRK
016334  012746  011000          1$:     MOV     #11000,-(SP)    ;25-APRIL-83 REV B  - 1100 MSEC TIMER
016340  016500  000002          2$:     MOV     TSSR(R5),R0     ;READ THE TSSR REGISTER
016344  105700                          TSTB    R0              ;TEST FOR READY BIT SET
                                ;
016346  100420                          BMI     3$              ; EXIT ON STOP FLAG.
016350                                  DELAY   1               ; WAIT 100 USEC
016350  012727  000001                  MOV     #1,(PC)+
016354  000000                          .WORD   0
016356  013727  002116                  MOV     L$DLY,(PC)+
016362  000000                          .WORD   0
016364  005367  177772                  DEC     -6(PC)
016370  001375                          BNE     .-4
016372  005367  177756                  DEC     -22(PC)
016376  001367                          BNE     .-20
016400  005316                          DEC     (SP)            ;REDUCE DELAY COUNT
016402  001356                          BNE     2$              ;RETRY UNTIL TIMER EXPIRES
016404  000241                          CLC                     ; C = 0, CONTROLLER STILL RUNNING...
016406  000401                          BR      4$              ;...OR HUNG-UP AFTER 300 MSEC.
016410  000261                  3$:     SEC                     ; C = 1, CONTROLLER IS STOPPED.
016412  005326                  4$:     DEC     (SP)+           ;RESTORE STACK WITHOUT CHANGING CARRY BIT
016414  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
                                        ;-
016416                                  CHKTSSR:
016416  004737  016330                          JSR     PC,WAITF                ;WAIT FOR READY
016422  103014                                  BCC     20$                     ;BRANCH IF TIME OUT
016424  004737  016124                          JSR     PC,CHKAMB               ;TSSR AMBIGOUS?
016430  103006                                  BCC     10$                     ;BR IF YES
016432  032700  100000                          BIT     #SC,R0                  ;SPECIAL CONDITION SET?
016436  001405                                  BEQ     15$                     ;BR IF NO
016440  032700  074000                          BIT     #<SCE!BIE!RMR!NXM>,R0   ;ANY ERROR BITS SET?
016444  001402                                  BEQ     15$                     ;BR IF NO
016446  000241                          10$:    CLC                             ;SET FAILURE
016450  000401                                  BR      20$                     ;
016452  000261                          15$:    SEC                             ;SET SUCCESS
016454  000207                          20$:    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.
016456  012737  016510  000004  XNXM:   MOV     #2$,@#4         ; SET BUSERR VECTOR.
016464  012737  000200  000006          MOV     #PRI04,@#6
016472  005003                          CLR     R3                      ;FLAG.
016474  005711                  1$:     TST     (R1)                    ;TEST THE ADDRESS(ES).
                                                                        ;IF ANY TRAP, CONTINUE AT 2$.
016476  020102                          CMP     R1,R2                   ;OTHERWISE, CONTINUE HERE.
016500  001407                          BEQ     3$                      ;BR IF FINISHED (NO NEXM'S).
016502  062701  000002                  ADD     #2,R1                   ;SET NEXT ADDRESS...
016506  000772                          BR      1$                      ;...AND CONTINUE.
016510  005103                  2$:     COM     R3                      ;GOT ONE, SET FLAG...
016512  012716  016520                  MOV     #3$,(SP)
016516  000002                          RTI                             ;...AND DISMISS INTERRUPT...
016520                          3$:     CLRVEC  #4                      ;...AND GIVE BACK THE VECTOR.
        016520  012700  000004          MOV     #4,R0
        016524  104436                  TRAP    C$CVEC
016526  005703                          TST     R3                      ;DID WE CATCH ONE ??
016530  001401                          BEQ     .+4                     ;NO, "C" = 0, SKIP NEXT.
016532  000261                          SEC                             ;YES, "C" = 1, (R1) = NEXM ADDR.
016534  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
                                ;
016536                          TSTLOOP::
016536  005737  002162                  TST     NOITS           ; ITERATIONS INHIBITED?
016542  001006                          BNE     1$              ; YES.
016544  005737  002176                  TST     QVP             ; NO.
016550  100403                          BMI     1$              ;LOOPS DISALLOWED IN QUICK PASS.
016552  005337  002210                  DEC     LOOPCNT         ; BUMP LOOP COUNTER.
016556  001002                          BNE     2$
016560  000241                  1$:     CLC                     ;LOOP DISALLOWED, OR DONE.
016562  000401                          BR      3$
016564  000261                  2$:     SEC                     ;LOOP ENABLED.
016566  000207                  3$:     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
                                ;
                                ;-
016570                          TSTSETUP::
016570  010046                          MOV     R0,-(SP)        ;SAVE THE TEST ID MESSAGE
016572  005037  003146                  CLR     SIFLAG          ; CLEAR "SOFT INIT" FLAG
016576  005037  017036                  CLR     ERRK            ; CLEAR LOCAL ERROR COUNTER.
016602  005037  005766                  CLR     EXTA            ; CLEAR ERROR EXTENSION FLAG.
016606  105037  016224                  CLRB    INTMASK         ; CLEAR INTERRUPT MASK (CHECK ERROR)
016612  013700  002174                  MOV     UNITN,R0        ; GET THE UNIT NUMBER,
016616  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET.
016620  005737  003106                  TST     NODEV           ; DID STARTUP FIND THE DEVICE?
016624  001430                          BEQ     4$              ; BR IF YES
016626  100010                          BPL     3$              ; BR IF NOT IDLE
```

```
                                                BIS     #160000,ERTABL(R0) ; FLAG ERROR IN THE ERROR TABLE
                                                ERRDF   1,NXR,NXRERR    ; NO DEVICE HERE -- PRINT IT
                                                TRAP    C$ERDF
                                                .WORD   1
                                                .WORD   NXR
                                                .WORD   NXRERR
                                                BR      2$
                                        3$:     BIS     #160001,ERTABL(R0)      ; FLAG ERROR IN THE ERROR TABLE
                                                ERRDF   2,NOINIT        ; DEVICE NOT IDLE
                                                TRAP    C$ERDF
                                                .WORD   2
                                                .WORD   NOINIT
                                                .WORD   0
                                        2$:     MOV     #-1,DUFLG       ; DROP THE UNIT
                                                DODU    UNITN
                                                MOV     UNITN,R0
                                                TRAP    C$DODU
                                                DOCLN                   ; ABORT THE PASS
                                                TRAP    C$DCLN
                                                BR      5$

                                        4$:     RFLAGS  R0              ; GET THE OPERATOR FLAGS.
                                                TRAP    C$RFLA
                                                BIT     #PNT,R0         ; PRINT THE TEST NUMBERS?
                                                BEQ     1$              ; BR IF NO
                                                MOV     (SP),R0         ;GET THE ID MESSAGE
                                                PRINTF  #TNAM,R0                ;DISPLAY THE TEST ID
                                                MOV     R0,-(SP)
                                                MOV     #TNAM,-(SP)
                                                MOV     #2,-(SP)
                                                MOV     SP,R0
                                                TRAP    C$PNTF
                                                ADD     #6,SP
                                        1$:     INC     TSTCNT          ; BUMP TEST COUNTER.
                                                SETPRI  IPRI            ;PRIORITY THAT OF DEVICE
                                                MOV     IPRI,R0
                                                TRAP    C$SPRI
                                        5$:     TST     (SP)+           ;FIX UP THE STACK
                                                MOV     CSRADDR,R5      ; ADDRESS OF TSV REGISTERS ON UNIBUS
                                                RTS     PC
                                        TNAM:   .ASCIZ  '%S%T%A Test'
                                                .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).
                                        ;
                                        TSTEND: RFLAGS  R0
                                                TRAP    C$RFLA
                                                BIT     R0,#IER
                                                BEQ     1$              ; BR IF "IER" NOT SET.
                                                PRINTF  #ESUM,ERRK      ; PRINT ERROR COUNT.
                                                MOV     ERRK,-(SP)
                                                MOV     #ESUM,-(SP)
                                                MOV     #2,-(SP)
                                                MOV     SP,R0
                                                TRAP    C$PNTF
```

```
        017030  062706  000006                  ADD     #6,SP
   2249 017034  000207                  1$:     RTS     PC
   2250
   2251 017036  000000                  ERRK:   0                       ; LOCAL ERROR COUNT.
   2252 017040     045     101     040  ESUM:   .ASCIZ  /%A %D%A ERRORS/
   2253 017057     105     122     122  EMAXDU: .ASCIZ  /ERROR LIMIT REACHED -- DROPPING UNIT/
   2254                                         .EVEN
```

```
                                                .SBTTL  INCERK  - INCREMENT LOCAL ERROR COUNT
                                        ;+
                                        ; ROUTINES TO INCREMENT LOCAL ERROR COUNT AND CHECK FOR LIMIT:
                                        ;-
017124  005237  017036          INCERK: INC     ERRK            ; INCREMENT LOCAL ERROR COUNT
017130  010046                          MOV     R0,-(SP)        ; SAVE R0
017132  013700  002174                  MOV     UNITN,R0        ; GET UNIT NUMBER,
017136  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET,
017140  062700  003170                  ADD     #ERTABL,R0      ; R0 GETS ADDRESS OF ERROR TABLE ENTRY.
017144  005210                          INC     (R0)            ; INCREMENT THE DEVICE ERROR COUNT
017146  032710  007777                  BIT     #7777,(R0)      ; DID WE OVERFLOW THE FIELD?
017152  001001                          BNE     1$              ; BR IF NO.
017154  005310                          DEC     (R0)            ; YES -- BACK IT UP TO 7777.
017156  012600                  1$:     MOV     (SP)+,R0        ; RESTORE R0
017160  000207                          RTS     PC              ; RETURN TO CALLER

017162  010046                  CKEMAX: MOV     R0,-(SP)        ; SAVE R0
017164  013700  002174                  MOV     UNITN,R0        ; GET UNIT NUMBER
017170  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET
017172  016000  003170                  MOV     ERTABL(R0),R0   ; GET ERROR TABLE ENTRY
017176  042700  170000                  BIC     #170000,R0      ; EXTRACT ERROR COUNT FIELD
017202  020037  002166                  CMP     R0,GERRMAX      ; IS GLOBAL LIMIT EXCEEDED FOR THIS UNIT?
017206  103004                          BHIS    1$              ; BR IF YES
017210  023737  017036  002164          CMP     ERRK,LERRMAX    ; IS LOCAL LIMIT EXCEEDED FOR THIS TEST?
017216  103417                          BLO     2$              ; BR IF NO
017220                          1$:     RFLAGS  R0              ; GET OPERATOR FLAGS
017220  104421                          TRAP    C$RFLA
017222  032700  000040                  BIT     #IDU,R0         ; IS DROPPING INHIBITED?
017226  001013                          BNE     2$              ; BR IF YES.
017230  012737  177777  003104          MOV     #-1,DUFLG       ; NO -- DROP THE UNIT
017236                                  ERRDF   4,EMAXDU
017236  104455                          TRAP    C$ERDF
017240  000004                          .WORD   4
017242  017057                          .WORD   EMAXDU
017244  000000                          .WORD   0
017246                                  DODU    UNITN
017246  013700  002174                  MOV     UNITN,R0
017252  104451                          TRAP    C$DODU
017254                                  DOCLN
017254  104444                          TRAP    C$DCLN
017256  012600                  2$:     MOV     (SP)+,R0        ; RESTORE R0
017260  000207                          RTS     PC              ; RETURN TO CALLER
```

```
                                        .SBTTL  CKDROP  - CHECK IF UNIT SHOULD BE DROPPED
                                ;+
                                ; CHECK IF UNIT SHOULD BE DROPPED
                                ;-
017262  010046                  CKDROP: MOV     R0,-(SP)
017264                                  FORCERROR       1$,NOTSSR
017274                                  RFLAGS  R0
017274  104421                          TRAP    C$RFLA
017276  032700  000040                  BIT     #IDU,R0
017302  001010                          BNE     1$
017304  011600                          MOV     (SP),R0
017306  012737  177777  003104          MOV     #-1,DUFLG
017314                                  DODU    UNITN
017314  013700  002174                  MOV     UNITN,R0
017320  104451                          TRAP    C$DODU
017322                                  DOCLN                   ;ABORT THE PASS
017322  104444                          TRAP    C$DCLN
017324  012600                  1$:     MOV     (SP)+,R0
017326  000207                          RTS     PC

                                        .SBTTL  CONFIG  - DETERMINE CONFIGURATION OF SYSTEM
                                ;
                                ; SUBROUTINE - DETERMINE CONFIGURATION OF TSV05 SYSTEM.
                                ;
017330                          CONFIG:
017330  004737  016054                  JSR     PC,$OFINIT
017334  000207                          RTS     PC
                                        .SBTTL  KTON,KTOFF      - ENABLE/DISABLE MEMORY MANAGEMENT
                                ;
                                ; SUBROUTINE - ENABLE MEM MGT.
                                ;
017336  005737  003124          KTON:   TST     KTFLG           ; GOT KT?
017342  001403                          BEQ     1$              ; NO.
017344  012737  000001  177572          MOV     #1,SR0          ; YES. ENABLE KT11.
017352  000207                  1$:     RTS     PC

                                ;
                                ; SUBROUTINE - DISABLE MEM MGT.
                                ;
017354  005737  003124          KTOFF:  TST     KTFLG           ; GOT KT11?
017360  001405                          BEQ     1$              ; NO.
017362  000240                          NOP
017364  000240                          NOP
017366  012737  000000  177572          MOV     #0,SR0          ; DISABLE KT.
017374  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
                        ;-
017376                  SETMAP:
017376                          SAVREG                          ;SAVE R1-R4 UNTIL NEXT RETURN
017402  005737  003124          TST     KTFLG                   ;SYSTEM HAVE ABOVE 28K?
017406  001433                  BEQ     10$                     ;BR IF NO
017410  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
017442  042701  000177          BIC     #177,R1                 ;ALINE FOR LOWER 4K BOUNDARY
017446  020137  003124          CMP     R1,KTFLG                ;HIGHER THAN EXISTING MEMORY?
017452  103011                  BHIS    10$                     ;BR IF YES
017454  010137  172354          MOV     R1,@#KIPAR6             ;SETUP MAPPING REGISTER PAR6
017460  042702  160000          BIC     #160000,R2              ;SETUP DISPLACEMENT IN PAGE
017464  062702  140000          ADD     #140000,R2              ;ADD IN PAR6 BIAS
017470  010200                  MOV     R2,R0                   ;RETURN IN R0
017472  000261                  SEC                             ;SET SUCCESS
017474  000401                  BR      15$                     ;
017476  000241          10$:    CLC                             ;SET FAILURE
017500  000207          15$:    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
                        ;-
                        ;
017502                  FILLMEM:
017502                          SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
017506  004737  017354          JSR     PC,KTOFF        ;DISABLE KT.
```

```
2391 017512 010003                          MOV     R0,R3           ;COPY TEST PATTERN
2392 017514 013701 003116                   MOV     FREE,R1         ;GET FIRST FREE LOCATION
2393 017520 013702 003120                   MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
2394 017524 010321                  10$:    MOV     R3,(R1)+        ;STORE A BACKGROUND WORD
2395 017526 005302                          DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
2396 017530 003375                          BGT     10$             ;BR IF NO
2397 017532 005737 003124                   TST     KTFLG           ; GOT KT?
2398 017536 001477                          BEQ     55$             ; NO. GET OUT.
2399 017540 004737 017336                   JSR     PC,KTON         ; YES. ENABLE KT.
2400 017544 005000                          CLR     R0              ;HIGH ORDER ADDRESS START
2401 017546 013701 003144                   MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
2402        000006                          .REPT   6
2403                                        CLC                     ;CLEAR C BIT
2404                                        ROL     R1              ;CONVERT BLOCKS TO WORDS
2405                                        ROL     R0              ;MAKE IT DOUBLE PRECISION
2406                                        .ENDR
2407 017616 004737 017376                   JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
2408 017622 010320                  30$:    MOV     R3,(R0)+        ;STORE TEST PATTERN IN >28K ADDRESS
2409 017624 020027 160000                   CMP     R0,#160000      ;END OF PAR6 MAPPING AREA?
2410 017630 103774                          BLO     30$             ;BR IF NO
2411 017632 162700 020000                   SUB     #20000,R0       ;BACKUP INTO PAR6 MAPPING BEGIN
2412 017636 062737 000200 172354            ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
2413 017644 023737 172354 003124            CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
2414 017652 001427                          BEQ     50$             ;BR IF YES
2415 017654 005737 003136                   TST     T23A            ;11/23A?
2416 017660 001407                          BEQ     35$             ;NO KEEP GOING
2417 017662 013704 177572                   MOV     SR0,R4          ;GET SR0 CONTENTS
2418 017666 042704 177761                   BIC     #177761,R4      ;CLEAR ALL BUT PAGE NUMBER
2419 017672 022704 000016                   CMP     #16,R4          ;SEE IF PAGE 7
2420 017676 001415                          BEQ     50$             ;EXIT IF THERE
2421 017700 005737 003140           35$:    TST     T23B            ;11/23B?
2422 017704 001410                          BEQ     45$             ;NO KEEP GOING
2423 017706 023727 172354 007600            CMP     @#KIPAR6,#7600  ;REACHED 18 BITS?
2424 017714 103001                          BHIS    40$             ;YES
2425 017716 000403                          BR      45$             ;NO KEEP GOING
2426 017720 012737 000020 172516    40$:    MOV     #20,SR3         ;SET 22 BIT RELOCATION
2427 017726 000137 017622           45$:    JMP     30$             ;KEEP GOING ON ETC.
2428 017732 004737 017354           50$:    JSR     PC,KTOFF        ; DISABLE KT.
2429 017736 000207                  55$:    RTS     PC
```

```
                                        .SBTTL  CMPMEM  - COMPARE MEMORY TO BACKGROUND PATTERN
                                ;+
                                ; COMPARE MEMORY WITH A BACKGROUND PATTERN
                                ;
                                ; INPUTS:
                                ;
                                ;       R0 = BACKGROUND PATTERN
                                ;       FREE    = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
                                ;       KTFLG   = SET TO HIGHEST MEMORY LOCATION IF > 28K.
                                ;
                                ; 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
                                ;-
017740                          CMPMEM:
017740                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
017744  010003                          MOV     R0,R3           ;COPY TEST PATTERN
017746  004737  017354                  JSR     PC,KTOFF        ;DISABLE KT.
017752  013701  003116                  MOV     FREE,R1         ;GET FIRST FREE LOCATION
017756  013702  003120                  MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
017762  020311                  10$:    CMP     R3,(R1)         ;FREE SPACE LOCATION EQUAL TO EXPD?
017764  001411                          BEQ     15$             ;BR IF YES
017766  010137  002232                  MOV     R1,ERRLO        ;SAVE ADDRESS IN ERROR
017772  005037  002230                  CLR     ERRHI           ;NO HIGH ADDRESS
017776  010337  002224                  MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
020002  011137  002226                  MOV     (R1),RECV       ;SAVE RECV FOR ERROR REPORT
020006  000474                          BR      50$             ;
020010  005721                  15$:    TST     (R1)+           ;POINT TO NEXT ADDRESS
020012  005302                          DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
020014  003362                          BGT     10$             ;BR IF NO
020016  005737  003124                  TST     KTFLG           ; GOT KT?
020022  001472                          BEQ     55$             ; NO. GET OUT.
020024  004737  017336                  JSR     PC,KTON         ; YES. ENABLE KT.
020030  005000                          CLR     R0              ;HIGH ORDER ADDRESS START
020032  013701  003144                  MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
                000006                  .REPT   6
                                        ROL     R1              ;CONVERT BLOCKS TO WORDS
                                        ROL     R0              ;MAKE IT DOUBLE PRECISION
                                        .ENDR
020066  042701  000177                  BIC     #177,R1         ;ALINE 4K BOUNDARY
020072  010046                          MOV     R0,-(SP)        ;SAVE HIGH ORDER
020074  010146                          MOV     R1,-(SP)        ;SAVE LOW ORDER
020076  004737  017376                  JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
020102  010004                          MOV     R0,R4           ;COPY ADDRESS BIASED TO PAR6
020104  012601                          MOV     (SP)+,R1        ;RESTORE LOW ORDER IN NON PAR6 FORMAT
020106  012600                          MOV     (SP)+,R0        ;RESTORE HIGH ORDER IN NON PAR6 FORMAT
020110  020314                  30$:    CMP     R3,(R4)         ;ABOVE 28K LOCATION EQUAL EXPD?
020112  001411                          BEQ     32$             ;BR IF YES
020114  010037  002230                  MOV     R0,ERRHI        ;SAVE HIGH ORDER IN ERROR
```

```
2488 020120  010137  002232                    MOV     R1,ERRLO        ;SAVE LOW ORDER IN ERROR
2489 020124  010337  002224                    MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
2490 020130  011437  002226                    MOV     (R4),RECV       ;SAVE RECV FOR ERROR REPORT
2491 020134  000421                            BR      50$             ;
2492 020136  062701  000002            32$:    ADD     #2,R1           ;UPDATE NON PAR6 ADDRESS
2493 020142  005500                            ADC     R0              ;MAKE IT DOUBLE PRECISION ADD
2494 020144  062704  000002                    ADD     #2,R4           ;UPDATE PAR FORMAT ADDRESS
2495 020150  020427  160000                    CMP     R4,#160000      ;END OF PAR6 MAPPING AREA?
2496 020154  103755                            BLO     30$             ;BR IF NO
2497 020156  162704  020000                    SUB     #20000,R4       ;BACKUP INTO PAR6 MAPPING BEGIN
2498 020162  062737  000200  172354            ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
2499 020170  023737  172354  003124            CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
2500 020176  101744                            BLOS    30$             ;BR IF NO
2501 020200  004737  017354            50$:    JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2502 020204  000241                            CLC                     ;SET FAILURE
2503 020206  000403                            BR      60$             ;
2504 020210  004737  017354            55$:    JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2505 020214  000261                            SEC                     ;SET SUCCESS
2506 020216  000207                    60$:    RTS     PC
2507                                           .SBTTL  REGSAV  - SAVE R1-R5 ON STACK
2508                                   ;+
2509                                   ;
2510                                   ;ROUTINE TO
2511                                   ;SAVE R1 THROUGH R5 ON THE STACK
2512                                   ;
2513                                   ;CALLING SEQUENCE:
2514                                   ;
2515                                   ;       JSR     R5,REGSAV
2516                                   ;
2517                                   ;THIS IS A COOROUTINE WHICH TRANSFER CONTROL BACK TO
2518                                   ;THE CALLING ROUTINE. AT THE END OF THE CALLING ROUTINE,
2519                                   ;THE RTS PC RETURNS CONTROL TO THIS ROUTINE TO RESTORE
2520                                   ;REGISTERS.
2521                                   ;
2522                                   ;THIS ROUTINE SHOULD ONLY BE CALLED FROM ROUTINES WHICH ARE
2523                                   ;CALLED VIA A JSR PC INSTRUCTION
2524                                   ;
2525                                   ;-
2526
2527 020220                            REGSAV:
2528 020220  010446                            MOV     R4,-(SP)
2529 020222  010346                            MOV     R3,-(SP)
2530 020224  010246                            MOV     R2,-(SP)
2531 020226  010146                            MOV     R1,-(SP)
2532 020230  010546                            MOV     R5,-(SP)
2533 020232  016605  000012                    MOV     10.(SP),R5
2534 020236  004736                            JSR     PC,@(SP)+
2535 020240  012601                            MOV     (SP)+,R1
2536 020242  012602                            MOV     (SP)+,R2
2537 020244  012603                            MOV     (SP)+,R3
2538 020246  012604                            MOV     (SP)+,R4
2539 020250  012605                            MOV     (SP)+,R5
2540 020252  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
                                ;-
020254                          GETPAT::
                                        SAVREG                          ;SAVE THE GENERAL REGISTERS
020254                          1$:     GMANID  DATASC,PATDAT,0,377,0,377,NO
020260  104443                          TRAP    C$GMAN
020262  000406                          BR      10000$
020264  020310                          .WORD   PATDAT
020266  000022                          .WORD   T$CODE
020270  020312                          .WORD   DATASC
020272  000377                          .WORD   377
020274  000000                          .WORD   T$LOLIM
020276  000377                          .WORD   T$HILIM
020300                          10000$:
020300                                  BNCOMPLETE      1$      ;RETRY IF ERROR
020300  103367                          BCC     1$
020302  013700  020310                  MOV     PATDAT,R0       ;DATA PATTERN FROM OPERATOR
020306  000207                          RTS     PC              ;RETURN TO CALLER

                                ;+
                                ;LOCAL DATA AREA
                                ;-

020310  000000                  PATDAT: .WORD   0               ;TEMPORARY STORAGE FOR DATA
020312     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
                                ;-
020336                          GETSEL::
020336                                  SAVREG                          ;SAVE GENERAL REGISTERS
020342  010002                          MOV     R0,R2                   ;SAVE THE MENU ADDRESS
020344  010203                  1$:     MOV     R2,R3                   ;START OF MENU STRING
020346  005713                  2$:     TST     (R3)                    ;END OF ASCII ?
020350  001412                          BEQ     3$                      ;BRANCH IF ALL LINES DISPLAYED
020352                                  PRINTF  #SELASC,(R3)+           ;DISPLAY THE MENU
020352  012346                          MOV     (R3)+,-(SP)
020354  012746  020522                  MOV     #SELASC,-(SP)
020360  012746  000002                  MOV     #2,-(SP)
020364  010600                          MOV     SP,R0
020366  104417                          TRAP    C$PNTF
020370  062706  000006                  ADD     #6,SP
020374  000764                          BR      2$
020376                          3$:     GMANID  MENASC,MENRES,D,-1,0,-1,NO
020376  104443                          TRAP    C$GMAN
020400  000406                          BR      10001$
020402  020556                          .WORD   MENRES
020404  000042                          .WORD   T$CODE
020406  020527                          .WORD   MENASC
020410  177777                          .WORD   -1
020412  000000                          .WORD   T$LOLIM
020414  177777                          .WORD   T$HILIM
020416                          10001$:
020416                                  BNCOMPLETE      1$              ;RETRY IF ERROR
020416  103352                          BCC     1$
020420  013700  020556                  MOV     MENRES,R0               ;GET THE OPERATOR'S REPLY
020424  020001                          CMP     R0,R1                   ;COMPARE TO MAXIMUM ALLOWED
020426  101411                          BLOS    5$                      ;BRANCH IF OK
020430                                  PRINTF  #MENERR                 ;DISPLAY ERROR MESSAGE
020430  012746  020454                  MOV     #MENERR,-(SP)
020434  012746  000001                  MOV     #1,-(SP)
020440  010600                          MOV     SP,R0
020442  104417                          TRAP    C$PNTF
020444  062706  000004                  ADD     #4,SP
020450  000735                          BR      1$                      ;RETRY
020452  000207                  5$:     RTS     PC                      ;RETURN TO CALLER
020454     045     116     045  MENERR: .ASCIZ   '%N%A *** Menu Selection Too Large ***'
020522     045     116     045  SELASC: .ASCIZ   '%N%T'
020527     105     156     164  MENASC: .ASCIZ   'Enter Menu Selection: '
                                        .EVEN
020556  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.
                ;
                ;-

020560          CHKMAN::
020560                  SAVREG                  ;SAVE THE REGISTERS
020564                  MANUAL                  ;SEE IF MANUAL INTERVENTION OK
020564  104450          TRAP    C$MANI
020566                  BCOMPLETE 1$            ;BRANCH IF ALLOWED
020566  103411          BCS     1$
020570                  PRINTF  @NOMAN          ;PRINT THE WARNING MESSAGE
020570  012746  020614   MOV     @NOMAN,-(SP)
020574  012746  000001   MOV     #1,-(SP)
020600  010600          MOV     SP,R0
020602  104417          TRAP    C$PNTF
020604  062706  000004   ADD     #4,SP
020610  000241          CLC                     ;CLEAR CARRY FOR ERROR
020612  000207  1$:     RTS     PC              ;RETURN

020614  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.
                                ;
020710                          ENVIRN: MEMORY  R0
020710  104431                          TRAP    C$MEM
020712  010037  003116                  MOV     R0,FREE         ; GET 1ST FREE ADDRESS...
020716  062737  000002  003116          ADD     #2,FREE
020724  011037  003120                  MOV     (R0),FRESIZ     ;...AND WORD COUNT.
020730  162737  000004  003120          SUB     #4,FRESIZ
020736  013702  002012                  MOV     L$UNIT,R2       ; GET NUMBER OF UNITS
020742  162737  000007  003120  10$:     SUB     #7,FRESIZ       ; TAKE AWAY 7 WORDS PER UNIT
020750  005302                          DEC     R2
020752  001373                          BNE     10$
020754  013700  003116                  MOV     FREE,R0         ;GET FIRST FREE ADDRESS
020760  063700  003120                  ADD     FRESIZ,R0       ;POINT TO LAST FREE ADDRESS
020764  162700  000002                  SUB     #2,R0           ;BACKUP 1 WORD
020770  010037  003122                  MOV     R0,FREEHI       ;STORE LAST FREE ADDRESS
020774  000240                          NOP                     ;***********************************************
020776  012701  177520                  MOV     #BDVPCR,R1      ;GET BDV11 PCR ADDRESS
021002  010102                          MOV     R1,R2           ;COPY TO R2
021004  062702  000002                  ADD     #2,R2           ;SET THE RANGE
021010  004737  016456                  JSR     PC,XNXM         ;SEE IF WE HAVE ONE
021014  103001                          BCC     15$             ;OK TO SET FLAGS
021016  000423                          BR      40$             ;RETURN WITH FLAGS CLEAR
021020  013701  177520          15$:    MOV     BDVPCR,R1       ;SAVE PCR CONTENTS
021024  062701  000001                  ADD     #1,R1           ;ADD ONE TO IT
021030  012702  177520                  MOV     #BDVPCR,R2      ;GET BDV11 PCR ADDRESS
021034  005212                          INC     (R2)            ;TRY TO WRITE TO IT
021036  013703  177520                  MOV     BDVPCR,R3       ;GET RESULTS
021042  020103                          CMP     R1,R3           ;DID IT CHANGE?
021044  001006                          BNE     20$             ;NO, MUST BE 11/23B
021046  005237  003136                  INC     T23A            ;SET THE FLAG
021052  042737  170000  002120          BIC     #170000,L$HIME  ;SUPERVISOR COULD BE WRONG
                                ;       NOP                     ;BR 40$ FOR RELEASE
                                ;       PRINTF  #M8186          ;TELL THE SYSTEM TYPE
021060  000402                          BR      40$             ;RETURN
021062  005237  003140          20$:    INC     T23B            ;SET THE FLAG
                                ;       NOP                     ;BR 40$ FOR RELEASE
                                ;       PRINTF  #M8189          ;TELL THE SYSTEM TYPE
021066                          4C$:
021066  000207                          RTS     PC              ;RETURN
```

```
                                        .SBTTL  KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS
                                ;+
                                ;
                                ;ROUTINE TO INIT KT-11
                                ;
                                ;-
                                KTINIT:
021070                                  CLR     KTFLG           ; INIT >28K MEMORY FLAG
021070  005037  003124                  CLR     KTENABLE        ; INIT TEST >28K FLAG
021074  005037  003126
021100  023727  002120  001577          CMP     L$HIME,#1577    ; GOT ENOUGH MEMORY (>28K)?
021106  101444                          BLOS    9$              ; NO.
021110  013700  000004                  MOV     @#ERRVEC,R0     ; SAVE OLD ERR VEC PTR.
021114  012737  021206  000004          MOV     #2$,@#ERRVEC    ; SET ERR VEC PTR.
021122  005737  177572                  TST     @#SR0           ; GOT KT11?
021126  000240                          NOP                     ;  (TRAP IF NO).
021130  013737  002120  003124          MOV     L$HIME,KTFLG    ; YES. SET KT FLAG.
021136  042737  000177  003124          BIC     #177,KTFLG      ;
021144  010037  000004                  MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
021150  005000                          CLR     R0              ; R0 = AR DATA.
021152  012701  172340                  MOV     #KIPAR0,R1      ; R1 = KI REGS PTR.
021156  012761  077406  177740  1$:     MOV     #77406,-40(R1)  ; SET DESCRIPTOR REG.
021164  010021                          MOV     R0,(R1)+        ; SET KIPAR REG.
021166  062700  000200                  ADD     #200,R0         ; BUMP AR DATA BY "4K".
021172  020027  002000                  CMP     R0,#2000        ; AT "I/O"?
021176  001367                          BNE     1$              ; NO.
021200  012741  177600                  MOV     #177600,-(R1)   ; YES. SET KTPAR7 FOR I/O.
021204  000405                          BR      9$
                                ;
021206  012716  021214          2$:     MOV     #6$,(SP)        ; SET UP RETURN
021212  000002                          RTI                     ; RTI TO NEXT LOCATION
                                ;
021214  010037  000004          6$:     MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
                                ;
021220  000207                  9$:     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.
                                        ;
                                        ;-

021222                                  INVERT::

021222  005737  002220                          TST     EXTFEA                  ; IS SWITCH SET?
021226  001020                                  BNE     1$                      ; YES,EXIT STAGE RIGHT!(or the next one outa town!)
021230  012737  100206  021274                  MOV     #100206,CMDPKT          ; WRT SUB-SYS MEM CMD
021236  012737  021304  021276                  MOV     #WSMBK,CMDPKT+2         ; MSG BUF ADDR
021244  012737  000006  021302                  MOV     #6,CMDPKT+6             ; BYTE COUNT
021252  012737  100010  021304                  MOV     #100010,WSMBK           ; INVERT THE SWITCH
021260  012704  021274                          MOV     #CMDPKT,R4              ; SET CMDPKT INTO R4
021264  004737  010742                          JSR     PC,WRTCHR               ; DO IT
021270  000207                          1$:     RTS     PC                      ; RETURN

                                        ;       COMMAND PACKET.

                021274                  .       =       <.+3>&177774    ;MUST BE ON MOD 4 BOUNDRY.

021274  000000                          CMDPKT:: 0                      ;1ST WORD IS TSO5 COMMAND.
021276  000000                                    0                     ;2ND WORD IS THE BUFFER LOW ADDRESS.
021300  000000                                    0                     ;3RD WORD IS THE BUFFER HIGH ADDRESS.
021302  000000                                    0                     ;4TH WORD IS THE BYTE/RECORD/FILE COUNT.

                                        ;       WRITE SUB-SYSTEM MEMORY CHARACTERISTIC BLOCK.

021304  000000                          WSMBK:: 0                       ;1ST WORD:: SEL 0
021306  000000                                  0                       ;2ND WORD:: SEL 2
021310  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.
                                        ;-

021312                                  MEMCK::

021312                                          SAVREG                          ;SAVE THE REGISTERS
021316  005037  003130                          CLR     NXMFLG                  ;CLEAR THE FLAG
021322  005037  003132                          CLR     NXMLO                   ;CLEAR THE TEST ADDRESS LO
021326  005037  003134                          CLR     NXMHI                   ;CLEAR THE TEST ADDRESS HI
021332  005737  003140                          TST     T23B                    ;IS IT A 11/23B?
```

```
2770 021336 001407                          BEQ     1$                      ;NO
2771 021340 023727 002120 007777            CMP     L$HIME,#7777            ; GREATER THAN 128K
2772 021346 103406                          BLO     2$                      ; NO
2773 021350 004737 021466                   JSR     PC,NXMTST               ;SETUP THE ADDRESS
2774 021354 000427                          BR      13$                     ;SET THE FLAG AND EXIT
2775 021356 005737 003136           1$:     TST     T23A                    ;IS IT A 11/23A?
2776 021362 001413                          BEQ     4$                      ;NO
2777 021364 023727 002120 005777    2$:     CMP     L$HIME,#5777            ;GREATER THAN 96K
2778 021372 101023                          BHI     14$                     ;YES,23A/23B WITH 128K MEMORY
2779 021374 023727 002120 003777            CMP     L$HIME,#3777            ;GREATER THAN 64K BUT LESS THAN 92K?
2780 021402 103403                          BLO     4$                      ;NO, CHECK 24K
2781 021404 004737 021466                   JSR     PC,NXMTST               ;SETUP THE ADDRESS
2782 021410 000411                          BR      13$                     ;SET THE FLAG AND EXIT
2783 021412 023727 002120 001577    4$:     CMP     L$HIME,#1577            ;GREATER THAN 24K BUT LESS THAN 64K?
2784 021420 103410                          BLO     14$                     ;NO, TELL THEM AND EXIT WITH FLAG CLEAR
2785 021422 004737 021466                   JSR     PC,NXMTST               ;SETUP THE ADDRESS
2786 021426 062737 000077 003134            ADD     #77,NXMHI               ;FOOL THE 11/02 & 11/03
2787 021434 005237 003130           13$:    INC     NXMFLG                  ;SET THE FLAG
2788 021440 000411                          BR      15$                     ;EXIT
2789 021442 000410                  14$:    BR      15$                     ;NOP FOR PRINTOUT
2790 021444                                 PRINTF  #NOMEM                  ;TELL THEM & EXIT ***NO PRINT*****
     021444 012746 005454                   MOV     #NOMEM,-(SP)
     021450 012746 000001                   MOV     #1,-(SP)
     021454 010600                          MOV     SP,R0
     021456 104417                          TRAP    C$PNTF
     021460 062706 000004                   ADD     #4,SP
2791 021464 000207                  15$:    RTS     PC                      ;RETURN
2792
2793                                        ;*
2794                                        ;       SUBROUTINE TO SETUP THE NXM ADDRESS FOR TESTING
2795                                        ;
2796                                        ;OUTPUTS:NXMLO,NXMHI            ;SETUP WITH NXM ADDRESS
2797                                        ;
2798                                        ;-
2799
2800 021466 013701 002120           NXMTST: MOV     L$HIME,R1               ;GET TOP OF MEMORY
2801 021472 062701 000200                   ADD     #200,R1                 ;MAKE IT I/O BLOCK OR OTHER NXM
2802 021476 042701 000177                   BIC     #177,R1
2803 021502 010102                          MOV     R1,R2                   ;RESAVE RESULTS
2804        000006                          .REPT   6
2805                                        ASL     R1                      ;PUT IN PLACE FOR XFER
2806                                        .ENDR
2807 021520 010137 003132                   MOV     R1,NXMLO                ;SAVE TEST ADDRESS LOW
2808        000012                          .REPT   10.
2809                                        ASR     R2                      ;PUT IN PLACE FOR XFER
2810                                        .ENDR
2811 021550 042702 177700                   BIC     #177700,R2              ;DON'T WANT ILA!
2812 021554 010237 003134                   MOV     R2,NXMHI                ;SAVE TEST ADDRESS HIGH
2813 021560 000207                          RTS     PC                      ;RETURN
2814
2815 021562                                 ENDMOD
```

```
                                                .TITLE  TSV4 - MISCELLANEOUS SECTIONS
                                                BGNMOD  TSV4
021562                                  TSV4::
                                                .SBTTL  PROTECTION TABLE
                                                BGNPROT
021562                                  L$PROT::
021562  177777  177777  177777                  .WORD   -1, -1, -1, -1          ;NO DEVICE PROTECTION REQUIRED.
021572                                          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
                                ;-
                                        BGNINIT
021572                          L$INIT::
021572  005037  002220          40$:    CLR     EXTFEA
021576  005037  003130                  CLR     NXMFLG
021602  012737  006354  002172          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY MESSAGE FOR REPLACEMENT
021610  005037  003146                  CLR     SIFLAG                  ;CLEAR "SOFT INIT" FLAG
021614  005037  003126                  CLR     KTENABLE                ;CLEAR TEST ABOVE 28K FLAG
021620  005037  002274                  CLR     RAMSIZ                  ;CLEAR RAM SIZE FOR RAMERR ROUTINE
021624                                  READEF  #EF.CONTINUE
021624  012700  000036                  MOV     #EF.CONTINUE,R0
021630  104447                          TRAP    C$REFG
021632                                  BNCOMPLETE 1$
021632  103023                          BCC     1$
021634  023737  002174  002012          CMP     UNITN,L$UNIT            ;UNIT IN RANGE?
021642  103070                          BHIS    4$                      ;BR IF NO.
021644  005737  003104                  TST     DUFLG                   ;DROPPED UNIT?
021650  100472                          BMI     NXTU                    ;BR IF YES
021652  013701  002174                  MOV     UNITN,R1
021656  006301                          ASL     R1
021660  005761  003170                  TST     ERTABL(R1)
021664  001516                          BEQ     SETU
021666  032761  040000  003170          BIT     #BIT14,ERTABL(R1)       ;DROPPED?
021674  001060                          BNE     NXTU
021676                                  EXIT    INIT                    ;DO NOTHING IF "CONTINUE".
021676  104432                          TRAP    C$EXIT
021700  000416                          .WORD   L10030-.
021702                          1$:     READEF  #EF.NEW
021702  012700  000035                  MOV     #EF.NEW,R0
021706  104447                          TRAP    C$REFG
021710                                  BNCOMPLETE NXTU                 ;TAKE NEXT UNIT IF NOT NEW PASS.
021710  103052                          BCC     NXTU
021712                                  READEF  #EF.START
021712  012700  000040                  MOV     #EF.START,R0
021716  104447                          TRAP    C$REFG
021720                                  BCOMPLETE 2$
021720  103404                          BCS     2$
021722                                  READEF  #EF.RESTART
021722  012700  000037                  MOV     #EF.RESTART,R0
021726  104447                          TRAP    C$REFG
021730                                  BNCOMPLETE 31$
021730  103031                          BCC     31$
021732                          2$:                                     ;1ST PASS, BUS-INIT...
021732                                  BRESET                          ;BUS RESET.
021732  104433                          TRAP    C$RESET
```

INITIALIZE SECTION

```
     65 021734  005037  002206                    CLR     TSTCNT                  ;NUMBER OF TESTS RUN IN PASS
     66 021740  005037  002214                    CLR     FATFLG                  ;CLEAR FATAL ERROR COUNT
     67 021744  005037  003136                    CLR     T23A                    ;CLEAR 11/23A FLAG
     68 021750  005037  003140                    CLR     T23B                    ;CLEAR 11/23B FLAG
     69                                     ;       MOV     #340,-(SP)
     70                                     ;       MOV     #20$,-(SP)              ;RETURN TO DEBUGGER
     71                                     ;       JMP     0.ODT           ;;@@ENTER THE DEBUGGER
     72 021754  005037  003372                    CLR     SKIPT           ;CLEAR THE SUBTEST "SKIPPER"
     73 021760                              20$:
     74 021760  012737  177777  002176              MOV     #-1,QVP                 ;...QUICK VERIFY...
     75 021766  004737  020710                    JSR     PC,ENVIRN               ;SET ENVIRONMENT.
     76 021772  004737  021070                    JSR     PC,KTINIT               ;INITIALIZE KT MEMORY MANAGEMENT
     77 021776  012700  003170                    MOV     #ERTABL,R0
     78 022002  005020                      30$:  CLR     (R0)+                   ;CLEAR THE ERROR TABLE
     79 022004  020027  003370                    CMP     R0,#ERTABE
     80 022010  103774                            BLO     30$
     81 022012  000404                            BR      4$
     82 022014  005037  002176              31$:  CLR     QVP
     83 022020  000137  022070                    JMP     PASRPT                  ;GO REPORT THE STATUS
     84
     85 022024                              4$:
     86 022024  012737  177777  002174    NEWPAS: MOV     #-1,UNITN               ;INIT UNIT NUMBER...
     87 022032  005037  002212                    CLR     DEVCNT                  ;CLEAR COUNT OF DEVICES RUNNING
     88 022036                              NXTU: BREAK
        022036  104422                            TRAP    C$BRK
     89 022040  005237  002174                    INC     UNITN                   ;...AND SET NEXT UNIT NUMBER.
     90 022044  023737  002174  002012            CMP     UNITN,L$UNIT
     91 022052  103423                            BLO     SETU
     92 022054  012737  177777  003104            MOV     #-1,DUFLG
     93 022062  000401                            BR      11$
     94 022064                                    DOCLN                           ;ABORT, NO MORE UNITS.
        022064  104444                            TRAP    C$DCLN
     95 022066  000240                      11$:  NOP
     96 022070                              PASRPT:
     97 022070  023727  002012  000001            CMP     L$UNIT,#1               ;HOW MANY UNITS SELECTED?
     98 022076  101752                            BLOS    NEWPAS                  ;BR IF ONLY 1
     99 022100  005737  002212                    TST     DEVCNT                  ;ARE ANY STILL RUNNING?
    100 022104  001747                            BEQ     NEWPAS                  ;BR IF NO
    101 022106                                    RFLAGS  R0
        022106  104421                            TRAP    C$RFLA
    102 022110  032700  000100                    BIT     #ISR,R0                 ;SHOULD WE PRINT STATISTICS
    103 022114  001343                            BNE     NEWPAS                  ;BR IF NO
    104
    105 022116                                    DORPT
        022116  104424                            TRAP    C$DRPT
    106 022120  000741                            BR      NEWPAS
    107 022122                              10$:
    108
    109 022122                              SETU: GPHARD  UNITN,R0                ;GET UNIT N P-TABLE POINTER.
        022122  013700  002174                    MOV     UNITN,R0
        022126  104442                            TRAP    C$GPHRD
    110 022130                                    BNCOMPLETE NXTU                 ;BR IF UNIT NOT AVAILABLE.
        022130  103342                            BCC     NXTU
    111 022132  005037  003104                    CLR     DUFLG                   ;CLEAR "DROPPED" FLAG.
    112 022136  005237  002212                    INC     DEVCNT
    113 022142  012001                            MOV     (R0)+,R1                ;GET 1ST REGISTER ADDRESS.
    114 022144  010137  002200                    MOV     R1,CSRADDR              ;ADDRESS OF REGISTERS OF UNIT UNDER TEST
```

INITIALIZE SECTION

```
                                        MOV     (R0)+,R1                ;GET VECTOR ADDRESS.
                                        ;MOV    (R0),R2                 ;GET INTERRUPT PRIORITY
                                        ;MOV    R2,IPRI                 ;SET INTERRUPT PRIORITY.
                                        MOV     R1,IVEC                 ;SET INTERRUPT VECTOR POINTER...
                                        MOV     #INTR,(R1)+             ;...VECTOR...
                                        MOV     IPRI,(R1)+              ;...AND PRIORITY.

                                1$:
                                ;       TST     QVP             ;1ST PASS ??
                                ;       BEQ     5$              ;NO, SKIP THE PASS 1 STUFF.

                                ;
                                ;1ST PASS, CHECK THAT DEVICE ADDRESSES ARE VALID, AND
                                ;THAT THE DISPLAY STATUS IS PROPERLY INITIALIZED.
                                ;
                                        MOV     UNITN,R1
                                        ASL     R1
                                        BIS     #BIT15,ERTABL(R1)       ;SAY DEVICE RUNNING
                                        CLR     EXTA                    ;CLEAR ERROR EXTENSION FLAG.
                                        CMP     L$UNIT,#1               ;ARE WE TESTING MULTIPLE UNITS?
                                        BLOS    10$                     ;BR IF NO.
                                        RFLAGS  R0                      ;YES -- GET OPERATOR FLAGS.
                                        TRAP    C$RFLA
                                        BIT     #PNT,R0                 ;SHOULD WE PRINT UNIT #?
                                        BEQ     10$                     ;BR IF NOT.
                                        PRINTF  #PUNIT,UNITN            ;PRINT THE UNIT #
                                        MOV     UNITN,-(SP)
                                        MOV     #PUNIT,-(SP)
                                        MOV     #2,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTF
                                        ADD     #6,SP
                                10$:
                                        CLR     NODEV
                                        MOV     CSRADDR,R1              ;ADDRESS OF FIRST REGISTER
                                        MOV     R1,R2                   ;START OF REGISTERS
                                        ADD     #TSSR,R2                ;ADDRESS OF TSSR REGISTER
                                        JSR     PC,XNXM                 ;TEST BOTH CONTROLLER REGISTERS...
                                        BCC     2$                      ;...AND BR IF ALL OK.
                                        MOV     R1,NODEV                ;FLAG DEVICE AS NON-EXISTENT
                                        MOV     #-1,DUFLG               ;DROP THIS UNIT.
                                2$:
                                ;
                                ;FINALLY, SET CPU PRIORITY AND WE'RE DONE.
                                ;
                                5$:     SETPRI  #PRI00          ;ENABLE INTERRUPTS.
                                        MOV     #PRI00,R0
                                        TRAP    C$SPRI
                                        ENDINIT
                                L10030:
                                        TRAP    C$INIT

                                PUNIT:  .ASCIZ  /%N%N%A***** TESTING UNIT %D2%A *****/
                                        .EVEN
```

```
                                        .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.
                                ;--
                                        BGNAU
                                L$AU::
                                        MOV     R0,R1                   ; GET UNIT TO BE ADDED (R0)
                                        ASL     R1                      ; MAKE IT A WORD INDEX
                                        BIS     #100000,ERTABL(R1)      ; SET THE "ACTIVE" BIT
                                        BIC     #40000,ERTABL(R1)       ; CLEAR THE "DROPPED" BIT
                                        PRINTF  #1$,R0
                                        MOV     R0,-(SP)
                                        MOV     #1$,-(SP)
                                        MOV     #2,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTF
                                        ADD     #6,SP
                                        EXIT    AU
                                        .WORD   J$JMP
                                        .WORD   L10031-2-.
                                1$:     .ASCIZ  /%N%A  UNIT %D%A ADDED/
                                        .EVEN

                                        ENDAU           ; UNUSED.
                                L10031:
                                        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.

                                        BGNDU
                                L$DU::
                                        MOV     #-1,DUFLG
                                        MOV     R0,R1
                                        ASL     R1
                                        BIS     #140000,ERTABL(R1)      ; SAY DROPPED
                                        240,240,240                     ; ?????????
                                        PRINTF  #1$,R0
                                        MOV     R0,-(SP)
                                        MOV     #1$,-(SP)
                                        MOV     #2,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTF
                                        ADD     #6,SP
                                        EXIT    DU
                                        .WORD   J$JMP
                                        .WORD   L10032-2-.
```

```
    197 022540     045     116     045 1$:     .ASCIZ  /%N%A  UNIT %D%A DROPPED/
    198                                 .EVEN
    199 022570                          ENDDU
        022570                      L10032:
        022570  104453                      TRAP    C$DU
    200                             ;++
    201                             ; AUTO-DROP CODE SECTION.
    202                             ;--
    203 022572                          BGNAUTO
        022572                      L$AUTO::
    204 022572  013705  002200              MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
    205 022576  012703  000550              MOV     #360.,R3                ;ENOUGH TIME FOR 2400' REEL TO REWIND
    206 022602  004737  016330          10$: JSR    PC,WAITF                ;WAIT FOR SSR TO SET
    207 022606  103420                      BCS     20$                     ;LEAVE WHEN SSR IS SET
    208 022610                              DELAY   250.                    ;WAIT FOR .25 SECONDS
        022610  012727  000372              MOV     #250.,(PC)+
        022614  000000                      .WORD   0
        022616  013727  002116              MOV     L$DLY,(PC)+
        022622  000000                      .WORD   0
        022624  005367  177772              DEC     -6(PC)
        022630  001375                      BNE     .-4
        022632  005367  177756              DEC     -22(PC)
        022636  001367                      BNE     .-20
    209 022640  005303                      DEC     R3                      ;BUMP COUNTER DOWN
    210 022642  001357                      BNE     10$                     ;KEEP GOING
    211 022644  004737  017262              JSR     PC,CKDROP               ;TRY AND DROP UNIT
    212 022650                          20$:
    213 022650                              ENDAUTO                 ; UNUSED.
        022650                      L10033:
        022650  104461                      TRAP    C$AUTO
```

CLEAN-UP AND REPORT CODING SECTIONS

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

                                ;++
                                ; THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS
                                ; EXECUTED AT THE END OF EACH PASS (OR SUB-PASS).
                                ; USE TO RETURN DEVICE UNDER TEST TO A NEUTRAL STATE.
                                ;--
022652                                  BGNCLN
022652                          L$CLEAN::
022652  013705  002200                  MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
022656  005737  003104                  TST     DUFLG           ;"DROPPED" FLAG IS SET ON...
022662  100405                          BMI     1$              ;...AND GROSS CONTROLLER FAULT...
                                                                ;...DON'T TRY TO XCT CLEANUP CODE.

022664  012765  000000  000002          MOV     #0,TSSR(R5)     ;DO SOFT INIT
022672  004737  016330                  JSR     PC,WAITF
022676                          1$:
022676                          2$:     ENDCLN
022676                          L10034:
022676  104412                          TRAP    C$CLEAN
                                ;++
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;--
022700                                  BGNRPT
022700                          L$RPT::
022700                                  PRINTS  #DEVSUM
022700  012746  023142                  MOV     #DEVSUM,-(SP)
022704  012746  000001                  MOV     #1,-(SP)
022710  010600                          MOV     SP,R0
022712  104416                          TRAP    C$PNTS
022714  062706  000004                  ADD     #4,SP
022720  010246                          MOV     R2,-(SP)
022722  010346                          MOV     R3,-(SP)
022724  010446                          MOV     R4,-(SP)
022726  012704  003170                  MOV     #ERTABL,R4      ; GET START OF ERROR TABLE.
022732  005003                          CLR     R3              ; CLEAR UNIT NUMBER
022734  011402                  1$:     MOV     (R4),R2         ; GET ERROR TABLE ENTRY & TEST IT.
022736  001467                          BEQ     4$              ; ZERO IF UNIT NOT RUN
022740  100066                          BPL     4$
022742  032702  040000                  BIT     #BIT14,R2       ; WAS UNIT DROPPED?
022746  001015                          BNE     2$              ; BR IF YES
022750  042702  170000                  BIC     #^C7777,R2      ; GET ERROR COUNT FIELD
022754                                  PRINTS  #DEVONL,R3,R2   ; PRINT
022754  010246                          MOV     R2,-(SP)
022756  010346                          MOV     R3,-(SP)
022760  012746  023177                  MOV     #DEVONL,-(SP)
022764  012746  000003                  MOV     #3,-(SP)
022770  010600                          MOV     SP,R0
022772  104416                          TRAP    C$PNTS
022774  062706  000010                  ADD     #10,SP
023000  000446                          BR      4$
023002  020227  160000          2$:     CMP     R2,#160000      ; WAS UNIT NON-EXISTENT?
023006  001012                          BNE     3$              ; BR IF NO
023010                                  PRINTS  #DEVNXR,R3
023010  010346                          MOV     R3,-(SP)
023012  012746  023247                  MOV     #DEVNXR,-(SP)
```

```
                023016  012746  000002                  MOV     #2,-(SP)
                023022  010600                          MOV     SP,R0
                023024  104416                          TRAP    C$PNTS
                023026  062706  000006                  ADD     #6,SP
    254         023032  000431                          BR      4$
    255         023034  020227  160001          3$:     CMP     R2,#160001      ; WAS UNIT NOT READY AT STARTUP?
    256         023040  001012                          BNE     30$             ; BR IF NO.
    257         023042                                  PRINTS  #DEVNRD,R3
                023042  010346                          MOV     R3,-(SP)
                023044  012746  023331                  MOV     #DEVNRD,-(SP)
                023050  012746  000002                  MOV     #2,-(SP)
                023054  010600                          MOV     SP,R0
                023056  104416                          TRAP    C$PNTS
                023060  062706  000006                  ADD     #6,SP
    258         023064  000414                          BR      4$
    259         023066  042702  170000          30$:    BIC     #^C7777,R2
    260         023072                                  PRINTS  #DEVDRO,R3,R2
                023072  010246                          MOV     R2,-(SP)
                023074  010346                          MOV     R3,-(SP)
                023076  012746  023412                  MOV     #DEVDRO,-(SP)
                023102  012746  000003                  MOV     #3,-(SP)
                023106  010600                          MOV     SP,R0
                023110  104416                          TRAP    C$PNTS
                023112  062706  000010                  ADD     #10,SP
    261         023116  062704  000002          4$:     ADD     #2,R4
    262         023122  005203                          INC     R3
    263         023124  020427  003370                  CMP     R4,#ERTABE
    264         023130  103701                          BLO     1$
    265         023132  012604                          MOV     (SP)+,R4
    266         023134  012603                          MOV     (SP)+,R3
    267         023136  012602                          MOV     (SP)+,R2
    268         023140                                  ENDRPT          ; UNUSED.
                023140                          L10035:
                023140  104425                          TRAP    C$RPT
    269
    270         023142      045     116     045 DEVSUM: .ASCIZ  /%N%ADEVICE STATUS SUMMARY:%N/
    271         023177      045     101     040 DEVONL: .ASCIZ  /%A  UNIT %D3%A   ONLINE,  ERRORS = %D%N/
    272         023247      045     101     040 DEVNXR: .ASCIZ  /%A  UNIT %D3%A   DROPPED, NON-EXISTENT REGISTER%N/
    273         023331      045     101     040 DEVNRD: .ASCIZ  /%A  UNIT %D3%A   DROPPED, NOT READY AT STARTUP%N/
    274         023412      045     101     040 DEVDRO: .ASCIZ  /%A  UNIT %D3%A   DROPPED, ERRORS = %D%N/
    275                                             .EVEN
    276
    277         023462                              ENDMOD
    278
```

CLEAN-UP AND REPORT CODING SECTIONS

```
                                        .TITLE  TEST 1 - HARDWARE TEST 1-8 TESTS
                                        BGNMOD  TSV7B
023462
023462                          TSV7B::
```

```
                                        .SBTTL  TEST  1: WRITE TAPE MARK RETRY
                                ;+
                                ;
                                ;THIS TEST VERIFIES PROPER OPERATION OF THE WRITE TAPE MARK RETRY COMMAND (SPACE
                                ;REVERSE, ERASE, WRITE TAPE MARK). SUBTESTS ARE AS FOLLOWS:
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 4 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
023462                                  BGNTST
023462                                                                          T1::
023462  012737  006354  002172          MOV     #EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
023470  012700  032047                  MOV     #TST29ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
023474  004737  016570                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
023500  012737  000005  002210          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
023506  005037  026424                  CLR     T29CNT                  ;CLEAR TAPE RECORD COUNTER
023512                          T29LOOP:
                                ;+
                                ;
                                ;TEST 1, SUBTEST 1
                                ;
                                ;VERIFIES THAT A WRITE TAPE MARK RETRY COMMAND ISSUED WHILE THE
                                ;TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT TERMINATION, WITH THE
                                ;NON-EXECUTABLE FUNCTION (NEF) ERROR BIT SET.
                                ;
                                ;
                                ;
                                ;-
023512                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
023512                                                                          T1.1:
023512  104402                                                                  TRAP    C$BSUB
023514  004737  032076                  JSR     PC,T29REST              ;SET COMMAND PACKET
023520  004737  032170                  JSR     PC,T29RT2               ;SET UP OTHER COMMAND PACKET
023524  004737  032232                  JSR     PC,T29RT3               ;SET UP OTHER COMMAND PACKET
023530  012737  023420  026430          MOV     #10000.,T29DLY          ;SET UP DELAY ROUTINE
023536  004737  016054          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
023542  103426                  BCS     20$                             ;BR IF INIT WAS OK
023544                          DELAY   250                             ;DELAY ABOUT .25 SECONDS
023544  012727  000250                                                  MOV     #250,(PC)+
023550  000000                                                          .WORD   0
023552  013727  002116                                                  MOV     L$DLY,(PC)+
023556  000000                                                          .WORD   0
023560  005367  177772                                                  DEC     -6(PC)
023564  001375                                                          BNE     .-4
023566  005367  177756                                                  DEC     -22(PC)
023572  001367                                                          BNE     .-20
023574  005337  026430                  DEC     T29DLY                  ;BUMP DELAY ROUTINE DOWN
023600  001356                  BNE     10$                             ;BR, IF MORE DELAY TIME LEFT
023602  005237  002214                  INC     FATFLG                          ;ERROR COUNT
023606  010001                  MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
023610                          ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
023610  104455                                                                  TRAP    C$ERDF
023612  000145                                                                  .WORD   101
023614  003646                                                                  .WORD   SFIERR
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                                    SEQ 0103
TEST  1: WRITE TAPE MARK RETRY

     023616  012114                                                                          .WORD   SFIMSG
  76 023620  013737  002174  026270  20$:    MOV     UNITN,T29DSW            ;SET UP UNIT NUMBER
  77
  78 023626  012704  026250                  MOV     #T29PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
  79 023632  004737  010742                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
  80 023636  103407                          BCS     25$                     ;BR, IF COMMAND ISSUED OK
  81 023640  005237  002214                  INC     FATFLG                          ;ERROR COUNT
  85 023644  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
  86 023646                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     023646  104456                                                                  TRAP    C$ERHRD
     023650  000146                                                                  .WORD   102
     023652  005052                                                                  .WORD   WRTMSG
     023654  012114                                                                  .WORD   SFIMSG
  87 023656                          25$:    CKLOOP                          ;LOOP IF SELECTED
     023656  104406                                                                  TRAP    C$CLP1
  88 023660  016501  000002                  MOV     TSSR(R5),R1             ;GET THE TSSR
  89 023664  010102                          MOV     R1,R2                   ;SET UP EXPECTED
  90 023666  042702  000100                  BIC     #OFL,R2                 ;OFF LINE SHOULD NOT BE SET
  91 023672  020102                          CMP     R1,R2                   ;THEY SHOULD BE EQUAL
  92 023674  001406                          BEQ     26$                     ;BR, IF OFL IS NOT SET
  96 023676                                  ERRDF   ERRNO,T29OFL,EXPREC     ;DRIVE IS OFF LINE
     023676  104455                                                                  TRAP    C$ERDF
     023700  000147                                                                  .WORD   103
     023702  026432                                                                  .WORD   T29OFL
     023704  015554                                                                  .WORD   EXPREC
  97 023706  004737  017262                  JSR     PC,CKDROP               ;TRY AND DROP DRIVE
  98 023712  004737  011074          26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  99 023716  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
 100 023722  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 101 023726  103407                          BCS     30$                     ;BR, IF NO PROBLEM
 102 023730  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
 103 023732  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 107 023736                                  ERRHRD  ERRNO,T29RWN,PKTSSR     ;REWIND NOT ACCEPTED
     023736  104456                                                                  TRAP    C$ERHRD
     023740  000150                                                                  .WORD   104
     023742  030235                                                                  .WORD   T29RWN
     023744  012126                                                                  .WORD   PKTSSR
 108 023746                          30$:    CKLOOP                          ;LOOP IF SELECTED
     023746  104406                                                                  TRAP    C$CLP1
 109 023750  013701  026300                  MOV     T29BFR+6,R1             ;PICK UP XSTO
 110 023754  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 111 023756  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 112 023762  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 113 023764  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
 114 023766  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 118 023772                                  ERRHRD  ERRNO,T29BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     023772  104456                                                                  TRAP    C$ERHRD
     023774  000151                                                                  .WORD   105
     023776  027726                                                                  .WORD   T29BOT
     024000  015554                                                                  .WORD   EXPREC
 119 024002                          40$:    CKLOOP                          ;LOOP IF SELECTED
     024002  104406                                                                  TRAP    C$CLP1
 120 024004  013737  003116  026372          MOV     FREE,T29RB              ;ADDRESS OF READ BUFFER
 121 024012  012737  141011  026370          MOV     #141011,T29PK3          ;WRITE TAPE MARK RETRY,CVC=1,ACK COMMAND
 122 024020  012704  026370                  MOV     #T29PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 123 024024  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 124 024030  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0104
TEST  1: WRITE TAPE MARK RETRY

    125 024034  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    126 024040  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
    127 024044  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    128 024046  001406                          BEQ     75$                     ;BR, IF OK
    129 024050  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    133 024054                                  ERRHRD  ERRNO,T29WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        024054  104456                                                                      TRAP    C$ERHRD
        024056  000152                                                                      .WORD   106
        024060  027512                                                                      .WORD   T29WDE
        024062  012126                                                                      .WORD   PKTSSR
    134 024064                          75$:    CKLOOP                          ;LOOP IF SELECTED
        024064  104406                                                                      TRAP    C$CLP1
    135 024066  013701  026300                  MOV     T298FR+6,R1             ;GET XSTO STATUS WORD
    136 024072  010102                          MOV     R1,R2                   ;SET UP EXPECTED
    137 024074  052702  002000                  BIS     #BIT10,R2               ;SET THE NEF BIT
    138 024100  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    139 024102  001406                          BEQ     170$                    ;BR, IF EQUAL (GOOD)
    140 024104  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    144 024110                                  ERRHRD  ERRNO,T29NEF,EXPREC     ;NEF SHOULD BE SET
        024110  104456                                                                      TRAP    C$ERHRD
        024112  000153                                                                      .WORD   107
        024114  026560                                                                      .WORD   T29NEF
        024116  015554                                                                      .WORD   EXPREC
    145 024120                          170$:
    146 024120  005103                          COM     R3                      ;RESET THE SWITCH
    147 024122  001273                          BNE     26$                     ;BR, IF FIRST TIME THROUGH HERE
    148 024124                                  ENDSUB
        024124                                                                          L10037:
        024124  104403                                                                      TRAP    C$ESUB
    149 024126  023727  002214  000017                CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
    150 024134  103402                          BLO     999$                            ;BR, IF LESS THAN 25
    151 024136  004737  017262                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
    152 024142                          999$:
    153                                 ;*
    154                                 ;
    155                                 ;TEST 1, SUBTEST 2
    156                                 ;
    157                                 ;VERIFIES THAT A WRITE TAPE MARK RETRY COMMAND ISSUED WHILE THE TAPE
    158                                 ;IS POSITIONED BEFORE THE FIRST RECORD ON TAPE (BUT NOT AT BOT) RESULTS IN
    159                                 ;TAPE STATUS ALERT TERMINATION, WITH THE REVERSE INTO BOT (RIB) STATUS BIT
    160                                 ;SET.
    161                                 ;
    162                                 ;
    163                                 ;
    164                                 ;-
    165 024142                                  BGNSUB                          ;>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        024142                                                                          T1.2:
        024142  104402                                                                      TRAP    C$BSUB
    166 024144  004737  032076                  JSR     PC,T29REST              ;SET COMMAND PACKET
    167 024150  004737  032170                  JSR     PC,T29RT2               ;SET UP OTHER COMMAND PACKET
    168 024154  004737  032232                  JSR     PC,T29RT3               ;SET UP OTHER COMMAND PACKET
    169 024160  004737  016054                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
    170 024164  103407                          BCS     20$                     ;BR IF INIT WAS OK
    171 024166  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    175 024172  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
    176 024174                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        024174  104455                                                                      TRAP    C$ERDF
```

```
                                                                                .WORD   108
                                                                                .WORD   SFIERR
                                                                                .WORD   SFIMSG
177 024204  013737  002174  026270  20$:    MOV     UNITN,T29DSW        ;SET UP UNIT NUMBER
178
179 024212  012704  026250                  MOV     #T29PACKET,R4       ;SUBROUTINE NEEDS PACKET ADDRESS
180 024216  004737  010742                  JSR     PC,WRTCHR           ;ISSUE WRITE CHARACTERISTICS
181 024222  103407                          BCS     25$                 ;BR, IF COMMAND ISSUED OK
182 024224  005237  002214                  INC     FATFLG                      ;ERROR COUNT
186 024230  010001                          MOV     R0,R1               ;SAVE CONTENTS OF TSSR
187 024232                                  ERRHRD  ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTISC FAILED
    024232  104456                                                              TRAP    C$ERHRD
    024234  000155                                                              .WORD   109
    024236  005052                                                              .WORD   WRTMSG
    024240  012114                                                              .WORD   SFIMSG
188 024242                          25$:    CKLOOP                      ;LOOP IF SELECTED
    024242  104406                                                              TRAP    C$CLP1
189 024244  004737  011074          26$:    JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
190 024250  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR
191 024254  012702  000200                  MOV     #SSR,R2             ;SET UP EXPECTED TSSR
192 024260  103407                          BCS     30$                 ;BR, IF NO PROBLEM
193 024262  010004                          MOV     R0,R4               ;PACKET ADDRESS SET UP
194 024264  005237  002214                  INC     FATFLG                      ;ERROR COUNT
198 024270                                  ERRHRD  ERRNO,T29RWN,PKTSSR ;REWIND NOT ACCEPTED
    024270  104456                                                              TRAP    C$ERHRD
    024272  000156                                                              .WORD   110
    024274  030235                                                              .WORD   T29RWN
    024276  012126                                                              .WORD   PKTSSR
199 024300                          30$:    CKLOOP                      ;LOOP IF SELECTED
    024300  104406                                                              TRAP    C$CLP1
200 024302  013701  026300                  MOV     T29BFR+6,R1         ;PICK UP XSTO
201 024306  010102                          MOV     R1,R2               ;SET UP EXPECTED
202 024310  052702  000002                  BIS     #BIT1,R2            ;SET BOT BIT IN EXPECTED
203 024314  020102                          CMP     R1,R2               ;DOES EXP = REC'D
204 024316  001406                          BEQ     40$                 ;BR, IF EQUAL (OK)
205 024320  005237  002214                  INC     FATFLG                      ;ERROR COUNT
209 024324                                  ERRHRD  ERRNO,T29BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
    024324  104456                                                              TRAP    C$ERHRD
    024326  000157                                                              .WORD   111
    024330  027726                                                              .WORD   T29BOT
    024332  015554                                                              .WORD   EXPREC
210 024334  012737  000001  026372  40$:    MOV     #1,T29RB            ;NUMBER OF RECORDS TO SPACE OVER
211 024342  012737  000400  026376          MOV     #256.,T29SZ         ;SET UP RECORD SIZE
212 024350  012737  140005  026370          MOV     #140005,T29PK3      ;WRITE FORWARD,CVC=1,ACK COMMAND
213 024356  012704  026370                  MOV     #T29PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
214 024362  010465  000000                  MOV     R4,TSDB(R5)         ;ISSUE COMMAND
215 024366  004737  016330                  JSR     PC,WAITF            ;WAIT FOR SSR TO SET
216 024372  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
217 024376  012702  000200                  MOV     #SSR,R2             ;SET UP EXPECTED
218 024402  020102                          CMP     R1,R2               ;ARE THEY EQUAL
219 024404  001420                          BEQ     75$                 ;BR, IF OK
220 024406  013703  026300                  MOV     T29BFR+6,R3         ;PICK UP XTSO
221 024412  032703  000004                  BIT     #4,R3               ;IS UNIT WRITE-LOCKED?
222 024416  001405                          BEQ     41$                 ;NO,PROCEED WITH NORMAL ERROR
223 024420                                  ERRDF   ERRNO,T29WLK,SFIMSG ;TAPE IS WRITE LOCKED
    024420  104455                                                              TRAP    C$ERDF
    024422  000157                                                              .WORD   111
```

```
        024424  027574                                                          .WORD   T29WLK
        024426  012114                                                          .WORD   SFIMSG
    224 024430                          DOCLN                   ;DROP IT
        024430  104444                                                          TRAP    C$DCLN
    225 024432  005237  002214      41$:    INC     FATFLG                  ;ERROR COUNT
    229 024436                          ERRHRD  ERRNO,T29WRT,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
        024436  104456                                                          TRAP    C$ERHRD
        024440  000160                                                          .WORD   112
        024442  027661                                                          .WORD   T29WRT
        024444  012126                                                          .WORD   PKTSSR
    230 024446                      75$:    CKLOOP                  ;LOOP IF SELECTED
        024446  104406                                                          TRAP    C$CLP1
    231 024450  012737  000001  026372      MOV     #1,T29RB        ;NUMBER OF RECORDS TO SPACE OVER
    232 024456  012737  140410  026370      MOV     #140410,T29PK3  ;SET UP COMMAND IN APCKET                ;SET
UP SPACE REVERSE
    233 024464  012704  026370              MOV     #T29PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
    234 024470  010465  000000              MOV     R4,TSDB(R5)     ;ISSUE COMMAND
    235 024474  004737  016330              JSR     PC,WAITF        ;WAIT FOR SSR TO SET
    236 024500  016501  000002              MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
    237 024504  012702  000200              MOV     #SSR,R2         ;SET UP EXPECTED
    238 024510  020102                      CMP     R1,R2           ;ARE THEY EQUAL
    239 024512  001406                      BEQ     175$            ;BR, IF OK
    240 024514  005237  002214              INC     FATFLG                  ;ERROR COUNT
    244 024520                          ERRHRD  ERRNO,T29WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
        024520  104456                                                          TRAP    C$ERHRD
        024522  000161                                                          .WORD   113
        024524  027512                                                          .WORD   T29WDE
        024526  012126                                                          .WORD   PKTSSR
    245 024530                      175$:   CKLOOP                  ;LOOP IF SELECTED
        024530  104406                                                          TRAP    C$CLP1
    246 024532  013737  003116  026372      MOV     FREE,T29RB      ;ADDRESS OF BUFFER
    247 024540  012737  141011  026370      MOV     #141011,T29PK3  ;WRITE TAPE MARK RETRY,ACK,CVC=1 COMD.
    248 024546  012704  026370              MOV     #T29PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
    249 024552  010465  000000              MOV     R4,TSDB(R5)     ;ISSUE COMMAND
    250 024556  004737  016330              JSR     PC,WAITF        ;WAIT FOR SSR TO SET
    251 024562  016501  000002              MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
    252 024566  012702  100204              MOV     #SSR!SC!BIT2,R2 ;SET UP EXPECTED
    253 024572  020102                      CMP     R1,R2           ;ARE THEY EQUAL
    254 024574  001406                      BEQ     180$            ;BR, IF OK
    255 024576  005237  002214              INC     FATFLG                  ;ERROR COUNT
    259 024602                          ERRHRD  ERRNO,T29WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
        024602  104456                                                          TRAP    C$ERHRD
        024604  000162                                                          .WORD   114
        024606  027512                                                          .WORD   T29WDE
        024610  012126                                                          .WORD   PKTSSR
    260 024612                      180$:   CKLOOP                  ;LOOP IF SELECTED
        024612  104406                                                          TRAP    C$CLP1
    261 024614  013701  026306              MOV     T29BFR+14,R1    ;GET XST3 STATUS WORD
    262 024620  010102                      MOV     R1,R2           ;SET UP EXPECTED
    263 024622  052702  000001              BIS     #BIT0,R2        ;SET THE RIB BIT
    264 024626  020102                      CMP     R1,R2           ;ARE THEY EQUAL
    265 024630  001406                      BEQ     190$            ;BR, IF EQUAL (GOOD)
    266 024632  005237  002214              INC     FATFLG                  ;ERROR COUNT
    270 024636                          ERRHRD  ERRNO,T29RIB,EXPREC ;NEF SHOULD BE SET
        024636  104456                                                          TRAP    C$ERHRD
        024640  000163                                                          .WORD   115
        024642  031654                                                          .WORD   T29RIB
        024644  015554                                                          .WORD   EXPREC
```

```
    271 024646                          190$:
    272 024646                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        024646                                                                      L10040:
        024646  104403                                                              TRAP    C$ESUB
    273 024650  023727  002214  000017        CMP     FATFLG,#15.               ;IS ERROR COUNT AT 25
    274 024656  103402                        BLO     999$                      ;BR, IF LESS THAN 25
    275 024660  004737  017262                JSR     PC,CKDROP                 ;TRY TO DROP THE UNIT
    276 024664                          999$:
    277                                 ;*
    278                                 ;
    279                                 ;TEST 1, SUBTEST 3
    280                                 ;
    281                                 ;VERIFIES THAT A WRITE TAPE MARK RETRY COMMAND TERMINATES
    282                                 ;PROPERLY AND WRITES THE TAPE MARK ONTO TAPE (BY ISSUING A READ REVERSE
    283                                 ;COMMAND AND CHECKING FOR TAPE STATUS ALERT TERMINATION AND TMK=1).
    284                                 ;
    285                                 ;-
    286 024664                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        024664                                                                      T1.3:
        024664  104402                                                              TRAP    C$BSUB
    287 024666  004737  032076                JSR     PC,T29REST                ;SET COMMAND PACKET
    288 024672  004737  032170                JSR     PC,T29RT2                 ;SET UP OTHER COMMAND PACKET
    289 024676  004737  032232                JSR     PC,T29RT3                 ;SET UP OTHER COMMAND PACKET
    290 024702  012737  023420  026430        MOV     #10000.,T29DLY            ;SET UP DELAY ROUTINE
    291 024710  004737  016054          10$:  JSR     PC,SOFINIT                ;DO INITIALIZE ON CONTROLLER
    292 024714  103426                        BCS     20$                       ;BR IF INIT WAS OK
    293 024716                                DELAY   250                       ;DELAY ABOUT .25 SECONDS
        024716  012727  000250                                                      MOV     #250,(PC)+
        024722  000000                                                              .WORD   0
        024724  013727  002116                                                      MOV     L$DLY,(PC)+
        024730  000000                                                              .WORD   0
        024732  005367  177772                                                      DEC     -6(PC)
        024736  001375                                                              BNE     .-4
        024740  005367  177756                                                      DEC     -22(PC)
        024744  001367                                                              BNE     .-20
    294 024746  005337  026430                DEC     T29DLY                    ;BUMP DELAY ROUTINE DOWN
    295 024752  001356                        BNE     10$                       ;BR, IF MORE DELAY TIME LEFT
    296 024754  005237  002214                INC     FATFLG                          ;ERROR COUNT
    300 024760  010001                        MOV     R0,R1                     ;CONTENTS OF TSSR REGISTER
    301 024762                                ERRDF   ERRNO,SFIERR,SFIMSG       ;FATAL ERROR TSSR WAS NOT OK
        024762  104455                                                              TRAP    C$ERDF
        024764  000164                                                              .WORD   116
        024766  003646                                                              .WORD   SFIERR
        024770  012114                                                              .WORD   SFIMSG
    302 024772  013737  002174  026270  20$:   MOV     UNITN,T29DSW              ;SET UP DRIVE NUMBER
    303 025000  012704  026250                MOV     #T29PACKET,R4             ;SUBROUTINE NEEDS PACKET ADDRESS
    304 025004  004737  010742                JSR     PC,WRTCHR                 ;ISSUE WRITE CHARACTERISTICS
    305 025010  103407                        BCS     23$                       ;BR, IF COMMAND ISSUED OK
    306 025012  005237  002214                INC     FATFLG                          ;ERROR COUNT
    310 025016  010001                        MOV     R0,R1                     ;SAVE CONTENTS OF TSSR
    311 025020                                ERRHRD  ERRNO,WRTMSG,SFIMSG       ;WRITE CHARACTERISTISC FAILED
        025020  104456                                                              TRAP    C$ERHRD
        025022  000165                                                              .WORD   117
        025024  005052                                                              .WORD   WRTMSG
        025026  012114                                                              .WORD   SFIMSG
    312 025030                          23$:   CKLOOP                           ;LOOP IF SELECTED
        025030  104406                                                              TRAP    C$CLP1
```

TEST 1: WRITE TAPE MARK RETRY

```
313 025032  004737  011074              JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
314 025036  103411                      BCS     30$                 ;BR, IF NO PROBLEM
315 025040  016501  000002              MOV     TSSR(R5),R1         ;GET TSSR
316 025044  010004                      MOV     R0,R4               ;SAVE PACKET ADDRESS
317 025046  005237  002214              INC     FATFLG                      ;ERROR COUNT
321 025052                              ERRHRD  ERRNO,T29RWN,PKTSSR ;REWIND NOT ACCEPTED
    025052  104456                                                          TRAP    C$ERHRD
    025054  000166                                                          .WORD   118
    025056  030235                                                          .WORD   T29RWN
    025060  012126                                                          .WORD   PKTSSR
322 025062                      30$:    CKLOOP                      ;LOOP IF SELECTED
    025062  104406                                                          TRAP    C$CLP1
323 025064  013701  026300              MOV     T29BFR+6,R1         ;PICK UP XSTO
324 025070  010102                      MOV     R1,R2               ;SET UP EXPECTED
325 025072  052702  000002              BIS     #BIT1,R2            ;SET BOT BIT IN EXPECTED
326 025076  020102                      CMP     R1,R2               ;DOES EXP = REC'D
327 025100  001406                      BEQ     40$                 ;BR, IF EQUAL (OK)
328 025102  005237  002214              INC     FATFLG                      ;ERROR COUNT
332 025106                              ERRHRD  ERRNO,T29BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
    025106  104456                                                          TRAP    C$ERHRD
    025110  000167                                                          .WORD   119
    025112  027726                                                          .WORD   T29BOT
    025114  015554                                                          .WORD   EXPREC
333 025116                      40$:    CKLOOP                      ;LOOP IF SELECTED
    025116  104406                                                          TRAP    C$CLP1
334 025120  012737  140011  026370      MOV     #140011,T29PK3      ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
335 025126  012704  026370              MOV     #T29PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
336 025132  010465  000000              MOV     R4,TSDB(R5)         ;ISSUE COMMAND
337 025136  004737  016330              JSR     PC,WAITF            ;WAIT FOR SSR TO SET
338 025142  016501  000002              MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
339 025146  012702  000200              MOV     #SSR,R2             ;SET UP EXPECTED
340 025152  020102                      CMP     R1,R2               ;ARE THEY EQUAL
341 025154  001406                      BEQ     70$                 ;BR, IF OK
342 025156  005237  002214              INC     FATFLG                      ;ERROR COUNT
346 025162                              ERRHRD  ERRNO,T29WDC,PKTSSR ;TSSR INCORRECT AFTER WRITE TAPE MARK
    025162  104456                                                          TRAP    C$ERHRD
    025164  000170                                                          .WORD   120
    025166  030627                                                          .WORD   T29WDC
    025170  012126                                                          .WORD   PKTSSR
347 025172                      70$:    CKLOOP                      ;LOOP IF SELECTED
    025172  104406                                                          TRAP    C$CLP1
348 025174  012703  000001      150$:   MOV     #1.,R3              ;NUMBER OF RECORDS TO WRITE TM
349 025200  012737  141011  026370      MOV     #141011,T29PK3      ;WRITE TAPE MARK RETRY,ACK,CVC=1 COMMAND
350 025206  012704  026370              MOV     #T29PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
351 025212  010465  000000      155$:   MOV     R4,TSDB(R5)         ;ISSUE COMMAND
352 025216  004737  016330              JSR     PC,WAITF            ;WAIT FOR SSR TO SET
353 025222  016501  000002              MOV     TSSR(R5),R1         ;PICK UP TSSR
354 025226  012702  000200              MOV     #SSR,R2             ;SET UP EXPECTED (SSR ONLY)
355 025232  020102                      CMP     R1,R2               ;WAS STATUS GOOD
356 025234  001406                      BEQ     165$                ;BR, IF TERMINATION WAS GOOD
357 025236  005237  002214              INC     FATFLG                      ;ERROR COUNT
361 025242                              ERRHRD  ERRNO,T29WDC,PKTSSR ;TSSR NOT CORRECT AFTER WRT TAPE M.
    025242  104456                                                          TRAP    C$ERHRD
    025244  000171                                                          .WORD   121
    025246  030627                                                          .WORD   T29WDC
    025250  012126                                                          .WORD   PKTSSR
362 025252                      165$:   CKLOOP                      ;LOOP IF SELECTED
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0109
TEST  1: WRITE TAPE MARK RETRY

     025252  104406                                                              TRAP    C$CLP1
363  025254  012737  140401  026370          MOV     #140401,T29PK3      ;READ REVERSE,ACK, COMMAND
364  025262  013737  003116  026372          MOV     FREE,T29RB          ;NUMBER OF RECORDS TO SPACE BACK
365  025270  012704  026370                  MOV     #T29PK3,R4          ;SET UP R4 WITH PACKET ADDRESS
366  025274  010465  000000                  MOV     R4,TSDB(R5)         ;ISSUE COMMAND
367  025300  004737  016330                  JSR     PC,WAITF            ;WAIT FOR SSR TO SET
368  025304  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
369  025310  012702  100204                  MOV     #SSR!SC!BIT2,R2     ;SET UP EXPECTED
370  025314  020102                          CMP     R1,R2               ;ARE THEY EQUAL
371  025316  001406                          BEQ     222$                ;BR, IF OK
372  025320  005237  002214                  INC     FATFLG                      ;ERROR COUNT
376  025324                                  ERRHRD  ERRNO,T29RDG,PKTSSR ;TSSR INCORRECT AFTER SPACE CMD.
     025324  104456                                                              TRAP    C$ERHRD
     025326  000172                                                              .WORD   122
     025330  031573                                                              .WORD   T29RDG
     025332  012126                                                              .WORD   PKTSSR
377  025334                          222$:   CKLOOP                      ;LOOP IF SELECTED
     025334  104406                                                              TRAP    C$CLP1
378  025336  013701  026300                  MOV     T29BFR+6,R1         ;PICK UP XSTO
379  025342  010102                          MOV     R1,R2               ;SET UP EXPECTED
380  025344  052702  100000                  BIS     #BIT15,R2           ;TMK SHOULD BE SET
381  025350  020102                          CMP     R1,R2               ;IS TMK SET
382  025352  001406                          BEQ     226$                ;BR, IF TMK WAS SET (GOOD)
383  025354  005237  002214                  INC     FATFLG                      ;ERROR COUNT
387  025360                                  ERRHRD  ERRNO,T29RRN,EXPREC ;TMK NOT SET AFTER READ REV
     025360  104456                                                              TRAP    C$ERHRD
     025362  000173                                                              .WORD   123
     025364  031754                                                              .WORD   T29RRN
     025366  015554                                                              .WORD   EXPREC
388  025370                          226$:   CKLOOP                      ;LOOP IF SELECTED
     025370  104406                                                              TRAP    C$CLP1
389  025372                                  ENDSUB                      ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
     025372                                                                      L10041:
     025372  104403                                                              TRAP    C$ESUB
390  025374  023727  002214  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
391  025402  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
392  025404  004737  017262                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
393  025410                          999$:
394                                  ;*
395                                  ;
396                                  ;TEST 1, SUBTEST 4
397                                  ;
398                                  ;VERIFIES THAT THE SPACE-REVERSE PORTION OF THE WRITE TAPE MARK
399                                  ;RETRY OPERATION IS PERFORMED BY REWINDING THE TAPE, ISSUING SEVERAL
400                                  ;WRITE TAPE MARK RETRY COMMANDS IN SUCCESSION, THEN ISSUING TWO SPACE
401                                  ;RECORDS REVERSE COMMANDS IN SUCCESSION.  THE SECOND SPACE RECORDS REVERSE
402                                  ;COMMAND SHOULD TERMINATE WITH REVERSE INTO BOT (RIB) STATUS SET.
403                                  ;
404                                  ;-
405  025410                                  BGNSUB                      ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     025410                                                                      T1.4:
     025410  104402                                                              TRAP    C$BSUB
406  025412  004737  032076                  JSR     PC,T29REST          ;SET COMMAND PACKET
407  025416  004737  032170                  JSR     PC,T29RT2           ;SET UP OTHER COMMAND PACKET
408  025422  004737  032232                  JSR     PC,T29RT3           ;SET UP OTHER COMMAND PACKET
409  025426  012737  023420  026430          MOV     #10000.,T29DLY      ;SET UP DELAY ROUTINE
410  025434  004737  016054          10$:    JSR     PC,SOFINIT          ;DO INITIALIZE ON CONTROLLER
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                                    SEQ 0110
TEST  1: WRITE TAPE MARK RETRY

    411 025440  103426                          BCS     20$                 ;BR IF INIT WAS OK
    412 025442                                  DELAY   250                 ;DELAY ABOUT .25 SECONDS
        025442  012727  000250                                                    MOV     #250,(PC)+
        025446  000000                                                          .WORD   0
        025450  013727  002116                                                  MOV     L$DLY,(PC)+
        025454  000000                                                          .WORD   0
        025456  005367  177772                                                  DEC     -6(PC)
        025462  001375                                                         BNE     .-4
        025464  005367  177756                                                  DEC     -22(PC)
        025470  001367                                                         BNE     .-20
    413 025472  005337  026430                  DEC     T29DLY              ;BUMP DELAY ROUTINE DOWN
    414 025476  001356                          BNE     10$                 ;BR, IF MORE DELAY TIME LEFT
    415 025500  005237  002214                  INC     FATFLG                      ;ERROR COUNT
    419 025504  010001                          MOV     R0,R1               ;CONTENTS OF TSSR REGISTER
    420 025506                                  ERRDF   ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
        025506  104455                                                          TRAP    C$ERDF
        025510  000174                                                          .WORD   124
        025512  003646                                                          .WORD   SFIERR
        025514  012114                                                          .WORD   SFIMSG
    421 025516  013737  002174  026270  20$:     MOV     UNITN,T29DSW        ;SET UP DRIVE NUMBER
    422 025524  012704  026250                  MOV     #T29PACKET,R4       ;SUBROUTINE NEEDS PACKET ADDRESS
    423 025530  004737  010742                  JSR     PC,WRTCHR           ;ISSUE WRITE CHARACTERISTICS
    424 025534  103407                          BCS     23$                 ;BR, IF COMMAND ISSUED OK
    425 025536  005237  002214                  INC     FATFLG                      ;ERROR COUNT
    429 025542  010001                          MOV     R0,R1               ;SAVE CONTENTS OF TSSR
    430 025544                                  ERRHRD  ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTISC FAILED
        025544  104456                                                          TRAP    C$ERHRD
        025546  000175                                                          .WORD   125
        025550  005052                                                          .WORD   WRTMSG
        025552  012114                                                          .WORD   SFIMSG
    431 025554                      23$:        CKLOOP                      ;LOOP IF SELECTED
        025554  104406                                                          TRAP    C$CLP1
    432 025556  004737  011074                  JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
    433 025562  103411                          BCS     30$                 ;BR, IF NO PROBLEM
    434 025564  016501  000002                  MOV     TSSR(R5),R1         ;GET TSSR
    435 025570  010004                          MOV     R0,R4               ;SAVE PACKET ADDRESS
    436 025572  005237  002214                  INC     FATFLG                      ;ERROR COUNT
    440 025576                                  ERRHRD  ERRNO,T29RWN,PKTSSR ;REWIND NOT ACCEPTED
        025576  104456                                                          TRAP    C$ERHRD
        025600  000176                                                          .WORD   126
        025602  030235                                                          .WORD   T29RWN
        025604  012126                                                          .WORD   PKTSSR
    441 025606                      30$:        CKLOOP                      ;LOOP IF SELECTED
        025606  104406                                                          TRAP    C$CLP1
    442 025610  013701  026300                  MOV     T29BFR+6,R1         ;PICK UP XSTO
    443 025614  010102                          MOV     R1,R2               ;SET UP EXPECTED
    444 025616  052702  000002                  BIS     #BIT1,R2            ;SET BOT BIT IN EXPECTED
    445 025622  020102                          CMP     R1,R2               ;DOES EXP = REC'D
    446 025624  001406                          BEQ     40$                 ;BR, IF EQUAL (OK)
    447 025626  005237  002214                  INC     FATFLG                      ;ERROR COUNT
    451 025632                                  ERRHRD  ERRNO,T29BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
        025632  104456                                                          TRAP    C$ERHRD
        025634  000177                                                          .WORD   127
        025636  027726                                                          .WORD   T29BOT
        025640  015554                                                          .WORD   EXPREC
    452 025642                      40$:        CKLOOP                      ;LOOP IF SELECTED
        025642  104406                                                          TRAP    C$CLP1
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0111
TEST  1: WRITE TAPE MARK RETRY

    453 025644  012737  140011  026370          MOV     #140011,T29PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
    454 025652  012704  026370                  MOV     #T29PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    455 025656  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    456 025662  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    457 025666  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    458 025672  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
    459 025676  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    460 025700  001406                          BEQ     70$                     ;BR, IF OK
    461 025702  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    465 025706                                  ERRHRD  ERRNO,T29WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE TAPE MARK
        025706  104456                                                                      TRAP    C$ERHRD
        025710  000200                                                                      .WORD   128
        025712  030627                                                                      .WORD   T29WDC
        025714  012126                                                                      .WORD   PKTSSR
    466 025716                          70$:    CKLOOP                          ;LOOP IF SELECTED
        025716  104406                                                                      TRAP    C$CLP1
    467 025720  012703  000012          150$:   MOV     #10.,R3                 ;NUMBER OF RECORDS TO WRITE TM
    468 025724  012737  000001  026372          MOV     #1,T29RB                ;SET UP PACKET
    469 025732  012737  141011  026370          MOV     #141011,T29PK3          ;WRITE TAPE MARK RETRY,ACK,CVC=1 COMMAND
    470 025740  012704  026370                  MOV     #T29PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    471 025744  010465  000000          155$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    472 025750  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    473 025754  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP TSSR
    474 025760  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
    475 025764  020102                          CMP     R1,R2                   ;WAS STATUS GOOD
    476 025766  001406                          BEQ     165$                    ;BR, IF TERMINATION WAS GOOD
    477 025770  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    481 025774                                  ERRHRD  ERRNO,T29WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
        025774  104456                                                                      TRAP    C$ERHRD
        025776  000201                                                                      .WORD   129
        026000  030627                                                                      .WORD   T29WDC
        026002  012126                                                                      .WORD   PKTSSR
    482 026004                          165$:   CKLOOP                          ;LOOP IF SELECTED
        026004  104406                                                                      TRAP    C$CLP1
    483 026006  005303                          DEC     R3                      ;BUMP COUNTER DOWN
    484 026010  001355                          BNE     155$                    ;BR, IF LESS THAN 10 TAPE MARKS
    485 026012  012737  140410  026370          MOV     #140410,T29PK3          ;SPACE REVERSE,ACK,CVC=1, COMMAND
    486 026020  012737  000001  026372          MOV     #1,T29RB                ;NUMBER OF RECORDS TO SPACE BACK
    487 026026  012704  026370                  MOV     #T29PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    488 026032  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    489 026036  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    490 026042  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    491 026046  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
    492 026052  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    493 026054  001406                          BEQ     222$                    ;BR, IF OK
    494 026056  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    498 026062                                  ERRHRD  ERRNO,T29WDE,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
        026062  104456                                                                      TRAP    C$ERHRD
        026064  000202                                                                      .WORD   130
        026066  027512                                                                      .WORD   T29WDE
        026070  012126                                                                      .WORD   PKTSSR
    499 026072                          222$:   CKLOOP                          ;LOOP IF SELECTED
        026072  104406                                                                      TRAP    C$CLP1
    500 026074  012737  100410  026370          MOV     #100410,T29PK3          ;SPACE REVERSE,ACK, COMMAND
    501 026102  012737  000005  026372          MOV     #5,T29RB                ;NUMBER OF RECORDS TO SPACE BACK
    502 026110  012704  026370                  MOV     #T29PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    503 026114  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0112
TEST  1: WRITE TAPE MARK RETRY

    504 026120  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    505 026124  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    506 026130  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
    507 026134  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    508 026136  001406                          BEQ     260$                    ;BR, IF OK
    509 026140  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    513 026144                                  ERRHRD  ERRNO,T29RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE REV CMD.
        026144  104456                                                                  TRAP    C$ERHRD
        026146  000203                                                                  .WORD   131
        026150  031573                                                                  .WORD   T29RDG
        026152  012126                                                                  .WORD   PKTSSR
    514 026154                          260$:   CKLOOP                          ;LOOP IF SELECTED
        026154  104406                                                                  TRAP    C$CLP1
    515 026156  013701  026306                  MOV     T29BFR+14,R1            ;PICK UP XST3
    516 026162  010102                          MOV     R1,R2                   ;SET UP EXPECTED
    517 026164  052702  000001                  BIS     #BIT0,R2                ;RIB SHOULD BE SET
    518 026170  020102                          CMP     R1,R2                   ;IS RIB SET
    519 026172  001406                          BEQ     270$                    ;BR, IF RIB WAS SET (GOOD)
    520 026174  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    524 026200                                  ERRHRD  ERRNO,T29RIB,EXPREC     ;TMK NOT SET AFTER READ REV
        026200  104456                                                                  TRAP    C$ERHRD
        026202  000204                                                                  .WORD   132
        026204  031654                                                                  .WORD   T29RIB
        026206  015554                                                                  .WORD   EXPREC
    525 026210                          270$:   CKLOOP                          ;LOOP IF SELECTED
        026210  104406                                                                  TRAP    C$CLP1
    526 026212                          330$:   CKLOOP                          ;LOOP IF SELECTED
        026212  104406                                                                  TRAP    C$CLP1
    527 026214                                  ENDSUB                          ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
        026214                                                                          L10042:
        026214  104403                                                                  TRAP    C$ESUB
    528 026216  023727  002214  000017                CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
    529 026224  103402                          BLO     999$                    ;BR, IF LESS THAN 25
    530 026226  004737  017262                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
    531 026232                          999$:
    532                                 ;
    533                                 ;
    534                                 ;
    535 026232  004737  016536                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
    536 026236  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
    537 026240  000137  023512                  JMP     T29LOOP                 ;EXECUTE AGAIN
    538 026244                          163$:   EXIT    TST                     ;ALL DONE THIS TEST
        026244  104432                                                                  TRAP    C$EXIT
        026246  004014                                                                  .WORD   L10036-.
    539                                 ;+
    540                                 ;LOCAL STORAGE FOR THIS TEST
    541                                 ;-
    545 026250                          T29PACKET:                              ;COMMAND PACKET FOR TEST
    546 026250  014004                          .WORD   14004                   ;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
    547 026252  026260                          .WORD   T29DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
    548 026254  000000                          .WORD   0
    549 026256  000012                          .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
    550 026260                          T29DATA:                                ;CHARACTERISTICS DATA BLOCK
    551 026260  026272                          .WORD   T29BFR                  ;ADDRESS OF MESSAGE BUFFER
    552 026262  000000                          .WORD   0
    553 026264  000024                          .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
    554 026266  000000                          .WORD   0
```

```
    555 026270  000000                  T29DSW: .WORD   0                       ;SELECT DRIVE 0
    556 026272                          T29BFR: .BLKW   25.                     ;MESSAGE BUFFER
    557                                 ;
    558                                 ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
    559                                 ;
    561         026360                          .=<.+10>&177770
    563 026360                          T29PK2:
    564 026360  100006                          .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, AND ACK
    565 026362  026400                          .WORD   T29BF2                  ;ADDRESS OF SELECT BLOCK DATA
    566 026364  000000                          .WORD   0
    567 026366  000006                          .WORD   6.                      ;SIZE OF DATA PACKET
    568
    572 026370                          T29PK3:
    573 026370  140005                          .WORD   140005                  ;WRITE TAPE MARK RETRY COMMAND, CVC=1 AND ACK
    574 026372                          T29RB:
    575 026372  003116                  T29WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
    576 026374  000000                          .WORD   0
    577 026376  000000                  T29SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
    578                                         .EVEN
    579                                 ;
    580                                 ;
    581                                 ;
    582 026400                          T29BF2:
    583 026400     010                  T29BS0: .BYTE   10                      ;BSEL0 AREA
    584 026401     200                  T29BS1: .BYTE   200                     ;BSEL1 AREA
    585 026402  000000                  T29S2:  .WORD   0                       ;SEL 2 AREA
    586 026404  000000                  T29S3:  .WORD   0                       ;DATA AREA
    587                                 ;
    588                                 ;
    589                                         .EVEN
    590                                 ;TAPE MOTION PACKET COMMAND VALUES
    591
    592 026406  140001                  T29RN:  .WORD   140001                  ;READ DATA
    593 026410  140401                  T29WDR: .WORD   140401                  ;READ DATA REVERSE
    594 026412  141001                  T29CON: .WORD   141001                  ;READ PREVIOUS OPP=0
    595 026414  161001                          .WORD   161001                  ;READ PREVIOUS OPP=1
    596 026416  141401                          .WORD   141401                  ;WRITE TAPE MARK RETRY NEXT OPP=0
    597 026420  161401                          .WORD   161401                  ;WRITE TAPE MARK RETRY NEXT OPP=1
    598 026422  177777                          .WORD   177777                  ;END OF DATA
    599
    600                                 ;
    601 026424  000000                  T29CNT: .WORD   0                       ;TAPE RECORD COUNTER STORAGE AREA
    602
    603 026426  000000                  T29RSZ: .WORD   0                       ;RECORD STORAGE SIZE  AREA
    604 026430  000000                  T29DLY: .WORD                   ;DELAY COUNTER STORAGE AREA
    605                                 ;+
    606                                 ;LOCAL TEXT MESSAGES FOR TEST
    607                                 ;-
    608
    609 026432     104     162     151  T29OFL: .ASCIZ  'Drive is OFFLINE'
    610 026453     124     141     160  T29WNG: .ASCIZ  'Tape Position Incorrect After WRITE TAPE MARK RETRY Previous (OPP=1)'
    611 026560     127     122     111  T29NEF: .ASCIZ  'WRITE TAPE MARK RETRY, At BOT, Failed To Set NEF (XSTO)'
    612 026650     124     123     123  T29RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
    613 026717     127     122     111  T29RRF: .ASCIZ  'WRITE TAPE MARK RETRY Previous (Space Reverse, Read Forward) Command Failed
'
    614 027033     127     122     111  T29RRG: .ASCIZ  'WRITE TAPE MARK RETRY Previous (Read Forward, Space Reverse) Command Failed
'
    615 027147     120     117     123  T29SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
    616 027231     122     111     102  T29LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
```

```
                123  T29WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
                154  T29LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
                122  T29SSR: .ASCIZ  'WRITE TAPE MARK RETRY COMMAND Not Accepted'
                123  T29WDE: .ASCIZ  'TSSR Not Correct After SPACE REVERSE DATA Command'
                052  T29WLK: .ASCIZ  '*****TAPE IS WRITE-LOCKED AND WILL CAUSE ERRORS*****'
                123  T29WRT: .ASCIZ  'TSSR Not Correct After WRITE Command'
                160  T29BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
                164  T29DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
                111  T29EOT: .ASCIZ  'WRITE TAPE MARK RETRY DATA OVER EOT GAVE NO TAPE STATUS ALERT'
                123  T29TM:  .ASCIZ  'TSSR Not Correct After SPACE REVERSE Into BOT'
                167  T29RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
                115  T29RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
                123  T29AM3: .ASCIZ  'TSSR Init. Failed After WRITE TAPE MARK RETRY COMMAND'
                151  T29OF7: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
                123  T29WDD: .ASCIZ  'TSSR Not Correct After WRITE TAPE MARK RETRY DATA Command, SWB Bit Set'
                123  T29WDC: .ASCIZ  'TSSR Not Correct After WRITE TAPE MARK RETRY DATA Command'
                103  T29VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
                102  T29BA:  .ASCIZ  'TSBA Not Correct After WRITE TAPE MARK RETRY DATA Command'
                111  T29WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
                141  T29LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
                141  T29LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
                163  T29PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
                141  T29TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
                164  T29NEQ: .ASCIZ  'Data WRITE TAPE MARK RETRY From Tape Not Correct, After SWB=1'
                123  T29RDG: .ASCIZ  'TSSR Incorrect After READ REVERSE Into Tape Mark'
                111  T29RIB: .ASCIZ  'WRITE TAPE MARK RETRY At First Record, Failed To Set RIB (XST3)'
                113  T29RRN: .ASCIZ  'TMK (XSTO) Failed To Set After READ REVERSE Into Tape Mark'
                151  TST29ID:        .ASCIZ  'Write Tape Mark Retry'
                                     .EVEN
                                ;+
                                ;
                                ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                ;WRITE SUBSYSTEM MEMORY COMMAND
                                ;
                                ;-

                                T29REST:
                                     SAVREG                          ;SAVE THE REGISTERS
                                     MOV     #T29PACKET,R1           ;START OF THE PACKET
                                     MOV     #140004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, CVC=1
                                     MOV     #T29DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
                                     CLR     (R1)+                   ;EXTENDED ADDRESS
                                     MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
                                     MOV     #T29BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
                                     CLR     (R1)+
                                     MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
                                     CLR     (R1)+
                                     MOV     #0,(R1)                 ;SELECT DRIVE ZERO (0)
                                     MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
                026272  64$:         MOV     #177777,T29BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
                                     TST     -(R2)                   ;NEXT LOCATION
                                     CMP     R2,#0                   ;CHECK FOR END OF LOOP
                                     BNE     64$                     ;KEEP GOING UNTIL DONE
                                     RTS     PC                      ;RETURN

                                T29RT2:
                                     SAVREG                          ;SAVE THE REGISTERS
```

```
                                        MOV     #T29PK2,R1              ;START OF THE PACKET
                                        MOV     #140006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,CVC=1,
                                        MOV     #T29BF2,(R1)+           ;ADDRESS OF DATA BLOCK
                                        CLR     (R1)+                   ;EXTENDED ADDRESS
                                        MOV     #6.,(R1)+               ;SI"E OF DATA BLOCK IN BYTES
                                        CLR     (R1)+
                                        MOV     #T29BF2,R1              ;POINT TO DATA SEL AREA
                                        CLR     (R1)+
                                        CLR     (R1)
                                        RTS     PC                      ;RETURN
                                T29RT3:
                                        SAVREG                          ;SAVE THE REGISTERS
                                        MOV     #T29PK3,R1              ;START OF THE PACKET
                                        MOV     #0,(R1)+                ;WRITE SUBSYSTEM MEM. WITH ACK,
                                        MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
                                        CLR     (R1)+                   ;EXTENDED ADDRESS
                                        MOV     #0,(R1)         ;SIZE OF DATA BLOCK IN BYTES
                                        RTS     PC                      ;RETURN
                                        ENDTST
                                                                                L10036:
                                                                                        TRAP    C$ETST
                                        .SBTTL  TEST  2: SKIP TAPE MARKS
                                ;+
                                ;
                                ;THIS TEST VERIFIES PROPER OPERATION OF THE SKIP TAPE MARKS
                                ;FORWARD AND SKIP TAPE MARKS REVERSE COMMANDS. PROPER OPERATION
                                ;UNDER CONTROL OF ALL COMBINATIONS OF THE ENABLE SKIP TAPE MARKS
                                ;STOP (ESS) AND ENABLE TAPE MARKS STOP OFF BOT (ENB) BITS SPECIFIED
                                ;BY THE WRITE CHARACTERISTICS COMMAND. THE TEST CONSISTS OF THE
                                ;FOLLOWING SUBTESTS (FOR EACH SUBTEST, THE TAPE IS FIRST WRITTEN
                                ;WITH AN APPROPRIATE SERIES OF DATA RECORDS AND/OR TAPE MARKS
                                ;AND/OR DOUBLE TAPE MARKS.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 11 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
                                        BGNTST
                                                                                T2::
032264  012737  006354  002172          MOV     #EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
032272  012700  041161                  MOV     #TST30ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
032276  004737  016570                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
032302  012737  000005  002210          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
                                ;+
                                ;
                                ;TEST 2, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A SKIP TAPE MARKS FORWARD COMMAND WITH
                                ;A TAPE MARK COUNT OF 1 OPERATES OPERATES PROPERLY. THE TAPE
                                ;IS FIRST REWOUND, THEN WRITTEN WITH SEVERAL "FILES";
                                ;EACH FILE CONSISTS OF A NUMBER OF DATA RECORDS
                                ;FOLLOWED BY A TAPE MARK. THE FINAL FILE IS
                                ;TERMINATED BY A DOUBLE TAPE MARK. EACH DATA RECORD
                                ;CONTAINS A FILE NUMBER AND THE RECORD NUMBER WITHIN
```

```
                                        ;THE FILE SO THAT TAPE POSITION CAN BE SUBSEQUENTLY
                                        ;VERIFIED BY READING THE DATA. THE TAPE IS AGAIN
                                        ;REWOUND AND A SERIES OF SKIP TAPE MARKS FORWARD
                                        ;COMMANDS ARE ISSUED AND THE RESULTS (TAPE STATUS ALERT
                                        ;TERMINATION, TMK=1 STATUS, TAPE POSITION VIA READ
                                        ;COMMAND) IS CHECKED. PRIOR TO ISSUANCE OF EACH SKIP
                                        ;COMMAND, A WRITE CHARACTERISTICS COMMAND IS ISSUED TO
                                        ;SET UP THE ESS AND ENB CONTROL BITS. ALL
                                        ;COMBINATIONS OF ESS AND ENB ARE USED (00,01,10,
                                        ;11); OPERATION SHOULD BE THE SAME IN EACH CASE FOR
                                        ;THIS SUBTEST.
                                        ;
                                        ;
                                        ;-

032310                                  T30LOOP:
032310                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
032310                                                                                  T2.1:
032310  104402                                                                          TRAP    C$BSUB
032312  004737  041202                        JSR     PC,T30REST              ;SET COMMAND PACKET
032316  005037  036604                        CLR     T30FCN                  ;CLEAR FILE COUNTER
032322  004737  041274                        JSR     PC,T30RT2               ;SET UP OTHER COMMAND PACKET
032326  004737  041336                        JSR     PC,T30RT3               ;SET UP OTHER COMMAND PACKET
032332  012737  176750  036606                MOV     #65000.,T30DLY          ;SET UP DELAY COUNTER
032340  004737  016054                10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
032344  103426                              BCS     20$                     ;BR IF INIT WAS OK
032346                                      DELAY   250                     ;DELAY ROUTINE CALL
032346  012727  000250                                                              MOV     #250.,(PC)+
032352  000000                                                                      .WORD   0
032354  013727  002116                                                              MOV     L$DLY,(PC)+
032360  000000                                                                      .WORD   0
032362  005367  177772                                                              DEC     -6(PC)
032366  001375                                                                      BNE     .-4
032370  005367  177756                                                              DEC     -22(PC)
032374  001367                                                                      BNE     .-20
032376  005337  036606                        DEC     T30DLY                  ;BUMP COUNTER
032402  001356                              BNE     10$                     ;BR, IF MORE COUNTING TO DO
032404  005237  002214                        INC     FATFLG                          ;ERROR COUNT
032410  010001                              MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
032412                                      ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
032412  104455                                                                          TRAP    C$ERDF
032414  000311                                                                          .WORD   201
032416  003646                                                                          .WORD   SFIERR
032420  012114                                                                          .WORD   SFIMSG
032422                                  20$:
032422  013737  002174  036450                MOV     UNITN,T30DSW            ;SET UP UNIT NUMBER
032430  012704  036430                      MOV     #T30PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                        ;*************************************************************
                                        ;
                                        ;ISSUE WRITE CHARACTERISTICS COMMAND
                                        ;
                                        ;*************************************************************

032434  004737  010742                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
032440  103407                              BCS     23$                     ;BR, IF COMMAND ISSUED OK
032442  005237  002214                        INC     FATFLG                          ;ERROR COUNT
```

```
    781 032446  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
    782 032450                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        032450  104456                                                            TRAP    C$ERHRD
        032452  000312                                                            .WORD   202
        032454  005052                                                            .WORD   WRTMSG
        032456  012114                                                            .WORD   SFIMSG
    783 032460                          23$:  CKLOOP                            ;LOOP IF SELECTED
        032460  104406                                                            TRAP    C$CLP1
    784
    785                                 ;***************************************************************
    786                                 ;
    787                                 ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
    788                                 ;
    789                                 ;***************************************************************
    790
    791 032462  004737  011074                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
    792 032466  103411                          BCS     30$                     ;BR, IF NO PROBLEM
    793 032470  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
    794 032472  016501  000002                  MOV     TSSR(R5),R1             ;GET STATUS REGISTER
    795 032476  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    799 032502                                ERRHRD  ERRNO,T30RWN,PKTSSR     ;REWIND NOT ACCEPTED
        032502  104456                                                            TRAP    C$ERHRD
        032504  000313                                                            .WORD   203
        032506  040170                                                            .WORD   T30RWN
        032510  012126                                                            .WORD   PKTSSR
    800 032512                          30$:  CKLOOP                            ;LOOP IF SELECTED
        032512  104406                                                            TRAP    C$CLP1
    801
    802                                 ;***************************************************************
    803                                 ;
    804                                 ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
    805                                 ;
    806                                 ;***************************************************************
    807
    808 032514  013701  036460                  MOV     T30BFR+6,R1             ;PICK UP XST0
    809 032520  010102                          MOV     R1,R2                   ;SET UP EXPECTED
    810 032522  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
    811 032526  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
    812 032530  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
    813 032532  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    817 032536                                ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        032536  104456                                                            TRAP    C$ERHRD
        032540  000314                                                            .WORD   204
        032542  037771                                                            .WORD   T30BOT
        032544  015554                                                            .WORD   EXPREC
    818 032546                          40$:  CKLOOP                            ;LOOP IF SELECTED
        032546  104406                                                            TRAP    C$CLP1
    819 032550  012737  000001  036604          MOV     #1.,T30FCN              ;SET "FILE" COUNTER AT 1 DECIMAL
    820 032556  012703  000001          64$:    MOV     #1,R3                   ;ONE RECORD  PER "FILE"
    821 032562  013737  003116  036552  65$:    MOV     FREE,T30WB              ;SET UP PACKETS'S WRITE BUFFER
    822 032570  012737  003720  036556          MOV     #2000.,T30SZ            ;SET RECORD SIZE AT 2000 BYTES
    823
    824                                 ;***************************************************************
    825                                 ;
    826                                 ;WRITE DATA,ACK,CVC=1 COMMAND
    827                                 ;
    828                                 ;***************************************************************
```

```
    829
    830 032576  012737  140005  036550          MOV     #140005,T30PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
    831 032604  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    832 032610  013702  036604                  MOV     T30FCN,R2               ;GET FILE COUNTER
    833 032614  000302                          SWAB    R2                      ;MOVE TO UPPER BYTE
    834 032616  010301                          MOV     R3,R1                   ;GET RECORD COUNTER
    835 032620  060201                          ADD     R2,R1                   ;FILE COUNTER IN UPPER, RECORD # LOW
    836 032622  010177  150270                  MOV     R1,@FREE                ;MOV TO OUT PUT BUFFER
    837 032626  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    838 032632  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    839 032636  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    840 032642  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
    841 032646  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    842 032650  001406                          BEQ     70$                     ;BR, IF OK
    843 032652  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    847 032656                                  ERRHRD  ERRNO,T30WDD,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        032656  104456                                                                  TRAP    C$ERHRD
        032660  000315                                                                  .WORD   205
        032662  037120                                                                  .WORD   T30WDD
        032664  012126                                                                  .WORD   PKTSSR
    848 032666                          70$:    CKLOOP                          ;LOOP IF SELECTED
        032666  104406                                                                  TRAP    C$CLP1
    849 032670  005205                          INC     R3                      ;COUNT THE RECORD COUNTER DOWN
    850 032672  020327  000021                  CMP     R3,#21                  ;AT 20 YET
    851 032676  001331                          BNE     65$                     ;BR, IF NOT AT 20 RECORDS WRITTEN
    852
    853                             ;***************************************************************
    854                             ;
    855                             ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
    856                             ;
    857                             ;***************************************************************
    858
    859 032700  012737  141011  036550          MOV     #141011,T30PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
    860 032706  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    861 032712  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    862 032716  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    863 032722  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP TSSR
    864 032726  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
    865 032732  020102                          CMP     R1,R2                   ;WAS STATUS GOOD
    866 032734  001406                          BEQ     160$                    ;BR, IF TERMINATION WAS GOOD
    867 032736  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    871 032742                                  ERRHRD  ERRNO,T30WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
        032742  104456                                                                  TRAP    C$ERHRD
        032744  000316                                                                  .WORD   206
        032746  040312                                                                  .WORD   T30WDC
        032750  012126                                                                  .WORD   PKTSSR
    872 032752                          160$:   CKLOOP                          ;LOOP IF SELECTED
        032752  104406                                                                  TRAP    C$CLP1
    873 032754  005237  036604                  INC     T30FCN                  ;COUNT THE "FILE" COUNTER DOWN
    874 032760  023727  036604  000006          CMP     T30FCN,#6               ;WRITE 5 FILE TO TAPE
    875 032766  001273                          BNE     64$                     ;BR, IF NOT AT 5 FILES WRITTEN
    876
    877                             ;***************************************************************
    878                             ;
    879                             ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
    880                             ;
    881                             ;***************************************************************
```

```
    882
    883 032770  012737  141011  036550          MOV     #141011,T30PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
    884 032776  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    885 033002  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    886 033006  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    887 033012  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP TSSR
    888 033016  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
    889 033022  020102                          CMP     R1,R2                   ;WAS STATUS GOOD
    890 033024  001406                          BEQ     165$                    ;BR, IF TERMINATION WAS GOOD
    891 033026  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    895 033032                                  ERRHRD  ERRNO,T30WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
        033032  104456                                                                  TRAP    C$ERHRD
        033034  000317                                                                  .WORD   207
        033036  040312                                                                  .WORD   T30WDC
        033040  012126                                                                  .WORD   PKTSSR
    896 033042                          165$:   CKLOOP                          ;LOOP IF SELECTED
        033042  104406                                                                  TRAP    C$CLP1
    897
    898                                 ;*****************************************************************
    899                                 ;
    900                                 ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
    901                                 ;
    902                                 ;*****************************************************************
    903
    904 033044  004737  011074                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
    905 033050  103411                          BCS     170$                    ;BR, IF NO PROBLEM
    906 033052  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
    907 033054  016501  000002                  MOV     TSSR(R5),R1             ;GET STATUS REGISTER
    908 033060  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    912 033064                                  ERRHRD  ERRNO,T30RWN,PKTSSR     ;REWIND NOT ACCEPTED
        033064  104456                                                                  TRAP    C$ERHRD
        033066  000320                                                                  .WORD   208
        033070  040170                                                                  .WORD   T30RWN
        033072  012126                                                                  .WORD   PKTSSR
    913 033074                          170$:   CKLOOP                          ;LOOP IF SELECTED
        033074  104406                                                                  TRAP    C$CLP1
    914
    915                                 ;*****************************************************************
    916                                 ;
    917                                 ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
    918                                 ;
    919                                 ;*****************************************************************
    920
    921 033076  013701  036460                  MOV     T30BFR+6,R1             ;PICK UP XST0
    922 033102  010102                          MOV     R1,R2                   ;SET UP EXPECTED
    923 033104  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
    924 033110  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
    925 033112  001406                          BEQ     180$                    ;BR, IF EQUAL (OK)
    926 033114  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    930 033120                                  ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        033120  104456                                                                  TRAP    C$ERHRD
        033122  000321                                                                  .WORD   209
        033124  037771                                                                  .WORD   T30BOT
        033126  015554                                                                  .WORD   EXPREC
    931 033130                          180$:   CKLOOP                          ;LOOP IF SELECTED
        033130  104406                                                                  TRAP    C$CLP1
    932 033132  012703  036566                  MOV     #T30IMV,R3              ;SET UP POINTER TO COMMAND TABLE
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0120
TEST  2: SKIP TAPE MARKS

    933 033136  013737  002174  036450          MOV     UNITN,T30DSW            ;SET UP UNIT NUMBER
    934 033144  011337  036446          182$:   MOV     (R3),T30ETM             ;GET NEXT COMMAND
    935 033150  012704  036430                  MOV     #T30PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
    936
    937                                 ;*************************************************************
    938                                 ;
    939                                 ;ISSUE WRITE CHARACTERISTICS COMMAND
    940                                 ;
    941                                 ;*************************************************************
    942
    943 033154  004737  010742                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
    944 033160  103407                          BCS     188$                    ;BR, IF COMMAND ISSUED OK
    945 033162  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    949 033166  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
    950 033170                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        033170  104456                                                                      TRAP    C$ERHRD
        033172  000322                                                                      .WORD   210
        033174  005052                                                                      .WORD   WRTMSG
        033176  012114                                                                      .WORD   SFIMSG
    951 033200                          188$:   CKLOOP                          ;LOOP IF SELECTED
        033200  104406                                                                      TRAP    C$CLP1
    952
    953                                 ;*************************************************************
    954                                 ;
    955                                 ;SKIP TAPE MARK,ACK,CVC=1 COMMAND
    956                                 ;
    957                                 ;*************************************************************
    958
    959 033202  012737  141010  036550          MOV     #141010,T30PK3          ;SKIP TAPE MARK,ACK,CVC=1 COMMAND
    960 033210  012737  000001  036552          MOV     #1,T30R8                ;SET UP NUMBER TO SKIP
    961 033216  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    962 033222  010465  000000          189$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    963 033226  012737  176750  036606          MOV     #65000.,T30DLY          ;SET UP DELAY COUNTER
    964 033234  004737  016330          190$:   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    965 033240  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP TSSR
    966 033244  032701  000200                  BIT     #SSR,R1                 ;IS SSR SET YET
    967 033250  001017                          BNE     191$                    ;BR, IF SSR IS SET
    968 033252                                  DELAY   250                     ;CALL DELAY ROUTINE
        033252  012727  000250                                                      MOV     #250.,(PC)+
        033256  000000                                                              .WORD   0
        033260  013727  002116                                                      MOV     L$DLY,(PC)+
        033264  000000                                                              .WORD   0
        033266  005367  177772                                                      DEC     -6(PC)
        033272  001375                                                              BNE     .-4
        033274  005367  177756                                                      DEC     -22(PC)
        033300  001367                                                              BNE     .-20
    969 033302  005337  036606                  DEC     T30DLY                  ;BUMP DELAY ROUTINE
    970 033306  001352                          BNE     190$                    ;BR, IF MORE DELAY TO GO
    971 033310  012702  000200          191$:   MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
    972 033314  020102                          CMP     R1,R2                   ;WAS STATUS GOOD
    973 033316  001406                          BEQ     192$                    ;BR, IF TERMINATION WAS GOOD
    974 033320  005237  002214                  INC     FATFLG                          ;ERROR COUNT
    978 033324                                  ERRHRD  ERRNO,T30SKM,PKTSSR     ;TSSR NOT CORRECT AFTER SKIP TAPE M.
        033324  104456                                                                      TRAP    C$ERHRD
        033326  000323                                                                      .WORD   211
        033330  037044                                                                      .WORD   T30SKM
        033332  012126                                                                      .WORD   PKTSSR
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                                    SEQ 0121
TEST  2: SKIP TAPE MARKS

   979 033334                           192$:   CKLOOP                          ;LOOP IF SELECTED
       033334  104406                                                                    TRAP    C$CLP1
   980
   981                                  ;*****************************************************************
   982                                  ;
   983                                  ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
   984                                  ;
   985                                  ;*****************************************************************
   986
   987 033336  013701  036460                   MOV     T30BFR+6,R1             ;PICK UP XST0
   988 033342  010102                           MOV     R1,R2                   ;SET UP EXPECTED
   989 033344  052702  100000                   BIS     #BIT15,R2               ;SET TMK BIT IN EXPECTED
   990 033350  020102                           CMP     R1,R2                   ;DOES EXP = REC'D
   991 033352  001406                           BEQ     195$                    ;BR, IF EQUAL (OK)
   992 033354  005237  002214                   INC     FATFLG                          ;ERROR COUNT
   996 033360                                   ERRHRD  ERRNO,T30TMK,EXPREC     ;TMK NOT SET AFTER WRT TAPE MARK
       033360  104456                                                                  TRAP    C$ERHRD
       033362  000324                                                                  .WORD   212
       033364  040444                                                                  .WORD   T30TMK
       033366  015554                                                                  .WORD   EXPREC
   997 033370                           195$:   CKLOOP                          ;LOOP IF SELECTED
       033370  104406                                                                  TRAP    C$CLP1
   998 033372  012700  177777                   MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
   999 033376  004737  017502                   JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
  1000 033402  013737  003116  036552           MOV     FREE,T30RB              ;STARTING READ BUFFER ADDRESS
  1001
  1002                                  ;*****************************************************************
  1003                                  ;
  1004                                  ;READ FORWARD,ACK,CVC=1 COMMAND
  1005                                  ;
  1006                                  ;*****************************************************************
  1007
  1008 033410  012737  140001  036550           MOV     #140001,T30PK3          ;READ FORWARD,ACK,CVC=1 COMMAND
  1009 033416  012704  036550                   MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
  1010 033422  012737  003720  036556           MOV     #2000.,T30SZ            ;SET UP RECORD SIZE IN PACKET
  1011 033430  010465  000000                   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
  1012 033434  004737  016330                   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
  1013 033440  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
  1014 033444  012702  000200                   MOV     #SSR,R2                 ;SET UP EXPECTED
  1015 033450  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
  1016 033452  001406                           BEQ     200$                    ;BR, IF OK
  1017 033454  005237  002214                   INC     FATFLG                          ;ERROR COUNT
  1021 033460                                   ERRHRD  ERRNO,T30RDF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
       033460  104456                                                                  TRAP    C$ERHRD
       033462  000325                                                                  .WORD   213
       033464  037343                                                                  .WORD   T30RDF
       033466  012126                                                                  .WORD   PKTSSR
  1022 033470                           200$:   CKLOOP                          ;LOOP IF SELECTED
       033470  104406                                                                  TRAP    C$CLP1
  1023 033472  017701  147420                   MOV     @FREE,R1                ;FIRST LOC IN READ BUFFER
  1024 033476  012702  177777                   MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
  1025 033502  020102                           CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
  1026 033504  001006                           BNE     220$                    ;BR, IF NO DATA TRANS (GOOD)
  1027 033506  005237  002214                   INC     FATFLG                          ;ERROR COUNT
  1031 033512                                   ERRHRD  ERRNO,T30DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
       033512  104456                                                                  TRAP    C$ERHRD
       033514  000326                                                                  .WORD   214
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                                    SEQ 0122
TEST  2: SKIP TAPE MARKS

        033516  041020                                                                          .WORD   T30DTR
        033520  015554                                                                          .WORD   EXPREC
   1032 033522                          220$:   CKLOOP                          ;LOOP IF SELECTED
        033522  104406                                                                          TRAP    C$CLP1
   1033 033524  012702  001001                  MOV     #1001,R2                ;SET UP RECORD NUMBER EXPECTED (FILE 2)
   1034 033530  017701  147362                  MOV     @FREE,R1                ;GET INFO FROM BUFFER
   1035 033534  020201                          CMP     R2,R1                   ;ARE THEY EQUAL
   1036 033536  001406                          BEQ     228$                    ;BR, IF EQUAL (OK)
   1037 033540  005237  002214                  INC     FATFLG                          ;ERROR COUNT
   1041 033544                                  ERRHRD  ERRNO,T30PTB,EXPREC     ;RECORD POSITION WAS NOT CORRECT
        033544  104456                                                                          TRAP    C$ERHRD
        033546  000327                                                                          .WORD   215
        033550  037172                                                                          .WORD   T30PTB
        033552  015554                                                                          .WORD   EXPREC
   1042 033554                          228$:   CKLOOP                          ;LOOP IF SELECTED
        033554  104406                                                                          TRAP    C$CLP1
   1043
   1044                                 ;*************************************************************
   1045                                 ;
   1046                                 ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
   1047                                 ;
   1048                                 ;*************************************************************
   1049
   1050 033556  004737  011074                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
   1051 033562  103411                          BCS     230$                    ;BR, IF NO PROBLEM
   1052 033564  010004                          MOV     R0,R4                   ;SAVE PACKET ADDRESS
   1053 033566  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR STATUS
   1054 033572  005237  002214                  INC     FATFLG                          ;ERROR COUNT
   1058 033576                                  ERRHRD  ERRNO,T30RWN,PKTSSR     ;REWIND NOT ACCEPTED
        033576  104456                                                                          TRAP    C$ERHRD
        033600  000330                                                                          .WORD   216
        033602  040170                                                                          .WORD   T30RWN
        033604  012126                                                                          .WORD   PKTSSR
   1059 033606                          230$:   CKLOOP                          ;LOOP IF SELECTED
        033606  104406                                                                          TRAP    C$CLP1
   1060
   1061                                 ;*************************************************************
   1062                                 ;
   1063                                 ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
   1064                                 ;
   1065                                 ;*************************************************************
   1066
   1067 033610  013701  036460                  MOV     T30BFR+6,R1             ;PICK UP XST0
   1068 033614  010102                          MOV     R1,R2                   ;SET UP EXPECTED
   1069 033616  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
   1070 033622  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
   1071 033624  001406                          BEQ     240$                    ;BR, IF EQUAL (OK)
   1072 033626  005237  002214                  INC     FATFLG                          ;ERROR COUNT
   1076 033632                                  ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        033632  104456                                                                          TRAP    C$ERHRD
        033634  000331                                                                          .WORD   217
        033636  037771                                                                          .WORD   T30BOT
        033640  015554                                                                          .WORD   EXPREC
   1077 033642                          240$:   CKLOOP                          ;LOOP IF SELECTED
        033642  104406                                                                          TRAP    C$CLP1
   1078 033644  005723                          TST     (R3)+                   ;POINT TO NEXT POSITION
   1079 033646  011301                          MOV     (R3),R1                 ;GET NEXT COMMAND ETC.
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0123
TEST  2: SKIP TAPE MARKS

   1080 033650  020127  177777                    CMP     R1,#177777          ;END OF TABLE MARKER
   1081 033654  001402                            BEQ     330$                ;BR, IF AT END OF TABLE
   1082 033656  000137  033144                    JMP     182$                ;JUMP TO MORE COMMANDS TO DO
   1083 033662                            330$:   CKLOOP                      ;LOOP IF SELECTED
        033662  104406                                                                TRAP    C$CLP1
   1084 033664                            ENDSUB                              ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
        033664                                                                      L10044:
        033664  104403                                                                TRAP    C$ESUB
   1085 033666  023727  002214  000017            CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
   1086 033674  103402                            BLO     999$                        ;BR, IF LESS THAN 25
   1087 033676  004737  017262                    JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
   1088 033702                            999$:
   1089                                   ;*
   1090                                   ;
   1091                                   ;TEST 2, SUBTEST 2
   1092                                   ;
   1093                                   ;VERIFIES THAT SKIP TAPE MARKS COMMANDS WITH A TAPE
   1094                                   ;MARK COUNT GREATER THAN 1 OPERATE PROPERLY. COUNTS
   1095                                   ;OF 2,3,8,64,256, AND 512 ARE TESTED. THE
   1096                                   ;TESTING SEQUENCE IS SIMILAR TO THAT USED IN SUBTEST 1.
   1097                                   ;
   1098                                   ;
   1099                                   ;
   1100                                   ;-
   1101
   1102 033702                            BGNSUB                              ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        033702                                                                      T2.2:
        033702  104402                                                                TRAP    C$BSUB
   1103 033704  004737  041202                    JSR     PC,T30REST          ;SET COMMAND PACKET
   1104 033710  005037  036604                    CLR     T30FCN              ;CLEAR FILE COUNTER
   1105 033714  004737  041274                    JSR     PC,T30RT2           ;SET UP OTHER COMMAND PACKET
   1106 033720  004737  041336                    JSR     PC,T30RT3           ;SET UP OTHER COMMAND PACKET
   1107 033724  012737  176750  036606            MOV     #65000.,T30DLY      ;SET UP DELAY COUNTER
   1108 033732  004737  016054            10$:    JSR     PC,SOFINIT          ;DO INITIALIZE ON CONTROLLER
   1109 033736  103426                            BCS     20$                 ;BR IF INIT WAS OK
   1110 033740                                    DELAY   250                 ;DELAY ROUTINE CALL
        033740  012727  000250                                                        MOV     #250.,(PC)+
        033744  000000                                                                .WORD   0
        033746  013727  002116                                                        MOV     L$DLY,(PC)+
        033752  000000                                                                .WORD   0
        033754  005367  177772                                                        DEC     -6(PC)
        033760  001375                                                                BNE     .-4
        033762  005367  177756                                                        DEC     -22(PC)
        033766  001367                                                                BNE     .-20
   1111 033770  005337  036606                    DEC     T30DLY              ;BUMP COUNTER
   1112 033774  001356                            BNE     10$                 ;BR, IF MORE COUNTING TO DO
   1113 033776  005237  002214                    INC     FATFLG                      ;ERROR COUNT
   1117 034002  010001                            MOV     R0,R1               ;CONTENTS OF TSSR REGISTER
   1118 034004                                    ERRDF   ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
        034004  104455                                                                TRAP    C$ERDF
        034006  000332                                                                .WORD   218
        034010  003646                                                                .WORD   SFIERR
        034012  012114                                                                .WORD   SFIMSG
   1119 034014                            20$:
   1120 034014  013737  002174  036450            MOV     UNITN,T30DSW        ;SET UP UNIT NUMBER
   1121 034022  012704  036430                    MOV     #T30PACKET,R4       ;SUBROUTINE NEEDS PACKET ADDRESS
   1122
```

```
                                ;*****************************************************************
                                ;
                                ;ISSUE WRITE CHARACTERISTICS COMMAND
                                ;
                                ;*****************************************************************

034026  004737  010742               JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
034032  103407                       BCS     23$                     ;BR, IF COMMAND ISSUED OK
034034  005237  002214               INC     FATFLG                          ;ERROR COUNT
034040  010001                       MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
034042                               ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
034042  104456                                                               TRAP    C$ERHRD
034044  000333                                                               .WORD   219
034046  005052                                                               .WORD   WRTMSG
034050  012114                                                               .WORD   SFIMSG
034052                          23$:    CKLOOP                          ;LOOP IF SELECTED
034052  104406                                                               TRAP    C$CLP1

                                ;*****************************************************************
                                ;
                                ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
                                ;
                                ;*****************************************************************

034054  004737  011074               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
034060  103411                       BCS     30$                     ;BR, IF NO PROBLEM
034062  010004                       MOV     R0,R4                   ;GET PACKET ADDRESS
034064  016501  000002               MOV     TSSR(R5),R1             ;GET STATUS REGISTER
034070  005237  002214               INC     FATFLG                          ;ERROR COUNT
034074                               ERRHRD  ERRNO,T3ORWN,PKTSSR     ;REWIND NOT ACCEPTED
034074  104456                                                               TRAP    C$ERHRD
034076  000334                                                               .WORD   220
034100  040170                                                               .WORD   T3ORWN
034102  012126                                                               .WORD   PKTSSR
034104                          30$:    CKLOOP                          ;LOOP IF SELECTED
034104  104406                                                               TRAP    C$CLP1

                                ;*****************************************************************
                                ;
                                ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
                                ;
                                ;*****************************************************************

034106  013701  036460               MOV     T30BFR+6,R1             ;PICK UP XST0
034112  010102                       MOV     R1,R2                   ;SET UP EXPECTED
034114  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
034120  020102                       CMP     R1,R2                   ;DOES EXP = REC'D
034122  001406                       BEQ     40$                     ;BR, IF EQUAL (OK)
034124  005237  002214               INC     FATFLG                          ;ERROR COUNT
034130                               ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
034130  104456                                                               TRAP    C$ERHRD
034132  000335                                                               .WORD   221
034134  037771                                                               .WORD   T30BOT
034136  015554                                                               .WORD   EXPREC
034140                          40$:    CKLOOP                          ;LOOP IF SELECTED
034140  104406                                                               TRAP    C$CLP1
034142  012737  000001  036604       MOV     #1.,T30FCN              ;SET "FILE" COUNTER AT 1 DECIMAL
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0125
TEST  2: SKIP TAPE MARKS

 1174 034150  012703  000001          64$:    MOV     #1,R3                   ;ONE RECORD  PER "FILE"
 1175 034154  013737  003116  036552  65$:    MOV     FREE,T30WB              ;SET UP PACKETS'S WRITE BUFFER
 1176 034162  012737  000024  036556          MOV     #20.,T30SZ              ;SET RECORD SIZE AT 2000 BYTES
 1177
 1178                                 ;*************************************************************
 1179                                 ;
 1180                                 ;WRITE DATA,ACK,CVC=1 COMMAND
 1181                                 ;
 1182                                 ;*************************************************************
 1183
 1184 034170  012737  140005  036550          MOV     #140005,T30PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
 1185 034176  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 1186 034202  013702  036604                  MOV     T30FCN,R2               ;GET FILE COUNTER
 1187 034206  000302                          SWAB    R2                      ;MOVE TO UPPER BYTE
 1188 034210  010301                          MOV     R3,R1                   ;GET RECORD COUNTER
 1189 034212  060201                          ADD     R2,R1                   ;FILE COUNTER IN UPPER, RECORD # LOW
 1190 034214  010177  146676                  MOV     R1,@FREE                ;MOV TO OUT PUT BUFFER
 1191 034220  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 1192 034224  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 1193 034230  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 1194 034234  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 1195 034240  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 1196 034242  001406                          BEQ     70$                     ;BR, IF OK
 1197 034244  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 1201 034250                                  ERRHRD  ERRNO,T30WDD,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      034250  104456                                                                  TRAP    C$ERHRD
      034252  000336                                                                  .WORD   222
      034254  037120                                                                  .WORD   T30WDD
      034256  012126                                                                  .WORD   PKTSSR
 1202 034260                          70$:    CKLOOP                          ;LOOP IF SELECTED
      034260  104406                                                                  TRAP    C$CLP1
 1203 034262  005203                          INC     R3                      ;COUNT THE RECORD COUNTER DOWN
 1204 034264  020327  000021                  CMP     R3,#21                  ;AT 20 YET
 1205 034270  001331                          BNE     65$                     ;BR, IF NOT AT 20 RECORDS WRITTEN
 1206
 1207                                 ;*************************************************************
 1208                                 ;
 1209                                 ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
 1210                                 ;
 1211                                 ;*************************************************************
 1212
 1213 034272  012737  141011  036550          MOV     #141011,T30PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
 1214 034300  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 1215 034304  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 1216 034310  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 1217 034314  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP TSSR
 1218 034320  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
 1219 034324  020102                          CMP     R1,R2                   ;WAS STATUS GOOD
 1220 034326  001406                          BEQ     160$                    ;BR, IF TERMINATION WAS GOOD
 1221 034330  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 1225 034334                                  ERRHRD  ERRNO,T30WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
      034334  104456                                                                  TRAP    C$ERHRD
      034336  000337                                                                  .WORD   223
      034340  040312                                                                  .WORD   T30WDC
      034342  012126                                                                  .WORD   PKTSSR
 1226 034344                          160$:   CKLOOP                          ;LOOP IF SELECTED
      034344  104406                                                                  TRAP    C$CLP1
```

```
1227 034346  005237  036604          INC     T30FCN                  ;COUNT THE "FILE" COUNTER DOWN
1228 034352  023727  036604  000031  CMP     T30FCN,#25.             ;WRITE 25 FILES TO TAPE
1229 034360  001273                  BNE     64$                     ;BR, IF NOT AT 25 FILES WRITTEN
1230
1231                                 ;*****************************************************************
1232                                 ;
1233                                 ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
1234                                 ;
1235                                 ;*****************************************************************
1236
1237 034362  012737  141011  036550  MOV     #141011,T30PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
1238 034370  012704  036550          MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1239 034374  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1240 034400  004737  016330          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1241 034404  016501  000002          MOV     TSSR(R5),R1             ;PICK UP TSSR
1242 034410  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
1243 034414  020102                  CMP     R1,R2                   ;WAS STATUS GOOD
1244 034416  001406                  BEQ     165$                    ;BR, IF TERMINATION WAS GOOD
1245 034420  005237  002214          INC     FATFLG                          ;ERROR COUNT
1249 034424                          ERRHRD  ERRNO,T30WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
     034424  104456                                                          TRAP    C$ERHRD
     034426  000340                                                          .WORD   224
     034430  040312                                                          .WORD   T30WDC
     034432  012126                                                          .WORD   PKTSSR
1250 034434                  165$:   CKLOOP                          ;LOOP IF SELECTED
     034434  104406                                                          TRAP    C$CLP1
1251
1252                                 ;*****************************************************************
1253                                 ;
1254                                 ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
1255                                 ;
1256                                 ;*****************************************************************
1257
1258 034436  004737  011074          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
1259 034442  103411                  BCS     170$                    ;BR, IF NO PROBLEM
1260 034444  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
1261 034446  016501  000002          MOV     TSSR(R5),R1             ;GET STATUS REGISTER
1262 034452  005237  002214          INC     FATFLG                          ;ERROR COUNT
1266 034456                          ERRHRD  ERRNO,T30RWN,PKTSSR     ;REWIND NOT ACCEPTED
     034456  104456                                                          TRAP    C$ERHRD
     034460  000341                                                          .WORD   225
     034462  040170                                                          .WORD   T30RWN
     034464  012126                                                          .WORD   PKTSSR
1267 034466                  170$:   CKLOOP                          ;LOOP IF SELECTED
     034466  104406                                                          TRAP    C$CLP1
1268
1269                                 ;*****************************************************************
1270                                 ;
1271                                 ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
1272                                 ;
1273                                 ;*****************************************************************
1274
1275 034470  013701  036460          MOV     T30BFR+6,R1             ;PICK UP XST0
1276 034474  010102                  MOV     R1,R2                   ;SET UP EXPECTED
1277 034476  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
1278 034502  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
1279 034504  001406                  BEQ     180$                    ;BR, IF EQUAL (OK)
```

```
1280 034506  005237  002214                INC     FATFLG                          ;ERROR COUNT
1284 034512                                ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     034512  104456                                                                TRAP    C$ERHRD
     034514  000342                                                                .WORD   226
     034516  037771                                                                .WORD   T30BOT
     034520  015554                                                                .WORD   EXPREC
1285 034522                        180$:   CKLOOP                          ;LOOP IF SELECTED
     034522  104406                                                                TRAP    C$CLP1
1286 034524  012737  000002  036604          MOV     #2,T30FCN               ;SET TO NUMBER OF SKIP "FILES"
1287 034532  012703  036566                MOV     #T30IMV,R3              ;SET UP POINTER TO COMMAND TABLE
1288 034536  013737  002174  036450          MOV     UNITN,T30DSW            ;SET UP UNIT NUMBER
1289 034544  011337  036446          182$:   MOV     (R3),T30ETM             ;GET NEXT COMMAND
1290 034550  012704  036430                MOV     #T30PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1291
1292                               ;*****************************************************************
1293                               ;
1294                               ;ISSUE WRITE CHARACTERISTICS COMMAND
1295                               ;
1296                               ;*****************************************************************
1297
1298 034554  004737  010742                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1299 034560  103407                        BCS     188$                    ;BR, IF COMMAND ISSUED OK
1300 034562  005237  002214                INC     FATFLG                          ;ERROR COUNT
1304 034566  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1305 034570                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     034570  104456                                                                TRAP    C$ERHRD
     034572  000343                                                                .WORD   227
     034574  005052                                                                .WORD   WRTMSG
     034576  012114                                                                .WORD   SFIMSG
1306 034600                        188$:   CKLOOP                          ;LOOP IF SELECTED
     034600  104406                                                                TRAP    C$CLP1
1307
1308                               ;*****************************************************************
1309                               ;
1310                               ;SKIP TAPE MARK,ACK,CVC=1 COMMAND
1311                               ;
1312                               ;*****************************************************************
1313
1314 034602  012737  141010  036550          MOV     #141010,T30PK3          ;SKIP TAPE MARK,ACK,CVC=1 COMMAND
1315 034610  013737  036604  036552          MOV     T30FCN,T30RB            ;SET UP NUMBER TO SKIP
1316 034616  012704  036550                MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1317 034622  010465  000000          189$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1318 034626  012737  176750  036606          MOV     #65000.,T30DLY          ;SET UP DELAY COUNTER
1319 034634  004737  016330          190$:   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1320 034640  016501  000002                MOV     TSSR(R5),R1             ;PICK UP TSSR
1321 034644  032701  000200                BIT     #SSR,R1                 ;IS SSR SET YET
1322 034650  001017                        BNE     191$                    ;BR, IF SSR IS SET
1323 034652                                DELAY   250                     ;CALL DELAY ROUTINE
     034652  012727  000250                                                        MOV     #250.,(PC)+
     034656  000000                                                                .WORD   0
     034660  013727  002116                                                        MOV     L$DLY,(PC)+
     034664  000000                                                                .WORD   0
     034666  005367  177772                                                        DEC     -6(PC)
     034672  001375                                                                BNE     .-4
     034674  005367  177756                                                        DEC     -22(PC)
     034700  001367                                                                BNE     .-20
1324 034702  005337  036606                DEC     T30DLY                  ;BUMP DELAY ROUTINE
```

```
1325 034706  001352                    BNE     190$                    ;BR, IF MORE DELAY TO GO
1326 034710  012702  000200  191$:     MOV     #SSR,R2                 ;SET UP EXPECTED (SSR ONLY)
1327 034714  020102                    CMP     R1,R2                   ;WAS STATUS GOOD
1328 034716  001406                    BEQ     192$                    ;BR, IF TERMINATION WAS GOOD
1329 034720  005237  002214                    INC     FATFLG                          ;ERROR COUNT
1333 034724                            ERRHRD  ERRNO,T30SKM,PKTSSR     ;TSSR NOT CORRECT AFTER SKIP TAPE M.
     034724  104456                                                            TRAP    C$ERHRD
     034726  000344                                                            .WORD   228
     034730  037044                                                            .WORD   T30SKM
     034732  012126                                                            .WORD   PKTSSR
1334 034734                    192$:   CKLOOP                          ;LOOP IF SELECTED
     034734  104406                                                            TRAP    C$CLP1
1335
1336                           ;*************************************************************
1337                           ;
1338                           ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
1339                           ;
1340                           ;*************************************************************
1341
1342 034736  013701  036460            MOV     T30BFR+6,R1             ;PICK UP XST0
1343 034742  010102                    MOV     R1,R2                   ;SET UP EXPECTED
1344 034744  052702  100000            BIS     #BIT15,R2               ;SET TMK BIT IN EXPECTED
1345 034750  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
1346 034752  001406                    BEQ     195$                    ;BR, IF EQUAL (OK)
1347 034754  005237  002214                    INC     FATFLG                          ;ERROR COUNT
1351 034760                            ERRHRD  ERRNO,T30TMK,EXPREC     ;TMK NOT SET AFTER WRT TAPE MARK
     034760  104456                                                            TRAP    C$ERHRD
     034762  000345                                                            .WORD   229
     034764  040444                                                            .WORD   T30TMK
     034766  015554                                                            .WORD   EXPREC
1352 034770                    195$:   CKLOOP                          ;LOOP IF SELECTED
     034770  104406                                                            TRAP    C$CLP1
1353 034772  012700  177777            MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
1354 034776  004737  017502            JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
1355 035002  013737  003116  036552    MOV     FREE,T30RB              ;STARTING READ BUFFER ADDRESS
1356
1357                           ;*************************************************************
1358                           ;
1359                           ;READ FORWARD,ACK,CVC=1 COMMAND
1360                           ;
1361                           ;*************************************************************
1362
1363 035010  012737  140001  036550    MOV     #140001,T30PK3          ;READ FORWARD,ACK,CVC=1 COMMAND
1364 035016  012704  036550            MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1365 035022  012737  000024  036556    MOV     #20.,T30SZ              ;SET UP RECORD SIZE IN PACKET
1366 035030  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1367 035034  004737  016330            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1368 035040  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1369 035044  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
1370 035050  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
1371 035052  001406                    BEQ     200$                    ;BR, IF OK
1372 035054  005237  002214                    INC     FATFLG                          ;ERROR COUNT
1376 035060                            ERRHRD  ERRNO,T30RDF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     035060  104456                                                            TRAP    C$ERHRD
     035062  000346                                                            .WORD   230
     035064  037343                                                            .WORD   T30RDF
     035066  012126                                                            .WORD   PKTSSR
```

```
1377 035070                          200$:   CKLOOP                          ;LOOP IF SELECTED
     035070  104406                                                                  TRAP    C$CLP1
1378 035072  017701  146020                  MOV     @FREE,R1                ;FIRST LOC IN READ BUFFER
1379 035076  012702  177777                  MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
1380 035102  020102                          CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
1381 035104  001006                          BNE     220$                    ;BR, IF NO DATA TRANS (GOOD)
1382 035106  005237  002214                  INC     FATFLG                          ;ERROR COUNT
1386 035112                                  ERRHRD  ERRNO,T30DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
     035112  104456                                                                  TRAP    C$ERHRD
     035114  000347                                                                  .WORD   231
     035116  041020                                                                  .WORD   T30DTR
     035120  015554                                                                  .WORD   EXPREC
1387 035122                          220$:   CKLOOP                          ;LOOP IF SELECTED
     035122  104406                                                                  TRAP    C$CLP1
1388 035124  013702  036604                  MOV     T30FCN,R2               ;GET NUMBER OF SKIPS
1389 035130  005202                          INC     R2                      ;SET TO CORRECT FILE VALUE
1390 035132  000302                          SWAB    R2                      ;SWAP BYTE HALVES
1391 035134  052702  000001                  BIS     #BIT0,R2                ;SET FOR RECORD #1
1392 035140  017701  145752                  MOV     @FREE,R1                ;GET INFO FROM BUFFER
1393 035144  020201                          CMP     R2,R1                   ;ARE THEY EQUAL
1394 035146  001406                          BEQ     228$                    ;BR, IF EQUAL (OK)
1395 035150  005237  002214                  INC     FATFLG                          ;ERROR COUNT
1399 035154                                  ERRHRD  ERRNO,T30PTB,EXPREC     ;RECORD POSITION WAS NOT CORRECT
     035154  104456                                                                  TRAP    C$ERHRD
     035156  000350                                                                  .WORD   232
     035160  037172                                                                  .WORD   T30PTB
     035162  015554                                                                  .WORD   EXPREC
1400 035164                          228$:   CKLOOP                          ;LOOP IF SELECTED
     035164  104406                                                                  TRAP    C$CLP1
1401
1402                                 ;***************************************************************
1403                                 ;
1404                                 ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
1405                                 ;
1406                                 ;***************************************************************
1407
1408 035166  004737  011074                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
1409 035172  103411                          BCS     230$                    ;BR, IF NO PROBLEM
1410 035174  010004                          MOV     R0,R4                   ;SAVE PACKET ADDRESS
1411 035176  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR STATUS
1412 035202  005237  002214                  INC     FATFLG                          ;ERROR COUNT
1416 035206                                  ERRHRD  ERRNO,T30RWN,PKTSSR     ;REWIND NOT ACCEPTED
     035206  104456                                                                  TRAP    C$ERHRD
     035210  000351                                                                  .WORD   233
     035212  040170                                                                  .WORD   T30RWN
     035214  012126                                                                  .WORD   PKTSSR
1417 035216                          230$:   CKLOOP                          ;LOOP IF SELECTED
     035216  104406                                                                  TRAP    C$CLP1
1418
1419                                 ;***************************************************************
1420                                 ;
1421                                 ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
1422                                 ;
1423                                 ;***************************************************************
1424
1425 035220  013701  036460                  MOV     T30BFR+6,R1             ;PICK UP XST0
1426 035224  010102                          MOV     R1,R2                   ;SET UP EXPECTED
```

```
1427 035226  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
1428 035232  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
1429 035234  001406                        BEQ     240$                    ;BR, IF EQUAL (OK)
1430 035236  005237  002214                INC     FATFLG                          ;ERROR COUNT
1434 035242                                ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     035242  104456                                                               TRAP    C$ERHRD
     035244  000352                                                               .WORD   234
     035246  037771                                                               .WORD   T30BOT
     035250  015554                                                               .WORD   EXPREC
1435 035252                         240$:  CKLOOP                          ;LOOP IF SELECTED
     035252  104406                                                               TRAP    C$CLP1
1436 035254  005723                        TST     (R3)+                   ;POINT TO NEXT POSITION
1437 035256  011301                        MOV     (R3),R1                 ;GET NEXT COMMAND ETC.
1438 035260  020127  177777                CMP     R1,#177777              ;END OF TABLE MARKER
1439 035264  001410                        BEQ     330$                    ;BR, IF AT END OF TABLE
1440 035266  013701  036604                MOV     T30FCN,R1               ;GET NUMBER OF SKIPS
1441 035272  000241                        CLC                             ;CLEAR THE CARRY BIT
1442 035274  006101                        ROL     R1                      ;PUSH OVER ONE POSITION
1443 035276  010137  036604                MOV     R1,T30FCN               ;PUT BACK IN COUNTER
1444 035302  000137  034544                JMP     182$                    ;JUMP TO MORE COMMANDS TO DO
1445 035306                         330$:  CKLOOP                          ;LOOP IF SELECTED
     035306  104406                                                               TRAP    C$CLP1
1446 035310                                ENDSUB                          ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
     035310                                                                     L10045:
     035310  104403                                                               TRAP    C$ESUB
1447 035312  023727  002214  000017              CMP     FATFLG,#15.               ;IS ERROR COUNT AT 25
1448 035320  103402                              BLO     999$                      ;BR, IF LESS THAN 25
1449 035322  004737  017262                      JSR     PC,CKDROP                 ;TRY TO DROP THE UNIT
1450 035326                         999$:
1451                                ;+
1452                                ;
1453                                ;TEST 2, SUBTEST 3
1454                                ;
1455                                ;
1456                                ;VERIFIES THAT A SKIP TAPE MARKS REVERSE COMMAND
1457                                ;ISSUED WHILE THE TAPE IS POSITIONED AT BOT CAUSES
1458                                ;FUNCTION REJECT TERMINATION, WITH THE NON-EXECUTABLE
1459                                ;FUNCTION (NEF) ERROR BIT SET.
1460                                ;
1461                                ;
1462                                ;
1463                                ;
1464                                ;
1465                                ;-
1466 035326                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     035326                                                                     T2.3:
     035326  104402                                                               TRAP    C$BSUB
1467 035330  004737  041202                      JSR     PC,T30REST              ;SET COMMAND PACKET
1468 035334  005037  036604                      CLR     T30FCN                  ;CLEAR FILE COUNTER
1469 035340  004737  041274                      JSR     PC,T30RT2               ;SET UP OTHER COMMAND PACKET
1470 035344  004737  041336                      JSR     PC,T30RT3               ;SET UP OTHER COMMAND PACKET
1471 035350  012737  176750  036606              MOV     #65000.,T30DLY          ;SET UP DELAY COUNTER
1472 035356  004737  016054                10$:  JSR     PC,$OFINIT              ;DO INITIALIZE ON CONTROLLER
1473 035362  103426                              BCS     20$                     ;BR IF INIT WAS OK
1474 035364                                      DELAY   250                     ;DELAY ROUTINE CALL
     035364  012727  000250                                                               MOV     #250,(PC)+
     035370  000000                                                               .WORD   0
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0131
TEST  2: SKIP TAPE MARKS

        035372  013727  002116                                                  MOV     L$DLY,(PC)+
        035376  000000                                                          .WORD   0
        035400  005367  177772                                                  DEC     -6(PC)
        035404  001375                                                          BNE     .-4
        035406  005367  177756                                                  DEC     -22(PC)
        035412  001367                                                          BNE     .-20
1475    035414  005337  036606          DEC     T30DLY                  ;BUMP COUNTER
1476    035420  001356                  BNE     10$                     ;BR, IF MORE COUNTING TO DO
1477    035422  005237  002214          INC     FATFLG                          ;ERROR COUNT
1481    035426  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1482    035430                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        035430  104455                                                          TRAP    C$ERDF
        035432  000353                                                          .WORD   235
        035434  003646                                                          .WORD   SFIERR
        035436  012114                                                          .WORD   SFIMSG
1483    035440                  20$:
1484    035440  013737  002174  036450          MOV     UNITN,T30DSW            ;SET UP UNIT NUMBER
1485    035446  012704  036430                  MOV     #T30PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1486
1487                            ;***************************************************************
1488                            ;
1489                            ;ISSUE WRITE CHARACTERISTICS COMMAND
1490                            ;
1491                            ;***************************************************************
1492
1493    035452  004737  010742          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1494    035456  103407                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
1495    035460  005237  002214          INC     FATFLG                          ;ERROR COUNT
1499    035464  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1500    035466                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        035466  104456                                                          TRAP    C$ERHRD
        035470  000354                                                          .WORD   236
        035472  005052                                                          .WORD   WRTMSG
        035474  012114                                                          .WORD   SFIMSG
1501    035476                  23$:    CKLOOP                          ;LOOP IF SELECTED
        035476  104406                                                          TRAP    C$CLP1
1502
1503                            ;***************************************************************
1504                            ;
1505                            ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
1506                            ;
1507                            ;***************************************************************
1508
1509    035500  004737  011074          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
1510    035504  103411                  BCS     30$                     ;BR, IF NO PROBLEM
1511    035506  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
1512    035510  016501  000002          MOV     TSSR(R5),R1             ;GET STATUS REGISTER
1513    035514  005237  002214          INC     FATFLG                          ;ERROR COUNT
1517    035520                          ERRHRD  ERRNO,T30RWN,PKTSSR     ;REWIND NOT ACCEPTED
        035520  104456                                                          TRAP    C$ERHRD
        035522  000355                                                          .WORD   237
        035524  040170                                                          .WORD   T30RWN
        035526  012126                                                          .WORD   PKTSSR
1518    035530                  30$:    CKLOOP                          ;LOOP IF SELECTED
        035530  104406                                                          TRAP    C$CLP1
1519
1520                            ;***************************************************************
```

```
1521                                    ;
1522                                    ;GET EXTENDED STATUS REGISTER ZERO (XSTO) FROM MESSAGE BUFFER
1523                                    ;
1524                                    ;*************************************************************
1525
1526 035532  013701  036460                    MOV     T30BFR+6,R1             ;PICK UP XSTO
1527 035536  010102                            MOV     R1,R2                   ;SET UP EXPECTED
1528 035540  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
1529 035544  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
1530 035546  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
1531 035550  005237  002214                    INC     FATFLG                          ;ERROR COUNT
1535 035554                                    ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      035554  104456                                                                    TRAP    C$ERHRD
      035556  000356                                                                    .WORD   238
      035560  037771                                                                    .WORD   T30BOT
      035562  015554                                                                    .WORD   EXPREC
1536 035564                            40$:    CKLOOP                          ;LOOP IF SELECTED
      035564  104406                                                                    TRAP    C$CLP1
1537 035566  012737  000001  036552            MOV     #1,T30WB                ;SET # OF TM TO SKIP
1538
1539                                    ;*************************************************************
1540                                    ;
1541                                    ;SKIP TAPE MARK REVERSE,ACK,CVC=1 COMMAND
1542                                    ;
1543                                    ;*************************************************************
1544
1545 035574  012737  141410  036550            MOV     #141410,T30PK3          ;SKIP TAPE MARK REVERSE,ACK,CVC=1 CMD
1546 035602  012704  036550                    MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1547 035606  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1548 035612  004737  016330                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1549 035616  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1550 035622  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
1551 035626  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
1552 035630  001406                            BEQ     70$                     ;BR, IF OK
1553 035632  005237  002214                    INC     FATFLG                          ;ERROR COUNT
1557 035636                                    ERRHRD  ERRNO,T30IBT,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      035636  104456                                                                    TRAP    C$ERHRD
      035640  000357                                                                    .WORD   239
      035642  036761                                                                    .WORD   T30IBT
      035644  012126                                                                    .WORD   PKTSSR
1558 035646                            70$:    CKLOOP                          ;LOOP IF SELECTED
      035646  104406                                                                    TRAP    C$CLP1
1559
1560                                    ;*************************************************************
1561                                    ;
1562                                    ;GET EXTENDED STATUS REGISTER ZERO (XSTO) FROM MESSAGE BUFFER
1563                                    ;
1564                                    ;*************************************************************
1565
1566 035650  013701  036460                    MOV     T30BFR+6,R1             ;PICK UP XSTO
1567 035654  010102                            MOV     R1,R2                   ;SET UP EXPECTED
1568 035656  052702  002000                    BIS     #BIT10,R2               ;SET NEF BIT IN EXPECTED
1569 035662  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
1570 035664  001406                            BEQ     180$                    ;BR, IF EQUAL (OK)
1571 035666  005237  002214                    INC     FATFLG                          ;ERROR COUNT
1575 035672                                    ERRHRD  ERRNO,T30NEF,EXPREC     ;TAPE NOT AT NEF
      035672  104456                                                                    TRAP    C$ERHRD
```

```
TEST  2: SKIP TAPE MARKS

        035674  000360                                                          .WORD   240
        035676  040526                                                          .WORD   T3ONEF
        035700  015554                                                          .WORD   EXPREC
  1576  035702                          180$:   CKLOOP                  ;LOOP IF SELECTED
        035702  104406                                                          TRAP    C$CLP1
  1577  035704                                  ENDSUB                  ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
        035704                                                                  L10046:
        035704  104403                                                          TRAP    C$ESUB
  1578  035706  023727  002214  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
  1579  035714  103402                          BLO     999$                    ;BR, IF LESS THAN 25
  1580  035716  004737  017262                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  1581  035722                          999$:
  1582                                  ;*
  1583                                  ;
  1584                                  ;TEST 2, SUBTEST 4
  1585                                  ;
  1586                                  ;
  1587                                  ;VERIFIES THAT A SKIP TAPE MARKS REVERSE COMMAND
  1588                                  ;ISSUED WHILE THE TAPE IS POSITIONED JUST BEFORE THE
  1589                                  ;FIRST RECORD ON ON TAPE (BUT NOT AT BOT) CAUSES TAPE
  1590                                  ;STATUS ALERT TERMINATION, WITH THE REVERSE INTO BOT
  1591                                  ;(RIB) STATUS BIT SET.
  1592                                  ;
  1593                                  ;
  1594                                  ;
  1595                                  ;
  1596                                  ;
  1597                                  ;-
  1598  035722                                  BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        035722                                                                  T2.4:
        035722  104402                                                          TRAP    C$BSUB
  1599  035724  004737  041202                  JSR     PC,T3OREST              ;SET COMMAND PACKET
  1600  035730  005037  036604                  CLR     T3OFCN                  ;CLEAR FILE COUNTER
  1601  035734  004737  041274                  JSR     PC,T3ORT2               ;SET UP OTHER COMMAND PACKET
  1602  035740  004737  041336                  JSR     PC,T3ORT3               ;SET UP OTHER COMMAND PACKET
  1603  035744  012737  176750  036606          MOV     #65000.,T3ODLY          ;SET UP DELAY COUNTER
  1604  035752  004737  016054          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
  1605  035756  103426                          BCS     20$                     ;BR IF INIT WAS OK
  1606  035760                                  DELAY   250                     ;DELAY ROUTINE CALL
        035760  012727  000250                                                  MOV     #250.,(PC)+
        035764  000000                                                          .WORD   0
        035766  013727  002116                                                  MOV     L$DLY,(PC)+
        035772  000000                                                          .WORD   0
        035774  005367  177772                                                  DEC     -6(PC)
        036000  001375                                                          BNE     .-4
        036002  005367  177756                                                  DEC     -22(PC)
        036006  001367                                                          BNE     .-20
  1607  036010  005337  036606                  DEC     T3ODLY                  ;BUMP COUNTER
  1608  036014  001356                          BNE     10$                     ;BR, IF MORE COUNTING TO DO
  1609  036016  005237  002214                  INC     FATFLG                          ;ERROR COUNT
  1613  036022  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
  1614  036024                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        036024  104455                                                          TRAP    C$ERDF
        036026  000361                                                          .WORD   241
        036030  003646                                                          .WORD   SFIERR
        036032  012114                                                          .WORD   SFIMSG
  1615  036034                          20$:
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0134
TEST  2: SKIP TAPE MARKS

 1616 036034  013737  002174  036450          MOV     UNITN,T30DSW            ;SET UP UNIT NUMBER
 1617 036042  012704  036430                  MOV     #T30PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 1618
 1619                                 ;*************************************************************
 1620                                 ;
 1621                                 ;ISSUE WRITE CHARACTERISTICS COMMAND
 1622                                 ;
 1623                                 ;*************************************************************
 1624
 1625 036046  004737  010742                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 1626 036052  103407                          BCS     23$                     ;BR, IF COMMAND ISSUED OK
 1627 036054  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 1631 036060  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 1632 036062                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      036062  104456                                                                  TRAP    C$ERHRD
      036064  000362                                                                  .WORD   242
      036066  005052                                                                  .WORD   WRTMSG
      036070  012114                                                                  .WORD   SFIMSG
 1633 036072                          23$:    CKLOOP                          ;LOOP IF SELECTED
      036072  104406                                                                  TRAP    C$CLP1
 1634
 1635                                 ;*************************************************************
 1636                                 ;
 1637                                 ;ISSUE A REWIND TO TAPE DRIVE AND WAIT FOR SSR TO SET
 1638                                 ;
 1639                                 ;*************************************************************
 1640
 1641 036074  004737  011074                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 1642 036100  103411                          BCS     30$                     ;BR, IF NO PROBLEM
 1643 036102  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
 1644 036104  016501  000002                  MOV     TSSR(R5),R1             ;GET STATUS REGISTER
 1645 036110  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 1649 036114                                  ERRHRD  ERRNO,T30RWN,PKTSSR     ;REWIND NOT ACCEPTED
      036114  104456                                                                  TRAP    C$ERHRD
      036116  000363                                                                  .WORD   243
      036120  040170                                                                  .WORD   T30RWN
      036122  012126                                                                  .WORD   PKTSSR
 1650 036124                          30$:    CKLOOP                          ;LOOP IF SELECTED
      036124  104406                                                                  TRAP    C$CLP1
 1651
 1652                                 ;*************************************************************
 1653                                 ;
 1654                                 ;GET EXTENDED STATUS REGISTER ZERO (XST0) FROM MESSAGE BUFFER
 1655                                 ;
 1656                                 ;*************************************************************
 1657
 1658 036126  013701  036460                  MOV     T30BFR+6,R1             ;PICK UP XST0
 1659 036132  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 1660 036134  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 1661 036140  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 1662 036142  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
 1663 036144  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 1667 036150                                  ERRHRD  ERRNO,T30BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      036150  104456                                                                  TRAP    C$ERHRD
      036152  000364                                                                  .WORD   244
      036154  037771                                                                  .WORD   T30BOT
      036156  015554                                                                  .WORD   EXPREC
```

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TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0135
TEST  2: SKIP TAPE MARKS

1668 036160                          40$:    CKLOOP                          ;LOOP IF SELECTED
     036160  104406                                                                  TRAP    C$CLP1
1669 036162  013737  003116  036552          MOV     FREE,T30WB              ;SET UP GOOD WRITE BUFFER
1670 036170  012737  000400  036556          MOV     #256.,T30SZ             ;SET UP SIZE
1671
1672                                 ;*****************************************************************
1673                                 ;
1674                                 ;WRITE DATA,ACK,CVC=1 COMMAND
1675                                 ;
1676                                 ;*****************************************************************
1677
1678 036176  012737  140005  036550          MOV     #140005,T30PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
1679 036204  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1680 036210  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1681 036214  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1682 036220  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1683 036224  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
1684 036230  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
1685 036232  001406                          BEQ     70$                     ;BR, IF OK
1686 036234  005237  002214                  INC     FATFLG                          ;ERROR COUNT
1690 036240                                  ERRHRD  ERRNO,T30WDD,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     036240  104456                                                                  TRAP    C$ERHRD
     036242  000365                                                                  .WORD   245
     036244  037120                                                                  .WORD   T30WDD
     036246  012126                                                                  .WORD   PKTSSR
1691 036250                          70$:    CKLOOP                          ;LOOP IF SELECTED
     036250  104406                                                                  TRAP    C$CLP1
1692
1693                                 ;*****************************************************************
1694                                 ;
1695                                 ;SKIP TAPE MARK REVERSE,ACK,CVC=1 COMMAND
1696                                 ;
1697                                 ;*****************************************************************
1698
1699 036252  012737  000001  036552          MOV     #1,T30WB                ;# OF TM TO SKIP
1700 036260  012737  141410  036550          MOV     #141410,T30PK3          ;SKIP TAPE MARK REVERSE,ACK,CVC=1 CMD
1701 036266  012704  036550                  MOV     #T30PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1702 036272  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1703 036276  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1704 036302  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP TSSR
1705 036306  012702  100204                  MOV     #SSR!BIT2!SC,R2         ;SET UP EXPECTED (SSR AND SC ONLY)
1706 036312  020102                          CMP     R1,R2                   ;WAS STATUS GOOD
1707 036314  001406                          BEQ     160$                    ;BR, IF TERMINATION WAS GOOD
1708 036316  005237  002214                  INC     FATFLG                          ;ERROR COUNT
1712 036322                                  ERRHRD  ERRNO,T30IBU,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
     036322  104456                                                                  TRAP    C$ERHRD
     036324  000366                                                                  .WORD   246
     036326  036610                                                                  .WORD   T30IBU
     036330  012126                                                                  .WORD   PKTSSR
1713 036332                          160$:   CKLOOP                          ;LOOP IF SELECTED
     036332  104406                                                                  TRAP    C$CLP1
1714
1715                                 ;*****************************************************************
1716                                 ;
1717                                 ;GET EXTENDED STATUS REGISTER ZERO (XST3) FROM MESSAGE BUFFER
1718                                 ;
1719                                 ;*****************************************************************
```

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TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                                    SEQ 0136
TEST  2: SKIP TAPE MARKS

   1720
   1721 036334  013701  036466                  MOV     T30BFR+14,R1            ;PICK UP XST3
   1722 036340  010102                          MOV     R1,R2                   ;SET UP EXPECTED
   1723 036342  052702  000001                  BIS     #BIT0,R2                ;SET RIB BIT IN EXPECTED
   1724 036346  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
   1725 036350  001406                          BEQ     170$                    ;BR, IF EQUAL (OK)
   1726 036352  005237  002214                  INC     FATFLG                          ;ERROR COUNT
   1730 036356                                  ERRHRD  ERRNO,T30RIB,EXPREC     ;TAPE NOT AT RIB
        036356  104456                                                                  TRAP    C$ERHRD
        036360  000367                                                                  .WORD   247
        036362  036675                                                                  .WORD   T30RIB
        036364  015554                                                                  .WORD   EXPREC
   1731 036366                          170$:   CKLOOP                          ;LOOP IF SELECTED
        036366  104406                                                                  TRAP    C$CLP1
   1732 036370                                  ENDSUB                          ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
        036370                                                                          L10047:
        036370  104403                                                                  TRAP    C$ESUB
   1733 036372  023727  002214  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
   1734 036400  103402                          BLO     999$                            ;BR, IF LESS THAN 25
   1735 036402  004737  017262                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
   1736 036406                          999$:
   1737                                 ;SUBTEST END
   1738                                 ;
   1739                                 ;
   1740 036406  004737  016536                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
   1741 036412  103002                          BCC     400$                    ;BR, IF NO LOOP REQUIRED
   1742 036414  000137  032310                  JMP     T30LOOP                 ;EXECUTE AGAIN
   1743 036420                          400$:   EXIT    TST                     ;ALL DONE THIS TEST
        036420  104432                                                                  TRAP    C$EXIT
        036422  002736                                                                  .WORD   L10043-.
   1744                                 ;+
   1745                                 ;LOCAL STORAGE FOR THIS TEST
   1746                                 ;-
   1748          036430                         .=<.+10>&177770
   1750 036430                          T30PACKET:                              ;COMMAND PACKET FOR TEST
   1751 036430  100004                          .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
   1752 036432  036440                          .WORD   T30DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
   1753 036434  000000                          .WORD   0
   1754 036436  000012                          .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
   1755 036440                          T30DATA:                                ;CHARACTERISTICS DATA BLOCK
   1756 036440  036452                          .WORD   T30BFR                  ;ADDRESS OF MESSAGE BUFFER
   1757 036442  000000                          .WORD   0
   1758 036444  000024                          .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
   1759 036446  000000                  T30ETM: .WORD   0                       ;SKIP TAPE MARK CONTROL
   1760 036450  000000                  T30DSW: .WORD   0                       ;SELECT DRIVE 0
   1761 036452                          T30BFR: .BLKW   25.                     ;MESSAGE BUFFER
   1762                                 ;
   1763                                 ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
   1764                                 ;
   1766          036540                         .=<.+10>&177770
   1768 036540                          T30PK2:
   1769 036540  100006                          .WORD   100006                  ;WRITE SUB SYS MEM COMMAND,  AND ACK
   1770 036542  036560                          .WORD   T30BF2                  ;ADDRESS OF SELECT BLOCK DATA
   1771 036544  000000                          .WORD   0
   1772 036546  000006                          .WORD   6.                      ;SIZE OF DATA PACKET
   1773
   1777 036550                          T30PK3:
```

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1778 036550  100205                    .WORD   100205          ;REREAD COMMAND, IE AND ACK
1779 036552                      T30RB:
1780 036552  003116                T30WB:  .WORD   FREE        ;ADDRESS OF WRITE BUFFER
1781 036554  000000                        .WORD   0
1782 036556  000000                T30SZ:  .WORD   0           ;SIZE OF BUFFER (EXTENT)
1783                                       .EVEN
1784                             ;
1785                             ;
1786                             ;
1787 036560                      T30BF2:
1788 036560     010              T30BS0: .BYTE   10          ;BSEL0 AREA
1789 036561     200              T30BS1: .BYTE   200         ;BSEL1 AREA
1790 036562  000000                T30S2:  .WORD   0           ;SEL 2 AREA
1791 036564  000000                T30S3:  .WORD   0           ;DATA AREA
1792                             ;
1793                             ;
1794                                       .EVEN
1795                             ;TAPE MOTION PACKET COMMAND VALUES
1796
1797 036566                      T30IMV:
1798 036566                      T30RN:
1799 036566  000000                        .WORD   000000      ;NEITHER EWB NOR ESS
1800 036570  000100                        .WORD   000100      ;EWB SET
1801 036572  000200                        .WORD   000200      ;ESS SET
1802 036574  000300                        .WORD   000300      ;BOTH EWB AND ESS SET
1803 036576  177777                        .WORD   177777      ;END OF DATA
1804
1805                             ;
1806 036600  000000                T30CNT: .WORD   0           ;TAPE TIMER COUNTER STORAGE AREA
1807 036602  000000                T30CNU: .WORD   0           ;TAPE TIMER COUNTER STORAGE AREA
1808 036604  000000                T30FCN: .WORD   0           ;FILE NUMBER COUNTER
1809 036606  000000                T30DLY: .WORD   0           ;DELAY COUNTER STORAGE
1810                             ;+
1811                             ;LOCAL TEXT MESSAGES FOR TEST
1812                             ;-
1813
1814 036610     124     123     123  T30IBU: .ASCIZ  'TSSR Incorrect After SKIP TAPE MARK REVERSE Into BOT'
1815 036675     122     111     102  T30RIB: .ASCIZ  'RIB Bit (XST3) Failed To Set After Reverse Into BOT'
1816 036761     124     123     123  T30IBT: .ASCIZ  'TSSR Incorrect After SKIP TAPE MARK REVERSE At BOT'
1817 037044     124     123     123  T30SKM: .ASCIZ  'TSSR Incorrect After SKIP TAPE MARK Command'
1818 037120     124     123     123  T30WDD: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
1819 037172     124     141     160  T30PTB: .ASCIZ  'Tape Not Positioned On Correct Record After READ REVERSE'
1820 037263     124     141     160  T30TPB: .ASCIZ  'Tape Not Positioned On Second File First Record'
1821 037343     124     123     123  T30RDF: .ASCIZ  'TSSR Incorrect After READ FORWARD Into "File"'
1822 037421     124     123     123  T30RDG: .ASCIZ  'TSSR Incorrect After SPACE Command Into TAPE MARK'
1823 037503     124     123     123  T30WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
1824 037560     111     154     154  T30LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
1825 037641     127     122     111  T30SSR: .ASCIZ  'WRITE MISCELLANEOUS Command Not Accepted'
1826 037712     124     123     123  T30WDE: .ASCIZ  'TSSR Not Correct After SKIP TAPE MARKS, At BOT'
1827 037771     124     141     160  T30BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
1828 040036     124     123     123  T30TM:  .ASCIZ  'TSSR Not Correct After SPACE FORWARD Command'
1829 040113     124     123     123  T30TM2: .ASCIZ  'TSSR Not Correct After SPACE REVERSE Command'
1830 040170     122     145     167  T30RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
1831 040237     104     162     151  T300FL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
1832 040312     124     123     123  T30WDC: .ASCIZ  'TSSR Not Correct After WRITE TAPE MARK Command'
1833 040371     103     126     103  T30VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
1834 040444     124     115     113  T30TMK: .ASCIZ  'TMK Not Set After WRITE TAPE MARK (RETRY) Command'
```

```
1835 040526  123  113  111  T30NEF: .ASCIZ  'SKIP TAPE MARKS, At BOT, Failed To Set NEF Bit'
1836 040605  124  115  113  T30RRM: .ASCIZ  'TMK Not Set After READ REVERSE Into TAPE MARK'
1837 040663  124  115  113  T30RRN: .ASCIZ  'TMK Not Set After SPACE REVERSE Into TAPE MARK'
1838 040742  124  115  113  T30RRP: .ASCIZ  'TMK Not Set After READ FORWARD Into TAPE MARK'
1839 041020  116  117  040  T30DTR: .ASCIZ  'NO Data Transferred On READ FORWARD'
1840 041064  104  141  164  T30DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
1841 041161  123  153  151  TST30ID:        .ASCIZ  'Skip Tape Marks'
1842                              .EVEN
1843                         ;+
1844                         ;
1845                         ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
1846                         ;WRITE SUBSYSTEM MEMORY COMMAND
1847                         ;
1848                         ;-
1849
1850 041202                  T30REST:
1851 041202                          SAVREG                          ;SAVE THE REGISTERS
1852 041206  012701  036430          MOV     #T30PACKET,R1           ;START OF THE PACKET
1853 041212  012721  100004          MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
1854 041216  012721  036440          MOV     #T30DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
1855 041222  005021                  CLR     (R1)+                   ;EXTENDED ADDRESS
1856 041224  012721  000012          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
1857 041230  012721  036452          MOV     #T30BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
1858 041234  005021                  CLR     (R1)+
1859 041236  012721  000024          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
1860 041242  005021                  CLR     (R1)+
1861 041244  012711  000000          MOV     #0,(R1)                 ;SELECT DRIVE ZERO
1862 041250  012702  000030          MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
1863 041254  012762  177777  036452  64$:    MOV     #177777,T30BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
1864 041262  005742                  TST     -(R2)                   ;NEXT LOCATION
1865 041264  022702  000000          CMP     #0.,R2                          ;CHECK R2 FOR DONE
1866 041270  001371                  BNE     64$                     ;KEEP GOING UNTIL DONE
1867 041272  000207                  RTS     PC                      ;RETURN
1868
1869 041274                  T30RT2:
1870 041274                          SAVREG                          ;SAVE THE REGISTERS
1871 041300  012701  036540          MOV     #T30PK2,R1              ;START OF THE PACKET
1872 041304  012721  100006          MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
1873 041310  012721  036560          MOV     #T30BF2,(R1)+           ;ADDRESS OF DATA BLOCK
1874 041314  005021                  CLR     (R1)+                   ;EXTENDED ADDRESS
1875 041316  012721  000006          MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
1876 041322  005021                  CLR     (R1)+
1877 041324  012701  036560          MOV     #T30BF2,R1              ;POINT TO DATA SEL AREA
1878 041330  005021                  CLR     (R1)+
1879 041332  005011                  CLR     (R1)
1880 041334  000207                  RTS     PC                      ;RETURN
1881 041336                  T30RT3:
1882 041336                          SAVREG                          ;SAVE REGISTERS
1883 041342  012701  036550          MOV     #T30PK3,R1              ;SET UP POINTER ADDRESS
1884 041346  005021                  CLR     (R1)+                   ;COMMAND SPACE
1885 041350  005021                  CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
1886 041352  005021                  CLR     (R1)+                   ;EXTENDED ADDRESS
1887 041354  005011                  CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
1888 041356  000207                  RTS     PC                      ;RETURN
1889 041360                          ENDTST
     041360                                                                  L10043:
     041360  104401                                                                  TRAP    C$ETST
```

```
                                        .SBTTL  TEST  3: NO-OP ("CLEAN TAPE") AND INITIALIZE
                                ;*
                                ;
                                ;THIS TEST VERIFIES PROPER OPERATION OF THE NO-OP ("CLEAN TAPE") AND INITIALIZE
                                ;COMMAND (SPACE REVERSE, ERASE, WRITE DATA)
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 2 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
041362                                  BGNTST
041362                                                                          T3::
041362  012737  006354  002172          MOV     #EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
041370  012700  046473                  MOV     #TST31ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
041374  004737  016570                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
041400  012737  000005  002210          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
041406  005037  043266                  CLR     T31CNT                  ;CLEAR TAPE RECORD COUNTER
                                ;
                                ;-
041412                          T31LOOP:
                                ;*
                                ;
                                ;TEST 3, SUBTEST 1
                                ;
                                ;       VERIFIES THAT THE NO-OP COMMAND (CORRESPONDS TO THE CLEAN TAPE
                                ;       COMMAND) TERMINATES PROPERLY (NORMAL TERMINATION), STORES PROPER
                                ;       STATUS IN THE MESSAGE BUFFER (LIKE THE GET STATUS COMMAND), AND
                                ;       INDEED DOES NOT MOVE TAPE.  THE TAPE IS FIRST REWOUND AND
                                ;       WRITTEN WITH SEQUENCED TEST RECORDS.  IT IS THEN REWOUND AGAIN
                                ;       AND THE NO-OP COMMAND IS ISSUED.  IT IS VERIFIED THAT THE TAPE
                                ;       IS STILL AT BOT AND THAT PROPER STATUS IS STORED.  THE FIRST
                                ;       RECORD ON TAPE IS READ AND VERIFIED (TO CHECK TAPE POSITION AND
                                ;       VERIFY THAT DATA WAS NOT CHANGED), THEN THE NO-OP COMMAND IS
                                ;       ISSUED AGAIN AND STATUS AND POSITION VERIFIED.
                                ;
                                ;
                                ;
                                ;
                                ;
                                ;
                                ;-
041412                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
041412                                                                                  T3.1:
041412  104402                                                                          TRAP    C$BSUB
041414  004737  046540                  JSR     PC,T31REST              ;SET COMMAND PACKET
041420  004737  046632                  JSR     PC,T31RT2               ;SET UP OTHER COMMAND PACKET
041424  004737  046674                  JSR     PC,T31RT3               ;SET UP OTHER COMMAND PACKET
041430  012737  176750  043272          MOV     #65000.,T31DLY          ;SET UP DELAY COUNTER
041436  004737  016054          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
041442  103426                          BCS     20$                     ;BR IF INIT WAS OK
041444                                  DELAY   250                     ;DELAY ABOUT .25 SEC
041444  012727  000250                                                  MOV     #250.,(PC)+
041450  000000                                                          .WORD   0
041452  013727  002116                                                  MOV     L$DLY,(PC)+
```

```
                041456  000000                                                          .WORD   0
                041460  005367  177772                                                  DEC     -6(PC)
                041464  001375                                                          BNE     .-4
                041466  005367  177756                                                  DEC     -22(PC)
                041472  001367                                                          BNE     .-20
     1945       041474  005337  043272          DEC     T31DLY          ;BUMP COUNTER
     1946       041500  001356                  BNE     10$             ;BR, IF COUNTER NOT DONE
     1947       041502  005237  002214          INC     FATFLG                  ;ERROR COUNT
     1951       041506  010001                  MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
     1952       041510                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                041510  104455                                                          TRAP    C$ERDF
                041512  000455                                                          .WORD   301
                041514  003646                                                          .WORD   SFIERR
                041516  012114                                                          .WORD   SFIMSG
     1953       041520  013737  002174  043140  20$:    MOV     UNITN,T31DSW    ;SET UP UNIT NUMBER IN PACKET
     1954       041526  012704  043120          MOV     #T31PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
     1955       041532  004737  010742          JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
     1956       041536  103407                  BCS     23$             ;BR, IF COMMAND ISSUED OK
     1957       041540  005237  002214          INC     FATFLG                  ;ERROR COUNT
     1961       041544  010001                  MOV     R0,R1           ;SAVE CONTENTS OF TSSR
     1962       041546                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                041546  104456                                                          TRAP    C$ERHRD
                041550  000456                                                          .WORD   302
                041552  005052                                                          .WORD   WRTMSG
                041554  012114                                                          .WORD   SFIMSG
     1963       041556                  23$:    CKLOOP                          ;LOOP IF SELECTED
                041556  104406                                                          TRAP    C$CLP1
     1964       041560  004737  011074          JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
     1965       041564  103407                  BCS     30$             ;BR, IF NO PROBLEM
     1966       041566  010004                  MOV     R0,R4           ;SET UP REWIND PACKET ADDRESS
     1967       041570  005237  002214          INC     FATFLG                  ;ERROR COUNT
     1971       041574                          ERRHRD  ERRNO,T31RWN,PKTSSR     ;REWIND NOT ACCEPTED
                041574  104456                                                          TRAP    C$ERHRD
                041576  000457                                                          .WORD   303
                041600  044624                                                          .WORD   T31RWN
                041602  012126                                                          .WORD   PKTSSR
     1972       041604                  30$:    CKLOOP                          ;LOOP IF SELECTED
                041604  104406                                                          TRAP    C$CLP1
     1973       041606  013701  043150          MOV     T31BFR+6,R1     ;PICK UP XSTO
     1974       041612  010102                  MOV     R1,R2           ;SET UP EXPECTED
     1975       041614  052702  000002          BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
     1976       041620  020102                  CMP     R1,R2           ;DOES EXP = REC'D
     1977       041622  001406                  BEQ     40$             ;BR, IF EQUAL (OK)
     1978       041624  005237  002214          INC     FATFLG                  ;ERROR COUNT
     1982       041630                          ERRHRD  ERRNO,T31BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                041630  104456                                                          TRAP    C$ERHRD
                041632  000460                                                          .WORD   304
                041634  044275                                                          .WORD   T31BOT
                041636  015554                                                          .WORD   EXPREC
     1983       041640                  40$:    CKLOOP                          ;LOOP IF SELECTED
                041640  104406                                                          TRAP    C$CLP1
     1984       041642  013737  003116  043242          MOV     FREE,T31WB      ;STARTING WRITE BUFFER ADDRESS
     1985       041650  012737  140005  043240  65$:    MOV     #140005,T31PK3  ;WRITE DATA,CVC=1,ACK COMMAND
     1986       041656  012704  043240          MOV     #T31PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
     1987       041662  012700  000144          MOV     #100.,R0                ;SET PATTERN IN CORRECT REGISTER
     1988       041666  004737  017502          JSR     PC,FILLMEM      ;FILL MEMORY WITH RECORD SIZE
     1989       041672  012737  000144  043246  MOV     #100.,T31SZ     ;SET UP RECORD SIZE IN PACKET
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0141
TEST  3: NO-OP ("CLEAN TAPE") AND INITIALIZE

 1990 041700  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 1991 041704  004737  016330                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 1992 041710  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 1993 041714  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
 1994 041720  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
 1995 041722  001406                            BEQ     80$                     ;BR, IF OK
 1996 041724  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 2000 041730                                    ERRHRD  ERRNO,T31WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      041730  104456                                                                    TRAP    C$ERHRD
      041732  000461                                                                    .WORD   305
      041734  045160                                                                    .WORD   T31WDC
      041736  012126                                                                    .WORD   PKTSSR
 2001 041740                            80$:    CKLOOP                          ;LOOP IF SELECTED
      041740  104406                                                                    TRAP    C$CLP1
 2002 041742  004737  011074                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 2003 041746  103407                            BCS     230$                    ;BR, IF NO PROBLEM
 2004 041750  010001                            MOV     R0,R1                   ;SAVE TSSR
 2005 041752  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 2009 041756                                    ERRHRD  ERRNO,T31RWN,EXPREC     ;REWIND NOT ACCEPTED
      041756  104456                                                                    TRAP    C$ERHRD
      041760  000462                                                                    .WORD   306
      041762  044624                                                                    .WORD   T31RWN
      041764  015554                                                                    .WORD   EXPREC
 2010 041766                            230$:   CKLOOP                          ;LOOP IF SELECTED
      041766  104406                                                                    TRAP    C$CLP1
 2011 041770  013701  043150                    MOV     T31BFR+6,R1             ;PICK UP XSTO
 2012 041774  010102                            MOV     R1,R2                   ;SET UP EXPECTED
 2013 041776  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 2014 042002  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
 2015 042004  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
 2016 042006  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 2020 042012                                    ERRHRD  ERRNO,T31BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      042012  104456                                                                    TRAP    C$ERHRD
      042014  000463                                                                    .WORD   307
      042016  044275                                                                    .WORD   T31BOT
      042020  015554                                                                    .WORD   EXPREC
 2021 042022                            240$:   CKLOOP                          ;LOOP IF SELECTED
      042022  104406                                                                    TRAP    C$CLP1
 2022 042024  012737  041012  043240    265$:   MOV     #041012,T31PK3          ;NO-OP,CVC=1 COMMAND
 2023 042032  012704  043240                    MOV     #T31PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 2024 042036  010337  043246                    MOV     R3,T31SZ                ;SET UP RECORD SIZE IN PACKET
 2025 042042  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 2026 042046  004737  016330                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 2027 042052  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 2028 042056  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
 2029 042062  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
 2030 042064  001406                            BEQ     280$                    ;BR, IF OK
 2031 042066  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 2035 042072                                    ERRHRD  ERRNO,T31RDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      042072  104456                                                                    TRAP    C$ERHRD
      042074  000464                                                                    .WORD   308
      042076  043473                                                                    .WORD   T31RDF
      042100  012126                                                                    .WORD   PKTSSR
 2036 042102                            280$:   CKLOOP                          ;LOOP IF SELECTED
      042102  104406                                                                    TRAP    C$CLP1
 2037 042104  013701  043150                    MOV     T31BFR+6,R1             ;PICK UP XSTO
 2038 042110  010102                            MOV     R1,R2                   ;SET UP EXPECTED
```

TEST 3: NO-OP ("CLEAN TAPE") AND INITIALIZE

```
2039 042112  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2040 042116  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
2041 042120  001406                  BEQ     285$                    ;BR, IF EQUAL (OK)
2042 042122  005237  002214          INC     FATFLG                          ;ERROR COUNT
2046 042126                          ERRHRD  ERRNO.T31BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     042126  104456                                                          TRAP    C$ERHRD
     042130  000465                                                          .WORD   309
     042132  044275                                                          .WORD   T31BOT
     042134  015554                                                          .WORD   EXPREC
2047 042136                  285$:   CKLOOP                          ;LOOP IF SELECTED
     042136  104406                                                          TRAP    C$CLP1
2048 042140  012737  140001  043240  MOV     #140001,T31PK3          ;READ,ACK,CVC=1 COMMAND
2049 042146  012704  043240          MOV     #T31PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2050 042152  012737  000144  043246  MOV     #100.,T31SZ             ;SET UP RECORD SIZE IN PACKET
2051 042160  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2052 042164  004737  016330          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2053 042170  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2054 042174  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
2055 042200  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
2056 042202  001406                  BEQ     290$                    ;BR, IF OK
2057 042204  005237  002214          INC     FATFLG                          ;ERROR COUNT
2061 042210                          ERRHRD  ERRNO,T31RDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     042210  104456                                                          TRAP    C$ERHRD
     042212  000466                                                          .WORD   310
     042214  043274                                                          .WORD   T31RDE
     042216  012126                                                          .WORD   PKTSSR
2062 042220                  290$:   CKLOOP                          ;LOOP IF SELECTED
     042220  104406                                                          TRAP    C$CLP1
2063 042222  017701  140670          MOV     @FREE,R1                ;GET DATA READ
2064 042226  012702  000144          MOV     #100.,R2                ;READ EXPECTED
2065 042232  020102                  CMP     R1,R2                   ;DID TAPE STAY POSITIONED
2066 042234  001406                  BEQ     330$                    ;BR, IF EXPD = RECD
2067 042236  005237  002214          INC     FATFLG                          ;ERROR COUNT
2071 042242                          ERRHRD  ERRNO,T31WNG,EXPREC     ;TAPE DATA NOT CORRECT
     042242  104456                                                          TRAP    C$ERHRD
     042244  000467                                                          .WORD   311
     042246  043421                                                          .WORD   T31WNG
     042250  015554                                                          .WORD   EXPREC
2072 042252                  330$:
2073 042252                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     042252                                                                  L10051:
     042252  104403                                                          TRAP    C$ESUB
2074 042254  023727  002214  000017  CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2075 042262  103402                  BLO     999$                            ;BR, IF LESS THAN 25
2076 042264  004737  017262          JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
2077 042270                  999$:
2078                         ;*
2079                         ;
2080                         ;TEST 3, SUBTEST 2
2081                         ;
2082                         ;
2083                         ;       VERIFIES THAT THE INITIALIZE COMMAND OPERATES AS A NO-OP,
2084                         ;       ASSUMING NO MICRODIAGNOSTIC ERRORS ARE PRESENT (THEY WOULD
2085                         ;       ALREADY HAVE BEEN DETECTED IN PREVIOUS TESTS).  THE TEST
2086                         ;       SEQUENCE IS SIMILAR TO THAT USED IN SUBTEST 1.
2087                         ;
2088                         ;
```

```
2089                                    ;
2090                                    ;-
2091 042270                             BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     042270                                                                     T3.2:
     042270 104402                                                              TRAP    C$BSUB
2092 042272 004737 046540               JSR     PC,T31REST              ;SET COMMAND PACKET
2093 042276 004737 046632               JSR     PC,T31RT2               ;SET UP OTHER COMMAND PACKET
2094 042302 004737 046674               JSR     PC,T31RT3               ;SET UP OTHER COMMAND PACKET
2095 042306 004737 016054               JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2096 042312 103407                      BCS     20$                     ;BR IF INIT WAS OK
2097 042314 005237 002214               INC     FATFLG                          ;ERROR COUNT
2101 042320 010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2102 042322                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     042322 104455                                                              TRAP    C$ERDF
     042324 000470                                                              .WORD   312
     042326 003646                                                              .WORD   SFIERR
     042330 012114                                                              .WORD   SFIMSG
2103 042332 013737 002174 043140 20$:   MOV     UNITN,T31DSW            ;SET UP UNIT NUMBER IN PACKET
2104 042340 012704 043120               MOV     #T31PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2105 042344 004737 010742               JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2106 042350 103407                      BCS     23$                     ;BR, IF COMMAND ISSUED OK
2107 042352 005237 002214               INC     FATFLG                          ;ERROR COUNT
2111 042356 010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2112 042360                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     042360 104456                                                              TRAP    C$ERHRD
     042362 000471                                                              .WORD   313
     042364 005052                                                              .WORD   WRTMSG
     042366 012114                                                              .WORD   SFIMSG
2113 042370                       23$:  CKLOOP                          ;LOOP IF SELECTED
     042370 104406                                                              TRAP    C$CLP1
2114 042372 004737 011074               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2115 042376 103407                      BCS     30$                     ;BR, IF NO PROBLEM
2116 042400 010004                      MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
2117 042402 005237 002214               INC     FATFLG                          ;ERROR COUNT
2121 042406                             FRRHRD  ERRNO,T31RWN,PKTSSR     ;REWIND NOT ACCEPTED
     042406 104456                                                              TRAP    C$ERHRD
     042410 000472                                                              .WORD   314
     042412 044624                                                              .WORD   T31RWN
     042414 012126                                                              .WORD   PKTSSR
2122 042416                       30$:  CKLOOP                          ;LOOP IF SELECTED
     042416 104406                                                              TRAP    C$CLP1
2123 042420 013701 043150               MOV     T31BFR+6,R1             ;PICK UP XSTO
2124 042424 010102                      MOV     R1,R2                   ;SET UP EXPECTED
2125 042426 052702 000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2126 042432 020102                      CMP     R1,R2                   ;DOES EXP = REC'D
2127 042434 001406                      BEQ     40$                     ;BR, IF EQUAL (OK)
2128 042436 005237 002214               INC     FATFLG                          ;ERROR COUNT
2132 042442                             ERRHRD  ERRNO,T31BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     042442 104456                                                              TRAP    C$ERHRD
     042444 000473                                                              .WORD   315
     042446 044275                                                              .WORD   T31BOT
     042450 015554                                                              .WORD   EXPREC
2133 042452                       40$:  CKLOOP                          ;LOOP IF SELECTED
     042452 104406                                                              TRAP    C$CLP1
2134 042454 013737 003116 043242        MOV     FREE,T31WB              ;STARTING WRITE BUFFER ADDRESS
2135 042462 012737 140005 043240 65$:   MOV     #140005,T31PK3          ;WRITE DATA,CVC=1,ACK COMMAND
2136 042470 012704 043240               MOV     #T31PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

```
2137 042474  012700  000144                MOV     #100.,R0                ;SET PATTERN IN CORRECT REGISTER
2138 042500  004737  017502                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2139 042504  012737  000144  043246        MOV     #100.,T31SZ             ;SET UP RECORD SIZE IN PACKET
2140 042512  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2141 042516  004737  016330                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2142 042522  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2143 042526  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
2144 042532  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2145 042534  001406                        BEQ     80$                     ;BR, IF OK
2146 042536  005237  002214                INC     FATFLG                          ;ERROR COUNT
2150 042542                                ERRHRD  ERRNO,T31WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     042542  104456                                                                TRAP    C$ERHRD
     042544  000474                                                                .WORD   316
     042546  045160                                                                .WORD   T31WDC
     042550  012126                                                                .WORD   PKTSSR
2151 042552                        80$:    CKLOOP                          ;LOOP IF SELECTED
     042552  104406                                                                TRAP    C$CLP1
2152 042554  004737  011074                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2153 042560  103407                        BCS     230$                    ;BR, IF NO PROBLEM
2154 042562  010001                        MOV     R0,R1                   ;SAVE TSSR
2155 042564  005237  002214                INC     FATFLG                          ;ERROR COUNT
2159 042570                                ERRHRD  ERRNO,T31RWN,EXPREC     ;REWIND NOT ACCEPTED
     042570  104456                                                                TRAP    C$ERHRD
     042572  000475                                                                .WORD   317
     042574  044624                                                                .WORD   T31RWN
     042576  015554                                                                .WORD   EXPREC
2160 042600                        230$:   CKLOOP                          ;LOOP IF SELECTED
     042600  104406                                                                TRAP    C$CLP1
2161 042602  013701  043150                MOV     T31BFR+6,R1             ;PICK UP XSTO
2162 042606  010102                        MOV     R1,R2                   ;SET UP EXPECTED
2163 042610  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2164 042614  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
2165 042616  001406                        BEQ     240$                    ;BR, IF EQUAL (OK)
2166 042620  005237  002214                INC     FATFLG                          ;ERROR COUNT
2170 042624                                ERRHRD  ERRNO,T31BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     042624  104456                                                                TRAP    C$ERHRD
     042626  000476                                                                .WORD   318
     042630  044275                                                                .WORD   T31BOT
     042632  015554                                                                .WORD   EXPREC
2171 042634                        240$:   CKLOOP                          ;LOOP IF SELECTED
     042634  104406                                                                TRAP    C$CLP1
2172 042636  012737  041012  043240  265$:   MOV     #041012,T31PK3          ;INITIALIZE,CVC=1 COMMAND
2173 042644  012704  043240                MOV     #T31PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2174 042650  010337  043246                MOV     R3,T31SZ                ;SET UP RECORD SIZE IN PACKET
2175 042654  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2176 042660  004737  016330                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2177 042664  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2178 042670  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
2179 042674  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
2180 042676  001406                        BEQ     280$                    ;BR, IF OK
2181 042700  005237  002214                INC     FATFLG                          ;ERROR COUNT
2185 042704                                ERRHRD  ERRNO,T31RDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     042704  104456                                                                TRAP    C$ERHRD
     042706  000477                                                                .WORD   319
     042710  043473                                                                .WORD   T31RDF
     042712  012126                                                                .WORD   PKTSSR
2186 042714                        280$:   CKLOOP                          ;LOOP IF SELECTED
```

```
                042714  104406                                                          TRAP    C$CLP1
2187            042716  013701  043150          MOV     T31BFR+6,R1     ;PICK UP XSTO
2188            042722  010102                  MOV     R1,R2           ;SET UP EXPECTED
2189            042724  052702  000002          BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
2190            042730  020102                  CMP     R1,R2           ;DOES EXP = REC'D
2191            042732  001406                  BEQ     285$            ;BR, IF EQUAL (OK)
2195            042734  005237  002214          INC     FATFLG                  ;ERROR COUNT
2196            042740                          ERRHRD  ERRNO,T31BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                042740  104456                                                          TRAP    C$ERHRD
                042742  000500                                                          .WORD   320
                042744  044275                                                          .WORD   T31BOT
                042746  015554                                                          .WORD   EXPREC
2197            042750                  285$:   CKLOOP                          ;LOOP IF SELECTED
                042750  104406                                                          TRAP    C$CLP1
2198            042752  012737  140001  043240          MOV     #140001,T31PK3  ;READ,ACK,CVC=1 COMMAND
2199            042760  012704  043240                  MOV     #T31PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
2200            042764  012737  000144  043246          MOV     #100.,T31SZ     ;SET UP RECORD SIZE IN PACKET
2201            042772  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
2202            042776  004737  016330                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
2203            043002  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
2204            043006  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
2205            043012  020102                          CMP     R1,R2           ;ARE THEY EQUAL
2206            043014  001406                          BEQ     290$            ;BR, IF OK
2207            043016  005237  002214                  INC     FATFLG                  ;ERROR COUNT
2211            043022                                  ERRHRD  ERRNO,T31RDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
                043022  104456                                                          TRAP    C$ERHRD
                043024  000501                                                          .WORD   321
                043026  043274                                                          .WORD   T31RDE
                043030  012126                                                          .WORD   PKTSSR
2212            043032                  290$:   CKLOOP                          ;LOOP IF SELECTED
                043032  104406                                                          TRAP    C$CLP1
2213            043034  017701  140056          MOV     @FREE,R1        ;GET DATA READ
2214            043040  012702  000144          MOV     #100.,R2        ;READ EXPECTED
2215            043044  020102                  CMP     R1,R2           ;DID TAPE STAY POSITIONED
2216            043046  001406                  BEQ     330$            ;BR, IF EXPD = RECD
2217            043050  005237  002214                  INC     FATFLG                  ;ERROR COUNT
2221            043054                                  ERRHRD  ERRNO,T31WNH,EXPREC     ;TAPE POSITION NOT CORRECT AFTER INIT
                043054  104456                                                          TRAP    C$ERHRD
                043056  000502                                                          .WORD   322
                043060  043340                                                          .WORD   T31WNH
                043062  015554                                                          .WORD   EXPREC
2222            043064                  330$:
2223            043064                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                043064                                                                  L10052:
                043064  104403                                                          TRAP    C$ESUB
2224            043066  023727  002214  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
2225            043074  103402                          BLO     999$                    ;BR, IF LESS THAN 25
2226            043076  004737  017262                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2227            043102                  999$:
2228                                    ;
2229                                    ;
2230                                    ;
2231            043102  004737  016536          JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
2232            043106  103002                  BCC     163$            ;BR, IF NO LOOP REQUIRED
2233            043110  000137  041412          JMP     T31LOOP         ;EXECUTE AGAIN
2234            043114                  163$:   EXIT    TST             ;ALL DONE THIS TEST
                043114  104432                                                          TRAP    C$EXIT
```

```
043116  003600                                                          .WORD   L10050-.
2235                            ;*
2236                            ;LOCAL STORAGE FOR THIS TEST
2237                            ;-
2241 043120                     T31PACKET:                              ;COMMAND PACKET FOR TEST
2242 043120  100004                     .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
2243 043122  043130                     .WORD   T31DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
2244 043124  000000                     .WORD   0
2245 043126  000012                     .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
2246 043130                     T31DATA:                                ;CHARACTERISTICS DATA BLOCK
2247 043130  043142                     .WORD   T31BFR                  ;ADDRESS OF MESSAGE BUFFER
2248 043132  000000                     .WORD   0
2249 043134  000024                     .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
2250 043136  000000                     .WORD   0
2251 043140  000000             T31DSW: .WORD   0                       ;SELECT DRIVE 0
2252 043142                     T31BFR: .BLKW   25.                     ;MESSAGE BUFFER
2253                            ;
2254                            ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
2255                            ;
2257         043230                     .=<.+10>&177770
2259 043230                     T31PK2:
2260 043230  100006                     .WORD   100006                  ;WRITE SUB SYS MEM COMMAND,  AND ACK
2261 043232  043250                     .WORD   T31BF2                  ;ADDRESS OF SELECT BLOCK DATA
2262 043234  000000                     .WORD   0
2263 043236  000006                     .WORD   6.                      ;SIZE OF DATA PACKET
2264
2268 043240                     T31PK3:
2269 043240  100005                     .WORD   100005                  ;REREAD COMMAND, AND ACK
2270 043242                     T31RB:
2271 043242  003116             T31WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
2272 043244  000000                     .WORD   0
2273 043246  000000             T31SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
2274                                    .EVEN
2275                            ;
2276                            ;
2277                            ;
2278 043250                     T31BF2:
2279 043250     010             T31BS0: .BYTE   10                      ;BSEL0 AREA
2280 043251     200             T31BS1: .BYTE   200                     ;BSEL1 AREA
2281 043252  000000             T31S2:  .WORD   0                       ;SEL 2 AREA
2282 043254  000000             T31S3:  .WORD   0                       ;DATA AREA
2283                            ;
2284                            ;
2285                                    .EVEN
2286                            ;TAPE MOTION PACKET COMMAND VALUES
2287
2288 043256  100205             T31RN:  .WORD   100205                  ;REREAD DATA (NEXT)
2289 043260  100605             T31WDR: .WORD   100605                  ;REREAD DATA RETRY
2290 043262  102205             T31CON: .WORD   102205                  ;WRITE CONTINOUS
2291 043264  177777                     .WORD   177777                  ;END OF DATA
2292
2293                            ;
2294 043266  000000             T31CNT: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
2295 043270  000000             T31CNU: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
2296 043272  000000             T31DLY: .WORD   0                       ;DELAY COUNTER
2297                            ;*
2298                            ;LOCAL TEXT MESSAGES FOR TEST
```

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TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0147
TEST  3: NO-OP ("CLEAN TAPE") AND INITIALIZE

                                        ;-
                                        
043274  124  123  123  T31RDE: .ASCIZ  'TSSR Not Correct After READ Command'
043340  124  141  160  T31WNH: .ASCIZ  'Tape Position Incorrect After INITIALIZE Command'
043421  124  141  160  T31WNG: .ASCIZ  'Tape Position Incorrect After NOP Command'
043473  124  123  123  T31RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
043542  122  105  122  T31RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
043637  120  117  123  T31SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
043721  122  111  102  T31LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
043771  124  123  123  T31WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
044046  111  154  154  T31LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
044127  122  105  122  T31SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
044163  124  123  123  T31WDE: .ASCIZ  'TSSR Not Correct After NO-OP ("CLEAN TAPE") AND INITIALIZE Command,At BOT'
044275  124  141  160  T31BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XSTO)'
044370  116  117  055  T31TIM: .ASCIZ  'NO-OP ("CLEAN TAPE") AND INITIALIZE''S Erase Tape Not Long Enough'
044470  122  105  122  T31EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
044547  124  123  123  T31TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
044624  122  145  167  T31RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
044673  122  101  115  T31RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
044746  124  123  123  T31AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
045015  104  162  151  T31OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
045070  124  123  123  T31WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
045160  124  123  123  T31WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
045233  103  126  103  T31VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
045306  124  123  102  T31BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
045361  127  122  111  T31WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
045450  122  145  141  T31LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
045532  122  145  141  T31LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
045614  122  145  163  T31PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
045702  122  145  141  T31TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
045770  116  117  055  T31NEF: .ASCIZ  'NO-OP ("CLEAN TAPE") AND INITIALIZE, At First Record, Failed To Set RIB Bit
X
046111  124  123  123  T31SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
046166  124  123  123  T31TSA: .ASCIZ  'TSSR Not Correct After NO-OP ("CLEAN TAPE") AND INITIALIZE, Into BOT'
046273  124  123  123  T31WRF: .ASCIZ  'TSSR Not Correct After NO-OP ("CLEAN TAPE") AND INITIALIZE Command'
046376  104  141  164  T31DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
046473  116  117  055  TST31ID:       .ASCIZ  'NO-OP ("Clean Tape") And INITIALIZE'
                              .EVEN
                        ;+
                        ;
                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                        ;WRITE SUBSYSTEM MEMORY COMMAND
                        ;
                        ;-

046540                  T31REST:
046540                          SAVREG                          ;SAVE THE REGISTERS
046544  012701  043120          MOV     #T31PACKET,R1           ;START OF THE PACKET
046550  012721  100004          MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
046554  012721  043130          MOV     #T31DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
046560  005021                  CLR     (R1)+                   ;EXTENDED ADDRESS
046562  012721  000012          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
046566  012721  043142          MOV     #T31BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
046572  005021                  CLR     (R1)+
046574  012721  000024          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
046600  005021                  CLR     (R1)+
046602  012711  000000          MOV     #0,(R1)                 ;SELECT DRIVE ZERO
046606  012702  000030          MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
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2356 046612  012762  177777  043142  64$:    MOV     #177777,T31BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
2357 046620  005742                          TST     -(R2)                   ;NEXT LOCATION
2358 046622  022702  000000                  CMP     #0,R2                   ;AT END OF LOOP YET
2359 046626  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
2360 046630  000207                          RTS     PC                      ;RETURN
2361
2362 046632                          T31RT2:
2363 046632                                  SAVREG                          ;SAVE THE REGISTERS
2364 046636  012701  043230                  MOV     #T31PK2,R1              ;START OF THE PACKET
2365 046642  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
2366 046646  012721  043250                  MOV     #T31BF2,(R1)+           ;ADDRESS OF DATA BLOCK
2367 046652  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
2368 046654  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
2369 046660  005021                          CLR     (R1)+
2370 046662  012701  043250                  MOV     #T31BF2,R1              ;POINT TO DATA SEL AREA
2371 046666  005021                          CLR     (R1)+
2372 046670  005011                          CLR     (R1)
2373 046672  000207                          RTS     PC                      ;RETURN
2374 046674                          T31RT3:
2375 046674                                  SAVREG                          ;SAVE REGISTERS
2376 046700  012701  043240                  MOV     #T31PK3,R1              ;SET UP POINTER ADDRESS
2377 046704  005021                          CLR     (R1)+                   ;COMMAND SPACE
2378 046706  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
2379 046710  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
2380 046712  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
2381 046714  000207                          RTS     PC                      ;RETURN
2382 046716                                  ENDTST
     046716                                                          L10050:
     046716  104401                                                  TRAP    C$ETST
2383                                 .SBTTL  TEST  4: Erase And Operation Incomplete
2384                                 ;*
2385                                 ;
2386                                 ;       VERIFIES THAT AN ERASE COMMAND ISSUED WHEN THE TAPE IS
2387                                 ;       POSITIONED AT BOT OPERATES PROPERLY AND ACTUALLY ERASES TAPE.
2388                                 ;       THE FOLLOWING TEST SEQUENCE IS PERFORMED:
2389                                 ;
2390                                 ;
2391                                 ;            1.  THE TAPE IS FIRST REWOUND, SEVERAL TEST RECORDS ARE
2392                                 ;                WRITTEN, AND THE TAPE IS REWOUND AGAIN.
2393                                 ;
2394                                 ;            2.  AN ERASE COMMAND IS ISSUED, WHICH SHOULD ERASE A NUMBER
2395                                 ;                OF THE TEST RECORDS.
2396                                 ;
2397                                 ;            3.  NORMAL TERMINATION IS VERIFIED AND STATUS IS CHECKED
2398                                 ;                (BOT SHOULD BE 0).
2399                                 ;
2400                                 ;            4.  A READ REVERSE COMMAND IS ISSUED.  IT IS VERIFIED THAT
2401                                 ;                THE COMMAND TERMINATES WITH TAPE STATUS ALERT, THAT THE
2402                                 ;                REVERSE INTO BOT (RIB) STATUS BIT IS SET, AND THAT NO
2403                                 ;                DATA IS TRANSFERRED.  THIS DEMONSTRATES THAT NO DATA
2404                                 ;                WAS ENCOUNTERED IN THE AREA ERASED BY THE ERASE
2405                                 ;                COMMAND.
2406                                 ;
2407                                 ;
2408                                 ;
2409                                 ;
2410                                 ;
```

```
                                        ;
                                        ;
                                        ;THE TEST CONSISTS OF THE FOLLOWING 3 SUBTESTS
                                        ;
                                        ;
                                        ;
                                        ;-
046720                                          BGNTST
046720                                                                          T4::
046720  012737  006354  002172                  MOV     #EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
046726  012700  052570                          MOV     #T$T32ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
046732  004737  016570                          JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
046736  012737  000005  002210                  MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
046744  005037  051440                          CLR     T32CNT                  ;CLEAR TAPE RECORD COUNTER
                                        ;+
                                        ;
                                        ;TEST 4, SUBTEST 1
                                        ;
                                        ;
                                        ;VERIFIES THAT A Erase And Operation Incomplete COMMAND ISSUED WHILE
                                        ;THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT
                                        ;TERMINATION, WITH THE NON-EXECUTABLE FUNCTION (NEF)
                                        ;ERROR BIT SET.
                                        ;
                                        ;
                                        ;-
046750                                  T32LOOP:
                                        ;
                                        ;
                                        ;
046750                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
046750                                                                                  T4.1:
046750  104402                                                                          TRAP    C$BSUB
046752  004737  052630                          JSR     PC,T32REST              ;SET COMMAND PACKET
046756  004737  052722                          JSR     PC,T32RT2               ;SET UP OTHER COMMAND PACKET
046762  004737  052752                          JSR     PC,T32RT3               ;SET UP OTHER COMMAND PACKET
046766  012737  176750  051444                  MOV     #65000.,T32DLY          ;SET UP DELAY COUNTER
046774  004737  016054          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
047000  103426                          BCS     20$                     ;BR IF INIT WAS OK
047002                                  DELAY   250                     ;DELAY ABOUT .25 SEC
047002  012727  000250                                                          MOV     #250.,(PC)+
047006  000000                                                                  .WORD   0
047010  013727  002116                                                          MOV     L$DLY,(PC)+
047014  000000                                                                  .WORD   0
047016  005367  177772                                                          DEC     -6(PC)
047022  001375                                                                  BNE     .-4
047024  005367  177756                                                          DEC     -22(PC)
047030  001367                                                                  BNE     .-20
047032  005337  051444                          DEC     T32DLY                  ;BUMP COUNTER
047036  001356                                  BNE     10$                     ;BR, IF COUNTER NOT DONE
047040  005237  002214                          INC     FATFLG                          ;ERROR COUNT
047044  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
047046                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
047046  104455                                                                  TRAP    C$ERDF
047050  000621                                                                  .WORD   401
047052  003646                                                                  .WORD   SFIERR
```

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                047054  012114                                                          .WORD   SFIMSG
2461            047056  013737  002174  051300  20$:    MOV     UNITN,T32DSW           ;SET UP DRIVE NUMBER
2462            047064  012704  051260                  MOV     #T32PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
2463            047070  004737  010742                  JSR     PC,WRTCHR              ;ISSUE WRITE CHARACTERISTICS
2464            047074  103407                          BCS     25$                    ;BR, IF COMMAND ISSUED OK
2465            047076  005237  002214                  INC     FATFLG                         ;ERROR COUNT
2469            047102  010001                          MOV     R0,R1                  ;SAVE CONTENTS OF TSSR
2470            047104                                  ERRHRD  ERRNO,WRTMSG,SFIMSG    ;WRITE CHARACTERISTISC FAILED
                047104  104456                                                          TRAP    C$ERHRD
                047106  000622                                                          .WORD   402
                047110  005052                                                          .WORD   WRTMSG
                047112  012114                                                          .WORD   SFIMSG
2471            047114                          25$:    CKLOOP                         ;LOOP IF SELECTED
                047114  104406                                                          TRAP    C$CLP1
2472            047116  004737  011074                  JSR     PC,REWIND              ;CALL TAPE REWIND COMMAND
2473            047122  103411                          BCS     26$                    ;BR, IF NO PROBLEM
2474            047124  010004                          MOV     R0,R4                  ;SET UP REWIND PACKET ADDRESS
2475            047126  016501  000002                  MOV     TSSR(R5),R1            ;GET TSSR CONTENTS
2476            047132  005237  002214                  INC     FATFLG                         ;ERROR COUNT
2480            047136                                  ERRHRD  ERRNO,T32RWN,PKTSSR    ;REWIND NOT ACCEPTED
                047136  104456                                                          TRAP    C$ERHRD
                047140  000623                                                          .WORD   403
                047142  051630                                                          .WORD   T32RWN
                047144  012126                                                          .WORD   PKTSSR
2481            047146                          26$:    CKLOOP                         ;LOOP IF SELECTED
                047146  104406                                                          TRAP    C$CLP1
2482            047150  012703  000400                  MOV     #256.,R3               ;STARTING RECORD SIZE
2483            047154  013737  003116  051402          MOV     FREE,T32WB             ;STARTING WRITE BUFFER ADDRESS
2484            047162  012737  140005  051400          MOV     #140005,T32PK3         ;WRITE DATA,CVC=1,ACK COMMAND
2485            047170  012704  051400                  MOV     #T32PK3,R4             ;SET UP R4 WITH PACKET ADDRESS
2486            047174  010337  051406          27$:    MOV     R3,T32SZ               ;SET UP RECORD SIZE IN PACKET
2487            047200  010465  000000                  MOV     R4,TSDB(R5)            ;ISSUE COMMAND
2488            047204  004737  016330                  JSR     PC,WAITF               ;WAIT FOR SSR TO SET
2489            047210  016501  000002                  MOV     TSSR(R5),R1            ;GET TSSR CONTENTS
2490            047214  012702  000200                  MOV     #SSR,R2                ;SET UP EXPECTED
2491            047220  020102                          CMP     R1,R2                  ;ARE THEY EQUAL
2492            047222  001406                          BEQ     28$                    ;BR, IF OK
2493            047224  005237  002214                  INC     FATFLG                         ;ERROR COUNT
2497            047230                                  ERRHRD  ERRNO,T32WDC,PKTSSR    ;TSSR INCORRECT AFTER WRITE DATA
                047230  104456                                                          TRAP    C$ERHRD
                047232  000624                                                          .WORD   404
                047234  052466                                                          .WORD   T32WDC
                047236  012126                                                          .WORD   PKTSSR
2498            047240                          28$:    CKLOOP                         ;LOOP IF SELECTED
                047240  104406                                                          TRAP    C$CLP1
2499            047242  005723                          TST     (R3)+                  ;BUMP RECORD COUNTER
2500            047244  020327  001002                  CMP     R3,#514.               ;AT MAX SIZE YET
2501            047250  001351                          BNE     27$                    ;BR, IF NOT AT END OF LOOP
2502            047252  004737  011074                  JSR     PC,REWIND              ;CALL TAPE REWIND COMMAND
2503            047256  103411                          BCS     30$                    ;BR, IF NO PROBLEM
2504            047260  016501  000002                  MOV     TSSR(R5),R1            ;GET TSSR CONTENTS
2505            047264  010004                          MOV     R0,R4                  ;SET UP REWIND PACKET ADDRESS
2506            047266  005237  002214                  INC     FATFLG                         ;ERROR COUNT
2510            047272                                  ERRHRD  ERRNO,T32RWN,PKTSSR    ;REWIND NOT ACCEPTED
                047272  104456                                                          TRAP    C$ERHRD
                047274  000625                                                          .WORD   405
                047276  051630                                                          .WORD   T32RWN
```

```
                                                                                .WORD   PKTSSR
2511 047302                             30$:    CKLOOP                          ;LOOP IF SELECTED
     047302 104406                                                              TRAP    C$CLP1
2512 047304 013701 051310               MOV     T32BFR+6,R1                     ;PICK UP XSTO
2513 047310 010102                      MOV     R1,R2                           ;SET UP EXPECTED
2514 047312 052702 000002               BIS     #BIT1,R2                        ;SET BOT BIT IN EXPECTED
2515 047316 020102                      CMP     R1,R2                           ;DOES EXP = REC'D
2516 047320 001406                      BEQ     40$                             ;BR, IF EQUAL (OK)
2517 047322 005237 002214               INC     FATFLG                                  ;ERROR COUNT
2521 047326                             ERRHRD  ERRNO,T32BOE,EXPREC             ;TAPE AT BOT AFTER ERASE
     047326 104456                                                                      TRAP    C$ERHRD
     047330 000626                                                                      .WORD   406
     047332 052316                                                                      .WORD   T32BOE
     047334 015554                                                                      .WORD   EXPREC
2522 047336                             40$:    CKLOOP                          ;LOOP IF SELECTED
     047336 104406                                                                      TRAP    C$CLP1
2523 047340 012737 140411 051400        MOV     #140411,T32PK3                  ;ERASE TAPE,CVC=1,ACK COMMAND
2524 047346 012704 051400               MOV     #T32PK3,R4                      ;SET UP R4 WITH PACKET ADDRESS
2525 047352 010465 000000               MOV     R4,TSDB(R5)                     ;ISSUE COMMAND
2526 047356 004737 016330               JSR     PC,WAITF                        ;WAIT FOR SSR TO SET
2527 047362 016501 000002               MOV     TSSR(R5),R1                     ;GET TSSR CONTENTS
2528 047366 012702 000200               MOV     #SSR,R2                         ;SET UP EXPECTED
2529 047372 020102                      CMP     R1,R2                           ;ARE THEY EQUAL
2530 047374 001406                      BEQ     50$                             ;BR, IF OK
2531 047376 005237 002214               INC     FATFLG                                  ;ERROR COUNT
2535 047402                             ERRHRD  ERRNO,T32ERA,PKTSSR             ;TSSR INCORRECT AFTER ERASE DATA
     047402 104456                                                                      TRAP    C$ERHRD
     047404 000627                                                                      .WORD   407
     047406 051746                                                                      .WORD   T32ERA
     047410 012126                                                                      .WORD   PKTSSR
2536 047412                             50$:    CKLOOP                          ;LOOP IF SELECTED
     047412 104406                                                                      TRAP    C$CLP1
2537 047414 013701 051310               MOV     T32BFR+6,R1                     ;PICK UP XSTO
2538 047420 010102                      MOV     R1,R2                           ;SET UP EXPECTED
2539 047422 042702 000002               BIC     #BIT1,R2                        ;SET BOT BIT IN EXPECTED
2540 047426 020102                      CMP     R1,R2                           ;DOES EXP = REC'D
2541 047430 001406                      BEQ     55$                             ;BR, IF EQUAL (OK)
2542 047432 005237 002214               INC     FATFLG                                  ;ERROR COUNT
2546 047436                             ERRHRD  ERRNO,T32BOE,EXPREC             ;TAPE NOT AT BOT AFTER REWIND
     047436 104456                                                                      TRAP    C$ERHRD
     047440 000630                                                                      .WORD   408
     047442 052316                                                                      .WORD   T32BOE
     047444 015554                                                                      .WORD   EXPREC
2547 047446                             55$:    CKLOOP                          ;LOOP IF SELECTED
     047446 104406                                                                      TRAP    C$CLP1
2548 047450 013737 003116 051402        MOV     FREE,T32RB                      ;ADDRESS OF BUFFER
2549 047456 012737 140401 051400        MOV     #140401,T32PK3                  ;READ REVERSE,ACK,CVC=1 COMMAND
2550 047464 012737 000400 051406        MOV     #256.,T32SZ                     ;SET UP THE SIZE OF RECORD
2551 047472 012704 051400               MOV     #T32PK3,R4                      ;SET UP R4 WITH PACKET ADDRESS
2552 047476 010465 000000               MOV     R4,TSDB(R5)                     ;ISSUE COMMAND
2553 047502 004737 016330               JSR     PC,WAITF                        ;WAIT FOR SSR TO SET
2554 047506 016501 000002               MOV     TSSR(R5),R1                     ;GET TSSR CONTENTS
2555 047512 012702 100204               MOV     #SSR!SC!BIT2,R2                 ;SET UP EXPECTED TAPE STATUS ALERT
2556 047516 020102                      CMP     R1,R2                           ;ARE THEY EQUAL
2557 047520 001406                      BEQ     180$                            ;BR, IF OK
2558 047522 005237 002214               INC     FATFLG                                  ;ERROR COUNT
2562 047526                             ERRHRD  ERRNO,T32TSA,PKTSSR             ;TSSR INCORRECT AFTER READ DATA
```

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        047526  104456                                                          TRAP    C$ERHRD
        047530  000631                                                          .WORD   409
        047532  052241                                                          .WORD   T32TSA
        047534  012126                                                          .WORD   PKTSGR
  2563  047536                          180$:   CKLOOP                        ;LOOP IF SELECTED
        047536  104406                                                          TRAP    C$CLP1
  2564  047540  013701  051316                  MOV     T32BFR+14,R1          ;GET XST3 STATUS WORD
  2565  047544  010102                          MOV     R1,R2                 ;SET UP EXPECTED
  2566  047546  052702  000001                  BIS     #BIT0,R2              ;SET THE RIB BIT
  2567  047552  020102                          CMP     R1,R2                 ;ARE THEY EQUAL
  2568  047554  001406                          BEQ     190$                  ;BR, IF EQUAL (GOOD)
  2569  047556  005237  002214                  INC     FATFLG                        ;ERROR COUNT
  2573  047562                                  ERRHRD  ERRNO,T32RIB,EXPREC   ;RIB SHOULD BE SET
        047562  104456                                                          TRAP    C$ERHRD
        047564  000632                                                          .WORD   410
        047566  052066                                                          .WORD   T32RIB
        047570  015554                                                          .WORD   EXPREC
  2574  047572                          190$:
  2575  047572                                  ENDSUB                        ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        047572                                                                          L10054:
        047572  104403                                                          TRAP    C$ESUB
  2576  047574  023727  002214  000017          CMP     FATFLG,#15.                   ;IS ERROR COUNT AT 25
  2577  047602  103402                          BLO     999$                  ;BR, IF LESS THAN 25
  2578  047604  004737  017262                  JSR     PC,CKDROP             ;TRY TO DROP THE UNIT
  2579  047610                          999$:
  2580                                  ;*
  2581                                  ;
  2582                                  ;TEST 4, SUBTEST 2
  2583                                  ;
  2584                                  ;       VERIFIES THAT AN ERASE COMMAND EXECUTED WHEN THE TAPE IS NOT
  2585                                  ;       POSITIONED AT BOT OPERATES PROPERLY AND DOES NOT CORRUPT
  2586                                  ;       PREVIOUS TAPE RECORDS.  THE TEST SEQUENCE IS:
  2587                                  ;
  2588                                  ;            1.  THE TAPE IS FIRST REWOUND, SEVERAL TEST RECORDS ARE
  2589                                  ;                WRITTEN, AND THE TAPE IS REWOUND AGAIN.
  2590                                  ;
  2591
  2592                                  ;            2.  A SPACE RECORDS FORWARD COMMAND IS ISSUED TO MOVE THE
  2593                                  ;                TAPE OFF OF BOT AND SKIP OVER THE FIRST SEVERAL
  2594                                  ;                RECORDS.
  2595                                  ;
  2596                                  ;            3.  AN ERASE COMMAND IS ISSUED, WHICH SHOULD ERASE A NUMBER
  2597                                  ;                OF THE TEST RECORDS.
  2598                                  ;
  2599                                  ;            4.  NORMAL TERMINATION IS VERIFIED AND STATUS IS CHECKED.
  2600                                  ;
  2601                                  ;            5.  A READ REVERSE COMMAND IS ISSUED.  IT IS VERIFIED THAT
  2602                                  ;                NORMAL TERMINATION IS ACCOMPLISHED AND THAT THE DATA
  2603                                  ;                TRANSFERRED CORRESPONDS TO THAT FOR THE EXPECTED
  2604                                  ;                RECORD.  THIS DEMONSTRATES THAT NO DATA WAS ENCOUNTERED
  2605                                  ;                IN THE AREA ERASED BY THE ERASE COMMAND, AND THAT THE
  2606                                  ;                PREVIOUS RECORD WAS NOT CORRUPTED.
  2607                                  ;
  2608                                  ;
  2609                                  ;
  2610                                  ;
  2611                                  ;
```

```
2612                                    ;
2613                                    ;-
2614 047610                             BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     047610                                                                     T4.2:
     047610  104402                                                              TRAP    C$BSUB
2615 047612  004737  052630             JSR     PC,T32REST              ;SET COMMAND PACKET
2616 047616  004737  052722             JSR     PC,T32RT2               ;SET UP OTHER COMMAND PACKET
2617 047622  004737  052752             JSR     PC,T32RT3               ;SET UP OTHER COMMAND PACKET
2618 047626  004737  016054             JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2619 047632  103407                     BCS     20$                     ;BR IF INIT WAS OK
2620 047634  005237  002214             INC     FATFLG                          ;ERROR COUNT
2624 047640  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2625 047642                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     047642  104455                                                              TRAP    C$ERDF
     047644  000633                                                              .WORD   411
     047646  003646                                                              .WORD   SFIERR
     047650  012114                                                              .WORD   SFIMSG
2626 047652  013737  002174  051300  20$:    MOV     UNITN,T32DSW            ;SET UP UNIT NUMBER IN PACKET
2627 047660  012704  051260             MOV     #T32PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2628 047664  004737  010742             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2629 047670  103407                     BCS     23$                     ;BR, IF COMMAND ISSUED OK
2630 047672  005237  002214             INC     FATFLG                          ;ERROR COUNT
2634 047676  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2635 047700                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     047700  104456                                                              TRAP    C$ERHRD
     047702  000634                                                              .WORD   412
     047704  005052                                                              .WORD   WRTMSG
     047706  012114                                                              .WORD   SFIMSG
2636 047710                     23$:    CKLOOP                          ;LOOP IF SELECTED
     047710  104406                                                              TRAP    C$CLP1
2637 047712  004737  011074             JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2638 047716  103407                     BCS     30$                     ;BR, IF NO PROBLEM
2639 047720  010004                     MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
2640 047722  005237  002214             INC     FATFLG                          ;ERROR COUNT
2644 047726                             ERRHRD  ERRNO,T32RWN,PKTSSR     ;REWIND NOT ACCEPTED
     047726  104456                                                              TRAP    C$ERHRD
     047730  000635                                                              .WORD   413
     047732  051630                                                              .WORD   T32RWN
     047734  012126                                                              .WORD   PKTSSR
2645 047736                     30$:    CKLOOP                          ;LOOP IF SELECTED
     047736  104406                                                              TRAP    C$CLP1
2646 047740  013701  051310             MOV     T32BFR+6,R1             ;PICK UP XSTO
2647 047744  010102                     MOV     R1,R2                   ;SET UP EXPECTED
2648 047746  052702  000002             BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2649 047752  020102                     CMP     R1,R2                   ;DOES EXP = REC'D
2650 047754  001406                     BEQ     40$                     ;BR, IF EQUAL (OK)
2651 047756  005237  002214             INC     FATFLG                          ;ERROR COUNT
2655 047762                             ERRHRD  ERRNO,T32BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     047762  104456                                                              TRAP    C$ERHRD
     047764  000636                                                              .WORD   414
     047766  051446                                                              .WORD   T32BOT
     047770  015554                                                              .WORD   EXPREC
2656 047772                     40$:    CKLOOP                          ;LOOP IF SELECTED
     047772  104406                                                              TRAP    C$CLP1
2657 047774  012703  000144             MOV     #100.,R3                ;STARTING RECORD SIZE
2658 050000  010300                     MOV     R3,R0                   ;SET UP MEMORY FILL
2659 050002  004737  017502             JSR     PC,FILLMEM              ;CALL MEMORY FILLER
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2660 050006  013737  003116  051402          MOV     FREE,T32WB              ;STARTING WRITE BUFFER ADDRESS
2661 050014  012737  140005  051400  65$:    MOV     #140005,T32PK3          ;WRITE DATA,CVC=1,ACK COMMAND
2662 050022  012704  051400                  MOV     #T32PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2663 050026  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
2664 050030  004737  017502                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2665 050034  010337  051406                  MOV     R3,T32SZ                ;SET UP RECORD SIZE IN PACKET
2666 050040  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2667 050044  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2668 050050  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2669 050054  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2670 050060  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2671 050062  001406                          BEQ     80$                     ;BR, IF OK
2672 050064  005237  002214                  INC     FATFLG                          ;ERROR COUNT
2676 050070                                  ERRHRD  ERRNO,T32WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     050070  104456                                                              TRAP    C$ERHRD
     050072  000637                                                              .WORD   415
     050074  052466                                                              .WORD   T32WDC
     050076  012126                                                              .WORD   PKTSSR
2677 050100                          80$:    CKLOOP                          ;LOOP IF SELECTED
     050100  104406                                                              TRAP    C$CLP1
2678 050102  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
2679 050104  020327  000156                  CMP     R3,#110.                ;AT 160 SIZE YET
2680 050110  001341                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
2681 050112  004737  011074                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2682 050116  103407                          BCS     230$                    ;BR, IF NO PROBLEM
2683 050120  010001                          MOV     R0,R1                   ;SAVE TSSR
2684 050122  005237  002214                  INC     FATFLG                          ;ERROR COUNT
2688 050126                                  ERRHRD  ERRNO,T32RWN,EXPREC     ;REWIND NOT ACCEPTED
     050126  104456                                                              TRAP    C$ERHRD
     050130  000640                                                              .WORD   416
     050132  051630                                                              .WORD   T32RWN
     050134  015554                                                              .WORD   EXPREC
2689 050136                          230$:   CKLOOP                          ;LOOP IF SELECTED
     050136  104406                                                              TRAP    C$CLP1
2690 050140  013701  051310                  MOV     T32BFR+6,R1             ;PICK UP XSTO
2691 050144  010102                          MOV     R1,R2                   ;SET UP EXPECTED
2692 050146  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2693 050152  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
2694 050154  001406                          BEQ     240$                    ;BR, IF EQUAL (OK)
2695 050156  005237  002214                  INC     FATFLG                          ;ERROR COUNT
2699 050162                                  ERRHRD  ERRNO,T32BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     050162  104456                                                              TRAP    C$ERHRD
     050164  000641                                                              .WORD   417
     050166  051446                                                              .WORD   T32BOT
     050170  015554                                                              .WORD   EXPREC
2700 050172                          240$:   CKLOOP                          ;LOOP IF SELECTED
     050172  104406                                                              TRAP    C$CLP1
2701 050174  012703  000001                  MOV     #1,R3                   ;SET UP FOR SPACE COMMAND
2702 050200  004737  010544                  JSR     PC,SPACE                ;ISSUE SPACE COMMAND 1 FORWARD
2703 050204  012737  140411  051400  265$:   MOV     #140411,T32PK3          ;ERASE DATA,ACK COMMAND
2704 050212  012704  051400                  MOV     #T32PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2705 050216  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2706 050222  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2707 050226  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2708 050232  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2709 050236  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2710 050240  001406                          BEQ     280$                    ;BR, IF OK
```

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2711 050242  005237  002214                    INC     FATFLG                          ;ERROR COUNT
2715 050246                                    ERRHRD  ERRNO,T32ERA,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     050246  104456                                                                    TRAP    C$ERHRD
     050250  000642                                                                    .WORD   418
     050252  051746                                                                    .WORD   T32ERA
     050254  012126                                                                    .WORD   PKTSSR
2716 050256                            280$:   CKLOOP                          ;LOOP IF SELECTED
     050256  104406                                                                    TRAP    C$CLP1
2717 050260  013737  003116  051402              MOV     FREE,T32RB              ;ADDRESS OF BUFFER
2718 050266  012737  140401  051400              MOV     #140401,T32PK3          ;READ REVERSE,ACK,CVC=1 COMMAND
2719 050274  012737  000144  051406              MOV     #100.,T32SZ             ;SET UP THE SIZE OF RECORD
2720 050302  012704  051400                      MOV     #T32PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2721 050306  010465  000000                      MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2722 050312  004737  016330                      JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2723 050316  016501  000002                      MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2724 050322  012702  000200                      MOV     #SSR,R2                 ;SET UP EXPECTED TAPE STATUS ALERT
2725 050326  020102                              CMP     R1,R2                   ;ARE THEY EQUAL
2726 050330  001406                              BEQ     290$                    ;BR, IF OK
2727 050332  005237  002214                      INC     FATFLG                          ;ERROR COUNT
2731 050336                                    ERRHRD  ERRNO,T32TSA,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     050336  104456                                                                    TRAP    C$ERHRD
     050340  000643                                                                    .WORD   419
     050342  052241                                                                    .WORD   T32TSA
     050344  012126                                                                    .WORD   PKTSSR
2732 050346                            290$:   CKLOOP                          ;LOOP IF SELECTED
     050346  104406                                                                    TRAP    C$CLP1
2733 050350  017701  132542                      MOV     @FREE,R1                ;GET DATA READ
2734 050354  012702  000144                      MOV     #100.,R2                ;SHOULD BE 100
2735 050360  020102                              CMP     R1,R2                   ;CHECK'EM OUT
2736 050362  001406                              BEQ     300$                    ;BR, IF OK
2737 050364  005237  002214                      INC     FATFLG                          ;ERROR COUNT
2741 050370                                    ERRHRD  ERRNO,T32ECF,EXPREC     ;ERASE COMMAND DIDN'T WORK
     050370  104456                                                                    TRAP    C$ERHRD
     050372  000644                                                                    .WORD   420
     050374  052405                                                                    .WORD   T32ECF
     050376  015554                                                                    .WORD   EXPREC
2742 050400                            300$:   CKLOOP                          ;LOOP IF SELECTED
     050400  104406                                                                    TRAP    C$CLP1
2743 050402                            330$:
2744 050402                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     050402                                                                         L10055:
     050402  104403                                                                    TRAP    C$ESUB
2745 050404  023727  002214  000017              CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2746 050412  103402                              BLO     999$                    ;BR, IF LESS THAN 25
2747 050414  004737  017262                      JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2748 050420                            999$:
2749                                           ;*
2750                                           ;
2751                                           ;TEST 4, SUBTEST 3
2752                                           ;
2753                                           ;       VERIFIES THAT AN ERASE COMMAND ENCOUNTERING THE EOT MARKER, OR
2754                                           ;       EXECUTED BEYOND THE EOT MARKER, CAUSES TAPE STATUS ALERT
2755                                           ;       TERMINATION WITH THE EOT STATUS BIT SET.  ALSO VERIFIES THAT THE
2756                                           ;       OTHER TAPE MOTION COMMANDS EXECUTED WHEN THE TAPE IS BLANK
2757                                           ;       RESULT IN UNRECOVERABLE ERROR TERMINATION AND OPERATION
2758                                           ;       INCOMPLETE STATUS.  THE FOLLOWING TEST SEQUENCE IS EXECUTED:
2759                                           ;
```

```
                                ;           1.  THE TAPE IS REWOUND.
                                ;
                                ;           2.  ERASE COMMANDS ARE REPEATEDLY ISSUED UNTIL EOT STATUS
                                ;               IS SEEN.  AN ERROR IS REPORTED IF ANY TERMINATION OTHER
                                ;               THAN NORMAL (WITH EOT=0) OR TAPE STATUS ALERT (WITH
                                ;               EOT=1) IS ENCOUNTERED.  IF THE CONTROLLER OR TRANSPORT
                                ;               DOES NOT DETECT THE EOT, THE TRANSPORT WILL FAULT.
                                ;               THIS IS REPORTED AS A FATAL ERROR AND THE TEST IS
                                ;               ABORTED.
                                ;
                                ;           3.  AN ADDITIONAL ERASE COMMAND IS ISSUED AND IT IS
                                ;               VERIFIED THAT TAPE STATUS ALERT TERMINATION RESULTS,
                                ;               WITH EOT=1.
                                ;
                                ;           4.  IT IS VERIFIED THAT EACH OF THE FOLLOWING COMMANDS
                                ;               (ISSUED IN THE ORDER GIVEN) RESULTS IN UNRECOVERABLE
                                ;               ERROR TERMINATION WITH OPI=1:  SPACE RECORDS REVERSE
                                ;               SKIP TAPE MARKS REVERSE READ REVERSE REREAD PREVIOUS
                                ;               (OPP=0) REREAD PREVIOUS (OPP=1) REREAD NEXT (OPP=1)
                                ;               REREAD NEXT (OPP=0) READ NEXT SKIP TAPE MARKS REVERSE
                                ;               SKIP TAPE MARKS FORWARD SPACE RECORDS FORWARD WRITE
                                ;               DATA RETRY
                                ;
                                ;
                                ;
                                ;
                                ;-
050420                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
050420                                                                      T4.3:
050420  104402                                                              TRAP    C$BSUB
050422  004737  052630          JSR     PC,T32REST              ;SET COMMAND PACKET
050426  004737  052722          JSR     PC,T32RT2               ;SET UP OTHER COMMAND PACKET
050432  004737  052752          JSR     PC,T32RT3               ;SET UP OTHER COMMAND PACKET
050436  012737  176750  051444  MOV     #65000.,T32DLY          ;SET UP DELAY COUNTER
050444  004737  016054  10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
050450  103426                  BCS     20$                     ;BR IF INIT WAS OK
050452                          DELAY   250                     ;DELAY ABOUT .25 SEC
050452  012727  000250                                                  MOV     #250,(PC)+
050456  000000                                                          .WORD   0
050460  013727  002116                                                  MOV     L$DLY,(PC)+
050464  000000                                                          .WORD   0
050466  005367  177772                                                  DEC     -6(PC)
050472  001375                                                          BNE     .-4
050474  005367  177756                                                  DEC     -22(PC)
050500  001367                                                          BNE     .-20
050502  005337  051444          DEC     T32DLY                  ;BUMP COUNTER
050506  001356                  BNE     10$                     ;BR, IF COUNTER NOT DONE
050510  005237  002214                  INC     FATFLG                  ;ERROR COUNT
050514  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
050516                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
050516  104455                                                          TRAP    C$ERDF
050520  000645                                                          .WORD   421
050522  003646                                                          .WORD   SFIERR
050524  012114                                                          .WORD   SFIMSG
050526  013737  002174  051300  20$:    MOV     UNITN,T32DSW            ;SET UP UNIT (DRIVE) NUMBER
050534  052737  000040  051300          BIS     #BIT5,T32DSW            ;TURN ON HIGH SPEED TO SAVE TIME
050542  012704  051260                  MOV     #T32PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
```

```
2806 050546 004737 010742          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2807 050552 103407                 BCS     23$                     ;BR, IF COMMAND ISSUED OK
2808 050554 005237 002214          INC     FATFLG                          ;ERROR COUNT
2812 050560 010001                 MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2813 050562                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     050562 104456                                                              TRAP    C$ERHRD
     050564 000646                                                              .WORD   422
     050566 005052                                                              .WORD   WRTMSG
     050570 012114                                                              .WORD   SFIMSG
2814 050572                 23$:   CKLOOP                          ;LOOP IF SELECTED
     050572 104406                                                              TRAP    C$CLP1
2815 050574 004737 011074          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2816 050600 103411                 BCS     30$                     ;BR, IF NO PROBLEM
2817 050602 016501 000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2818 050606 010004                 MOV     R0,R4                   ;GET PACKET ADDRESS
2819 050610 005237 002214          INC     FATFLG                          ;ERROR COUNT
2823 050614                        ERRHRD  ERRNO,T32RWN,PKTSSR     ;REWIND NOT ACCEPTED
     050614 104456                                                              TRAP    C$ERHRD
     050616 000647                                                              .WORD   423
     050620 051630                                                              .WORD   T32RWN
     050622 012126                                                              .WORD   PKTSSR
2824 050624                 30$:   CKLOOP                          ;LOOP IF SELECTED
     050624 104406                                                              TRAP    C$CLP1
2825 050626 013701 051310          MOV     T328FR+6,R1             ;PICK UP XSTO
2826 050632 010102                 MOV     R1,R2                   ;SET UP EXPECTED
2827 050634 052702 000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2828 050640 020102                 CMP     R1,R2                   ;DOES EXP = REC'D
2829 050642 001406                 BEQ     40$                     ;BR, IF EQUAL (OK)
2830 050644 005237 002214          INC     FATFLG                          ;ERROR COUNT
2834 050650                        ERRHRD  ERRNO,T32BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     050650 104456                                                              TRAP    C$ERHRD
     050652 000650                                                              .WORD   424
     050654 051446                                                              .WORD   T32BOT
     050656 015554                                                              .WORD   EXPREC
2835 050660                 40$:   CKLOOP                          ;LOOP IF SELECTED
     050660 104406                                                              TRAP    C$CLP1
2836 050662 012737 140411 051400 65$:  MOV     #140411,T32PK3          ;ERASE DATA,CVC=1,ACK COMMAND
2837 050670 012704 051400          MOV     #T32PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2838 050674 010337 051406          MOV     R3,T32SZ                ;SET UP RECORD SIZE IN PACKET
2839 050700 010465 000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2840 050704 004737 016330          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2841 050710 016501 000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2842 050714 012702 000200          MOV     #SSR,R2                 ;SET UP EXPECTED
2843 050720 020102                 CMP     R1,R2                   ;ARE THEY EQUAL
2844 050722 001757                 BEQ     65$                     ;BR, IF OK
2845 050724 032701 000004          BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
2846 050730 001006                 BNE     80$                     ;BR, IF TAPE STATUS ALERT SET
2847 050732 005237 002214          INC     FATFLG                          ;ERROR COUNT
2851 050736                        ERRHRD  ERRNO,T32WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     050736 104456                                                              TRAP    C$ERHRD
     050740 000651                                                              .WORD   425
     050742 052466                                                              .WORD   T32WDC
     050744 012126                                                              .WORD   PKTSSR
2852 050746                 80$:   CKLOOP                          ;LOOP IF SELECTED
     050746 104406                                                              TRAP    C$CLP1
2853 050750 013701 051310          MOV     T328FR+6,R1             ;PICK UP XSTO
2854 050754 010102                 MOV     R1,R2                   ;SET UP EXPECTED
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0158
TEST  4: ERASE AND OPERATION INCOMPLETE

 2855 050756  052702  000001                    BIS     #BIT0,R2                ;SET EOT BIT IN EXPECTED
 2856 050762  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
 2857 050764  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
 2858 050766  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 2862 050772                                    ERRHRD  ERRNO,T32EOT,EXPREC     ;TAPE NOT AT EOT AFTER ERASE COMMANDS
      050772  104456                                                                    TRAP    C$ERHRD
      050774  000652                                                                    .WORD   426
      050776  051541                                                                    .WORD   T32EOT
      051000  015554                                                                    .WORD   EXPREC
 2863 051002                            240$:   CKLOOP                          ;LOOP IF SELECTED
      051002  104406                                                                    TRAP    C$CLP1
 2864 051004  012703  051410                    MOV     #T32CMD,R3              ;STARTING RECORD SIZE
 2865 051010  013737  003116  051402            MOV     FREE,T32RB              ;STARTING READ BUFFER ADDRESS
 2866 051016  011337  051400            265$:   MOV     (R3),T32PK3             ;READ DATA,ACK COMMAND
 2867 051022  012704  051400                    MOV     #T32PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 2868 051026  012700  177777                    MOV     #177777,R0              ;SET PATTERN IN CORRECT REGISTER
 2869 051032  004737  017502                    JSR     PC,FILLMEM              ;FILL MEMORY WITH ALL ONES
 2870 051036  012737  000144  051406            MOV     #100.,T32SZ             ;SET UP RECORD SIZE IN PACKET
 2871 051044  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 2872 051050  012737  000062  051444            MOV     #50.,T32DLY             ;SET UP DELAY COUNTER
 2873 051056  004737  016330            270$:   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 2874 051062  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 2875 051066  012702  100214                    MOV     #SSR!SC!BIT2!BIT3,R2    ;SET UP EXPECTED
 2876 051072  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
 2877 051074  001425                            BEQ     280$                    ;BR, IF OK
 2878 051076                                    DELAY   250                     ;DELAY FOR SSR TO BE SET
      051076  012727  000250                                                            MOV     #250.,(PC)+
      051102  000000                                                                    .WORD   0
      051104  013727  002116                                                            MOV     L$DLY,(PC)+
      051110  000000                                                                    .WORD   0
      051112  005367  177772                                                            DEC     -6(PC)
      051116  001375                                                                    BNE     .-4
      051120  005367  177756                                                            DEC     -22(PC)
      051124  001367                                                                    BNE     .-20
 2879 051126  005337  051444                    DEC     T32DLY                  ;COUNT DELAY ROUTINE DOWN
 2880 051132  001351                            BNE     270$                    ;BR, IF DELAY HAS NOT ENDED
 2881 051134  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 2885 051140                                    ERRHRD  ERRNO,T32ECF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      051140  104456                                                                    TRAP    C$ERHRD
      051142  000653                                                                    .WORD   427
      051144  052405                                                                    .WORD   T32ECF
      051146  012126                                                                    .WORD   PKTSSR
 2886 051150                            280$:   CKLOOP                          ;LOOP IF SELECTED
      051150  104406                                                                    TRAP    C$CLP1
 2887 051152  013701  051316                    MOV     T32BFR+14,R1            ;PICK UP XST3
 2888 051156  010102                            MOV     R1,R2                   ;SET UP EXPECTED
 2889 051160  052702  000100                    BIS     #BIT6,R2                ;SET OPI BIT IN EXPECTED
 2890 051164  020102                            CMP     R1,R2                   ;IS OPI BIT SET
 2891 051166  001406                            BEQ     290$                    ;BR, IF BIT IS SET
 2892 051170  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 2896 051174                                    ERRHRD  ERRNO,T320PI,EXPREC     ;OPI BIT NOT SET
      051174  104456                                                                    TRAP    C$ERHRD
      051176  000654                                                                    .WORD   428
      051200  052533                                                                    .WORD   T320PI
      051202  015554                                                                    .WORD   EXPREC
 2897 051204                            290$:   CKLOOP                          ;LOOP IF SELECTED
      051204  104406                                                                    TRAP    C$CLP1
```

```
2898 051206  005723                        TST     (R3)+                   ;BUMP COMMAND POINTER
2899 051210  021327  177777                CMP     (R3),#177777            ;AT END OF TABLE YET
2900 051214  001300                        BNE     265$                    ;BR, KEEP TRYING COMMANDS
2901 051216                                ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     051216                                                                        L10056:
     051216  104403                                                                  TRAP    C$ESUB
2902 051220  023727  002214  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2903 051226  103402                        BLO     999$                            ;BR, IF LESS THAN 25
2904 051230  004737  017262                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
2905 051234                          999$:
2906                                 ;
2907                                 ;
2908                                 ;
2909 051234  004737  016536                JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
2910 051240  103002                        BCC     163$                    ;BR, IF NO LOOP REQUIRED
2911 051242  000137  046750                JMP     T32LOOP                 ;EXECUTE AGAIN
2912 051246                          163$: EXIT    TST                     ;ALL DONE THIS TEST
     051246  104432                                                                  TRAP    C$EXIT
     051250  001524                                                                  .WORD   L10053-.
2913                                 ;+
2914                                 ;LOCAL STORAGE FOR THIS TEST
2915                                 ;-
2917         051260                          .=<.+10>&177770
2919 051260                          T32PACKET:
2920 051260  100004                        .WORD   100004                  ;COMMAND PACKET FOR TEST
2921 051262  051270                        .WORD   T32DATA                 ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
2922 051264  000000                        .WORD   0                       ;ADDRESS OF CHARACTERISTICS BLOCK
2923 051266  000012                        .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
2924 051270                          T32DATA:                              ;CHARACTERISTICS DATA BLOCK
2925 051270  051302                        .WORD   T32BFR                  ;ADDRESS OF MESSAGE BUFFER
2926 051272  000000                        .WORD   0
2927 051274  000024                        .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
2928 051276  000000                        .WORD   0
2929 051300  000000                  T32DSW: .WORD   0                       ;SELECT DRIVE 0
2930 051302                          T32BFR: .BLKW   25.                     ;MESSAGE BUFFER
2931                                 ;
2932                                 ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
2933                                 ;
2935         051370                          .=<.+10>&177770
2937 051370                          T32PK2:
2938 051370  100006                        .WORD   100006                  ;WRITE SUB SYS MEM COMMAND,  AND ACK
2939 051372  000000                        .WORD   0                       ;ADDRESS OF SELECT BLOCK DATA
2940 051374  000000                        .WORD   0
2941 051376  000006                        .WORD   6.                      ;SIZE OF DATA PACKET
2942
2946 051400                          T32PK3:
2947 051400  100005                        .WORD   100005                  ;REREAD COMMAND, AND ACK
2948 051402                          T32RB:
2949 051402  003116                  T32WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
2950 051404  000000                        .WORD   0
2951 051406  000000                  T32SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
2952                                       .EVEN
2953                                 ;
2954                                 ;
2955                                 ;
2956                                 ;
2957                                 ;
```

```
                                        .EVEN
                                ;TAPE MOTION PACKET COMMAND VALUES

051410                          T32CMD:
051410  140410                          .WORD   140410          ;SPACE RECORDS REVERSE
051412  141410                          .WORD   141410          ;SKIP TAPE MARKS REVERSE
051414  140401                          .WORD   140401          ;READ REVERSE
051416  141001                          .WORD   141001          ;REREAD PREVIOUS (OPP=0)
051420  161401                          .WORD   161401          ;REREAD NEXT (OPP=1)
051422  161001                          .WORD   161001          ;REREAD PREVIOUS (OPP=1)
051424  141401                          .WORD   141401          ;REREAD NEXT (OPP=0)
051426  140001                          .WORD   140001          ;READ NEXT
051430  141410                          .WORD   141410          ;SKIP TAPE MARKS REVERSE
051432  141010                          .WORD   141010          ;SKIP RECORDS FORWARD
051434  141005                          .WORD   141005          ;WRITE DATA RETRY
051436  177777                          .WORD   177777          ;END OF DATA

                                ;
051440  000000                  T32CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
051442  000000                  T32CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
051444  000000                  T32DLY: .WORD   0               ;DELAY COUNTER
                                ;+
                                ;LOCAL TEXT MESSAGES FOR TEST
                                ;-

051446      124     141     160 T32BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XST0)'
051541      124     141     160 T32EOT: .ASCIZ  'Tape Status Alert During Erase To EOT, But EOT Not Set'
051630      122     145     167 T32RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
051677      124     123     123 T32AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
051746      124     123     123 T32ERA: .ASCIZ  'TSSR Not Correct After ERASE Command'
052013      124     123     102 T32BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
052066      122     105     101 T32RIB: .ASCIZ  'READ REVERSE, After ERASE From BOT, Failed To Set RIB In XST3'
052164      124     123     123 T32SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
052241      124     123     123 T32TSA: .ASCIZ  'TSSR Not Correct After READ REVERSE Into BOT'
052316      102     117     124 T32BOE: .ASCIZ 'BOT (XST0) Still Set After Erase From Tape''s BOT Marker'
052405      105     122     101 T32ECF: .ASCIZ  'ERASE Failed To Clear Tape (Erase) Tape Properly'
052466      124     123     123 T32WDC: .ASCIZ  'TSSR Not Correct After ERASE Command'
052533      117     120     111 T32OPI: .ASCIZ  'OPI Bit (XST3) Failed To Set'
052570      105     162     141 TST32ID:        .ASCIZ  'Erase And Operation Incomplete'
                                        .EVEN
                                ;+
                                ;
                                ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                ;WRITE SUBSYSTEM MEMORY COMMAND
                                ;
                                ;-

052630                          T32REST:
052630                                  SAVREG                  ;SAVE THE REGISTERS
052634  012701  051260                  MOV     #T32PACKET,R1   ;START OF THE PACKET
052640  012721  100004                  MOV     #100004,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK.
052644  012721  051270                  MOV     #T32DATA,(R1)+  ;ADDRESS OF CHARAISTICS DATA BLOCK
052650  005021                          CLR     (R1)+           ;EXTENDED ADDRESS
052652  012721  000012                  MOV     #10.,(R1)+      ;SIZE OF DATA BLOCK IN BYTES
052656  012721  051302                  MOV     #T32BFR,(R1)+   ;ADDRESS OF MESSAGE BUFFER
052662  005021                          CLR     (R1)+
052664  012721  000024                  MOV     #20.,(R1)+      ;LENGTH OF MESSAGE BUFFER
```

```
3015 052670  005021                          CLR     (R1)+
3016 052672  012711  000000                  MOV     #0,(R1)                 ;SELECT DRIVE ZERO
3017 052676  012702  000030                  MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
3018 052702  012762  177777  051302  64$:    MOV     #177777,T32BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
3019 052710  005742                          TST     -(R2)                   ;NEXT LOCATION
3020 052712  022702  000000                  CMP     #0,R2                   ;AT END OF LOOP YET
3021 052716  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
3022 052720  000207                          RTS     PC                      ;RETURN
3023
3024 052722                          T32RT2:
3025 052722                                  SAVREG                          ;SAVE THE REGISTERS
3026 052726  012701  051370                  MOV     #T32PK2,R1              ;START OF THE PACKET
3027 052732  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
3028 052736  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
3029 052740  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
3030 052742  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
3031 052746  005021                          CLR     (R1)+
3032 052750  000207                          RTS     PC                      ;RETURN
3033 052752                          T32RT3:
3034 052752                                  SAVREG                          ;SAVE REGISTERS
3035 052756  012701  051400                  MOV     #T32PK3,R1              ;SET UP POINTER ADDRESS
3036 052762  005021                          CLR     (R1)+                   ;COMMAND SPACE
3037 052764  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
3038 052766  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
3039 052770  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
3040 052772  000207                          RTS     PC                      ;RETURN
3041 052774                                  ENDTST
     052774                                                          L10053:
     052774  104401                                                        TRAP    C$ETST
3042                                 .SBTTL  TEST  5: DATA PARITY TEST
3043                                 ;+
3044                                 ;
3045                                 ;
3046                                 ;
3047                                 ;
3048                                 ;
3049                                 ;TEST 5 -- Data Parity Test
3050                                 ;
3051                                 ;
3052                                 ;This test verifies that the data parity circuitry in both the controller and the
3053                                 ;transport  is operating properly by forcing data records with wrong parity to be
3054                                 ;written onto tape and checking the results obtained when the data is read.   The
3055                                 ;following test sequence is performed:
3056                                 ;
3057                                 ;       1.  A Write Characteristics command is issued and the resulting  status  is
3058                                 ;           examined to determine the states of the Extended Features and Buffering
3059                                 ;           Enable switches on the controller module.  If buffering is disabled, no
3060                                 ;           further  actions need be taken in this step and the program proceeds to
3061                                 ;           the next step.  If buffering is enabled, it is disabled via the  Buffer
3062                                 ;           Control  field  in the extended characteristics data word supplied by a
3063                                 ;           Write Characteristics command.  (The module must be in  Extended  mode,
3064                                 ;           so  if it is not already, a Write Subsystem Memory command is issued to
3065                                 ;           change the logical sense of the Extended Features switch.)
3066                                 ;
3067                                 ;       2.  The Write Subsystem Memory command is  used  to  set  the  Force  Wrong
3068                                 ;           Parity control flip-flop.
3069                                 ;
```

```
                                        ;       3.  The tape is rewound.
                                        ;
                                        ;       4.  A Write Data command is issued to write a data  record  containing  all
                                        ;           0's.   It  is  verified  that this command results in Recoverable Error
                                        ;           termination (TC=4) and that the Uncorrectable Data  Error  (UNC)  error
                                        ;           bit is set.
                                        ;
                                        ;       5.  The previous step is  repeated  for  each  data  value  2  through  377
                                        ;           (octal).
                                        ;
                                        ;       6.  The tape is rewound.
                                        ;
                                        ;       7.  A Read Next command is issued to read a record with faulty parity.   It
                                        ;           is  verified that this command results in Recoverable Error termination
                                        ;           (TC=4) and that both the Uncorrectable Data (UNC) and Read  Bus  Parity
                                        ;           (RBP)  error  bits are set.  It is also verified that the data actually
                                        ;           read is correct.
                                        ;
                                        ;       8.  A Read Reverse command with OPP=1 is issued to read,  in  reverse,  the
                                        ;           same  record  with  faulty  parity as read in the previous step.  It is
                                        ;           verified that this command results  in  Recoverable  Error  termination
                                        ;           (TC=4)  and  that both the Uncorrectable Data (UNC) and Read Bus Parity
                                        ;           (RBP) error bits are set.  It is also verified that the  data  actually
                                        ;           read is correct.
                                        ;
                                        ;       9.  Tape is spaced forward one record.
                                        ;
                                        ;      10.  The previous three steps are executed for each test  record  originally
                                        ;           written.
                                        ;
                                        ;      11.  The controller is initialized to  clear  the  special  test  conditions
                                        ;           previously set up.
                                        ;
                                        ;
                                        ;
                                        ;-
 052776                                                 BGNTST
 052776                                                                                  T5::
 052776  012737  006413  002172                         MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
 053004  012700  055575                                 MOV     #TST33ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
 053010  004737  016570                                 JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
 053014  012737  000005  002210                         MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
 053022  005037  054646                                 CLR     T33CNT                  ;CLEAR TAPE RECORD COUNTER
                                        ;+
                                        ;
 053026                                 T33LOOP:
 053026                                                 BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
 053026                                                                                  T5.1:
 053026  104402                                                                                  TRAP    C$BSUB
 053030  005037  002216                                 CLR     INTRECV                 ;INTERRUPT INDICATOR
 053034  005037  054646                                 CLR     T33CNT                  ;TIMER FOR WRITE DATA SPACING
 053040  005037  054650                                 CLR     T33CNU                  ;TIMER FOR WRITE DATA RETRY SPACING
 053044  004737  055612                                 JSR     PC,T33REST              ;SET COMMAND PACKET
 053050  004737  055704                                 JSR     PC,T33RT2               ;SET UP OTHER COMMAND PACKET
 053054  004737  055746                                 JSR     PC,T33RT3               ;SET UP OTHER COMMAND PACKET
 053060  012737  176750  054652                         MOV     #65000.,T33DLY          ;SET UP DELAY COUNTER
 053066  004737  016054                 10$:            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
```

```
3128 053072  103426                    BCS     20$                 ;BR IF INIT WAS OK
3129 053074                            DELAY   250                 ;DELAY ABOUT .25 SEC
     053074  012727  000250                                                MOV     #250,(PC)+
     053100  000000                                                        .WORD   0
     053102  013727  002116                                                MOV     L$DLY,(PC)+
     053106  000000                                                        .WORD   0
     053110  005367  177772                                                DEC     -6(PC)
     053114  001375                                                        BNE     .-4
     053116  005367  177756                                                DEC     -22(PC)
     053122  001367                                                        BNE     .-20
3130 053124  005337  054652                    DEC     T33DLY              ;BUMP COUNTER
3131 053130  001356                            BNE     10$                 ;BR, IF COUNTER NOT DONE
3132 053132  005237  002214                    INC     FATFLG                      ;ERROR COUNT
3136 053136  010001                            MOV     R0,R1               ;CONTENTS OF TSSR REGISTER
3137 053140                            ERRDF   ERRNO,SFIERR,SFIMSG         ;FATAL ERROR TSSR WAS NOT OK
     053140  104455                                                        TRAP    C$ERDF
     053142  000765                                                        .WORD   501
     053144  003646                                                        .WORD   SFIERR
     053146  012114                                                        .WORD   SFIMSG
3138 053150  013737  002174  054520  20$:     MOV     UNITN,T33DSW        ;SET UP UNIT NUMBER
3139
3140 053156  012704  054500                    MOV     #T33PACKET,R4       ;SUBROUTINE NEEDS PACKET ADDRESS
3141 053162  004737  010742                    JSR     PC,WRTCHR           ;ISSUE WRITE CHARACTERISTICS
3142 053166  103407                            BCS     23$                 ;BR, IF COMMAND ISSUED OK
3143 053170  005237  002214                    INC     FATFLG                      ;ERROR COUNT
3147 053174  010001                            MOV     R0,R1               ;SAVE CONTENTS OF TSSR
3148 053176                            ERRHRD  ERRNO,WRTMSG,SFIMSG         ;WRITE CHARACTERISTISC FAILED
     053176  104456                                                        TRAP    C$ERHRD
     053200  000766                                                        .WORD   502
     053202  005052                                                        .WORD   WRTMSG
     053204  012114                                                        .WORD   SFIMSG
3149 053206                    23$:    CKLOOP                              ;LOOP IF SELECTED
     053206  104406                                                        TRAP    C$CLP1
3150 053210  004737  011074                    JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
3151 053214  103411                            BCS     30$                 ;BR, IF NO PROBLEM
3152 053216  016501  000002                    MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
3153 053222  010004                            MOV     R0,R4               ;GET PACKET ADDRESS
3154 053224  005237  002214                    INC     FATFLG                      ;ERROR COUNT
3158 053230                            ERRHRD  ERRNO,T33RWN,PKTSSR         ;REWIND NOT ACCEPTED
     053230  104456                                                        TRAP    C$ERHRD
     053232  000767                                                        .WORD   503
     053234  055350                                                        .WORD   T33RWN
     053236  012126                                                        .WORD   PKTSSR
3159 053240                    30$:    CKLOOP                              ;LOOP IF SELECTED
     053240  104406                                                        TRAP    C$CLP1
3160 053242  013701  054530                    MOV     T33BFR+6,R1         ;PICK UP XSTO
3161 053246  010102                            MOV     R1,R2               ;SET UP EXPECTED
3162 053250  052702  000002                    BIS     #BIT1,R2            ;SET BOT BIT IN EXPECTED
3163 053254  020102                            CMP     R1,R2               ;DOES EXP = REC'D
3164 053256  001406                            BEQ     40$                 ;BR, IF EQUAL (OK)
3165 053260  005237  002214                    INC     FATFLG                      ;ERROR COUNT
3169 053264                            ERRHRD  ERRNO,T33BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
     053264  104456                                                        TRAP    C$ERHRD
     053266  000770                                                        .WORD   504
     053270  055255                                                        .WORD   T33BOT
     053272  015554                                                        .WORD   EXPREC
3170 053274                    40$:    CKLOOP                              ;LOOP IF SELECTED
```

```
                                                                                    TRAP    C$CLP1
 053274  104406
3171 053276  005737  002220          42$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
3172 053302  001025                          BNE     55$                     ;BR IF SWITCH IS ON
3173 053304  112737  000200  054631          MOVB    #200,T33BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
3174 053312  112737  000010  054630          MOVB    #10,T33BSO              ;FUNC. SEL. BIT (TURN ON EXTFEA SWITCH)
3175 053320  012704  054610                  MOV     #T33PK2,R4              ;WRITE SUBSYS MEM PACKET
3176 053324  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3177 053330  004737  016416                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
3178 053334  103407                         BCS     50$                     ;BR, IF NO ERROR
3179 053336  010001                         MOV     R0,R1                   ;ERROR, SAVE TSSR
3180 053340  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3184 053344                                  ERRHRD  ERRNO,T33SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
 053344  104456                                                                   TRAP    C$ERHRD
 053346  000771                                                                   .WORD   505
 053350  055171                                                                   .WORD   T33SSR
 053352  012126                                                                   .WORD   PKTSSR
3185 053354                          50$:    CKLOOP                          ;LOOP IF SELECTED
 053354  104406                                                                   TRAP    C$CLP1
3186 053356  005737  002222          55$:    TST     BENBSW                  ;CHECK FOR BUFFER ENABLED
3187 053362  001426                         BEQ     70$                     ;BR, IF BUFFERING NOT ENABLED
3188 053364  013737  002174  054520          MOV     UNITN,T33DSW            ;SET UP UNIT NUMBER
3189 053372  042737  000020  054520          BIC     #BIT4,T33DSW            ;BUFFER DISABLE
3190 053400  052737  000010  054520          BIS     #BIT3,T33DSW            ;BUFFER DISABLE SEND 01 TO BITS 4 AND 3
3191 053406  012704  054500                  MOV     #T33PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3192 053412  004737  010742                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3193 053416  103407                         BCS     60$                     ;BR, IF COMMAND ISSUED OK
3194 053420  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3198 053424  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3199 053426                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
 053426  104456                                                                   TRAP    C$ERHRD
 053430  000772                                                                   .WORD   506
 053432  005052                                                                   .WORD   WRTMSG
 053434  012114                                                                   .WORD   SFIMSG
3200 053436                          60$:    CKLOOP                          ;LOOP IF SELECTED
 053436  104406                                                                   TRAP    C$CLP1
3201 053440                          70$:
3202 053440  112737  000100  054631          MOVB    #100,T33BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
3203 053446  112737  000011  054630          MOVB    #11,T33BSO              ;FUNC. SEL. BIT (SET WRONG PARITY)
3204 053454  012704  054610                  MOV     #T33PK2,R4              ;WRITE SUBSYS MEM PACKET
3205 053460  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3206 053464  004737  016416                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
3207 053470  103407                         BCS     80$                     ;BR, IF NO ERROR
3208 053472  010001                         MOV     R0,R1                   ;ERROR, SAVE TSSR
3209 053474  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3213 053500                                  ERRHRD  ERRNO,T33SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
 053500  104456                                                                   TRAP    C$ERHRD
 053502  000773                                                                   .WORD   507
 053504  055171                                                                   .WORD   T33SSR
 053506  012126                                                                   .WORD   PKTSSR
3214 053510                          80$:    CKLOOP                          ,LOOP IF SELECTED
 053510  104406                                                                   TRAP    C$CLP1
3215 053512  012703  000026                  MOV     #22.,R3         ;NUMBER OF RECORDS TO BE WRITTEN
3216 053516  013737  003116  054622          MOV     FREE,T33WB              ;STARTING WRITE BUFFER ADDRESS
3217 053524  005037  054650                  CLR     T33CNU                  ;MAKE SURE ITS CLEAR
3218 053530  012737  140005  054620  110$:   MOV     #140005,T33PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
3219 053536  012704  054620                  MOV     #T33PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3220 053542  012737  000024  054626          MOV     #20.,T33SZ              ;SET UP RECORD SIZE IN PACKET
```

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3221 053550  013777  054650  127340          MOV     T33CNU,@FREE            ;MEMORY FILLED WITH DATA IN RECORD
3222 053556  005237  054650                  INC     T33CNU                  ;READY FOR NEXT RECORD
3223 053562  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3224 053566  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3225 053572  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3226 053576  012702  100210                  MOV     #SSR!SC!BIT3,R2         ;SET UP EXPECTED
3227 053602  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3228 053604  001406                          BEQ     120$                    ;BR, IF OK
3229 053606  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3233 053612                                  ERRHRD  ERRNO,T33WPW,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     053612  104456                                                                  TRAP    C$ERHRD
     053614  000774                                                                  .WORD   508
     053616  054732                                                                  .WORD   T33WPW
     053620  012126                                                                  .WORD   PKTSSR
3234 053622                          120$:   CKLOOP                          ;LOOP IF SELECTED
     053622  104406                                                                  TRAP    C$CLP1
3235 053624  013701  054532                  MOV     T33BFR+10,R1            ;PICK UP XST1
3236 053630  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3237 053632  052702  000002                  BIS     #BIT1,R2                ;SET UNC BIT IN EXPECTED
3238 053636  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
3239 053640  001406                          BEQ     130$                    ;BR, IF EQUAL (OK)
3240 053642  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3244 053646                                  ERRHRD  ERRNO,T33UNC,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     053646  104456                                                                  TRAP    C$ERHRD
     053650  000775                                                                  .WORD   509
     053652  055012                                                                  .WORD   T33UNC
     053654  015554                                                                  .WORD   EXPREC
3245 053656                          130$:   CKLOOP                          ;LOOP IF SELECTED
     053656  104406                                                                  TRAP    C$CLP1
3246 053660  005303                          DEC     R3                      ;DEC RECORD COUNTER
3247 053662  001322                          BNE     110$                    ;BR, IF MORE RECORDS TO WRITE
3248 053664  004737  011074                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3249 053670  103411                          BCS     140$                    ;BR, IF NO PROBLEM
3250 053672  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3251 053676  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
3252 053700  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3256 053704                                  ERRHRD  ERRNO,T33RWN,PKTSSR     ;REWIND NOT ACCEPTED
     053704  104456                                                                  TRAP    C$ERHRD
     053706  000776                                                                  .WORD   510
     053710  055350                                                                  .WORD   T33RWN
     053712  012126                                                                  .WORD   PKTSSR
3257 053714                          140$:   CKLOOP                          ;LOOP IF SELECTED
     053714  104406                                                                  TRAP    C$CLP1
3258 053716  013701  054530                  MOV     T33BFR+6,R1             ;PICK UP XST0
3259 053722  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3260 053724  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
3261 053730  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
3262 053732  001406                          BEQ     150$                    ;BR, IF EQUAL (OK)
3263 053734  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3267 053740                                  ERRHRD  ERRNO,T33BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     053740  104456                                                                  TRAP    C$ERHRD
     053742  000777                                                                  .WORD   511
     053744  055255                                                                  .WORD   T33BOT
     053746  015554                                                                  .WORD   EXPREC
3268 053750                          150$:   CKLOOP                          ;LOOP IF SELECTED
     053750  104406                                                                  TRAP    C$CLP1
3269 053752  005037  054650                  CLR     T33CNU                  ;CLEAR DATA VALUE IN RECORD
```

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3270 053756  012703  000024                MOV     #20.,R3                 ;RECORD SIZE
3271 053762  013737  003116  054622  155$: MOV     FREE,T33RB              ;STARTING WRITE BUFFER ADDRESS
3272 053770  012737  140001  054620        MOV     #140001,T33PK3          ;READ DATA,CVC=1,ACK COMMAND
3273 053776  012704  054620                MOV     #T33PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3274 054002  012737  000024  054626        MOV     #20.,T33SZ              ;SET UP RECORD SIZE IN PACKET
3275 054010  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3276 054014  004737  016330                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3277 054020  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3278 054024  012702  100210                MOV     #SSR!SC!BIT3,R2         ;SET UP EXPECTED
3279 054030  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3280 054032  001406                        BEQ     160$                    ;BR, IF OK
3281 054034  005237  002214                INC     FATFLG                          ;ERROR COUNT
3285 054040                                ERRHRD  ERRNO,T33WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     054040  104456                                                                TRAP    C$ERHRD
     054042  001000                                                                .WORD   512
     054044  055417                                                                .WORD   T33WDC
     054046  012126                                                                .WORD   PKTSSR
3286 054050                        160$:   CKLOOP                          ;LOOP IF SELECTED
     054050  104406                                                                TRAP    C$CLP1
3287 054052  013701  054532                MOV     T33BFR+10,R1            ;PICK UP XST1
3288 054056  010102                        MOV     R1,R2                   ;SET UP EXPECTED
3289 054060  052702  000002                BIS     #BIT1,R2                ;SET UNC BIT IN EXPECTED
3290 054064  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
3291 054066  001406                        BEQ     170$                    ;BR, IF EQUAL (OK)
3292 054070  005237  002214                INC     FATFLG                          ;ERROR COUNT
3296 054074                                ERRHRD  ERRNO,T33UND,EXPREC     ;UNC BIT NOT SET AFTER READ CMD.
     054074  104456                                                                TRAP    C$ERHRD
     054076  001001                                                                .WORD   513
     054100  055102                                                                .WORD   T33UND
     054102  015554                                                                .WORD   EXPREC
3297 054104                        170$:   CKLOOP                          ;LOOP IF SELECTED
     054104  104406                                                                TRAP    C$CLP1
3298 054106  013701  054532                MOV     T33BFR+10,R1            ;PICK UP XST1
3299 054112  010102                        MOV     R1,R2                   ;SET UP EXPECTED
3300 054114  052702  000400                BIS     #BIT8,R2                ;SET RBP BIT IN EXPECTED
3301 054120  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
3302 054122  001406                        BEQ     180$                    ;BR, IF EQUAL (OK)
3303 054124  005237  002214                INC     FATFLG                          ;ERROR COUNT
3307 054130                                ERRHRD  ERRNO,T33RBP,EXPREC     ;READ BUS PARITY ERROR BIT NOT SET
     054130  104456                                                                TRAP    C$ERHRD
     054132  001002                                                                .WORD   514
     054134  054654                                                                .WORD   T33RBP
     054136  015554                                                                .WORD   EXPREC
3308 054140                        180$:   CKLOOP                          ;LOOP IF SELECTED
     054140  104406                                                                TRAP    C$CLP1
3309 054142  017701  126750                MOV     @FREE,R1                ;GET DATA READ
3310 054146  013702  054650                MOV     T33CNU,R2                       ;GET PATTERN
3311 054152  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3312 054154  001406                        BEQ     182$                    ;BR, IF OK
3313 054156  005237  002214                INC     FATFLG                          ;ERROR COUNT
3317 054162                                ERRHRD  ERRNO,T33DTA,EXPREC     ;DATA NOT CORRECT
     054162  104456                                                                TRAP    C$ERHRD
     054164  001003                                                                .WORD   515
     054166  055500                                                                .WORD   T33DTA
     054170  015554                                                                .WORD   EXPREC
3318 054172                        182$:   CKLOOP                          ;LOOP IF SELECTED
     054172  104406                                                                TRAP    C$CLP1
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 3319 054174  013737  003116  054622          MOV     FREE,T33WB              ;STARTING WRITE BUFFER ADDRESS
 3320 054202  012737  140401  054620  195$:   MOV     #140401,T33PK3          ;READ REVERSE DATA RETRY,ACK COMMAND
 3321 054210  012704  054620                  MOV     #T33PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 3322 054214  012737  000024  054626          MOV     #20.,T33SZ              ;SET UP RECORD SIZE IN PACKET
 3323 054222  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 3324 054226  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 3325 054232  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 3326 054236  012702  100210                  MOV     #SC!SSR!BIT3,R2                 ;SET UP EXPECTED
 3327 054242  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 3328 054244  001406                          BEQ     190$                    ;BR, IF OK
 3329 054246  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 3333 054252                                  ERRHRD  ERRNO,T33WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      054252  104456                                                                  TRAP    C$ERHRD
      054254  001004                                                                  .WORD   516
      054256  055417                                                                  .WORD   T33WDC
      054260  012126                                                                  .WORD   PKTSSR
 3334 054262                          190$:   CKLOOP                          ;LOOP IF SELECTED
      054262  104406                                                                  TRAP    C$CLP1
 3335 054264  013701  054532                  MOV     T33BFR+10,R1            ;PICK UP XST1
 3336 054270  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 3337 054272  052702  000002                  BIS     #BIT1,R2                ;SET UNC BIT IN EXPECTED
 3338 054276  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 3339 054300  001406                          BEQ     200$                    ;BR, IF EQUAL (OK)
 3340 054302  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 3344 054306                                  ERRHRD  ERRNO,T33UND,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      054306  104456                                                                  TRAP    C$ERHRD
      054310  001005                                                                  .WORD   517
      054312  055102                                                                  .WORD   T33UND
      054314  015554                                                                  .WORD   EXPREC
 3345 054316                          200$:   CKLOOP                          ;LOOP IF SELECTED
      054316  104406                                                                  TRAP    C$CLP1
 3346 054320  013701  054532                  MOV     T33BFR+10,R1            ;PICK UP XSTO
 3347 054324  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 3348 054326  052702  000400                  BIS     #BIT8,R2                ;SET RBP BIT IN EXPECTED
 3349 054332  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 3350 054334  001406                          BEQ     210$                    ;BR, IF EQUAL (OK)
 3351 054336  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 3355 054342                                  ERRHRD  ERRNO,T33RBP,EXPREC     ;READ BUS PARITY ERROR BIT NOT SET
      054342  104456                                                                  TRAP    C$ERHRD
      054344  001006                                                                  .WORD   518
      054346  054654                                                                  .WORD   T33RBP
      054350  015554                                                                  .WORD   EXPREC
 3356 054352                          210$:   CKLOOP                          ;LOOP IF SELECTED
      054352  104406                                                                  TRAP    C$CLP1
 3357 054354  017701  126536                  MOV     @FREE,R1                ;GET DATA READ
 3358 054360  013702  054650                  MOV     T33CNU,R2                       ;GET PATTERN
 3359 054364  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 3360 054366  001406                          BEQ     215$                    ;BR, IF OK
 3361 054370  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 3365 054374                                  ERRHRD  ERRNO,T33DTA,EXPREC     ;DATA NOT CORRECT
      054374  104456                                                                  TRAP    C$ERHRD
      054376  001007                                                                  .WORD   519
      054400  055500                                                                  .WORD   T33DTA
      054402  015554                                                                  .WORD   EXPREC
 3366 054404                          215$:   CKLOOP                          ;LOOP IF SELECTED
      054404  104406                                                                  TRAP    C$CLP1
 3367 054406  010302                          MOV     R3,R2                   ;SAVE R3 FOR A MOMENT
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3368 054410  012703  000001                MOV     #1,R3                   ;SPACE FORWARD ONE RECORD
3369 054414  004737  010544                JSR     PC,SPACE                ;CALL ROUTINE
3370 054420  010203                        MOV     R2,R3                   ;RESTORE R3
3371 054422  005237  054650                INC     T33CNU                  ;BUMP TO NEXT RECORD NUMBER
3372 054426  005303                        DEC     R3                      ;BUMP COUNTER
3373 054430  001402                        BEQ     220$                    ;BR, IF DONE
3374 054432  000137  053762                JMP     155$                    ;BR, IF NOT DONE YET
3375 054436                        220$:
3376 054436                        ENDSUB                                  ;<<<<<<<<<<<<< END SUBTEST >>>>>>>>>>>>
     054436                                                                        L10060:
     054436  104403                                                                TRAP    C$ESUB
3377 054440  023727  002214  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3378 054446  103402                        BLO     999$                            ;BR, IF LESS THAN 25
3379 054450  004737  017262                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
3380 054454                        999$:
3381                               ;
3382                               ;
3383                               ;
3384 054454  004737  016536                JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
3385 054460  103002                        BCC     230$                    ;BR, IF NO LOOP REQUIRED
3386 054462  000137  053026                JMP     T33LOOP                 ;EXECUTE AGAIN
3387 054466                        230$:   EXIT    TST                     ;ALL DONE THIS TEST
     054466  104432                                                                TRAP    C$EXIT
     054470  001300                                                                .WORD   L10057-.
3388                               ;+
3389                               ;LOCAL STORAGE FOR THIS TEST
3390                               ;-
3392         054500                        .=<.+10>&177770
3394 054500                        T33PACKET:                              ;COMMAND PACKET FOR TEST
3395 054500  100004                        .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
3396 054502  054510                        .WORD   T33DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
3397 054504  000000                        .WORD   0
3398 054506  000012                        .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
3399 054510                        T33DATA:                                ;CHARACTERISTICS DATA BLOCK
3400 054510  054522                        .WORD   T33BFR                  ;ADDRESS OF MESSAGE BUFFER
3401 054512  000000                        .WORD   0
3402 054514  000024                        .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
3403 054516  000000                        .WORD   0
3404 054520  000000                T33DSW: .WORD   0                       ;SELECT DRIVE 0
3405 054522                        T33BFR: .BLKW   25.                     ;MESSAGE BUFFER
3406                               ;
3407                               ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
3408                               ;
3410         054610                        .=<.+10>&177770
3412 054610                        T33PK2:
3413 054610  100006                        .WORD   100006                  ;WRITE SUB SYS MEM COMMAND,  AND ACK
3414 054612  054630                        .WORD   T33BF2                  ;ADDRESS OF SELECT BLOCK DATA
3415 054614  000000                        .WORD   0
3416 054616  000006                        .WORD   6.                      ;SIZE OF DATA PACKET
3417
3421 054620                        T33PK3:
3422 054620  100005                        .WORD   100005                  ;REREAD COMMAND, AND ACK
3423 054622                        T33RB:
3424 054622  003116                T33WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
3425 054624  000000                        .WORD   0
3426 054626  000000                T33SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
3427                                       .EVEN
```

```
3428                                    ;
3429                                    ;
3430                                    ;
3431 054630                             T33BF2:
3432 054630     010                     T33BS0: .BYTE   10                      ;BSEL0 AREA
3433 054631     200                     T33BS1: .BYTE   200                     ;BSEL1 AREA
3434 054632  000000                     T33S2:  .WORD   0                       ;SEL 2 AREA
3435 054634  000000                     T33S3:  .WORD   0                       ;DATA AREA
3436                                    ;
3437                                    ;
3438                                            .EVEN
3439                                    ;TAPE MOTION PACKET COMMAND VALUES
3440
3441 054636  100205                     T33RN:  .WORD   100205                  ;REREAD DATA (NEXT)
3442 054640  100605                     T33WDR: .WORD   100605                  ;REREAD DATA RETRY
3443 054642  102205                     T33CON: .WORD   102205                  ;WRITE CONTINOUS
3444 054644  177777                             .WORD   177777                  ;END OF DATA
3445
3446                                    ;
3447 054646  000000                     T33CNT: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
3448 054650  000000                     T33CNU: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
3449 054652  000000                     T33DLY: .WORD   0                       ;DELAY COUNTER
3450                                    ;+
3451                                    ;LOCAL TEXT MESSAGES FOR TEST
3452                                    ;-
3453
3454 054654     122     145     141     T33RBP: .ASCIZ  'Read Bus Parity Bit Not Set (XST1), Should Be'
3455 054732     124     123     123     T33WPW: .ASCIZ  'TSSR Incorrect After Wrong Parity Write Command'
3456 055012     125     116     103     T33UNC: .ASCIZ  'UNC Bit (XST1) Not Set After Wrong Parity WRITE Command'
3457 055102     125     116     103     T33UND: .ASCIZ  'UNC Bit (XST1) Not Set After Wrong Parity READ Command'
3458 055171     127     122     111     T33SSR: .ASCIZ  'WRITE MISSCELLANEOUS CONT/READ COMMAND Not Accepted'
3459 055255     124     141     160     T33BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XST0)'
3460 055350     122     145     167     T33RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
3461 055417     124     123     123     T33WDC: .ASCIZ  'TSSR Not Correct After READ Wrong Parity Command'
3462 055500     104     141     164     T33DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equai To Written'
3463 055575     104     141     164     TST33ID:        .ASCIZ  'Data Parity'
3464                                            .EVEN
3465                                    ;+
3466                                    ;
3467                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
3468                                    ;WRITE SUBSYSTEM MEMORY COMMAND
3469                                    ;
3470                                    ;-
3471
3472 055612                             T33REST:
3473 055612                                     SAVREG                          ;SAVE THE REGISTERS
3474 055616  012701  054500                     MOV     #T33PACKET,R1           ;START OF THE PACKET
3475 055622  012721  100004                     MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
3476 055626  012721  054510                     MOV     #T33DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
3477 055632  005021                             CLR     (R1)+                   ;EXTENDED ADDRESS
3478 055634  012721  000012                     MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
3479 055640  012721  054522                     MOV     #T33BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
3480 055644  005021                             CLR     (R1)+
3481 055646  012721  000024                     MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
3482 055652  005021                             CLR     (R1)+
3483 055654  012711  000000                     MOV     #0,(R1)                 ;SELECT DRIVE ZERO
3484 055660  012702  000030                     MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
```

```
3485 055664  012762  177777  054522  64$:    MOV     #177777,T33BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
3486 055672  005742                          TST     -(R2)                   ;NEXT LOCATION
3487 055674  022702  000000                  CMP     #0,R2                   ;AT END OF LOOP YET
3488 055700  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
3489 055702  000207                          RTS     PC                      ;RETURN
3490
3491 055704                          T33RT2:
3492 055704                                  SAVREG                          ;SAVE THE REGISTERS
3493 055710  012701  054610                  MOV     #T33PK2,R1              ;START OF THE PACKET
3494 055714  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
3495 055720  012721  054630                  MOV     #T33BF2,(R1)+           ;ADDRESS OF DATA BLOCK
3496 055724  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
3497 055726  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
3498 055732  005021                          CLR     (R1)+
3499 055734  012701  054630                  MOV     #T33BF2,R1              ;POINT TO DATA SEL AREA
3500 055740  005021                          CLR     (R1)+
3501 055742  005011                          CLR     (R1)
3502 055744  000207                          RTS     PC                      ;RETURN
3503 055746                          T33RT3:
3504 055746                                  SAVREG                          ;SAVE REGISTERS
3505 055752  012701  054620                  MOV     #T33PK3,R1              ;SET UP POINTER ADDRESS
3506 055756  005021                          CLR     (R1)+                   ;COMMAND SPACE
3507 055760  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
3508 055762  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
3509 055764  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
3510 055766  000207                          RTS     PC                      ;RETURN
3511 055770                                  ENDTST
     055770                                                          L10057:
     055770  104401                                                          TRAP    C$ETST
3512                                 .SBTTL  TEST  6: OPERATIONS AT EOT
3513                                 ;+
3514                                 ;
3515                                 ;THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY
3516                                 ;COMMAND (SPACE REVERSE, ERASE, WRITE DATA)
3517                                 ;
3518                                 ;
3519                                 ;THE TEST CONSISTS OF THE FOLLOWING 1 SUBTEST
3520                                 ;
3521                                 ;
3522                                 ;
3523                                 ;-
3524 055772                                  BGNTST
     055772                                                                  T6::
3525 055772  012737  006354  002172          MOV     #EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
3530 056000  012700  063137                  MOV     #TST34ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
3531 056004  004737  016570                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
3532 056010  012737  000005  002210          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
3533 056016  005037  060622                  CLR     T34CNT                  ;CLEAR TAPE RECORD COUNTER
3534                                 ;+
3535                                 ;
3536                                 ;TEST 6, SUBTEST 1
3537                                 ;
3538                                 ;
3539                                 ;       THIS TEST VERIFIES THAT THE EOT STATUS IS HANDLED PROPERLY BY
3540                                 ;       THE VARIOUS TAPE MOTION COMMANDS.  THE FOLLOWING TEST SEQUENCE
3541                                 ;       IS PERFORMED:
3542                                 ;
```

```
                                ;
                                ;       1.  THE TAPE IS REWOUND.
                                ;
                                ;       2.  WRITE DATA COMMANDS ARE REPEATEDLY ISSUED UNTIL TAPE
                                ;           STATUS ALERT TERMINATION IS SEEN WITH EOT=1.  ERRORS
                                ;           OTHER THAN OCCASIONAL CORRECTABLE OR UNCORRECTABLE DATA
                                ;           ERRORS CAUSE A FATAL ERROR REPORT.  RECORDS WITH DATA
                                ;           ERRORS ARE RETRIED, SO THE TAPE ENDS UP WITH GOOD DATA.
                                ;
                                ;       3.  ANOTHER WRITE DATA COMMAND IS ISSUED, AND IT IS CHECKED
                                ;           THAT TAPE STATUS ALERT TERMINATION OCCURS, WITH EOT=1.
                                ;
                                ;       4.  A WRITE TAPE MARK COMMAND IS ISSUED, AND IT IS CHECKED
                                ;           THAT TAPE STATUS ALERT TERMINATION OCCURS, WITH EOT=1.
                                ;
                                ;       5.  A SKIP TAPE MARKS REVERSE COMMAND IS ISSUED, AND IT IS
                                ;           CHECKED THAT TAPE STATUS ALERT TERMINATION OCCURS, WITH
                                ;           EOT=1 AND TMK=1.
                                ;
                                ;       6.  A SPACE RECORDS REVERSE COMMAND, WITH A RECORD COUNT OF
                                ;           1, IS ISSUED, AND IT IS CHECKED THAT TAPE STATUS ALERT
                                ;           TERMINATION OCCURS, WITH EOT=1 AND TMK=1.
                                ;
                                ;       7.  A SPACE RECORDS REVERSE COMMAND, WITH A RECORD COUNT OF
                                ;           1, IS ISSUED, AND IT IS CHECKED THAT NORMAL TERMINATION
                                ;           OCCURS, WITH EOT=1.
                                ;
                                ;       8.  A SPACE RECORDS FORWARD COMMAND, WITH A RECORD COUNT OF
                                ;           1, IS ISSUED, AND IT IS CHECKED THAT NORMAL TERMINATION
                                ;           OCCURS, WITH EOT=1.
                                ;
                                ;       9.  A READ REVERSE COMMAND IS ISSUED, AND IT IS CHECKED
                                ;           THAT NORMAL TERMINATION OCCURS, WITH EOT=1.
                                ;
                                ;       10. A READ FORWARD COMMAND IS ISSUED, AND IT IS CHECKED
                                ;           THAT NORMAL TERMINATION OCCURS, WITH EOT=1.
                                ;
                                ;       11. A SPACE RECORDS REVERSE COMMAND, WITH A RECORD COUNT OF
                                ;           3, IS ISSUED, AND IT IS CHECKED THAT NORMAL TERMINATION
                                ;           OCCURS, WITH EOT=0.
                                ;
                                ;       12. A SPACE RECORDS FORWARD COMMAND, WITH A RECORD COUNT OF
                                ;           3, IS ISSUED, AND IT IS CHECKED THAT NORMAL TERMINATION
                                ;           OCCURS, WITH EOT=1.
                                ;
                                ;       13. A SKIP FILE MARKS REVERSE COMMAND IS ISSUED, WHICH
                                ;           SHOULD SKIP ALL THE WAY TO BOT, AND IT IS CHECKED THAT
                                ;           TAPE STATUS ALERT TERMINATION OCCURS, WITH EOT=0,
                                ;           BOT=1, AND RIB=1.
                                ;
                                ;
                                ;
                                ;-
                                ;
056022                          T34LOOP:
                                ;*
                                ;
```

```
                                        ;TEST 6, SUBTEST 1
                                        ;
                                        ;VERIFIES THAT WRITING OVER THE END-OF-TAPE (EOT)
                                        ;MARKER CAUSES TAPE STATUS ALERT TERMINATION. IF THE
                                        ;TAPE TRANSPORT DOES NOT RECOGNIZE THE EOT MARKER, THE
                                        ;TAPE WILL RUN OFF THE END OF THE REEL, CAUSING THE
                                        ;PROGRAM SEQUENCE TO BE ABORTED WITH A FATAL ERROR
                                        ;INDICATION. IN THIS CASE, CORRECTIVE MAINTENANCE
                                        ;MUST BE PERFORMED USING THE TRANSPORT'S BUILT-IN
                                        ;MAINTENANCE ROUTINE AVAILIABLE VIA THE FRONT PANEL.
                                        ;IF THE CONTROLLER DOES NOT RECOGNIZE THE EOT, THE
                                        ;TRANSPORT WILL FAULT BUT THE TAPE WILL NOT RUN OFF
                                        ;THE END OF THE REEL BUT THE TRANSPORT MUST BE
                                        ;MANUALLY PLACED BACK ON-LINE TO BE USABLE. THIS IS A
                                        ;FATAL DIAGNOSTIC ERROR.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;-

056022                                          BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
056022                                                                                  T6.1:
056022  104402                                                                          TRAP    C$BSUB
056024  004737  063162                          JSR     PC,T34REST      ;SET COMMAND PACKET
056030  004737  063316                          JSR     PC,T34RT3       ;RESTORE PACKET
056034  004737  063254                          JSR     PC,T34RT2       ;SET UP OTHER COMMAND PACKET
056040  012737  176750  060624                  MOV     #65000.,T34DLY  ;SET UP COUNTER
056046  004737  016054                10$:      JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
056052  103433                                  BCS     20$             ;BR IF INIT WAS OK
056054                                          DELAY   250             ;DELAY A WHILE
056054  012727  000250                                                          MOV     #250.,(PC)+
056060  000000                                                                  .WORD   0
056062  013727  002116                                                          MOV     L$DLY,(PC)+
056066  000000                                                                  .WORD   0
056070  005367  177772                                                          DEC     -6(PC)
056074  001375                                                                  BNE     .-4
056076  005367  177756                                                          DEC     -22(PC)
056102  001367                                                                  BNE     .-20
056104  016501  000002                          MOV     TSSR(R5),R1     ;GET TSSR STATUS
056110  032701  000200                          BIT     #SSR,R1         ;CHECK FOR SSR SET
056114  001012                                  BNE     20$             ;BR, WHEN SSR IS SET
056116  005337  060624                          DEC     T34DLY          ;BUMP COUNTER DOWN
056122  001351                                  BNE     10$             ;BR, IF MORE DELAY REQUIRED
056124  005237  002214                          INC     FATFLG                  ;ERROR COUNT
056130  010001                                  MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
056132                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
056132  104455                                                                  TRAP    C$ERDF
056134  001131                                                                  .WORD   601
056136  003646                                                                  .WORD   SFIERR
056140  012114                                                                  .WORD   SFIMSG
056142                                  20$:    CKLOOP                  ;LOOP IF SELECTED
056142  104406                                                                  TRAP    C$CLP1
056144  013737  002174  060510                  MOV     UNITN,T34DSW    ;SET UP DRIVE NUMBER
056152  052737  000040  060510                  BIS     #BIT5,T34DSW    ;TURN ON HIGH SPEED TO SAVE TIME
056160  012704  060470                          MOV     #T34PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
056164  004737  010742                          JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
```

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3645 056170  103407                    BCS     30$                 ;BR, IF COMMAND ISSUED OK
3646 056172  005237  002214            INC     FATFLG                      ;ERROR COUNT
3650 056176  010001                    MOV     R0,R1               ;SAVE CONTENTS OF TSSR
3651 056200                            ERRHRD  ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTISC FAILED
     056200  104456                                                        TRAP    C$ERHRD
     056202  001132                                                        .WORD   602
     056204  005052                                                        .WORD   WRTMSG
     056206  012114                                                        .WORD   SFIMSG
3652 056210                    30$:    CKLOOP                      ;LOOP IF SELECTED
     056210  104406                                                        TRAP    C$CLP1
3653 056212  004737  011074            JSR     PC,REWIND           ;REWIND CALL
3654 056216  103411                    BCS     35$                 ;BR, IF TSSR IS OK (GOOD)
3655 056220  016501  000002            MOV     TSSR(R5),R1         ;GET TSSR
3656 056224  010004                    MOV     R0,R4               ;SET UP PACKET
3657 056226  005237  002214            INC     FATFLG                      ;ERROR COUNT
3661 056232                            ERRHRD  ERRNO,T34RWN,PKTSSR ;TSSR IS INCORRECT AFTER REWIND
     056232  104456                                                        TRAP    C$ERHRD
     056234  001133                                                        .WORD   603
     056236  062267                                                        .WORD   T34RWN
     056240  012126                                                        .WORD   PKTSSR
3662 056242                    35$:    CKLOOP                      ;LOOP IF SELECTED
     056242  104406                                                        TRAP    C$CLP1
3663 056244  012737  140005  060610        MOV     #140005,T34PK3      ;WRITE DATA, ACK, CVC=1
3664 056252  012703  176750              MOV     #65000.,R3          ;SET MAX NUMBER OF WRITES
3665 056256  013737  003116  060612      MOV     FREE,T34WB          ;SET UP WRITE BUFFER ADDRESS
3666 056264  012737  006654  060616      MOV     #3500.,T34SZ        ;SET UP BUFFER SIZE (4K BYTES)
3667 056272  012704  060610              MOV     #T34PK3,R4          ;R4 = POINTER TO PACKET
3668 056276  010465  000000      40$:    MOV     R4,TSDB(R5)         ;ISSUE COMMAND
3669 056302  004737  016330              JSR     PC,WAITF            ;WAIT FOR SSR TO SET
3670 056306  016501  000002              MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
3671 056312  012702  000200              MOV     #SSR,R2             ;SET UP EXPECTED
3672 056316  020102                      CMP     R1,R2               ;ARE THEY EQUAL
3673 056320  001010                      BNE     50$                 ;BR, IT MIGHT BE END OF TAPE
3674 056322  005303                      DEC     R3                  ;DEC RECORD COUNTER
3675 056324  001364                      BNE     40$                 ;BR, IF MORE TO GO
3676 056326  005237  002214              INC     FATFLG                      ;ERROR COUNT
3680 056332                              ERRDF   ERRNO,T34ET,PKTSSR  ;EOT NOT FOUND (USE SHORTER TAPE?)
     056332  104455                                                          TRAP    C$ERDF
     056334  001134                                                          .WORD   604
     056336  062046                                                          .WORD   T34ET
     056340  012126                                                          .WORD   PKTSSR
3681 056342  032701  000004      50$:    BIT     #BIT2,R1            ;CHECK FOR TAPE STATUS ALERT
3682 056346  001001                      BNE     60$                 ;BR, IF SET
3683 056350  000752                      BR      40$                 ;KEEP GOING
3684 056352  013701  060520      60$:    MOV     T34BFR+6,R1         ;PICK UP XSTO
3685 056356  010102                      MOV     R1,R2               ;SET UP EXPECTED
3686 056360  052702  000001              BIS     #BIT0,R2            ;SET THE EOT BIT ON IN EXPECTED
3687 056364  020102                      CMP     R1,R2               ;WAS THE BIT ON
3688 056366  001402                      BEQ     80$                 ;BR, IF EOT WAS FOUND
3689 056370  000137  056276              JMP     40$                 ;KEEP LOOKING
3690 056374                      80$:    CKLOOP                      ;LOOP IF SELECTED
     056374  104406                                                          TRAP    C$CLP1
3691 056376  012737  140005  060610        MOV     #140005,T34PK3      ;WRITE DATA, ACK, CVC=1
3692 056404  013737  003116  060612      MOV     FREE,T34WB          ;SET UP WRITE BUFFER ADDRESS
3693 056412  012737  006654  060616      MOV     #3500.,T34SZ        ;SET UP BUFFER SIZE (4K BYTES)
3694 056420  012704  060610              MOV     #T34PK3,R4          ;R4 = POINTER TO PACKET
3695 056424  010465  000000              MOV     R4,TSDB(R5)         ;ISSUE COMMAND
```

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3696 056430  004737  016330                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3697 056434  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3698 056440  012702  100204                    MOV     #SC!SSR!BIT2,R2         ;SET UP EXPECTED
3699 056444  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3700 056446  001406                            BEQ     90$                     ;BR, IF THEY ARE OK
3701 056450  005237  002214                    INC     FATFLG                          ;ERROR COUNT
3705 056454                                    ERRHRD  ERRNO,T34ET2,PKTSSR     ;WRITE TAPE AT EOT FAILED TO SET TSA
     056454  104456                                                                    TRAP    C$ERHRD
     056456  001135                                                                    .WORD   605
     056460  061317                                                                    .WORD   T34ET2
     056462  012126                                                                    .WORD   PKTSSR
3706 056464                            90$:    CKLOOP                          ;LOOP IF SELECTED
     056464  104406                                                                    TRAP    C$CLP1
3707 056466  013701  060520                    MOV     T34BFR+6,R1             ;PICK UP XSTO
3708 056472  010102                            MOV     R1,R2                   ;SET UP EXPECTED
3709 056474  052702  000001                    BIS     #BIT0,R2                ;SET THE EOT BIT ON IN EXPECTED
3710 056500  020102                            CMP     R1,R2                   ;WAS THE BIT ON
3711 056502  001406                            BEQ     100$                    ;BR, IF EOT WAS FOUND
3712 056504  005237  002214                    INC     FATFLG                          ;ERROR COUNT
3716 056510                                    ERRHRD  ERRNO,T34ETN,EXPREC     ;EOT BIT (XSTO) NOT SET
     056510  104456                                                                    TRAP    C$ERHRD
     056512  001136                                                                    .WORD   606
     056514  061401                                                                    .WORD   T34ETN
     056516  015554                                                                    .WORD   EXPREC
3717 056520                            100$:   CKLOOP                          ;LOOP IF SELECTED
     056520  104406                                                                    TRAP    C$CLP1
3718 056522  012737  140011  060610              MOV     #140011,T34PK3          ;WRITE TAPE MARK, ACK, CVC=1 COMMAND
3719 056530  012704  060610                    MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3720 056534  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3721 056540  004737  016330                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3722 056544  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3723 056550  012702  100204                    MOV     #SC!SSR!BIT2,R2         ;SET UP EXPECTED
3724 056554  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3725 056556  001406                            BEQ     110$                    ;BR, IF STATUS IS GOOD (OK)
3726 056560  005237  002214                    INC     FATFLG                          ;ERROR COUNT
3730 056564                                    ERRHRD  ERRNO,T34WTM,PKTSSR     ;EOT NOT FOUND (USE SHORTER TAPE?)
     056564  104456                                                                    TRAP    C$ERHRD
     056566  001137                                                                    .WORD   607
     056570  061230                                                                    .WORD   T34WTM
     056572  012126                                                                    .WORD   PKTSSR
3731 056574                            110$:   CKLOOP                          ;LOOP IF SELECTED
     056574  104406                                                                    TRAP    C$CLP1
3732 056576  013701  060520                    MOV     T34BFR+6,R1             ;PICK UP XSTO
3733 056602  010102                            MOV     R1,R2                   ;SET UP EXPECTED
3734 056604  052702  000001                    BIS     #BIT0,R2                ;SET THE EOT BIT ON IN EXPECTED
3735 056610  020102                            CMP     R1,R2                   ;WAS THE BIT ON
3736 056612  001406                            BEQ     120$                    ;BR, IF EOT WAS FOUND
3737 056614  005237  002214                    INC     FATFLG                          ;ERROR COUNT
3741 056620                                    ERRHRD  ERRNO,T34ET0,EXPREC     ;EOT BIT (XSTO) NOT SET
     056620  104456                                                                    TRAP    C$ERHRD
     056622  001140                                                                    .WORD   608
     056624  060732                                                                    .WORD   T34ET0
     056626  015554                                                                    .WORD   EXPREC
3742 056630                            120$:   CKLOOP                          ;LOOP IF SELECTED
     056630  104406                                                                    TRAP    C$CLP1
3743 056632  012737  141410  060610              MOV     #141410,T34PK3          ;SKIP TAPE MARK REVERSE ACK,CVC=1 COMMAND
3744 056640  012737  000001  060612              MOV     #1,T34WB                ;SET NUMBER (1) OF TMS TO SKIP
```

```
3745 056646  012704  060610                MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3746 056652  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3747 056656  004737  016330                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3748 056662  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3749 056666  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
3750 056672  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3751 056674  001406                        BEQ     130$                    ;BR, IF STATUS IS GOOD (OK)
3752 056676  005237  002214                INC     FATFLG                          ;ERROR COUNT
3756 056702                                ERRHRD  ERRNO,T34STM,PKTSSR     ;SKIP TAPE MARK REV. DIDN'T SET TSA
     056702  104456                                                                TRAP    C$ERHRD
     056704  001141                                                                .WORD   609
     056706  061630                                                                .WORD   T34STM
     056710  012126                                                                .WORD   PKTSSR
3757 056712                        130$:   CKLOOP                          ;LOOP IF SELECTED
     056712  104406                                                                TRAP    C$CLP1
3758 056714  013701  060520                MOV     T34BFR+6,R1             ;PICK UP XSTO
3759 056720  010102                        MOV     R1,R2                   ;SET UP EXPECTED
3760 056722  052702  000001                BIS     #BIT0,R2                ;SET THE EOT BIT ON IN EXPECTED
3761 056726  020102                        CMP     R1,R2                   ;WAS THE BIT ON
3762 056730  001406                        BEQ     140$                    ;BR, IF EOT WAS FOUND
3763 056732  005237  002214                INC     FATFLG                          ;ERROR COUNT
3767 056736                                ERRHRD  ERRNO,T34ETN,EXPREC     ;EOT BIT (XSTO) NOT SET
     056736  104456                                                                TRAP    C$ERHRD
     056740  001142                                                                .WORD   610
     056742  061401                                                                .WORD   T34ETN
     056744  015554                                                                .WORD   EXPREC
3768 056746                        140$:   CKLOOP                          ;LOOP IF SELECTED
     056746  104406                                                                TRAP    C$CLP1
3769 056750  013701  060520                MOV     T34BFR+6,R1             ;PICK UP XSTO
3770 056754  010102                        MOV     R1,R2                   ;SET UP EXPECTED
3771 056756  052702  100000                BIS     #BIT15,R2               ;SET THE TMK BIT ON IN EXPECTED
3772 056762  020102                        CMP     R1,R2                   ;WAS THE BIT ON
3773 056764  001406                        BEQ     150$                    ;BR, IF TMK WAS FOUND
3774 056766  005237  002214                INC     FATFLG                          ;ERROR COUNT
3778 056772                                ERRHRD  ERRNO,T34TMK,EXPREC     ;EOT BIT (XSTO) NOT SET
     056772  104456                                                                TRAP    C$ERHRD
     056774  001143                                                                .WORD   611
     056776  061713                                                                .WORD   T34TMK
     057000  015554                                                                .WORD   EXPREC
3779 057002                        150$:   CKLOOP                          ;LOOP IF SELECTED
     057002  104406                                                                TRAP    C$CLP1
3780 057004  012737  140410  060610        MOV     #140410,T34PK3          ;SPACE RECORDS REVERSE, ACK, CVC=1 CMD
3781 057012  012737  000001  060612        MOV     #1,T34WB                ;SPACE ONE RECORD REVERSE
3782 057020  012704  060610                MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3783 057024  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3784 057030  004737  016330                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3785 057034  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3786 057040  012702  100204                MOV     #SC!SSR!BIT2,R2         ;SET UP EXPECTED
3787 057044  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
3788 057046  001006                        BNE     160$                    ;BR, IT MIGHT BE END OF TAPE
3789 057050  005237  002214                INC     FATFLG                          ;ERROR COUNT
3793 057054                                ERRHRD  ERRNO,T34POS,PKTSSR     ;EOT NOT FOUND (USE SHORTER TAPE?)
     057054  104456                                                                TRAP    C$ERHRD
     057056  001144                                                                .WORD   612
     057060  060644                                                                .WORD   T34POS
     057062  012126                                                                .WORD   PKTSSR
3794 057064                        160$:   CKLOOP                          ;LOOP IF SELECTED
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TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0176
TEST  6: OPERATIONS AT EOT

        057064  104406                                                          TRAP    C$CLP1
3795    057066  013701  060520                  MOV     T34BFR+6,R1           ;PICK UP XSTO
3796    057072  010102                          MOV     R1,R2                 ;SET UP EXPECTED
3797    057074  052702  000001                  BIS     #BIT0,R2              ;SET THE EOT BIT ON IN EXPECTED
3798    057100  020102                          CMP     R1,R2                 ;WAS THE BIT ON
3799    057102  001406                          BEQ     163$                  ;BR, IF EOT WAS FOUND
3800    057104  005237  002214                  INC     FATFLG                        ;ERROR COUNT
3804    057110                                  ERRHRD  ERRNO,T34ETN,EXPREC   ;EOT BIT (XSTO) NOT SET
        057110  104456                                                          TRAP    C$ERHRD
        057112  001145                                                          .WORD   613
        057114  061401                                                          .WORD   T34ETN
        057116  015554                                                          .WORD   EXPREC
3805    057120                          163$:   CKLOOP                        ;LOOP IF SELECTED
        057120  104406                                                          TRAP    C$CLP1
3806    057122  013701  060520                  MOV     T34BFR+6,R1           ;PICK UP XSTO
3807    057126  010102                          MOV     R1,R2                 ;SET UP EXPECTED
3808    057130  042702  100000                  BIC     #BIT15,R2             ;CLEAR THE TMK BIT ON IN EXPECTED
3809    057134  020102                          CMP     R1,R2                 ;WAS THE BIT ON
3810    057136  001406                          BEQ     165$                  ;BR, IF TMK WAS FOUND
3811    057140  005237  002214                  INC     FATFLG                        ;ERROR COUNT
3815    057144                                  ERRHRD  ERRNO,T34TMK,EXPREC   ;EOT BIT (XSTO) NOT SET
        057144  104456                                                          TRAP    C$ERHRD
        057146  001146                                                          .WORD   614
        057150  061713                                                          .WORD   T34TMK
        057152  015554                                                          .WORD   EXPREC
3816    057154                          165$:   CKLOOP                        ;LOOP IF SELECTED
        057154  104406                                                          TRAP    C$CLP1
3817    057156  012737  140410  060610          MOV     #140410,T34PK3        ;SPACE RECORDS REVERSE, ACK, CVC=1 CMD
3818    057164  012737  000001  060612          MOV     #1,T34WB              ;SPACE ONE RECORD REVERSE
3819    057172  012704  060610                  MOV     #T34PK3,R4            ;R4 = POINTER TO PACKET
3820    057176  010465  000000                  MOV     R4,TSDB(R5)           ;ISSUE COMMAND
3821    057202  004737  016330                  JSR     PC,WAITF              ;WAIT FOR SSR TO SET
3822    057206  016501  000002                  MOV     TSSR(R5),R1           ;GET TSSR CONTENTS
3823    057212  012702  000200                  MOV     #SSR,R2               ;SET UP EXPECTED
3824    057216  020102                          CMP     R1,R2                 ;ARE THEY EQUAL
3825    057220  001406                          BEQ     167$                  ;BR, IT MIGHT BE END OF TAPE
3826    057222  005237  002214                  INC     FATFLG                        ;ERROR COUNT
3830    057226                                  ERRHRD  ERRNO,T34POS,PKTSSR   ;EOT NOT FOUND (USE SHORTER TAPE?)
        057226  104456                                                          TRAP    C$ERHRD
        057230  001147                                                          .WORD   615
        057232  060644                                                          .WORD   T34POS
        057234  012126                                                          .WORD   PKTSSR
3831    057236                          167$:   CKLOOP                        ;LOOP IF SELECTED
        057236  104406                                                          TRAP    C$CLP1
3832    057240  013701  060520                  MOV     T34BFR+6,R1           ;PICK UP XSTO
3833    057244  010102                          MOV     R1,R2                 ;SET UP EXPECTED
3834    057246  042702  000001                  BIC     #BIT0,R2              ;CLEAR THE EOT BIT ON IN EXPECTED
3835    057252  020102                          CMP     R1,R2                 ;WAS THE BIT OFF
3836    057254  001400                          BEQ     170$                  ;BR, IF EOT WAS FOUND
3837    057256                          170$:   CKLOOP                        ;LOOP IF SELECTED
        057256  104406                                                          TRAP    C$CLP1
3838    057260  012737  140010  060610          MOV     #140010,T34PK3        ;SPACE RECORDS FORWARD, ACK, CVC=1
3839    057266  012737  000002  060612          MOV     #2,T34WB              ;SPACE TWO RECORDS
3840    057274  012704  060610                  MOV     #T34PK3,R4            ;R4 = POINTER TO PACKET
3841    057300  010465  000000                  MOV     R4,TSDB(R5)           ;ISSUE COMMAND
3842    057304  004737  016330                  JSR     PC,WAITF              ;WAIT FOR SSR TO SET
3843    057310  016501  000002                  MOV     TSSR(R5),R1           ;GET TSSR CONTENTS
```

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3844 057314  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
3845 057320  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
3846 057322  001406                      BEQ     190$                    ;BR, IT MIGHT BE END OF TAPE
3847 057324  005237  002214                      INC     FATFLG                          ;ERROR COUNT
3851 057330                              ERRHRD  ERRNO,T34POS,PKTSSR     ;EOT NOT FOUND (USE SHORTER TAPE?)
     057330  104456                                                              TRAP    C$ERHRD
     057332  001150                                                              .WORD   616
     057334  060644                                                              .WORD   T34POS
     057336  012126                                                              .WORD   PKTSSR
3852 057340                      190$:   CKLOOP                          ;LOOP IF SELECTED
     057340  104406                                                              TRAP    C$CLP1
3853 057342  013701  060520              MOV     T34BFR+6,R1             ;PICK UP XSTO
3854 057346  010102                      MOV     R1,R2                   ;SET UP EXPECTED
3855 057350  052702  000001              BIS     #BIT0,R2                ;SET THE EOT BIT ON IN EXPECTED
3856 057354  020102                      CMP     R1,R2                   ;WAS THE BIT ON
3857 057356  001406                      BEQ     200$                    ;BR, IF EOT WAS FOUND
3858 057360  005237  002214                      INC     FATFLG                          ;ERROR COUNT
3862 057364                              ERRHRD  ERRNO,T34ETS,EXPREC     ;EOT BIT (XSTO) NOT SET
     057364  104456                                                              TRAP    C$ERHRD
     057366  001151                                                              .WORD   617
     057370  061460                                                              .WORD   T34ETS
     057372  015554                                                              .WORD   EXPREC
3863 057374                      200$:   CKLOOP                          ;LOOP IF SELECTED
     057374  104406                                                              TRAP    C$CLP1
3864 057376  012737  140401  060610      MOV     #140401,T34PK3          ;READ REVERSE, ACK, CVC=1
3865 057404  013737  003116  060612      MOV     FREE,T34RB              ;SET UP WRITE BUFFER ADDRESS
3866 057412  012704  060610              MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3867 057416  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3868 057422  004737  016330              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3869 057426  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3870 057432  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
3871 057436  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
3872 057440  001406                      BEQ     205$                    ;BR, ONLY SSR IS SET
3873 057442  005237  002214                      INC     FATFLG                          ;ERROR COUNT
3877 057446                              ERRHRD  ERRNO,T34RRE,PKTSSR     ;EOT NOT FOUND (USE SHORTER TAPE?)
     057446  104456                                                              TRAP    C$ERHRD
     057450  001152                                                              .WORD   618
     057452  061016                                                              .WORD   T34RRE
     057454  012126                                                              .WORD   PKTSSR
3878 057456                      205$:   CKLOOP                          ;LOOP IF SELECTED
     057456  104406                                                              TRAP    C$CLP1
3879 057460  012737  140401  060610      MOV     #140401,T34PK3          ;READ REVERSE, ACK, CVC=1
3880 057466  013737  003116  060612      MOV     FREE,T34RB              ;SET UP WRITE BUFFER ADDRESS
3881 057474  012704  060610              MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3882 057500  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3883 057504  004737  016330              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3884 057510  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3885 057514  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
3886 057520  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
3887 057522  001406                      BEQ     210$                    ;BR, IT MIGHT BE END OF TAPE
3888 057524  005237  002214                      INC     FATFLG                          ;ERROR COUNT
3892 057530                              ERRHRD  ERRNO,T34RRE,PKTSSR     ;EOT NOT FOUND (USE SHORTER TAPE?)
     057530  104456                                                              TRAP    C$ERHRD
     057532  001153                                                              .WORD   619
     057534  061016                                                              .WORD   T34RRE
     057536  012126                                                              .WORD   PKTSSR
3893 057540                      210$:   CKLOOP                          ;LOOP IF SELECTED
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                                                                                TRAP    C$CLP1
3894 057542  012737  140001  060610          MOV     #140001,T34PK3          ;READ DATA, ACK, CVC=1
3895 057550  013737  003116  060612          MOV     FREE,T34RB              ;SET UP WRITE BUFFER ADDRESS
3896 057556  012737  006654  060616          MOV     #3500.,T34SZ            ;SET UP BUFFER SIZE (4K BYTES)
3897 057564  012704  060610                  MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3898 057570  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3899 057574  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3900 057600  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3901 057604  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
3902 057610  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3903 057612  001406                          BEQ     230$                    ;BR, IT MIGHT BE END OF TAPE
3904 057614  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3908 057620                                  ERRHRD  ERRNO,T34RRE,PKTSSR     ;EOT NOT FOUND (USE SHORTER TAPE?)
     057620  104456                                                              TRAP    C$ERHRD
     057622  001154                                                              .WORD   620
     057624  061016                                                              .WORD   T34RRE
     057626  012126                                                              .WORD   PKTSSR
3909 057630                          230$:   CKLOOP                          ;LOOP IF SELECTED
     057630  104406                                                              TRAP    C$CLP1
3910 057632  012737  140001  060610          MOV     #140001,T34PK3          ;READ DATA, ACK, CVC=1
3911 057640  013737  003116  060612          MOV     FREE,T34RB              ;SET UP WRITE BUFFER ADDRESS
3912 057646  012737  006654  060616          MOV     #3500.,T34SZ            ;SET UP BUFFER SIZE (4K BYTES)
3913 057654  012704  060610                  MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3914 057660  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3915 057664  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3916 057670  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3917 057674  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
3918 057700  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3919 057702  001406                          BEQ     235$                    ;BR, IT MIGHT BE END OF TAPE
3920 057704  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3924 057710                                  ERRHRD  ERRNO,T34RRE,PKTSSR     ;EOT NOT FOUND (USE SHORTER TAPE?)
     057710  104456                                                              TRAP    C$ERHRD
     057712  001155                                                              .WORD   621
     057714  061016                                                              .WORD   T34RRE
     057716  012126                                                              .WORD   PKTSSR
3925 057720                          235$:   CKLOOP                          ;LOOP IF SELECTED
     057720  104406                                                              TRAP    C$CLP1
3926 057722  013701  060520                  MOV     T34BFR+6,R1             ;PICK UP XSTO
3927 057726  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3928 057730  052702  000001                  BIS     #BIT0,R2                ;SET THE EOT BIT ON IN EXPECTED
3929 057734  020102                          CMP     R1,R2                   ;WAS THE BIT ON
3930 057736  001406                          BEQ     240$                    ;BR, IF EOT WAS FOUND
3931 057740  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3935 057744                                  ERRHRD  ERRNO,T34ETZ,EXPREC     ;EOT BIT (XSTO) NOT SET
     057744  104456                                                              TRAP    C$ERHRD
     057746  001156                                                              .WORD   622
     057750  061552                                                              .WORD   T34ETZ
     057752  015554                                                              .WORD   EXPREC
3936 057754                          240$:   CKLOOP                          ;LOOP IF SELECTED
     057754  104406                                                              TRAP    C$CLP1
3937 057756  012737  140410  060610          MOV     #140410,T34PK3          ;SPACE RECORDS REVERSE, ACK, CVC=1 CMD.
3938 057764  012737  000005  060612          MOV     #5,T34RB                ;NUMBER OF RECORDS TO SPACE
3939 057772  012704  060610                  MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3940 057776  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3941 060002  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3942 060006  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3943 060012  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
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3944 060016  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3945 060020  001406                          BEQ     250$                    ;BR, IT MIGHT BE END OF TAPE
3946 060022  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3950 060026                                  ERRHRD  ERRNO,T34POS,PKTSSR     ;POSITION COMMAND DIDN'T WORK
     060026  104456                                                              TRAP    C$ERHRD
     060030  001157                                                              .WORD   623
     060032  060644                                                              .WORD   T34POS
     060034  012126                                                              .WORD   PKTSSR
3951 060036                          250$:   CKLOOP                          ;LOOP IF SELECTED
     060036  104406                                                              TRAP    C$CLP1
3952 060040  013701  060520                  MOV     T34BFR+6,R1             ;PICK UP XSTO
3953 060044  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3954 060046  042702  000001                  BIC     #BIT0,R2                ;CLEAR THE EOT BIT ON IN EXPECTED
3955 060052  020102                          CMP     R1,R2                   ;WAS THE BIT ON
3956 060054  001406                          BEQ     260$                    ;BR, IF EOT WAS FOUND
3957 060056  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3961 060062                                  ERRHRD  ERRNO,T34ETC,EXPREC     ;EOT BIT (XSTO) NOT CLEAR
     060062  104456                                                              TRAP    C$ERHRD
     060064  001160                                                              .WORD   624
     060066  061107                                                              .WORD   T34ETC
     060070  015554                                                              .WORD   EXPREC
3962 060072                          260$:   CKLOOP                          ;LOOP IF SELECTED
     060072  104406                                                              TRAP    C$CLP1
3963 060074  012737  140010  060610          MOV     #140010,T34PK3          ;SPACE RECORDS FORWARD, ACK, CVC=1 CMD.
3964 060102  012737  000005  060612          MOV     #5,T34RB                ;NUMBER OF RECORDS TO SPACE
3965 060110  012704  060610                  MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3966 060114  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3967 060120  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3968 060124  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3969 060130  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
3970 060134  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3971 060136  001406                          BEQ     270$                    ;BR, IT MIGHT BE END OF TAPE
3972 060140  005237  002214                  INC     FATFLG                          ;ERROR COUNT
3976 060144                                  ERRHRD  ERRNO,T34ET,PKTSSR      ;TSSR NOT CORRECT
     060144  104456                                                              TRAP    C$ERHRD
     060146  001161                                                              .WORD   625
     060150  062046                                                              .WORD   T34ET
     060152  012126                                                              .WORD   PKTSSR
3977 060154                          270$:   CKLOOP                          ;LOOP IF SELECTED
     060154  104406                                                              TRAP    C$CLP1
3978 060156  013701  060520                  MOV     T34BFR+6,R1             ;PICK UP XSTO
3979 060162  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3980 060164  052702  000001                  BIS     #BIT0,R2                ;SET THE EOT BIT ON IN EXPECTED
3981 060170  020102                          CMP     R1,R2                   ;WAS THE BIT ON
3982 060172  001400                          BEQ     280$                    ;BR, IF EOT WAS FOUND
3983 060174                          280$:   CKLOOP                          ;LOOP IF SELECTED
     060174  104406                                                              TRAP    C$CLP1
3984 060176  012737  141410  060610          MOV     #141410,T34PK3          ;SKIP FILE MARKS REVERSE,ACK,CVC=1 COMMAND
3985 060204  012737  000003  060612          MOV     #3,T34RB                ;NUMBER OF FILE MARKS
3986 060212  012704  060610                  MOV     #T34PK3,R4              ;R4 = POINTER TO PACKET
3987 060216  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3988 060222  012737  176750  060624          MOV     #65000.,T34DLY          ;SET UP DELAY COUNTER
3989 060230  004737  016330          285$:   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3990 060234  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3991 060240  032701  000200                  BIT     #SSR,R1                 ;CHECK FOR SSR SET
3992 060244  001017                          BNE     286$                    ;BR, WHEN SSR IS SET
3993 060246                                  DELAY   250                     ;WAIT ABOUT .25 SECONDS
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TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                    SEQ 0180
TEST  6: OPERATIONS AT EOT

        060246  012727  000250                                                          MOV     #250,(PC)+
        060252  000000                                                                  .WORD   0
        060254  013727  002116                                                          MOV     L$DLY,(PC)+
        060260  000000                                                                  .WORD   0
        060262  005367  177772                                                          DEC     -6(PC)
        060266  001375                                                                  BNE     .-4
        060270  005367  177756                                                          DEC     -22(PC)
        060274  001367                                                                  BNE     .-20
  3994  060276  005337  060624              DEC     T34DLY                  ;BUMP COUNTER
  3995  060302  001352                      BNE     285$                    ;BR, IF MORE TO COUNT
  3996  060304  012702  000200      286$:   MOV     #SSR,R2                 ;SET UP EXPECTED
  3997  060310  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
  3998  060312  001007                      BNE     290$                    ;BR, IT MIGHT BE END OF TAPE
  3999  060314  005303                      DEC     R3                      ;DEC RECORD COUNTER
  4000  060316  005237  002214              INC     FATFLG                          ;ERROR COUNT
  4004  060322                              ERRHRD  ERRNO,T34ET,PKTSSR      ;EOT NOT FOUND (USE SHORTER TAPE?)
        060322  104456                                                                  TRAP    C$ERHRD
        060324  001162                                                                  .WORD   626
        060326  062046                                                                  .WORD   T34ET
        060330  012126                                                                  .WORD   PKTSSR
  4005  060332  032701  000004      290$:   BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
  4006  060336  013701  060520              MOV     T34BFR+6,R1             ;PICK UP XSTO
  4007  060342  010102                      MOV     R1,R2                   ;SET UP EXPECTED
  4008  060344  042702  000001              BIC     #BIT0,R2                ;CLEAR THE EOT BIT IN EXPECTED
  4009  060350  020102                      CMP     R1,R2                   ;WAS THE BIT ON
  4010  060352  001406                      BEQ     300$                    ;BR, IF EOT WAS FOUND
  4011  060354  005237  002214              INC     FATFLG                          ;ERROR COUNT
  4015  060360                              ERRHRD  ERRNO,T34ETC,EXPREC     ;EOT BIT (XSTO) NOT CLEAR
        060360  104456                                                                  TRAP    C$ERHRD
        060362  001163                                                                  .WORD   627
        060364  061107                                                                  .WORD   T34ETC
        060366  015554                                                                  .WORD   EXPREC
  4016  060370                      300$:   CKLOOP                          ;LOOP IF SELECTED
        060370  104406                                                                  TRAP    C$CLP1
  4017  060372  013701  060520              MOV     T34BFR+6,R1             ;PICK UP XSTO
  4018  060376  010102                      MOV     R1,R2                   ;SET UP EXPECTED
  4019  060400  052702  000002              BIS     #BIT1,R2                ;SET THE BOT BIT ON IN EXPECTED
  4020  060404  020102                      CMP     R1,R2                   ;WAS THE BIT ON
  4021  060406  001406                      BEQ     320$                    ;BR, IF BOT WAS FOUND
  4022  060410  005237  002214              INC     FATFLG                          ;ERROR COUNT
  4026  060414                              ERRHRD  ERRNO,T34BOT,EXPREC     ;EOT BIT (XSTO) NOT CLEAR
        060414  104456                                                                  TRAP    C$ERHRD
        060416  001164                                                                  .WORD   628
        060420  061164                                                                  .WORD   T34BOT
        060422  015554                                                                  .WORD   EXPREC
  4027  060424                      320$:   CKLOOP                          ;LOOP IF SELECTED
        060424  104406                                                                  TRAP    C$CLP1
  4028  060426                      600$:
  4029  060426                              ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        060426                                                                                  L10062:
        060426  104403                                                                  TRAP    C$ESUB
  4030  060430  023727  002214  000017      CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
  4031  060436  103402                      BLO     999$                            ;BR, IF LESS THAN 25
  4032  060440  004737  017262              JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
  4033  060444                      999$:
  4034  060444  004737  016536              JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
  4035  060450  103002                      BCC     163$                    ;BR, IF NO LOOP REQUIRED
```

```
4036 060452  000137  056022                  JMP     T34LOOP                 ;EXECUTE AGAIN
4037 060456                          163$:   EXIT    TST                     ;ALL DONE THIS TEST
     060456  104432                                                          TRAP    C$EXIT
     060460  002662                                                          .WORD   L10061-.
4038                                 ;+
4039                                 ;LOCAL STORAGE FOR THIS TEST
4040                                 ;-
4042         060470                          .=<.+10>&177770
4044 060470                          T34PACKET:                              ;COMMAND PACKET FOR TEST
4045 060470  100004                          .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH ACK
4046 060472  060500                          .WORD   T34DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
4047 060474  000000                          .WORD   0
4048 060476  000010                          .WORD   8.                      ;STARTING VALUE OF BLOCK SIZE
4049 060500                          T34DATA:                                ;CHARACTERISTICS DATA BLOCK
4050 060500  060512                          .WORD   T34BFR                  ;ADDRESS OF MESSAGE BUFFER
4051 060502  000000                          .WORD   0
4052 060504  000012                          .WORD   10.                     ;LENGTH OF MESSAGE BUFFER
4053 060506  000000                          .WORD   0
4054 060510  000000                  T34DSW: .WORD   0                       ;SELECT DRIVE 0
4055 060512                          T34BFR: .BLKW   25.                     ;MESSAGE BUFFER
4056                                 ;
4057                                 ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
4058                                 ;
4060         060600                          .=<.+10>&177770
4062 060600                          T34PK2:
4063 060600  100006                          .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, AND ACK
4064 060602  060626                          .WORD   T34BF2                  ;ADDRESS OF SELECT BLOCK DATA
4065 060604  000000                          .WORD   0
4066 060606  000006                          .WORD   6.                      ;SIZE OF DATA PACKET
4067
4071 060610                          T34PK3:
4072 060610  100005                          .WORD   100005                  ;WRITE COMMAND,  AND ACK
4073 060612                          T34RB:
4074 060612  000000                  T34WB:  .WORD   0                       ;ADDRESS OF WRITE/READ BUFFER
4075 060614  000000                          .WORD   0
4076 060616  000000                  T34SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
4077                                         .EVEN
4078                                 ;
4079 060620  000000                  T34RSZ: .WORD   0                       ;LARGEST TAPE RECORD IN BYTES
4080 060622  000000                  T34CNT: .WORD   0                       ;TAPE RECORD COUNTER
4081 060624  000000                  T34DLY: .WORD   0                       ;DELAY COUNTER
4082                                 ;
4083                                 ;
4084 060626                          T34BF2:
4085 060626     010                  T34BS0: .BYTE   10                      ;BSEL0 AREA
4086 060627     200                  T34BS1: .BYTE   200                     ;BSEL1 AREA
4087 060630  000000                  T34S2:  .WORD   0                       ;SEL 2 AREA
4088 060632  000000                  T34S3:  .WORD   0                       ;DATA AREA
4089                                 ;
4090                                 ;
4091                                         .EVEN
4092                                 ;TAPE MOTION PACKET COMMAND VALUES
4093
4094 060634  100005                  T34WD:  .WORD   100005                  ;WRITE DATA (NEXT)
4095 060636  100405                  T34WDR: .WORD   100405                  ;WRITE DATA RETRY
4096 060640  102005                  T34CON: .WORD   102005                  ;WRITE CONTINOUS
4097 060642  177777                          .WORD   177777                  ;END OF DATA
```

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

060644      124     123     123  T34POS: .ASCIZ  'TSSR Incorrect After Position (SPACE RECORDS) Command'
060732      127     122     111  T34ETO: .ASCIZ  'WRITE TAPE MARK At EOT Failed To Set EOT Bit (XSTO)'
061016      122     105     101  T34RRE: .ASCIZ  'READ Command At EOT Didn''t Give Normal Termination (TSSR)'
061107      125     156     141  T34ETC: .ASCIZ  'Unable To Clear EOT Indication, (XSTO) Bit 0'
061164      122     105     127  T34BOT: .ASCIZ  'REWIND Failed To Set BOT (XSTO) Bit'
061230      127     122     111  T34WTM: .ASCIZ  'WRITE TAPE MARK At EOT Failed To Set Tape Status Alert'
061317      127     122     111  T34ET2: .ASCIZ  'WRITE DATA At EOT Failed To Set Tape Status Alert'
061401      127     122     111  T34ETN: .ASCIZ  'WRITE DATA At EOT Failed To Set EOT Bit (XSTO)'
061460      123     120     101  T34ETS: .ASCIZ  'SPACE RECORDS FORWARD At EOT Failed To Set EOT Bit (XSTO)'
061552      122     105     101  T34ETZ: .ASCIZ  'READ DATA At EOT Failed To Set EOT Bit (XSTO)'
061630      124     123     123  T34STM: .ASCIZ  'TSSR Incorrect After SKIP TAPE MARK REVERSE At EOT'
061713      120     117     123  T34TMK: .ASCIZ  'POSITION Command At EOT Onto Tape Mark Failed To Set TMK (XSTO)'
062013      127     122     111  T34SSR: .ASCIZ  'WRITE Command Not Accepted'
062046      105     117     124  T34ET;  .ASCIZ  'EOT Not Found In 65000 3.5K Writes, (Use Shorter Tape)'
062135      127     122     111  T34EOT: .ASCIZ  'WRITE DATA OVER EOT GAVE NO TAPE STATUS ALERT'
062213      124     123     123  T34TM:  .ASCIZ  'TSSR Not Correct After WRITE Command Reject'
062267      122     145     167  T34RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
062336      122     101     115  T34RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
062411      124     123     123  T34AM3: .ASCIZ  'TSSR Init. Failed After WRITE Command'
062457      104     162     151  T34OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
062532      124     123     123  T34WDD: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, SWB Bit Set'
062621      124     123     123  T34WDC: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, Check For Tape Offline'
062723      103     126     103  T34VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
062776      124     123     102  T34BA:  .ASCIZ  'TSBA Not Correct After WRITE DATA Command'
063050      127     122     111  T34WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
063137      117     160     145  TST34ID:        .ASCIZ  'Operations At EOT'
                                            .EVEN
                                        ;+
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-

063162                                  T34REST:
063162                                          SAVREG                          ;SAVE THE REGISTERS
063166  012701  060470                          MOV     @T34PACKET,R1           ;START OF THE PACKET
063172  012721  100004                          MOV     @100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
063176  012721  060500                          MOV     @T34DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
063202  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
063204  012721  000012                          MOV     @10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
063210  012721  060512                          MOV     @T34BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
063214  005021                                  CLR     (R1)+
063216  012721  000024                          MOV     @20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
063222  005021                                  CLR     (R1)+
063224  012711  000000                          MOV     @0,(R1)                 ;SELECT DRIVE ZERO
063230  012702  000030                          MOV     @24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
063234  012762  177777  060512  64$:           MOV     @177777,T34BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
063242  005742                                  TST     -(R2)                   ;BUMP DOWN TO NEXT LOCATION
063244  020227  000000                          CMP     R2,@0                   ;R2 AT ZERO YET
063250  001371                                  BNE     64$                     ;KEEP GOING UNTIL DONE
063252  000207                                  RTS     PC                      ;RETURN
```

```
4155 063254                                T34RT2:
4156 063254                                        SAVREG                          ;SAVE THE REGISTERS
4157 063260  012701  060600                        MOV     #T34PK2,R1              ;START OF THE PACKET
4158 063264  012721  100006                        MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
4159 063270  012721  060626                        MOV     #T34BF2,(R1)+           ;ADDRESS OF DATA BLOCK
4160 063274  005021                                CLR     (R1)+                   ;EXTENDED ADDRESS
4161 063276  012721  000006                        MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
4162 063302  012701  060626                        MOV     #T34BF2,R1              ;POINT TO DATA SEL AREA
4163 063306  005021                                CLR     (R1)+
4164 063310  005021                                CLR     (R1)+
4165 063312  005011                                CLR     (R1)
4166 063314  000207                                RTS     PC                      ;RETURN
4167 063316                                T34RT3:
4168 063316                                        SAVREG                          ;SAVE THE REGISTERS
4169 063322  012701  060610                        MOV     #T34PK3,R1              ;START OF THE PACKET
4170 063326  012721  100005                        MOV     #100005,(R1)+           ;WRITE  TAPE. WITH ACK
4171 063332  005021                                CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
4172 063334  005021                                CLR     (R1)+                   ;EXTENDED ADDRESS
4173 063336  005011                                CLR     (R1)                    ;SIZE OF DATA BLOCK
4174 063340  000207                                RTS     PC                              ;RETURN
4175 063342                                        ENDTST
     063342                                                                                  L10061:
     063342  104401                                                                              TRAP    C$ETST
4176                                       .SBTTL  TEST  7: EXTENDED MODE FEATURES
4177                                ;+
4178                                ;
4179                                ;       THIS TEST VERIFIES THE OPERATION OF COMMANDS ONLY AVAILABLE WHEN
4180                                ;       THE CONTROLLER IS IN THE EXTENDED FEATURES MODE.  THESE COMMANDS
4181                                ;       ARE:
4182                                ;
4183                                ;               REWIND WITH IMMEDIATE INTERRUPT
4184                                ;
4185                                ;       IF THE CONTROLLER IS NOT ALREADY IN EXTENDED FEATURES MODE, IT
4186                                ;       IS PLACED THERE VIA A WRITE SUBSYSTEM MEMORY COMMAND.
4187                                ;
4188                                ;
4189                                ;
4190                                ;THE TEST CONSISTS OF THE FOLLOWING 7 SUBTESTS
4191                                ;
4192                                ;
4193                                ;
4194                                ;-
4195 063344                                        BGNTST
     063344                                                                                  T7::
4196 063344  012737  006354  002172                MOV     #EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
4201 063352  012700  073063                        MOV     #TST35ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
4202 063356  004737  016570                        JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
4203 063362  012737  000005  002210                MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
4204 063370  005037  067466                        CLR     T35CNT                  ;CLEAR TAPE RECORD COUNTER
4205                                ;+
4206                                ;
4207                                ;TEST 7, SUBTEST 1
4208                                ;
4209                                ;
4210                                ;       VERIFIES THAT A REWIND WITH IMMEDIATE INTERRUPT COMMAND, ISSUED
4211                                ;       WITH THE INTERRUPT ENABLE (IE) BIT CLEAR (0), CAUSES ALMOST
4212                                ;       IMMEDIATE TERMINATION BUT NO INTERRUPT.  STATUS IN THE MESSAGE
```

```
                                        ;       BUFFER IS CHECKED TO VERIFY THAT THE MOTION (MOT) AND OPERATION
                                        ;       IN PROGRESS (OPM) STATUS BITS ARE BOTH SET.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;-
                                        T35LOOP:
                                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                                T7.1:
                                                                                                        TRAP    C$BSUB
                                                JSR     PC,T35REST              ;SET COMMAND PACKET
                                                CLR     INTRECV                 ;CLEAR INTERRUPT RECEIVED FLAG
                                                JSR     PC,T35RT2               ;SET UP OTHER COMMAND PACKET
                                                JSR     PC,T35RT3               ;SET UP OTHER COMMAND PACKET
                                                MOV     #65000.,T35DLY          ;SET UP DELAY COUNTER
                                                CLR     T35CNT                  ;CLEAR COUNTER
                                        10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                                BCS     20$                     ;BR IF INIT WAS OK
                                                DELAY   250                     ;DELAY ABOUT .25 SEC
                                                                                                MOV     #250.,(PC)+
                                                                                                .WORD   0
                                                                                                MOV     L$DLY,(PC)+
                                                                                                .WORD   0
                                                                                                DEC     -6(PC)
                                                                                                BNE     .-4
                                                                                                DEC     -22(PC)
                                                                                                BNE     .-20
                                                DEC     T35DLY                  ;BUMP COUNTER
                                                BNE     10$                     ;BR. IF COUNTER NOT DONE
                                                INC     FATFLG                          ;ERROR COUNT
                                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                                                TRAP    C$ERDF
                                                                                                .WORD   701
                                                                                                .WORD   SFIERR
                                                                                                .WORD   SFIMSG
                                        20$:    MOV     UNITN,T35DSW            ;SET UP DRIVE NUMBER
                                                MOV     #T35PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                                BCS     25$                     ;BR. IF COMMAND ISSUED OK
                                                INC     FATFLG                          ;ERROR COUNT
                                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
                                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                                                                                                TRAP    C$ERHRD
                                                                                                .WORD   702
                                                                                                .WORD   WRTMSG
                                                                                                .WORD   SFIMSG
                                        25$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                                TRAP    C$CLP1
                                                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
                                                BCS     30$                     ;BR. IF NO PROBLEM
                                                MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
                                                MOV     TSSR(R5),R1             ;GET TSSR FOR PRINTOUT
                                                INC     FATFLG                          ;ERROR COUNT
```

```
4260 063572                          ERRHRD  ERRNO,T35RWN,PKTSSR     ;REWIND NOT ACCEPTED
     063572  104456                                                          TRAP    C$ERHRD
     063574  001277                                                          .WORD   703
     063576  070574                                                          .WORD   T35RWN
     063600  012126                                                          .WORD   PKTSSR
4261 063602                    30$:  CKLOOP                          ;LOOP IF SELECTED
     063602  104406                                                          TRAP    C$CLP1
4262 063604  013701  067350           MOV     T35BFR+6,R1             ;PICK UP XSTO
4263 063610  010102                   MOV     R1,R2                   ;SET UP EXPECTED
4264 063612  052702  000002           BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4265 063616  020102                   CMP     R1,R2                   ;DOES EXP = REC'D
4266 063620  001406                   BEQ     40$                     ;BR, IF EQUAL (OK)
4267 063622  005237  002214           INC     FATFLG                          ;ERROR COUNT
4271 063626                          ERRHRD  ERRNO,T35BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063626  104456                                                          TRAP    C$ERHRD
     063630  001300                                                          .WORD   704
     063632  070270                                                          .WORD   T35BOT
     063634  015554                                                          .WORD   EXPREC
4272 063636                    40$:  CKLOOP                          ;LOOP IF SELECTED
     063636  104406                                                          TRAP    C$CLP1
4273 063640  012703  000024           MOV     #20.,R3                 ;NUMBER OF RECORDS
4274 063644  012737  000400  067446   MOV     #256.,T35SZ             ;SET UP RECORD SIZE
4275 063652  013737  003116  067442   MOV     FREE,T35WB              ;ADDRESS OF WRITE BUFFER
4276
4277                           ;*****************************************
4278                           ;
4279                           ;WRITE DATA,ACK,CVC=1 COMMAND
4280                           ;
4281                           ;*****************************************
4282
4283 063660  012737  140005  067440           MOV     #140005,T35PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
4284 063666  012704  067440                   MOV     #T35PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4285 063672  010465  000000           50$:    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4286 063676  004737  016330                   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4287 063702  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4288 063706  012702  000200                   MOV     #SSR,R2                 ;SET UP EXPECTED
4289 063712  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
4290 063714  001406                           BEQ     60$                     ;BR, IF OK
4291 063716  005237  002214                   INC     FATFLG                          ;ERROR COUNT
4295 063722                                  ERRHRD  ERRNO,T35WDE,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     063722  104456                                                                  TRAP    C$ERHRD
     063724  001301                                                                  .WORD   705
     063726  070216                                                                  .WORD   T35WDE
     063730  012126                                                                  .WORD   PKTSSR
4296 063732                           60$:    CKLOOP                          ;LOOP IF SELECTED
     063732  104406                                                                  TRAP    C$CLP1
4297 063734  005303                           DEC     R3                      ;BUMP RECORD COUNTER
4298 063736  001355                           BNE     50$                     ;BR, IF MORE RRECORDS TO COUNT
4299
4300                           ;*****************************************
4301                           ;
4302                           ;WAIT FOR TAPE TO STOP ALL MOTION
4303                           ;
4304                           ;*****************************************
4305
4306 063740  012737  000012  067472           MOV     #10.,T35DLY             ;SET UP DELAY COUNTER
4307 063746                    70$:  DELAY     250                     ;WAIT ABOUT .25 SEC
```

```
TEST 1 - HARDWARE TEST 1-8 TEST MACRO M1113  14-JUN-84 16:41                                                    SEQ 0186
TEST  7: EXTENDED MODE FEATURES

        063746  012727  000250                                                          MOV     #250,(PC)+
        063752  000000                                                                  .WORD   0
        063754  013727  002116                                                          MOV     L$DLY,(PC)+
        063760  000000                                                                  .WORD   0
        063762  005367  177772                                                          DEC     -6(PC)
        063766  001375                                                                  BNE     .-4
        063770  005367  177756                                                          DEC     -22(PC)
        063774  001367                                                                  BNE     .-20
  4308  063776  005337  067472                DEC     T35DLY                  ;BUMP COUNTER DOWN
  4309  064002  001361                        BNE     70$                     ;BR, IF MORE TO DELAY
  4310  064004  005737  002220                TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
  4311  064010  001042                        BNE     110$                    ;BR IF SWITCH IS ON
  4312  064012  112737  000200  067451        MOVB    #200,T35BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
  4313  064020  112737  000010  067450        MOVB    #10,T35BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
  4314  064026  012704  067430                MOV     #T35PK2,R4              ;WRITE SUBSYS MEM PACKET
  4315  064032  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
  4316  064036  004737  016416                JSR     PC,CHKTSSR              ;WAIT FOR SSR
  4317  064042  103407                        BCS     90$                     ;BR, IF NO ERROR
  4318  064044  010001                        MOV     R0,R1                   ;ERROR, SAVE TSSR
  4319  064046  005237  002214                INC     FATFLG                          ;ERROR COUNT
  4323  064052                                ERRHRD  ERRNO,T35SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
        064052  104456                                                                 TRAP    C$ERHRD
        064054  001302                                                                 .WORD   706
        064056  072352                                                                 .WORD   T35SSR
        064060  012126                                                                 .WORD   PKTSSR
  4324  064062                        90$:    CKLOOP                          ;LOOP IF SELECTED
        064062  104406                                                                 TRAP    C$CLP1
  4325  064064  012704  067320                MOV     #T35PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
  4326  064070  004737  010742                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
  4327  064074  103407                        BCS     100$                    ;BR, IF COMMAND ISSUED OK
  4328  064076  005237  002214                INC     FATFLG                          ;ERROR COUNT
  4332  064102  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
  4333  064104                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        064104  104456                                                                 TRAP    C$ERHRD
        064106  001303                                                                 .WORD   707
        064110  005052                                                                 .WORD   WRTMSG
        064112  012114                                                                 .WORD   SFIMSG
  4334  064114                        100$:   CKLOOP                          ;SCOPE LOOP
        064114  104406                                                                 TRAP    C$CLP1
  4335  064116  012737  176750  067472  110$:   MOV     #65000.,T35DLY          ;SET UP DELAY COUNTER
  4336  064124  005037  067466                CLR     T35CNT                  ;DELAY COUNTER
  4337
  4338                                  ;*****************************************
  4339                                  ;
  4340                                  ;REWIND IMED. INTERRUPT,ACK,CVC=1,IE=0 COMMAND
  4341                                  ;
  4342                                  ;*****************************************
  4343
  4344  064130  012737  142012  067440        MOV     #142012,T35PK3          ;REWIND IMED. INTERRUPT,ACK,CVC=1,IE=0 COMMAND
  4345  064136  012704  067440                MOV     #T35PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
  4346  064142  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
  4347  064146  016501  000002        120$:   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
  4348  064152  032701  000200                BIT     #SSR,R1                 ;CHECK FOR SSR SET
  4349  064156  001021                        BNE     130$                    ;BR, WHEN SSR IS SET
  4350  064160  005237  067466                INC     T35CNT                  ;BUMP THE CYCLE COUNTER
  4351  064164                                DELAY   1                       ;DELAY TO KEEP COUNTER DOWN
        064164  012727  000001                                                         MOV     #1,(PC)+
```

```
                064170  000000                                                          .WORD   0
                064172  013727  002116                                                  MOV     L$DLY,(PC)+
                064176  000000                                                          .WORD   0
                064200  005367  177772                                                  DEC     -6(PC)
                064204  001375                                                          BNE     .-4
                064206  005367  177756                                                  DEC     -22(PC)
                064212  001367                                                          BNE     .-20
4352            064214  005337  067472          DEC     T35DLY          ;DROP DEAD TIMER BUMP DOWN
4353            064220  001352                  BNE     120$            ;BR, IF MORE TIME TO GO
4354            064222  012702  000200  130$:   MOV     #SSR,R2         ;SET UP EXPECTED
4355            064226  020102                  CMP     R1,R2           ;ARE THEY EQUAL
4356            064230  001406                  BEQ     140$            ;BR, IF OK
4357            064232  005237  002214          INC     FATFLG                  ;ERROR COUNT
4361            064236                  ERRHRD  ERRNO,T35RWE,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
                064236  104456                                                          TRAP    C$ERHRD
                064240  001304                                                          .WORD   708
                064242  072720                                                          .WORD   T35RWE
                064244  012126                                                          .WORD   PKTSSR
4362            064246          140$:   CKLOOP                          ;LOOP IF SELECTED
                064246  104406                                                          TRAP    C$CLP1
4363            064250  005737  002216          TST     INTRECV         ;CHECK FOR INTERRUPTS
4364            064254  001410                  BEQ     150$            ;BR, IF NO INTERRUPTS DETECTED
4365            064256  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR STATUS FOR PRINTOUT
4366            064262  005237  002214          INC     FATFLG                  ;ERROR COUNT
4370            064266                  ERRHRD  ERRNO,T35INT,PKTSSR     ;INTERRUPT RECEIVED (BAD)
                064266  104456                                                          TRAP    C$ERHRD
                064270  001305                                                          .WORD   709
                064272  072531                                                          .WORD   T35INT
                064274  012126                                                          .WORD   PKTSSR
4371            064276          150$:   CKLOOP                          ;LOOP IF SELECTED
                064276  104406                                                          TRAP    C$CLP1
4372
4373                    ;*****************************************
4374                    ;
4375                    ;NOW CHECK FOR THE MOTION BITS SET
4376                    ;
4377                    ;*****************************************
4378
4379            064300  013701  067350          MOV     T35BFR+6,R1     ;PICK UP XSTO
4380            064304  010102                  MOV     R1,R2           ;SET UP EXPECTED
4381            064306  052702  000200          BIS     #BIT7,R2        ;SET MOT BIT IN EXPECTED
4382            064312  020102                  CMP     R1,R2           ;DOES EXP = REC'D
4383            064314  001406                  BEQ     160$            ;BR, IF EQUAL (OK)
4384            064316  005237  002214          INC     FATFLG                  ;ERROR COUNT
4388            064322                  ERRHRD  ERRNO,T35MOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                064322  104456                                                          TRAP    C$ERHRD
                064324  001306                                                          .WORD   710
                064326  072433                                                          .WORD   T35MOT
                064330  015554                                                          .WORD   EXPREC
4389            064332          160$:   CKLOOP                          ;LOOP IF SELECTED
                064332  104406                                                          TRAP    C$CLP1
4390            064334  013701  067354          MOV     T35BFR+12,R1    ;PICK UP XST2
4391            064340  010102                  MOV     R1,R2           ;SET UP EXPECTED
4392            064342  052702  100000          BIS     #BIT15,R2       ;SET OPM BIT IN EXPECTED
4393            064346  020102                  CMP     R1,R2           ;DOES EXP = REC'D
4394            064350  001406                  BEQ     170$            ;BR, IF EQUAL (OK)
4395            064352  005237  002214          INC     FATFLG                  ;ERROR COUNT
```

```
                                        ERRHRD  ERRNO,T350PM,EXPREC     ;OPM BIT NOT SET
                                                                                TRAP    C$ERHRD
                                                                                .WORD   711
                                                                                .WORD   T350PM
                                                                                .WORD   EXPREC
                                170$:   CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1
                                        MOV     #23.,T35DLY             ;SET UP DELAY COUNTER
                                175$:   DELAY   250                     ;START DELAY
                                                                                MOV     #250.,(PC)+
                                                                                .WORD   0
                                                                                MOV     L$DLY,(PC)+
                                                                                .WORD   0
                                                                                DEC     -6(PC)
                                                                                BNE     .-4
                                                                                DEC     -22(PC)
                                                                                BNE     .-20
                                        DEC     T35DLY                  ;BUMP DELAY COUNTER
                                        BNE     175$                    ;BR, IF MORE DELAY
                                        ENDSUB
                                                                                L10064:
                                                                                TRAP    C$ESUB
                                        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
                                        BLO     999$                            ;BR, IF LESS THAN 25
                                        JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
                                999$:
                                ;+
                                ;
                                ;TEST 7: SUBTEST 2
                                ;
                                ;       WITH THE INTERRUPT ENABLE (IE) BIT SET (1), CAUSES ALMOST
                                ;       IMMEDIATE TERMINATION AND AN INTERRUPT.  STATUS IN THE MESSAGE
                                ;       BUFFER IS CHECKED TO VERIFY THAT THE MOTION (MOT) AND OPERATION
                                ;       IN PROGRESS (OPM) STATUS BITS ARE BOTH SET.
                                ;
                                ;
                                ;
                                ;
                                ;
                                ;
                                ;-
                                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T7.2:
                                                                                TRAP    C$BSUB
                                        SETPRI  #PRI00          ;ENABLE INTERRUPTS.
                                                                                MOV     #PRI00,R0
                                                                                TRAP    C$SPRI
                                        JSR     PC,T35REST                      ;SET COMMAND PACKET
                                        CLR     INTRECV                         ;CLEAR INTERRUPT RECEIVED FLAG
                                        JSR     PC,T35RT2                       ;SET UP OTHER COMMAND PACKET
                                        JSR     PC,T35RT3                       ;SET UP OTHER COMMAND PACKET
                                        MOV     #65000.,T35DLY                  ;SET UP DELAY COUNTER
                                        CLR     T35CNT                          ;CLEAR COUNTER
                                10$:    JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
                                        BCS     20$                             ;BR IF INIT WAS OK
                                        DELAY   250                             ;DELAY ABOUT .25 SEC
```

```
                064522  012727  000250                                          MOV     #250,(PC)+
                064526  000000                                                  .WORD   0
                064530  013727  002116                                          MOV     L$DLY,(PC)+
                064534  000000                                                  .WORD   0
                064536  005367  177772                                          DEC     -6(PC)
                064542  001375                                                  BNE     .-4
                064544  005367  177756                                          DEC     -22(PC)
                064550  001367                                                  BNE     .-20
    4437        064552  005337  067472          DEC     T35DLY                  ;BUMP COUNTER
    4438        064556  001356                  BNE     10$                     ;BR, IF COUNTER NOT DONE
    4439        064560  005237  002214          INC     FATFLG                          ;ERROR COUNT
    4443        064564  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
    4444        064566                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                064566  104455                                                  TRAP    C$ERDF
                064570  001310                                                  .WORD   712
                064572  003646                                                  .WORD   SFIERR
                064574  012114                                                  .WORD   SFIMSG
    4445        064576  013737  002174  067340  20$:    MOV     UNITN,T35DSW    ;SET UP DRIVE NUMBER
    4446        064604  012704  067320          MOV     #T35PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
    4447        064610  004737  010742          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
    4448        064614  103407                  BCS     25$                     ;BR, IF COMMAND ISSUED OK
    4449        064616  005237  002214          INC     FATFLG                          ;ERROR COUNT
    4453        064622  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
    4454        064624                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                064624  104456                                                  TRAP    C$ERHRD
                064626  001311                                                  .WORD   713
                064630  005052                                                  .WORD   WRTMSG
                064632  012114                                                  .WORD   SFIMSG
    4455        064634                  25$:    CKLOOP                          ;LOOP IF SELECTED
                064634  104406                                                  TRAP    C$CLP1
    4456        064636  004737  011074          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
    4457        064642  103411                  BCS     30$                     ;BR, IF NO PROBLEM
    4458        064644  010004                  MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
    4459        064646  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    4460        064652  005237  002214          INC     FATFLG                          ;ERROR COUNT
    4464        064656                          ERRHRD  ERRNO,T35RWN,PKTSSR     ;REWIND NOT ACCEPTED
                064656  104456                                                  TRAP    C$ERHRD
                064660  001312                                                  .WORD   714
                064662  070574                                                  .WORD   T35RWN
                064664  012126                                                  .WORD   PKTSSR
    4465        064666                  30$:    CKLOOP                          ;LOOP IF SELECTED
                064666  104406                                                  TRAP    C$CLP1
    4466        064670  013701  067350          MOV     T35BFR+6,R1             ;PICK UP XSTO
    4467        064674  010102                  MOV     R1,R2                   ;SET UP EXPECTED
    4468        064676  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
    4469        064702  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
    4470        064704  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
    4471        064706  005237  002214          INC     FATFLG                          ;ERROR COUNT
    4475        064712                          ERRHRD  ERRNO,T35BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                064712  104456                                                  TRAP    C$ERHRD
                064714  001313                                                  .WORD   715
                064716  070270                                                  .WORD   T35BOT
                064720  015554                                                  .WORD   EXPREC
    4476        064722                  40$:    CKLOOP                          ;LOOP IF SELECTED
                064722  104406                                                  TRAP    C$CLP1
    4477        064724  012703  000024          MOV     #20.,R3                 ;NUMBER OF RECORDS
    4478        064730  012737  000400  067446  MOV     #256.,T35SZ             ;SET UP RECORD SIZE
```

```
4479 064736  013737  003116  067442          MOV     FREE,T35WB              ;ADDRESS OF WRITE BUFFER
4480
4481                                 ;****************************************
4482                                 ;
4483                                 ;WRITE DATA,ACK,CVC=1 COMMAND
4484                                 ;
4485                                 ;****************************************
4486
4487 064744  012737  140005  067440          MOV     #140005,T35PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
4488 064752  012704  067440                  MOV     #T35PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4489 064756  010465  000000          50$:    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4490 064762  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4491 064766  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4492 064772  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4493 064776  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4494 065000  001406                          BEQ     60$                     ;BR, IF OK
4495 065002  005237  002214                  INC     FATFLG                          ;ERROR COUNT
4499 065006                                  ERRHRD  ERRNO,T35WDE,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     065006  104456                                                                  TRAP    C$ERHRD
     065010  001314                                                                  .WORD   716
     065012  070216                                                                  .WORD   T35WDE
     065014  012126                                                                  .WORD   PKTSSR
4500 065016                          60$:    CKLOOP                          ;LOOP IF SELECTED
     065016  104406                                                                  TRAP    C$CLP1
4501
4502                                 ;****************************************
4503                                 ;
4504                                 ;WAIT FOR TAPE TO STOP ALL MOTION
4505                                 ;
4506                                 ;****************************************
4507
4508 065020  012737  000012  067472          MOV     #10.,T35DLY             ;SET UP DELAY COUNTER
4509 065026                          70$:    DELAY   250                     ;WAIT ABOUT .25 SEC
     065026  012727  000250                                                          MOV     #250,(PC)+
     065032  000000                                                                  .WORD   0
     065034  013727  002116                                                          MOV     L$DLY,(PC)+
     065040  000000                                                                  .WORD   0
     065042  005367  177772                                                          DEC     -6(PC)
     065046  001375                                                                  BNE     .-4
     065050  005367  177756                                                          DEC     -22(PC)
     065054  001367                                                                  BNE     .-20
4510 065056  005337  067472                  DEC     T35DLY                  ;BUMP COUNTER DOWN
4511 065062  001361                          BNE     70$                     ;BR, IF MORE TO DELAY
4512 065064  005737  002220                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
4513 065070  001042                          BNE     110$                    ;BR IF SWITCH IS ON
4514 065072  112737  000200  067451          MOVB    #200,T35BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
4515 065100  112737  000010  067450          MOVB    #10,T35BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
4516 065106  012704  067430                  MOV     #T35PK2,R4              ;WRITE SUBSYS MEM PACKET
4517 065112  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4518 065116  004737  016416                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
4519 065122  103407                          BCS     90$                     ;BR, IF NO ERROR
4520 065124  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
4521 065126  005237  002214                  INC     FATFLG                          ;ERROR COUNT
4525 065132                                  ERRHRD  ERRNO,T35SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     065132  104456                                                                  TRAP    C$ERHRD
     065134  001315                                                                  .WORD   717
     065136  072352                                                                  .WORD   T35SSR
```

```
                065140  012126                                                          .WORD   PKTSSR
4526            065142                  90$:    CKLOOP                          ;LOOP IF SELECTED
                065142  104406                                                          TRAP    C$CLP1
4527            065144  012704  067320          MOV     @T35PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4528            065150  004737  010742          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4529            065154  103407                  BCS     100$                    ;BR, IF COMMAND ISSUED OK
4530            065156  005237  002214          INC     FATFLG                          ;ERROR COUNT
4534            065162  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4535            065164                  ERRHRD  ERRNO,WRTMSG,SFIMSG             ;WRITE CHARACTERISTISC FAILED
                065164  104456                                                          TRAP    C$ERHRD
                065166  001316                                                          .WORD   718
                065170  005052                                                          .WORD   WRTMSG
                065172  012114                                                          .WORD   SFIMSG
4536            065174                  100$:   CKLOOP                          ;SCOPE LOOP
                065174  104406                                                          TRAP    C$CLP1
4537            065176  012737  176750  067472  110$:   MOV     #65000.,T35DLY          ;SET UP DELAY COUNTER
4538            065204  005037  067466          CLR     T35CNT                  ;DELAY COUNTER
4539
4540                                    ;*****************************************
4541                                    ;
4542                                    ;REWIND IMMEDIATE,ACK,CVC=1,IE=1 COMMAND
4543                                    ;
4544                                    ;*****************************************
4545
4546            065210  012737  142212  067440          MOV     #142212,T35PK3          ;REWIND IMMEDIATE,ACK,CVC=1,IE=1 COMMAND
4547            065216  012704  067440          MOV     #T35PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4548            065222  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4549            065226  016501  000002  120$:   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4550            065232  032701  000200          BIT     #SSR,R1                 ;CHECK FOR SSR SET
4551            065236  001021                  BNE     130$                    ;BR, WHEN SSR IS SET
4552            065240  005237  067466          INC     T35CNT                  ;BUMP THE CYCLE COUNTER
4553            065244                  DELAY   1                               ;DELAY TO KEEP COUNTER DOWN
                065244  012727  000001                                                  MOV     #1,(PC)+
                065250  000000                                                          .WORD   0
                065252  013727  002116                                                  MOV     L$DLY,(PC)+
                065256  000000                                                          .WORD   0
                065260  005367  177772                                                  DEC     -6(PC)
                065264  001375                                                          BNE     .-4
                065266  005367  177756                                                  DEC     -22(PC)
                065272  001367                                                          BNE     .-20
4554            065274  005337  067472          DEC     T35DLY                  ;DROP DEAD TIMER BUMP DOWN
4555            065300  001352                  BNE     120$                    ;BR, IF MORE TIME TO GO
4556            065302  012702  000200  130$:   MOV     #SSR,R2                 ;SET UP EXPECTED
4557            065306  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
4558            065310  001406                  BEQ     140$                    ;BR, IF OK
4559            065312  005237  002214          INC     FATFLG                          ;ERROR COUNT
4563            065316                  ERRHRD  ERRNO,T35RWE,PKTSSR             ;TSSR INCORRECT AFTER WRITE DATA
                065316  104456                                                          TRAP    C$ERHRD
                065320  001317                                                          .WORD   719
                065322  072720                                                          .WORD   T35RWE
                065324  012126                                                          .WORD   PKTSSR
4564            065326                  140$:   CKLOOP                          ;LOOP IF SELECTED
                065326  104406                                                          TRAP    C$CLP1
4565            065330  005737  002216          TST     INTRECV                 ;CHECK FOR INTERRUPTS
4566            065334  001010                  BNE     150$                    ;BR, IF INTERRUPTS DETECTED
4567            065336  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR STATUS FOR PRINTOUT
4568            065342  005237  002214          INC     FATFLG                          ;ERROR COUNT
```

```
4572 065346                          ERRHRD  ERRNO,T35NIN,PKTSSR     ;INTERRUPT NOT RECEIVED (BAD)
     065346  104456                                                          TRAP    C$ERHRD
     065350  001320                                                          .WORD   720
     065352  073006                                                          .WORD   T35NIN
     065354  012126                                                          .WORD   PKTSSR
4573 065356                     150$:   CKLOOP                          ;LOOP IF SELECTED
     065356  104406                                                          TRAP    C$CLP1
4574
4575                            ;*****************************************
4576                            ;
4577                            ;NOW CHECK FOR THE MOTION BITS SET
4578                            ;
4579                            ;*****************************************
4580
4581 065360  013701  067350             MOV     T35BFR+6,R1             ;PICK UP XSTO
4582 065364  010102                     MOV     R1,R2                   ;SET UP EXPECTED
4583 065366  052702  000200             BIS     #BIT7,R2                ;SET MOT BIT IN EXPECTED
4584 065372  020102                     CMP     R1,R2                   ;DOES EXP = REC'D
4585 065374  001406                     BEQ     160$                    ;BR, IF EQUAL (OK)
4586 065376  005237  002214             INC     FATFLG                          ;ERROR COUNT
4590 065402                             ERRHRD  ERRNO,T35MOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     065402  104456                                                          TRAP    C$ERHRD
     065404  001321                                                          .WORD   721
     065406  072433                                                          .WORD   T35MOT
     065410  015554                                                          .WORD   EXPREC
4591 065412                     160$:   CKLOOP                          ;LOOP IF SELECTED
     065412  104406                                                          TRAP    C$CLP1
4592 065414  013701  067354             MOV     T35BFR+12,R1            ;PICK UP XST2
4593 065420  010102                     MOV     R1,R2                   ;SET UP EXPECTED
4594 065422  052702  100000             BIS     #BIT15,R2               ;SET OPM BIT IN EXPECTED
4595 065426  020102                     CMP     R1,R2                   ;DOES EXP = REC'D
4596 065430  001406                     BEQ     170$                    ;BR, IF EQUAL (OK)
4597 065432  005237  002214             INC     FATFLG                          ;ERROR COUNT
4601 065436                             ERRHRD  ERRNO,T35OPM,EXPREC     ;OPM BIT NOT SET
     065436  104456                                                          TRAP    C$ERHRD
     065440  001322                                                          .WORD   722
     065442  072622                                                          .WORD   T35OPM
     065444  015554                                                          .WORD   EXPREC
4602 065446                     170$:   CKLOOP                          ;LOOP IF SELECTED
     065446  104406                                                          TRAP    C$CLP1
4603 065450  012737  000027  067472     MOV     #23.,T35DLY             ;SET UP DELAY COUNTER
4604 065456                     175$:   DELAY   250                     ;START DELAY
     065456  012727  000250                                                  MOV     #250.,(PC)+
     065462  000000                                                          .WORD   0
     065464  013727  002116                                                  MOV     L$DLY,(PC)+
     065470  000000                                                          .WORD   0
     065472  005367  177772                                                  DEC     -6(PC)
     065476  001375                                                          BNE     .-4
     065500  005367  177756                                                  DEC     -22(PC)
     065504  001367                                                          BNE     .-20
4605 065506  005337  067472             DEC     T35DLY                  ;BUMP DELAY COUNTER
4606 065512  001361                     BNE     175$                    ;BR, IF MORE DELAY
4607 065514                             ENDSUB
     065514                                                                     L10065:
     065514  104403                                                          TRAP    C$ESUB
4608 065516  023727  002214  000017     CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4609 065524  103402                     BLO     999$                            ;BR, IF LESS THAN 25
```

```
4610 065526  004737  017262                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4611 065532                              999$:
4612                                     ;*
4613                                     ;
4614                                     ;TEST 7, SUBTEST 3
4615                                     ;
4616                                     ;       VERIFIES THAT THE NON-TAPE-MOTION COMMAND GET STATUS, ISSUED
4617                                     ;       IMMEDIATATELY AFTER TERMINATION OF A REWIND WITH IMMEDIATE
4618                                     ;       INTERRUPT COMMAND, TERMINATES PROPERLY AND PROVIDES PROPER
4619                                     ;       STATUS.  FIRST, A NUMBER OF DATA RECORDS ARE WRITTEN FROM BOT.
4620                                     ;       THEN THE REWIND WITH IMMEDIATE INTERRUPT COMMAND IS ISSUED AND
4621                                     ;       TERMINATION VERIFIED.  THEN THE GET STATUS COMMAND IS ISSUED.
4622                                     ;       THE GET STATUS SHOULD TERMINATE ALMOST IMMEDIATELY AND SHOW
4623                                     ;       MOT=1 AND OPM=1 IN THE MESSAGE BUFFER.  AFTER A DELAY LONG
4624                                     ;       ENOUGH TO ALLOW THE REWIND TO COMPLETE AND THE TAPE COME TO
4625                                     ;       REST, GET STATUS IS AGAIN ISSUED AND THE STATUS CHECKED;  BOTH
4626                                     ;       MOT AND OPM SHOULD BE CLEAR.
4627                                     ;
4628                                     ;
4629                                     ;
4630                                     ;
4631                                     ;-
4632 065532                                     BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     065532                                                                                     T7.3:
     065532  104402                                                                             TRAP    C$BSUB
4633 065534  004737  073114                    JSR     PC,T35REST              ;SET COMMAND PACKET
4634 065540  004737  073206                    JSR     PC,T35RT2               ;SET UP OTHER COMMAND PACKET
4635 065544  004737  073250                    JSR     PC,T35RT3               ;SET UP OTHER COMMAND PACKET
4636 065550  004737  016054                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4637 065554  103407                            BCS     20$                     ;BR IF INIT WAS OK
4638 065556  005237  002214                    INC     FATFLG                          ;ERROR COUNT
4642 065562  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4643 065564                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     065564  104455                                                                             TRAP    C$ERDF
     065566  001323                                                                             .WORD   723
     065570  003646                                                                             .WORD   SFIERR
     065572  012114                                                                             .WORD   SFIMSG
4644 065574  013737  002174  067340  20$:       MOV     UNITN,T35DSW            ;SET UP UNIT NUMBER IN PACKET
4645 065602  012704  067320                    MOV     #T35PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4646 065606  004737  010742                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4647 065612  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
4648 065614  005237  002214                    INC     FATFLG                          ;ERROR COUNT
4652 065620  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4653 065622                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     065622  104456                                                                             TRAP    C$ERHRD
     065624  001324                                                                             .WORD   724
     065626  005052                                                                             .WORD   WRTMSG
     065630  012114                                                                             .WORD   SFIMSG
4654 065632                             23$:    CKLOOP                          ;LOOP IF SELECTED
     065632  104406                                                                             TRAP    C$CLP1
4655 065634  004737  011074                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4656 065640  103411                            BCS     30$                     ;BR, IF NO PROBLEM
4657 065642  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
4658 065644  016501  000002                    MOV     TSSR(R5),R1             ;GET CONTENTS FOR CALL
4659 065650  005237  002214                    INC     FATFLG                          ;ERROR COUNT
4663 065654                                    ERRHRD  ERRNO,T35RWN,PKTSSR     ;REWIND NOT ACCEPTED
     065654  104456                                                                             TRAP    C$ERHRD
```

```
        065656  001325                                                          .WORD   725
        065660  070574                                                          .WORD   T35RWN
        065662  012126                                                          .WORD   PKTSSR
   4664 065664                          30$:    CKLOOP                  ;LOOP IF SELECTED
        065664  104406                                                          TRAP    C$CLP1
   4665 065666  013701  067350                  MOV     T35BFR+6,R1     ;PICK UP XSTO
   4666 065672  010102                          MOV     R1,R2           ;SET UP EXPECTED
   4667 065674  052702  000002                  BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
   4668 065700  020102                          CMP     R1,R2           ;DOES EXP = REC'D
   4669 065702  001406                          BEQ     40$             ;BR, IF EQUAL (OK)
   4670 065704  005237  002214                  INC     FATFLG                  ;ERROR COUNT
   4674 065710                                  ERRHRD  ERRNO,T35BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        065710  104456                                                          TRAP    C$ERHRD
        065712  001326                                                          .WORD   726
        065714  070270                                                          .WORD   T35BOT
        065716  015554                                                          .WORD   EXPREC
   4675 065720                          40$:    CKLOOP                  ;LOOP IF SELECTED
        065720  104406                                                          TRAP    C$CLP1
   4676 065722  012703  000024                  MOV     #20.,R3         ;STARTING RECORD SIZE
   4677 065726  013737  003116  067442          MOV     FREE,T35WB      ;STARTING WRITE BUFFER ADDRESS
   4678
   4679                                 ;*****************************************
   4680                                 ;
   4681                                 ;WRITE DATA,CVC=1,ACK COMMAND
   4682                                 ;
   4683                                 ;*****************************************
   4684
   4685 065734  012737  140005  067440  65$:    MOV     #140005,T35PK3  ;WRITE DATA,CVC=1,ACK COMMAND
   4686 065742  012704  067440                  MOV     #T35PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
   4687 065746  010300                          MOV     R3,R0           ;SET PATTERN IN CORRECT REGISTER
   4688 065750  004737  017502                  JSR     PC,FILLMEM      ;FILL MEMORY WITH RECORD SIZE
   4689 065754  010337  067446                  MOV     R3,T35SZ        ;SET UP RECORD SIZE IN PACKET
   4690 065760  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
   4691 065764  004737  016330                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
   4692 065770  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
   4693 065774  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
   4694 066000  020102                          CMP     R1,R2           ;ARE THEY EQUAL
   4695 066002  001406                          BEQ     80$             ;BR, IF OK
   4696 066004  005237  002214                  INC     FATFLG                  ;ERROR COUNT
   4700 066010                                  ERRHRD  ERRNO,T35WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        066010  104456                                                          TRAP    C$ERHRD
        066012  001327                                                          .WORD   727
        066014  071130                                                          .WORD   T35WDC
        066016  012126                                                          .WORD   PKTSSR
   4701 066020                          80$:    CKLOOP                  ;LOOP IF SELECTED
        066020  104406                                                          TRAP    C$CLP1
   4702
   4703                                 ;*****************************************
   4704                                 ;
   4705                                 ;WRITE DATA RETRY,CVC=1,ACK COMMAND
   4706                                 ;
   4707                                 ;*****************************************
   4708
   4709 066022  012737  141005  067440          MOV     #141005,T35PK3  ;WRITE DATA RETRY,CVC=1,ACK COMMAND
   4710 066030  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
   4711 066034  004737  016330                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
   4712 066040  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
```

```
4713 066044  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4714 066050  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4715 066052  001406                        BEQ     90$                     ;BR, IF OK
4716 066054  005237  002214                INC     FATFLG                          ;ERROR COUNT
4720 066060                                ERRHRD  ERRNO,T35WRF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA RETRY
     066060  104456                                                                TRAP    C$ERHRD
     066062  001330                                                                .WORD   728
     066064  072175                                                                .WORD   T35WRF
     066066  012126                                                                .WORD   PKTSSR
4721 066070                        90$:    CKLOOP                          ;LOOP IF SELECTED
     066070  104406                                                                TRAP    C$CLP1
4722 066072  005723                        TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
4723 066074  020327  000052                CMP     R3,#42.                 ;AT 42 SIZE YET
4724 066100  001315                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
4725 066102  004737  011074                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4726 066106  103411                        BCS     230$                    ;BR, IF NO PROBLEM
4727 066110  010001                        MOV     R0,R1                   ;SAVE TSSR
4728 066112  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4729 066116  005237  002214                INC     FATFLG                          ;ERROR COUNT
4733 066122                                ERRHRD  ERRNO,T35RWN,EXPREC     ;REWIND NOT ACCEPTED
     066122  104456                                                                TRAP    C$ERHRD
     066124  001331                                                                .WORD   729
     066126  070574                                                                .WORD   T35RWN
     066130  015554                                                                .WORD   EXPREC
4734 066132                        230$:   CKLOOP                          ;LOOP IF SELECTED
     066132  104406                                                                TRAP    C$CLP1
4735 066134  013701  067350                MOV     T35BFR+6,R1             ;PICK UP XSTO
4736 066140  010102                        MOV     R1,R2                   ;SET UP EXPECTED
4737 066142  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4738 066146  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
4739 066150  001406                        BEQ     240$                    ;BR, IF EQUAL (OK)
4740 066152  005237  002214                INC     FATFLG                          ;ERROR COUNT
4744 066156                                ERRHRD  ERRNO,T35BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     066156  104456                                                                TRAP    C$ERHRD
     066160  001332                                                                .WORD   730
     066162  070270                                                                .WORD   T35BOT
     066164  015554                                                                .WORD   EXPREC
4745 066166                        240$:   CKLOOP                          ;LOOP IF SELECTED
     066166  104406                                                                TRAP    C$CLP1
4746 066170  012703  000024                MOV     #20.,R3                 ;STARTING RECORD SIZE
4747 066174  013737  003116  067442        MOV     FREE,T35RB              ;STARTING READ BUFFER ADDRESS
4748
4749                               ;*****************************************
4750                               ;
4751                               ;READ DATA,ACK COMMAND
4752                               ;
4753                               ;*****************************************
4754
4755 066202  012737  100001  067440  265$:   MOV     #100001,T35PK3          ;READ DATA,ACK COMMAND
4756 066210  012704  067440                MOV     #T35PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4757 066214  012700  177777                MOV     #177777,R0              ;SET PATTERN IN CORRECT REGISTER
4758 066220  004737  017502                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
4759 066224  010337  067446                MOV     R3,T35SZ                ;SET UP RECORD SIZE IN PACKET
4760 066230  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4761 066234  004737  016330                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4762 066240  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4763 066244  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
```

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4764 066250  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
4765 066252  001406                    BEQ     280$                    ;BR, IF OK
4766 066254  005237  002214            INC     FATFLG                          ;ERROR COUNT
4770 066260                            ERRHRD  ERRNO,T35RDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     066260  104456                                                            TRAP    C$ERHRD
     066262  001333                                                            .WORD   731
     066264  067562                                                            .WORD   T35RDF
     066266  012126                                                            .WORD   PKTSSR
4771 066270                    280$:   CKLOOP                          ;LOOP IF SELECTED
     066270  104406                                                            TRAP    C$CLP1
4772 066272  013702  003116            MOV     FREE,R2                 ;GET BUFFER ADDRESS
4773 066276  010304                    MOV     R3,R4                   ;GET RECORD SIZE
4774 066300  162704  000024            SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
4775 066304  060204            285$:   ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
4776 066306  021403                    CMP     (R4),R3                 ;DATA WRITTEN = READ
4777 066310  001410                    BEQ     290$                    ;BR, IF DATA OK (GOOD)
4778 066312  011401                    MOV     (R4),R1                 ;PICK UP BAD DATA
4779 066314  010302                    MOV     R3,R2                   ;SET UP EXPECTED
4780 066316  005237  002214            INC     FATFLG                          ;ERROR COUNT
4784 066322                            ERRHRD  ERRNO,T35DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
     066322  104456                                                            TRAP    C$ERHRD
     066324  001334                                                            .WORD   732
     066326  072255                                                            .WORD   T35DTA
     066330  015554                                                            .WORD   EXPREC
4785 066332                    290$:   CKLOOP                          ;LOOP IF SELECTED
     066332  104406                                                            TRAP    C$CLP1
4786 066334  005724                    TST     (R4)+                   ;BUMP TO NEXT ADDRESS
4787 066336  160204                    SUB     R2,R4                   ;BACK TO RECORD SIZE
4788 066340  020403                    CMP     R4,R3                   ;AT END OF RECORD YET
4789 066342  001360                    BNE     285$                    ;BR, IF MORE DATA TO CHECK
4790 066344  005723                    TST     (R3)+                   ;BUMP RECORD SIZE
4791 066346  020327  000050            CMP     R3,#40.                 ;DONE YET
4792 066352  001313                    BNE     265$                    ;BR, IF NOT DONE YET (MORE READS)
4793 066354                    300$:   CKLOOP                          ;LOOP IF SELECTED
     066354  104406                                                            TRAP    C$CLP1
4794 066356                    330$:
4795 066356                            ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     066356                                                                  L10066:
     066356  104403                                                            TRAP    C$ESUB
4796 066360  023727  002214  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4797 066366  103402                            BLO     999$                    ;BR, IF LESS THAN 25
4798 066370  004737  017262                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4799 066374                    999$:
4800                           ;+
4801                           ;
4802                           ;TEST 7, SUBTEST 4
4803                           ;
4804                           ;       VERIFIES THAT A TAPE-MOTION COMMAND (READ, WRITE, P SITION),
4805                           ;       ISSUED IMMEDIATATELY AFTER TERMINATION OF A REWIND ITH
4806                           ;       IMMEDIATE INTERRUPT COMMAND, IS "QUEUED" BY THE CONTROLLER AND
4807                           ;       THEN EXECUTES PROPERLY.
4808                           ;
4809                           ;
4810                           ;
4811                           ;-
4812 066374                            BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     066374                                                                  T7.4:
```

```
      066374  104402                                                                          TRAP    C$BSUB
 4813 066376  004737  073114          JSR     PC,T35REST          ;SET COMMAND PACKET
 4814 066402  004737  073206          JSR     PC,T35RT2           ;SET UP OTHER COMMAND PACKET
 4815 066406  004737  073250          JSR     PC,T35RT3           ;SET UP OTHER COMMAND PACKET
 4816 066412  012737  176750  067472          MOV     #65000.,T35DLY      ;SET UP DELAY COUNTER
 4817 066420  004737  016054   10$:   JSR     PC,SOFINIT          ;DO INITIALIZE ON CONTROLLER
 4818 066424  103426                  BCS     20$                 ;BR IF INIT WAS OK
 4819 066426                          DELAY   250                 ;DELAY ABOUT .25 SEC
      066426  012727  000250                                                                  MOV     @250,(PC)+
      066432  000000                                                                          .WORD   0
      066434  013727  002116                                                                  MOV     L$DLY,(PC)+
      066440  000000                                                                          .WORD   0
      066442  005367  177772                                                                  DEC     -6(PC)
      066446  001375                                                                          BNE     .-4
      066450  005367  177756                                                                  DEC     -22(PC)
      066454  001367                                                                          BNE     .-20
 4820 066456  005337  067472          DEC     T35DLY              ;BUMP COUNTER
 4821 066462  001356                  BNE     10$                 ;BR, IF COUNTER NOT DONE
 4822 066464  005237  002214          INC     FATFLG                      ;ERROR COUNT
 4826 066470  010001                  MOV     R0,R1               ;CONTENTS OF TSSR REGISTER
 4827 066472                          ERRDF   ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
      066472  104455                                                                          TRAP    C$ERDF
      066474  001335                                                                          .WORD   733
      066476  003646                                                                          .WORD   SFIERR
      066500  012114                                                                          .WORD   SFIMSG
 4828 066502  013737  002174  067340   20$:   MOV     UNITN,T35DSW        ;SET UP UNIT (DRIVE) NUMBER
 4829 066510  012704  067320          MOV     #T35PACKET,R4       ;SUBROUTINE NEEDS PACKET ADDRESS
 4830 066514  004737  010742          JSR     PC,WRTCHR           ;ISSUE WRITE CHARACTERISTICS
 4831 066520  103407                  BCS     23$                 ;BR, IF COMMAND ISSUED OK
 4832 066522  005237  002214          INC     FATFLG                      ;ERROR COUNT
 4836 066526  010001                  MOV     R0,R1               ;SAVE CONTENTS OF TSSR
 4837 066530                          ERRHRD  ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTISC FAILED
      066530  104456                                                                          TRAP    C$ERHRD
      066532  001336                                                                          .WORD   734
      066534  005052                                                                          .WORD   WRTMSG
      066536  012114                                                                          .WORD   SFIMSG
 4838 066540                   23$:   CKLOOP                      ;LOOP IF SELECTED
      066540  104406                                                                          TRAP    C$CLP1
 4839 066542  004737  011074          JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
 4840 066546  103411                  BCS     30$                 ;BR, IF NO PROBLEM
 4841 066550  016501  000002          MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
 4842 066554  010004                  MOV     R0,R4               ;GET PACKET ADDRESS
 4843 066556  005237  002214          INC     FATFLG                      ;ERROR COUNT
 4847 066562                          ERRHRD  ERRNO,T35RWN,PKTSSR ;REWIND NOT ACCEPTED
      066562  104456                                                                          TRAP    C$ERHRD
      066564  001337                                                                          .WORD   735
      066566  070574                                                                          .WORD   T35RWN
      066570  012126                                                                          .WORD   PKTSSR
 4848 066572                   30$:   CKLOOP                      ;LOOP IF SELECTED
      066572  104406                                                                          TRAP    C$CLP1
 4849 066574  013701  067350          MOV     T35BFR+6,R1         ;PICK UP XST0
 4850 066600  010102                  MOV     R1,R2               ;SET UP EXPECTED
 4851 066602  052702  000002          BIS     #BIT1,R2            ;SET BOT BIT IN EXPECTED
 4852 066606  020102                  CMP     R1,R2               ;DOES EXP = REC'D
 4853 066610  001406                  BEQ     40$                 ;BR, IF EQUAL (OK)
 4854 066612  005237  002214          INC     FATFLG                      ;ERROR COUNT
 4858 066616                          ERRHRD  ERRNO,T35BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
```

```
        066616  104456                                                          TRAP    C$ERHRD
        066620  001340                                                          .WORD   736
        066622  070270                                                          .WORD   T35BOT
        066624  015554                                                          .WORD   EXPREC
 4859   066626                          40$:    CKLOOP                          ;LOOP IF SELECTED
        066626  104406                                                          TRAP    C$CLP1
 4860   066630  012703  000024                  MOV     #20.,R3                 ;STARTING RECORD SIZE
 4861   066634  013737  003116  067442          MOV     FREE,T35WB              ;STARTING WRITE BUFFER ADDRESS
 4862
 4863                           ;*****************************************
 4864                           ;
 4865                           ;WRITE DATA,CVC=1,ACK COMMAND
 4866                           ;
 4867                           ;*****************************************
 4868
 4869   066642  012737  140005  067440  65$:    MOV     #140005,T35PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 4870   066650  012704  067440                  MOV     #T35PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 4871   066654  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 4872   066656  004737  017502                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 4873   066662  010337  067446                  MOV     R3,T35SZ                ;SET UP RECORD SIZE IN PACKET
 4874   066666  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 4875   066672  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 4876   066676  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 4877   066702  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 4878   066706  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 4879   066710  001406                          BEQ     80$                     ;BR, IF OK
 4880   066712  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 4884   066716                                  ERRHRD  ERRNO,T35WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        066716  104456                                                          TRAP    C$ERHRD
        066720  001341                                                          .WORD   737
        066722  071130                                                          .WORD   T35WDC
        066724  012126                                                          .WORD   PKTSSR
 4885   066726                          80$:    CKLOOP                          ;LOOP IF SELECTED
        066726  104406                                                          TRAP    C$CLP1
 4886
 4887                           ;*****************************************
 4888                           ;
 4889                           ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 4890                           ;
 4891                           ;*****************************************
 4892
 4893   066730  012737  111005  067440          MOV     #111005,T35PK3          ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 4894   066736  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 4895   066742  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 4896   066746  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 4897   066752  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 4898   066756  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 4899   066760  001406                          BEQ     90$                     ;BR, IF OK
 4900   066762  005237  002214                  INC     FATFLG                          ;ERROR COUNT
 4904   066766                                  ERRHRD  ERRNO,T35WRF,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA RETRY
        066766  104456                                                          TRAP    C$ERHRD
        066770  001342                                                          .WORD   738
        066772  072175                                                          .WORD   T35WRF
        066774  015554                                                          .WORD   EXPREC
 4905   066776                          90$:    CKLOOP                          ;LOOP IF SELECTED
        066776  104406                                                          TRAP    C$CLP1
 4906   067000  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
```

```
4907 067002  020327  000052                    CMP     R3,#42.          ;AT 42 SIZE YET
4908 067006  001315                      BNE     65$                      ;BR, IF MORE RECORDS TO WRITE
4909 067010  004737  011074                    JSR     PC,REWIND        ;CALL TAPE REWIND COMMAND
4910 067014  103411                      BCS     230$                     ;BR, IF NO PROBLEM
4911 067016  016501  000002                    MOV     TSSR(R5),R1      ;GET TSSR CONTENTS
4912 067022  010004                      MOV     R0,R4                    ;GET PACKET ADDRESS
4913 067024  005237  002214                    INC     FATFLG                   ;ERROR COUNT
4917 067030                              ERRHRD  ERRNO,T35RWN,PKTSSR      ;REWIND NOT ACCEPTED
     067030  104456                                                              TRAP    C$ERHRD
     067032  001343                                                              .WORD   739
     067034  070574                                                              .WORD   T35RWN
     067036  012126                                                              .WORD   PKTSSR
4918 067040                      230$:   CKLOOP                           ;LOOP IF SELECTED
     067040  104406                                                              TRAP    C$CLP1
4919 067042  013701  067350                MOV     T35BFR+6,R1              ;PICK UP XSTO
4920 067046  010102                      MOV     R1,R2                    ;SET UP EXPECTED
4921 067050  052702  000002                BIS     #BIT1,R2                 ;SET BOT BIT IN EXPECTED
4922 067054  020102                      CMP     R1,R2                    ;DOES EXP = REC'D
4923 067056  001406                      BEQ     240$                     ;BR, IF EQUAL (OK)
4924 067060  005237  002214                INC     FATFLG                   ;ERROR COUNT
4928 067064                              ERRHRD  ERRNO,T35BOT,EXPREC      ;TAPE NOT AT BOT AFTER REWIND
     067064  104456                                                              TRAP    C$ERHRD
     067066  001344                                                              .WORD   740
     067070  070270                                                              .WORD   T35BOT
     067072  015554                                                              .WORD   EXPREC
4929 067074                      240$:   CKLOOP                           ;LOOP IF SELECTED
     067074  104406                                                              TRAP    C$CLP1
4930 067076  012703  000024                MOV     #20.,R3                  ;STARTING RECORD SIZE
4931 067102  013737  003116  067442        MOV     FREE,T35RB               ;STARTING READ BUFFER ADDRESS
4932
4933                             ;*****************************************
4934                             ;
4935                             ;READ DATA,ACK COMMAND
4936                             ;
4937                             ;*****************************************
4938
4939 067110  012737  100001  067440  265$:   MOV     #100001,T35PK3           ;READ DATA,ACK COMMAND
4940 067116  012704  067440                MOV     #T35PK3,R4               ;SET UP R4 WITH PACKET ADDRESS
4941 067122  010337  067446                MOV     R3,T35SZ                 ;SET UP RECORD SIZE IN PACKET
4942 067126  010465  000000                MOV     R4,TSDB(R5)              ;ISSUE COMMAND
4943 067132  004737  016330                JSR     PC,WAITF                 ;WAIT FOR SSR TO SET
4944 067136  016501  000002                MOV     TSSR(R5),R1              ;GET TSSR CONTENTS
4945 067142  012702  000200                MOV     #SSR,R2                  ;SET UP EXPECTED
4946 067146  020102                      CMP     R1,R2                    ;ARE THEY EQUAL
4947 067150  001406                      BEQ     280$                     ;BR, IF OK
4948 067152  005237  002214                INC     FATFLG                   ;ERROR COUNT
4952 067156                              ERRHRD  ERRNO,T35RDF,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     067156  104456                                                              TRAP    C$ERHRD
     067160  001345                                                              .WORD   741
     067162  067562                                                              .WORD   T35RDF
     067164  012126                                                              .WORD   PKTSSR
4953 067166                      280$:   CKLOOP                           ;LOOP IF SELECTED
     067166  104406                                                              TRAP    C$CLP1
4954 067170  013702  003116                MOV     FREE,R2                  ;GET BUFFER ADDRESS
4955 067174  010304                      MOV     R3,R4                    ;GET RECORD SIZE
4956 067176  162704  000024                SUB     #20.,R4                  ;POINT BACK TO 1ST RECORD
4957 067202  060204                      285$:   ADD     R2,R4            ;POINT TO 1ST LOC IN BUFFER
```

```
4958 067204  000303                        SWAB    R3                      ;SWAP BYTES SWB=1 ETC.
4959 067206  021403                        CMP     (R4),R3                 ;DATA WRITTEN = READ
4960 067210  001410                        BEQ     290$                    ;BR, IF DATA OK (GOOD)
4961 067212  011401                        MOV     (R4),R1                 ;PICK UP BAD DATA
4962 067214  010302                        MOV     R3,R2                   ;SET UP EXPECTED
4963 067216  005237  002214                INC     FATFLG                          ;ERROR COUNT
4967 067222                                ERRHRD  ERRNO,T35DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
     067222  104456                                                                TRAP    C$ERHRD
     067224  001346                                                                .WORD   742
     067226  072255                                                                .WORD   T35DTA
     067230  015554                                                                .WORD   EXPREC
4968 067232                        290$:   CKLOOP                          ;LOOP IF SELECTED
     067232  104406                                                                TRAP    C$CLP1
4969 067234  005724                        TST     (R4)+                   ;BUMP TO NEXT ADDRESS
4970 067236  160204                        SUB     R2,R4                   ;BACK TO RECORD SIZE
4971 067240  000303                        SWAB    R3                      ;PUT R3 BACK INTO SHAPE
4972 067242  020403                        CMP     R4,R3                   ;AT END OF RECORD YET
4973 067244  001356                        BNE     285$                    ;BR, IF MORE DATA TO CHECK
4974 067246  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
4975 067250  020327  000050                CMP     R3,#40.                 ;DONE YET
4976 067254  001315                        BNE     265$                    ;BR, IF NOT DONE YET (MORE READS)
4977 067256                        300$:   CKLOOP                          ;LOOP IF SELECTED
     067256  104406                                                                TRAP    C$CLP1
4978 067260                                ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     067260                                                                     L10067:
     067260  104403                                                                TRAP    C$ESUB
4979 067262  023727  002214  000017                CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
4980 067270  103402                                BLO     999$                    ;BR, IF LESS THAN 25
4981 067272  004737  017262                        JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
4982 067276                        999$:
4983                               ;
4984                               ;
4985                               ;
4986 067276  004737  016536                TST     JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
4987 067302  103002                        BCC     163$                    ;BR, IF NO LOOP REQUIRED
4988 067304  000137  063374                JMP     T35LOOP                 ;EXECUTE AGAIN
4989 067310                        163$:   EXIT    TST                     ;ALL DONE THIS TEST
     067310  104432                                                                TRAP    C$EXIT
     067312  003760                                                                .WORD   L10063-.
4990                               ;+
4991                               ;LOCAL STORAGE FOR THIS TEST
4992                               ;-
4994         067320                        .=<.+10>&177770
4996 067320                        T35PACKET:                              ;COMMAND PACKET FOR TEST
4997 067320  100004                        .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
4998 067322  067330                        .WORD   T35DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
4999 067324  000000                        .WORD   0
5000 067326  000012                        .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
5001 067330                        T35DATA:                                ;CHARACTERISTICS DATA BLOCK
5002 067330  067342                        .WORD   T35BFR                  ;ADDRESS OF MESSAGE BUFFER
5003 067332  000000                        .WORD   0
5004 067334  000024                        .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
5005 067336  000000                        .WORD   0
5006 067340  0C0000                T35DSW: .WORD   0                       ;SELECT DRIVE 0
5007 067342                        T35BFR: .BLKW   25.                     ;MESSAGE BUFFER
5008                               ;
5009                               ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
```

```
5010                                    ;
5012            067430                          .=<.+10>&177770
5014 067430                             T35PK2:
5015 067430     100006                          .WORD   100006          ;WRITE SUB SYS MEM COMMAND,  AND ACK
5016 067432     067450                          .WORD   T35BF2          ;ADDRESS OF SELECT BLOCK DATA
5017 067434     000000                          .WORD   0
5018 067436     000006                          .WORD   6.              ;SIZE OF DATA PACKET
5019
5023 067440                             T35PK3:
5024 067440     100005                          .WORD   100005          ;REREAD COMMAND, AND ACK
5025 067442                             T35RB:
5026 067442     003116                  T35WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
5027 067444     000000                          .WORD   0
5028 067446     000000                  T35SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
5029                                            .EVEN
5030                                    ;
5031                                    ;
5032                                    ;
5033 067450                             T35BF2:
5034 067450        010                  T35BS0: .BYTE   10              ;BSEL0 AREA
5035 067451        200                  T35BS1: .BYTE   200             ;BSEL1 AREA
5036 067452     000000                  T35S2:  .WORD   0               ;SEL 2 AREA
5037 067454     000000                  T35S3:  .WORD   0               ;DATA AREA
5038                                    ;
5039                                    ;
5040                                            .EVEN
5041                                    ;TAPE MOTION PACKET COMMAND VALUES
5042
5043 067456     100205                  T35RN:  .WORD   100205          ;REREAD DATA (NEXT)
5044 067460     100605                  T35WDR: .WORD   100605          ;REREAD DATA RETRY
5045 067462     102205                  T35CON: .WORD   102205          ;WRITE CONTINOUS
5046 067464     177777                          .WORD   177777          ;END OF DATA
5047
5048                                    ;
5049 067466     000000                  T35CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
5050 067470     000000                  T35CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
5051 067472     000000                  T35DLY: .WORD   0               ;DELAY COUNTER
5052                                    ;+
5053                                    ;LOCAL TEXT MESSAGES FOR TEST
5054                                    ;-
5055
5056 067474      124     141     160    T35WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
5057 067562      124     123     123    T35RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
5058 067631      122     105     122    T35RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
5059 067726      120     117     123    T35SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
5060 070010      122     111     102    T35LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
5061 070060      124     123     123    T35WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
5062 070135      111     154     154    T35LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
5063 070216      124     123     123    T35WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
5064 070270      124     141     160    T35BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XSTO)'
5065 070363      127     122     111    T35TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
5066 070440      122     105     122    T35EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
5067 070517      124     123     123    T35TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
5068 070574      122     145     167    T35RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
5069 070643      122     101     115    T35RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
5070 070716      124     123     123    T35AM3: .ASCIZ  'TSSR Init, Failed After REREAD COMMAND'
5071 070765      104     162     151    T350FL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
```

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5072 071040  124  123  123  T35WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
5073 071130  124  123  123  T35WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
5074 071203  103  126  103  T35VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
5075 071256  124  123  102  T35BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
5076 071331  127  122  111  T35WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
5077 071420  122  145  141  T35LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
5078 071502  122  145  141  T35LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
5079 071564  122  145  163  T35PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
5080 071652  122  145  141  T35TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
5081 071740  127  122  111  T35NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
5082 072036  124  123  123  T35SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
5083 072113  124  123  123  T35TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
5084 072175  124  123  123  T35WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
5085 072255  104  141  164  T35DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
5086 072352  124  123  123  T35SSR: .ASCIZ  'TSSR Incorrect After WRITE MISCELLANEOUS Command'
5087 072433  115  117  124  T35MOT: .ASCIZ  'MOT Bit (XST0) Not Set During Rewind (Extended Features Mode)'
5088 072531  111  156  164  T35INT: .ASCIZ  'Interrupt Received After REWIND Command (IE Bit Not Set)'
5089 072622  117  120  115  T35OPM: .ASCIZ  'OPM Bit (XST2) Not Set During Rewind (Extended Features Mode)'
5090 072720  124  123  123  T35RWE: .ASCIZ  'TSSR Incorrect After Extended Features REWIND Command'
5091 073006  116  157  040  T35NIN: .ASCIZ  'No Interrupt Detected After REWIND IMMEDIATE'
5092 073063  105  170  164  TST35ID:        .ASCIZ  'Extended Mode Functions'
5093                                         .EVEN
5094                                 ;+
5095                                 ;
5096                                 ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
5097                                 ;WRITE SUBSYSTEM MEMORY COMMAND
5098                                 ;
5099                                 ;-
5100
5101 073114                         T35REST:
5102 073114                                 SAVREG                          ;SAVE THE REGISTERS
5103 073120  012701  067320                MOV     #T35PACKET,R1           ;START OF THE PACKET
5104 073124  012721  100004                MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
5105 073130  012721  067330                MOV     #T35DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
5106 073134  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5107 073136  012721  000012                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
5108 073142  012721  067342                MOV     #T35BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
5109 073146  005021                        CLR     (R1)+
5110 073150  012721  000024                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
5111 073154  005021                        CLR     (R1)+
5112 073156  012711  000000                MOV     #0,(R1)                 ;SELECT DRIVE ZERO
5113 073162  012702  000030                MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
5114 073166  012762  177777  067342  64$:  MOV     #177777,T35BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
5115 073174  005742                        TST     -(R2)                   ;NEXT LOCATION
5116 073176  022702  000000                CMP     #0,R2                   ;AT END OF LOOP YET
5117 073202  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
5118 073204  000207                        RTS     PC                      ;RETURN
5119
5120 073206                         T35RT2:
5121 073206                                 SAVREG                          ;SAVE THE REGISTERS
5122 073212  012701  067430                MOV     #T35PK2,R1              ;START OF THE PACKET
5123 073216  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
5124 073222  012721  067450                MOV     #T35BF2,(R1)+           ;ADDRESS OF DATA BLOCK
5125 073226  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5126 073230  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
5127 073234  005021                        CLR     (R1)+
5128 073236  012701  067450                MOV     #T35BF2,R1              ;POINT TO DATA SEL AREA
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5129 073242  005021                        CLR     (R1)+
5130 073244  005011                        CLR     (R1)
5131 073246  000207                        RTS     PC                      ;RETURN
5132 073250                          T35RT3:
5133 073250                                SAVREG                          ;SAVE REGISTERS
5134 073254  012701  067440                MOV     #T35PK3,R1              ;SET UP POINTER ADDRESS
5135 073260  005021                        CLR     (R1)+                   ;COMMAND SPACE
5136 073262  005021                        CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
5137 073264  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5138 073266  005011                        CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
5139 073270  000207                        RTS     PC                      ;RETURN
5140 073272                                ENDTST
     073272                                                        L10063:
     073272  104401                                                    TRAP    C$ETST
5141                                       .SBTTL  TEST  8: RECORD BUFFERING
5142                                ;+
5143                                ;
5144                                ;
5145                                ;       THIS TEST VERIFIES THAT RECORD BUFFERING, USED FOR WRITE DATA
5146                                ;       AND READ NEXT COMMANDS, OPERATES PROPERLY AND IS PROPERLY
5147                                ;       CONTROLLED BY THE EXTENDED CHARACTERISTICS DATA WORD.  IF THE
5148                                ;       M7196 CONTROLLER MODULE IS NOT ALREADY IN EXTENDED FEATURES MODE
5149                                ;       (AS CONTROLLED BY THE DIP SWITCH ON THE MODULE), IT IS PLACED
5150                                ;       INTO THAT MODE BY INVERTING THE SENSE OF THE SWITCH USING THE
5151                                ;       WRITE SUBSYSTEM MEMORY COMMAND.  NOTE THAT RECORD BUFFERING HAS
5152                                ;       BEEN ENABLED IN PREVIOUS TESTS OF READ AND WRITE AND SO HAS BEEN
5153                                ;       PARTIALLY TESTED ALREADY.  THIS TEST VERIFIES THAT BUFFERING IS
5154                                ;       ACTUALLY OPERATING.  THE FOLLOWING SUBTESTS ARE PERFORMED:
5155                                ;
5156                                ;       VERIFIES THAT NORMAL BUFFERING ON WRITE DATA COMMANDS OPERATES
5157                                ;       PROPERLY AT LOW TAPE SPEED.  THE FOLLOWING SEQUENCE IS
5158                                ;       PERFORMED:
5159                                ;
5160                                ;            1.  THE TAPE IS REWOUND.
5161                                ;
5162                                ;            2.  BUFFERING IS DISABLED AND LOW TAPE SPEED IS SELECTED
5163                                ;                (VIA WRITE CHARACTERISTICS COMMAND).
5164                                ;
5165                                ;            3.  AN INITIAL RECORD IS WRITTEN ONTO THE TAPE IN ORDER TO
5166                                ;                MOVE THE TAPE OFF BOT.
5167                                ;
5168                                ;            4.  THE PROGRAM DELAYS FOR A TIME SUFFICIENT TO ALLOW THE
5169                                ;                TAPE TO REPOSITION AND COME TO REST.
5170                                ;
5171                                ;            5.  A WRITE DATA COMMAND, WITH A BYTE COUNT LESS THAN 3.5K,
5172                                ;                IS ISSUED, AND THE PROGRAM COUNTS, IN A WAIT LOOP, THE
5173                                ;                TIME IT TAKES TO RECEIVE COMMAND TERMINATION.  THIS
5174                                ;                SHOULD BE A RELATIVELY LONG TIME SINCE BUFFERING IS
5175                                ;                DISABLED.
5176                                ;
5177                                ;            6.  BUFFERING IS ENABLED.
5178                                ;
5179                                ;            7.  THE WRITE DATA COMMAND IS AGAIN ISSUED, WITH THE SAME
5180                                ;                BYTE COUNT AS THAT USED PREVIOUSLY.  THE TIME TO
5181                                ;                COMPLETION IS AGAIN MEASURED.
5182                                ;
5183                                ;            8.  THE COMPLETION TIMES MEASURED FOR THE NON-BUFFERED AND
```

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                                        ;                BUFFERED CASES ARE COMPARED.  IT IS VERIFIED THAT THE
                                        ;                TIME MEASURED FOR THE NON-BUFFERED CASE IS MUCH LARGER
                                        ;                THAN THAT MEASURED FOR THE BUFFERED CASE.
                                        ;
                                        ;            9.  THE PREVIOUS STEPS, EXCEPT FOR REWINDING AND WRITING A
                                        ;                RECORD OFF BOT, ARE REPEATED FOR VARIOUS BYTE COUNTS IN
                                        ;                THE RANGE 20 THROUGH 3.5K.
                                        ;
                                        ;
                                        ;THE TEST CONSISTS OF THE FOLLOWING 2 SUBTESTS
                                        ;
                                        ;
                                        ;
                                        ;-
073274                                          BGNTST
073274                                                                                          T8::
073274  012737  006354  002172                  MOV     @EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
073302  004737  017354                          JSR     PC,KTOFF                ;TURN OFF KT11
073306  012700  100647                          MOV     #TST36ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
073312  004737  016570                          JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
073316  012737  000005  002210                  MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
073324  005037  075656                          CLR     T36CNT                  ;CLEAR TAPE RECORD COUNTER
                                        ;*
                                        ;
                                        ;TEST 8, 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.
                                        ;
                                        ;
                                        ;-
                                        T36LOOP:
073330                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
073330                                                                                          T8.1:
073330  104402                                                                                  TRAP    C$BSUB
073332  004737  100670                          JSR     PC,T36REST              ;SET COMMAND PACKET
073336  004737  100762                          JSR     PC,T36RT2               ;SET UP OTHER COMMAND PACKET
073342  004737  101024                          JSR     PC,T36RT3               ;SET UP OTHER COMMAND PACKET
073346  012737  176750  075662                  MOV     #65000.,T36DLY          ;SET UP DELAY COUNTER
073354  005037  075656                          CLR     T36CNT                  ;CLEAR COUNTER
073360  004737  016054          10$:            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
073364  103426                                  BCS     20$                     ;BR IF INIT WAS OK
073366                                          DELAY   250                     ;DELAY ABOUT .25 SEC
073366  012727  000250                                                                  MOV     #250,(PC)+
073372  000000                                                                          .WORD   0
073374  013727  002116                                                                  MOV     L$DLY,(PC)+
073400  000000                                                                          .WORD   0
073402  005367  177772                                                                  DEC     -6(PC)
073406  001375                                                                          BNE     .-4
073410  005367  177756                                                                  DEC     -22(PC)
073414  001367                                                                          BNE     .-20
073416  005337  075662                          DEC     T36DLY                  ;BUMP COUNTER
073422  001356                                  BNE     10$                     ;BR, IF COUNTER NOT DONE
```

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5234 073424  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5238 073430  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5239 073432                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     073432  104455                                                                    TRAP    C$ERDF
     073434  001441                                                                    .WORD   801
     073436  003646                                                                    .WORD   SFIERR
     073440  012114                                                                    .WORD   SFIMSG
5240 073442  013737  002174  075530  20$:      MOV     UNITN,T36DSW            ;SET UP DRIVE NUMBER
5241 073450  012704  075510                    MOV     #T36PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5242 073454  004737  010742                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5243 073460  103407                            BCS     25$                     ;BR, IF COMMAND ISSUED OK
5244 073462  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5248 073466  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5249 073470                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     073470  104456                                                                    TRAP    C$ERHRD
     073472  001442                                                                    .WORD   802
     073474  005052                                                                    .WORD   WRTMSG
     073476  012114                                                                    .WORD   SFIMSG
5250 073500                            25$:    CKLOOP                          ;LOOP IF SELECTED
     073500  104406                                                                    TRAP    C$CLP1
5251 073502  004737  011074                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5252 073506  103407                            BCS     30$                     ;BR, IF NO PROBLEM
5253 073510  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
5254 073512  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5258 073516                                    ERRHRD  ERRNO,T36RWN,PKTSSR     ;REWIND NOT ACCEPTED
     073516  104456                                                                    TRAP    C$ERHRD
     073520  001443                                                                    .WORD   803
     073522  077071                                                                    .WORD   T36RWN
     073524  012126                                                                    .WORD   PKTSSR
5259 073526                            30$:    CKLOOP                          ;LOOP IF SELECTED
     073526  104406                                                                    TRAP    C$CLP1
5260 073530  013701  075540                    MOV     T36BFR+6,R1             ;PICK UP XSTO
5261 073534  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5262 073536  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5263 073542  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5264 073544  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5265 073546  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5269 073552                                    ERRHRD  ERRNO,T36BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     073552  104456                                                                    TRAP    C$ERHRD
     073554  001444                                                                    .WORD   804
     073556  076565                                                                    .WORD   T36BOT
     073560  015554                                                                    .WORD   EXPREC
5270 073562                            40$:    CKLOOP                          ;LOOP IF SELECTED
     073562  104406                                                                    TRAP    C$CLP1
5271 073564  013737  002174  075530            MOV     UNITN,T36DSW            ;SET UP DRIVE NUMBER
5272 073572  052737  000030  075530            BIS     #BIT3!BIT4,T36DSW       ;25-APR-83 REV B - TURN ON THE BUFFERING
5273 073600  012704  075510                    MOV     #T36PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5274 073604  004737  010742                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5275 073610  103407                            BCS     50$                     ;BR, IF COMMAND ISSUED OK
5276 073612  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5280 073616  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5281 073620                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     073620  104456                                                                    TRAP    C$ERHRD
     073622  001445                                                                    .WORD   805
     073624  005052                                                                    .WORD   WRTMSG
     073626  012114                                                                    .WORD   SFIMSG
5282 073630                            50$:    CKLOOP                          ;LOOP IF SELECTED
```

```
                073630  104406                                                          TRAP    C$CLP1
5283            073632  012737  003720  075636          MOV     #2000.,T36SZ            ;SET UP RECORD SIZE
5284            073640  013737  003116  075632          MOV     FREE,T36WB              ;ADDRESS OF WRITE BUFFER
5285            073646  012737  140005  075630          MOV     #140005,T36PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
5286            073654  012704  075630                  MOV     #T36PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5287            073660  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5288            073664  004737  016330                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5289            073670  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5290            073674  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5291            073700  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5292            073702  001406                          BEQ     60$                     ;BR, IF OK
5293            073704  005237  002214                  INC     FATFLG                          ;ERROR COUNT
5297            073710                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
                073710  104456                                                          TRAP    C$ERHRD
                073712  001446                                                          .WORD   806
                073714  005107                                                          .WORD   WRTERR
                073716  012126                                                          .WORD   PKTSSR
5298            073720                          60$:    CKLOOP                          ;LOOP IF SELECTED
                073720  104406                                                          TRAP    C$CLP1
5299            073722  012737  000005  075662          MOV     #05.,T36DLY             ;25-APR-83 REV B - DELAY FOR TAPE TO STOP
5300            073730                          70$:    DELAY   1                       ;25-APR-83 REV B - DELAY ROUTINE CALL
                073730  012727  000001                                                  MOV     #1,(PC)+
                073734  000000                                                          .WORD   0
                073736  013727  002116                                                  MOV     L$DLY,(PC)+
                073742  000000                                                          .WORD   0
                073744  005367  177772                                                  DEC     -6(PC)
                073750  001375                                                          BNE     .-4
                073752  005367  177756                                                  DEC     -22(PC)
                073756  001367                                                          BNE     .-20
5301            073760  005337  075662                  DEC     T36DLY                  ;BUMP COUNTER DOWN
5302            073764  001361                          BNE     70$                     ;BR, IF MORE DELAY TO GO
5303            073766  012737  006642  075636          MOV     #3490.,T36SZ            ;SET SIZE OF TRANSFER
5304            073774  012737  140005  075630          MOV     #140005,T36PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
5305            074002  012704  075630                  MOV     #T36PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5306            074006  005037  075656                  CLR     T36CNT                  ;CLEAR COUNTER
5307            074012  012737  001750  075662          MOV     #1000.,T36DLY           ;SET DROP DEAD COUNTER VALUE
5308            074020  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5309            074024  016501  000002          80$:    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5310            074030  032701  000200                  BIT     #SSR,R1                 ;CHECK FOR SSR SET
5311            074034  001021                          BNE     90$                     ;BR, IF SSR IS SET
5312            074036  005237  075656                  INC     T36CNT                  ;BUMP CYCLE COUNTER
5313            074042                                  DELAY   1                       ;CUT NUMBER OF LOOPS DOWN
                074042  012727  000001                                                  MOV     #1,(PC)+
                074046  000000                                                          .WORD   0
                074050  013727  002116                                                  MOV     L$DLY,(PC)+
                074054  000000                                                          .WORD   0
                074056  005367  177772                                                  DEC     -6(PC)
                074062  001375                                                          BNE     .-4
                074064  005367  177756                                                  DEC     -22(PC)
                074070  001367                                                          BNE     .-20
5314            074072  005337  075662                  DEC     T36DLY                  ;BUMP DROP DEAD COUNTER
5315            074076  001352                          BNE     80$                     ;BR, IF THERE IS STILL TIME
5316            074100  012702  000200          90$:    MOV     #SSR,R2                 ;SET UP EXPECTED
5317            074104  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5318            074106  001406                          BEQ     100$                    ;BR, IF OK
5319            074110  005237  002214                  INC     FATFLG                          ;ERROR COUNT
5323            074114                                  ERRHRD  ERRNO,T36WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
```

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                074114  104456                                                          TRAP    C$ERHRD
                074116  001447                                                          .WORD   807
                074120  076513                                                          .WORD   T36WDE
                074122  012126                                                          .WORD   PKTSSR
5324            074124                          100$:   CKLOOP                  ;LOOP IF SELECTED
                074124  104406                                                          TRAP    C$CLP1
5325            074126  013737  002174  075530          MOV     UNITN,T36DSW    ;SET UP DRIVE NUMBER
5326            074134  052737  000010  075530          BIS     #BIT3,T36DSW    ;25-APR-83 REV B - TURN OFF BUFFERING
5327            074142  012704  075510                  MOV     #T36PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
5328            074146  004737  010742                  JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
5329            074152  103407                          BCS     110$            ;BR, IF COMMAND ISSUED OK
5330            074154  005237  002214                  INC     FATFLG                  ;ERROR COUNT
5334            074160  010001                          MOV     R0,R1           ;SAVE CONTENTS OF TSSR
5335            074162                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                074162  104456                                                          TRAP    C$ERHRD
                074164  001450                                                          .WORD   808
                074166  005052                                                          .WORD   WRTMSG
                074170  012114                                                          .WORD   SFIMSG
5336            074172                          110$:   CKLOOP                  ;LOOP IF SELECTED
                074172  104406                                                          TRAP    C$CLP1
5337            074174  012737  006642  075636          MOV     #3490.,T36SZ    ;SET SIZE OF TRANSFER
5338            074202  012737  140005  075630          MOV     #140005,T36PK3  ;WRITE DATA,ACK,CVC=1 COMMAND
5339            074210  012704  075630                  MOV     #T36PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
5340            074214  005037  075660                  CLR     T36CNU          ;CLEAR COUNTER
5341            074220  012737  001750  075662          MOV     #1000.,T36DLY   ;SET DROP DEAD COUNTER VALUE
5342            074226  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
5343            074232  016501  000002          120$:   MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
5344            074236  032701  000200                  BIT     #SSR,R1         ;CHECK FOR SSR SET
5345            074242  001021                          BNE     130$            ;BR, IF SSR IS SET
5346            074244  005237  075660                  INC     T36CNU          ;BUMP CYCLE COUNTER
5347            074250                                  DELAY   1               ;CUT NUMBER OF LOOPS DOWN
                074250  012727  000001                                                  MOV     #1,(PC)+
                074254  000000                                                          .WORD   0
                074256  013727  002116                                                  MOV     L$DLY,(PC)+
                074262  000000                                                          .WORD   0
                074264  005367  177772                                                  DEC     -6(PC)
                074270  001375                                                          BNE     .-4
                074272  005367  177756                                                  DEC     -22(PC)
                074276  001367                                                          BNE     .-20
5348            074300  005337  075662                  DEC     T36DLY          ;BUMP DROP DEAD COUNTER
5349            074304  001352                          BNE     120$            ;BR, IF THERE IS STILL TIME
5350            074306  012702  000200          130$:   MOV     #SSR,R2         ;SET UP EXPECTED
5351            074312  020102                          CMP     R1,R2           ;ARE THEY EQUAL
5352            074314  001406                          BEQ     140$            ;BR, IF OK
5353            074316  005237  002214                  INC     FATFLG                  ;ERROR COUNT
5357            074322                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
                074322  104456                                                          TRAP    C$ERHRD
                074324  001451                                                          .WORD   809
                074326  005107                                                          .WORD   WRTERR
                074330  012126                                                          .WORD   PKTSSR
5358            074332                          140$:   CKLOOP                  ;LOOP IF SELECTED
                074332  104406                                                          TRAP    C$CLP1
5359            074334  013701  075656                  MOV     T36CNT,R1       ;GET FIRST COUNTER
5360            074340  013702  075660                  MOV     T36CNU,R2       ;GET SECOND COUNTER
5361            074344  020102                          CMP     R1,R2           ;25-APR-83 REV B - COMPARE EM
5362            074346  003406                          BLE     300$            ;BR, IF VALUES ARE CORRECT (OK)
5363            074350  005237  002214                  INC     FATFLG                  ;ERROR COUNT
```

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5367 074354                                ERRHRD  ERRNO,T36NAS,EXPREC     ;TAPE NOT AT CORRECT SPEED
     074354  104456                                                          TRAP    C$ERHRD
     074356  001452                                                          .WORD   810
     074360  075664                                                          .WORD   T36NAS
     074362  015554                                                          .WORD   EXPREC
5368 074364                         300$:  CKLOOP                          ;LOOP IF SELECTED
     074364  104406                                                          TRAP    C$CLP1
5369 074366                                ENDSUB
     074366                                                          L10071:
     074366  104403                                                          TRAP    C$ESUB
5370 074370  023727  002214  000017        CMP     FATFLG,#15.                ;IS ERROR COUNT AT 25
5371 074376  103402                        BLO     999$                       ;BR, IF LESS THAN 25
5372 074400  004737  017262                JSR     PC,CKDROP                  ;TRY TO DROP THE UNIT
5373 074404                         999$:
5374                                ;*
5375                                ;
5376                                ;TEST 8, SUBTEST 2
5377                                ;
5378                                ;
5379                                ;       THIS TEST VERIFIES THAT RECORD BUFFERING, USED FOR WRITE DATA
5380                                ;       AND READ NEXT COMMANDS, OPERATES PROPERLY AND IS PROPERLY
5381                                ;       CONTROLLED BY THE EXTENDED CHARACTERISTICS DATA WORD.  IF THE
5382                                ;       M7196 CONTROLLER MODULE IS NOT ALREADY IN EXTENDED FEATURES MODE
5383                                ;       (AS CONTROLLED BY THE DIP SWITCH ON THE MODULE), IT IS PLACED
5384                                ;       INTO THAT MODE BY INVERTING THE SENSE OF THE SWITCH USING THE
5385                                ;       WRITE SUBSYSTEM MEMORY COMMAND.  NOTE THAT RECORD BUFFERING HAS
5386                                ;       BEEN ENABLED IN PREVIOUS TESTS OF READ AND WRITE AND SO HAS BEEN
5387                                ;       PARTIALLY TESTED ALREADY.  THIS TEST VERIFIES THAT BUFFERING IS
5388                                ;       ACTUALLY OPERATING.  THE FOLLOWING SUBTESTS ARE PERFORMED:
5389                                ;
5390                                ;       VERIFIES THAT NORMAL BUFFERING ON WRITE DATA COMMANDS OPERATES
5391                                ;       PROPERLY AT LOW TAPE SPEED.  THE FOLLOWING SEQUENCE IS
5392                                ;       PERFORMED:
5393                                ;
5394                                ;            1.  THE TAPE IS REWOUND.
5395                                ;
5396                                ;            2.  BUFFERING IS DISABLED AND LOW TAPE SPEED IS SELECTED
5397                                ;                (VIA WRITE CHARACTERISTICS COMMAND).
5398                                ;
5399                                ;            3.  AN INITIAL RECORD IS WRITTEN ONTO THE TAPE IN ORDER TO
5400                                ;                MOVE THE TAPE OFF BOT.
5401                                ;
5402                                ;            4.  THE PROGRAM DELAYS FOR A TIME SUFFICIENT TO ALLOW THE
5403                                ;                TAPE TO REPOSITION AND COME TO REST.
5404                                ;
5405                                ;            5.  A WRITE DATA COMMAND, WITH A BYTE COUNT LESS THAN 3.5K,
5406                                ;                IS ISSUED, AND THE PROGRAM COUNTS, IN A WAIT LOOP, THE
5407                                ;                TIME IT TAKES TO RECEIVE COMMAND TERMINATION.  THIS
5408                                ;                SHOULD BE A RELATIVELY LONG TIME SINCE BUFFERING IS
5409                                ;                DISABLED.
5410                                ;
5411                                ;            6.  BUFFERING IS ENABLED.
5412                                ;
5413                                ;            7.  THE WRITE DATA COMMAND IS AGAIN ISSUED, WITH THE SAME
5414                                ;                BYTE COUNT AS THAT USED PREVIOUSLY.  THE TIME TO
5415                                ;                COMPLETION IS AGAIN MEASURED.
5416                                ;
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                                        ;          8.  THE COMPLETION TIMES MEASURED FOR THE NON-BUFFERED AND
                                        ;              BUFFERED CASES ARE COMPARED.  IT IS VERIFIED THAT THE
                                        ;              TIME MEASURED FOR THE NON-BUFFERED CASE IS MUCH LARGER
                                        ;              THAN THAT MEASURED FOR THE BUFFERED CASE.
                                        ;
                                        ;          9.  THE PREVIOUS STEPS, EXCEPT FOR REWINDING AND WRITING A
                                        ;              RECORD OFF BOT, ARE REPEATED FOR VARIOUS BYTE COUNTS IN
                                        ;              THE RANGE 20 THROUGH 3.5K.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;-
074404                                  BGNSUB                                  ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
074404                                                                                      T8.2:
074404  104402                                                                              TRAP    C$BSUB
074406  004737  100670                  JSR     PC,T36REST                      ;SET COMMAND PACKET
074412  004737  100762                  JSR     PC,T36RT2                       ;SET UP OTHER COMMAND PACKET
074416  004737  101024                  JSR     PC,T36RT3                       ;SET UP OTHER COMMAND PACKET
074422  012737  176750  075662          MOV     #65000.,T36DLY                  ;SET UP DELAY COUNTER
074430  005037  075656                  CLR     T36CNT                          ;CLEAR COUNTER
074434  004737  016054          10$:    JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
074440  103426                  BCS     20$                                     ;BR IF INIT WAS OK
074442                          DELAY   250                                     ;DELAY ABOUT .25 SEC
074442  012727  000250                                                                  MOV     #250.,(PC)+
074446  000000                                                                          .WORD   0
074450  013727  002116                                                                  MOV     L$DLY,(PC)+
074454  000000                                                                          .WORD   0
074456  005367  177772                                                                  DEC     -6(PC)
074462  001375                                                                          BNE     .-4
074464  005367  177756                                                                  DEC     -22(PC)
074470  001367                                                                          BNE     .-20
074472  005337  075662                  DEC     T36DLY                          ;BUMP COUNTER
074476  001356                  BNE     10$                                     ;BR, IF COUNTER NOT DONE
074500  005237  002214                  INC     FATFLG                                  ;ERROR COUNT
074504  010001                  MOV     R0,R1                                   ;CONTENTS OF TSSR REGISTER
074506                          ERRDF   ERRNO,SFIERR,SFIMSG                     ;FATAL ERROR TSSR WAS NOT OK
074506  104455                                                                          TRAP    C$ERDF
074510  001453                                                                          .WORD   811
074512  003646                                                                          .WORD   SFIERR
074514  012114                                                                          .WORD   SFIMSG
074516  013737  002174  075530  20$:     MOV     UNITN,T36DSW                    ;SET UP DRIVE NUMBER
074524  052737  000040  075530          BIS     #BIT5,T36DSW                    ;TURN ON HIGH SPEED
074532  012704  075510                  MOV     #T36PACKET,R4                   ;SUBROUTINE NEEDS PACKET ADDRESS
074536  004737  010742                  JSR     PC,WRTCHR                       ;ISSUE WRITE CHARACTERISTICS
074542  103407                  BCS     25$                                     ;BR, IF COMMAND ISSUED OK
074544  005237  002214                  INC     FATFLG                                  ;ERROR COUNT
074550  010001                  MOV     R0,R1                                   ;SAVE CONTENTS OF TSSR
074552                          ERRHRD  ERRNO,WRTMSG,SFIMSG                     ;WRITE CHARACTERISTISC FAILED
074552  104456                                                                          TRAP    C$ERHRD
074554  001454                                                                          .WORD   812
074556  005052                                                                          .WORD   WRTMSG
074560  012114                                                                          .WORD   SFIMSG
074562                          25$:    CKLOOP                                  ;LOOP IF SELECTED
074562  104406                                                                          TRAP    C$CLP1
074564  004737  011074                  JSR     PC,REWIND                       ;CALL TAPE REWIND COMMAND
074570  103407                  BCS     30$                                     ;BR, IF NO PROBLEM
074572  010004                  MOV     R0,R4                                   ;SET UP REWIND PACKET ADDRESS
```

TEST 8: RECORD BUFFERING

```
5461 074574  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5465 074600                                    ERRHRD  ERRNO,T36RWN,PKTSSR     ;REWIND NOT ACCEPTED
     074600  104456                                                                    TRAP    C$ERHRD
     074602  001455                                                                    .WORD   813
     074604  077071                                                                    .WORD   T36RWN
     074606  012126                                                                    .WORD   PKTSSR
5466 074610                            30$:    CKLOOP                          ;LOOP IF SELECTED
     074610  104406                                                                    TRAP    C$CLP1
5467 074612  013701  075540                    MOV     T36BFR+6,R1             ;PICK UP XSTO
5468 074616  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5469 074620  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5470 074624  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5471 074626  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5472 074630  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5476 074634                                    ERRHRD  ERRNO,T36BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     074634  104456                                                                    TRAP    C$ERHRD
     074636  001456                                                                    .WORD   814
     074640  076565                                                                    .WORD   T36BOT
     074642  015554                                                                    .WORD   EXPREC
5477 074644                            40$:    CKLOOP                          ;LOOP IF SELECTED
     074644  104406                                                                    TRAP    C$CLP1
5478 074646  013737  002174  075530              MOV     UNITN,T36DSW            ;SET UP DRIVE NUMBER
5479 074654  052737  000030  075530              BIS     #BIT3!BIT4,T36DSW       ;25-APR-83 REV B - TURN ON THE BUFFERING
5480 074662  012704  075510                    MOV     #T36PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5481 074666  004737  010742                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5482 074672  103407                            BCS     50$                     ;BR, IF COMMAND ISSUED OK
5483 074674  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5487 074700  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5488 074702                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     074702  104456                                                                    TRAP    C$ERHRD
     074704  001457                                                                    .WORD   815
     074706  005052                                                                    .WORD   WRTMSG
     074710  012114                                                                    .WORD   SFIMSG
5489 074712                            50$:    CKLOOP                          ;LOOP IF SELECTED
     074712  104406                                                                    TRAP    C$CLP1
5490 074714  012737  003720  075636              MOV     #2000.,T36SZ            ;SET UP RECORD SIZE
5491 074722  013737  003116  075632              MOV     FREE,T36WB              ;ADDRESS OF WRITE BUFFER
5492 074730  012737  140005  075630              MOV     #140005,T36PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
5493 074736  012704  075630                    MOV     #T36PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5494 074742  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5495 074746  004737  016330                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5496 074752  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5497 074756  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
5498 074762  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5499 074764  001406                            BEQ     60$                     ;BR, IF OK
5500 074766  005237  002214                    INC     FATFLG                          ;ERROR COUNT
5504 074772                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     074772  104456                                                                    TRAP    C$ERHRD
     074774  001460                                                                    .WORD   816
     074776  005107                                                                    .WORD   WRTERR
     075000  012126                                                                    .WORD   PKTSSR
5505 075002                            60$:    CKLOOP                          ;LOOP IF SELECTED
     075002  104406                                                                    TRAP    C$CLP1
5506 075004  012737  000005  075662              MOV     #05.,T36DLY             ;25-APR-83 REV B - DELAY FOR TAPE TO STOP
5507 075012                            70$:    DELAY   1                       ;25-APR-83 REV B - DELAY ROUTINE CALL
     075012  012727  000001                                                            MOV     #1,(PC)+
     075016  000000                                                                    .WORD   0
```

```
        075020  013727  002116                                                  MOV     L$DLY,(PC)+
        075024  000000                                                          .WORD   0
        075026  005367  177772                                                  DEC     -6(PC)
        075032  001375                                                          BNE     .-4
        075034  005367  177756                                                  DEC     -22(PC)
        075040  001367                                                          BNE     .-20
5508    075042  005337  075662          DEC     T36DLY          ;BUMP COUNTER DOWN
5509    075046  001361                  BNE     70$             ;BR, IF MORE DELAY TO GO
5510    075050  012737  006642  075636  MOV     #3490.,T36SZ    ;SET SIZE OF TRANSFER
5511    075056  012737  140005  075630  MOV     #140005,T36PK3  ;WRITE DATA,ACK,CVC=1 COMMAND
5512    075064  012704  075630          MOV     #T36PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
5513    075070  005037  075656          CLR     T36CNT          ;CLEAR COUNTER
5514    075074  012737  001750  075662  MOV     #1000.,T36DLY   ;SET DROP DEAD COUNTER VALUE
5515    075102  010465  000000          MOV     R4,TSDB(R5)     ;ISSUE COMMAND
5516    075106  016501  000002  80$:    MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
5517    075112  032701  000200          BIT     #SSR,R1         ;CHECK FOR SSR SET
5518    075116  001021                  BNE     90$             ;BR, IF SSR IS SET
5519    075120  005237  075656          INC     T36CNT          ;BUMP CYCLE COUNTER
5520    075124                  DELAY   1                       ;CUT NUMBER OF LOOPS DOWN
        075124  012727  000001                                                  MOV     #1,(PC)+
        075130  000000                                                          .WORD   0
        075132  013727  002116                                                  MOV     L$DLY,(PC)+
        075136  000000                                                          .WORD   0
        075140  005367  177772                                                  DEC     -6(PC)
        075144  001375                                                          BNE     .-4
        075146  005367  177756                                                  DEC     -22(PC)
        075152  001367                                                          BNE     .-20
5521    075154  005337  075662          DEC     T36DLY          ;BUMP DROP DEAD COUNTER
5522    075160  001352                  BNE     80$             ;BR, IF THERE IS STILL TIME
5523    075162  012702  000200  90$:    MOV     #SSR,R2         ;SET UP EXPECTED
5524    075166  020102                  CMP     R1,R2           ;ARE THEY EQUAL
5525    075170  001406                  BEQ     100$            ;BR, IF OK
5526    075172  005237  002214          INC     FATFLG                  ;ERROR COUNT
5530    075176                  ERRHRD  ERRNO,T36WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        075176  104456                                                          TRAP    C$ERHRD
        075200  001461                                                          .WORD   817
        075202  076513                                                          .WORD   T36WDE
        075204  012126                                                          .WORD   PKTSSR
5531    075206                  100$:   CKLOOP                  ;LOOP IF SELECTED
        075206  104406                                                          TRAP    C$CLP1
5532    075210  013737  002174  075530  MOV     UNITN,T36DSW    ;SET UP DRIVE NUMBER
5533    075216  052737  000010  075530  BIS     #BIT3,T36DSW    ;25-APR-83 REV B - TURN OFF BUFFERING
5534    075224  012704  075510          MOV     #T36PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
5535    075230  004737  010742          JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
5536    075234  103407                  BCS     110$            ;BR, IF COMMAND ISSUED OK
5537    075236  005237  002214          INC     FATFLG                  ;ERROR COUNT
5541    075242  010001                  MOV     R0,R1           ;SAVE CONTENTS OF TSSR
5542    075244                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        075244  104456                                                          TRAP    C$ERHRD
        075246  001462                                                          .WORD   818
        075250  005052                                                          .WORD   WRTMSG
        075252  012114                                                          .WORD   SFIMSG
5543    075254                  110$:   CKLOOP                  ;LOOP IF SELECTED
        075254  104406                                                          TRAP    C$CLP1
5544    075256  012737  006642  075636  MOV     #3490.,T36SZ    ;SET SIZE OF TRANSFER
5545    075264  012737  140005  075630  MOV     #140005,T36PK3  ;WRITE DATA,ACK,CVC=1 COMMAND
5546    075272  012704  075630          MOV     #T36PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
```

```
 5547 075276  005037  075660                    CLR     T36CNU                  ;CLEAR COUNTER
 5548 075302  012737  001750  075662            MOV     #1000.,T36DLY           ;SET DROP DEAD COUNTER VALUE
 5549 075310  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 5550 075314  016501  000002          120$:     MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 5551 075320  032701  000200                    BIT     #SSR,R1                 ;CHECK FOR SSR SET
 5552 075324  001021                            BNE     130$                    ;BR, IF SSR IS SET
 5553 075326  005237  075660                    INC     T36CNU                  ;BUMP CYCLE COUNTER
 5554 075332                                    DELAY   1                       ;CUT NUMBER OF LOOPS DOWN
      075332  012727  000001                                                            MOV     #1,(PC)+
      075336  000000                                                                    .WORD   0
      075340  013727  002116                                                            MOV     L$DLY,(PC)+
      075344  000000                                                                    .WORD   0
      075346  005367  177772                                                            DEC     -6(PC)
      075352  001375                                                                    BNE     .-4
      075354  005367  177756                                                            DEC     -22(PC)
      075360  001367                                                                    BNE     .-20
 5555 075362  005337  075662                    DEC     T36DLY                  ;BUMP DROP DEAD COUNTER
 5556 075366  001352                            BNE     120$                    ;BR, IF THERE IS STILL TIME
 5557 075370  012702  000200          130$:     MOV     #SSR,R2                 ;SET UP EXPECTED
 5558 075374  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
 5559 075376  001406                            BEQ     140$                    ;BR, IF OK
 5560 075400  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 5564 075404                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      075404  104456                                                                    TRAP    C$ERHRD
      075406  001463                                                                    .WORD   819
      075410  005107                                                                    .WORD   WRTERR
      075412  012126                                                                    .WORD   PKTSSR
 5565 075414                          140$:     CKLOOP                          ;LOOP IF SELECTED
      075414  104406                                                                    TRAP    C$CLP1
 5566 075416  013701  075656                    MOV     T36CNT,R1               ;GET FIRST COUNTER
 5567 075422  013702  075660                    MOV     T36CNU,R2               ;GET SECOND COUNTER
 5568 075426  020102                            CMP     R1,R2                   ;25-APR-83 REV B - COMPARE EM
 5569 075430  003406                            BLE     300$                    ;BR, IF VALUES ARE CORRECT (OK)
 5570 075432  005237  002214                    INC     FATFLG                          ;ERROR COUNT
 5574 075436                                    ERRHRD  ERRNO,T36NAS,EXPREC     ;TAPE NOT AT CORRECT SPEED
      075436  104456                                                                    TRAP    C$ERHRD
      075440  001464                                                                    .WORD   820
      075442  075664                                                                    .WORD   T36NAS
      075444  015554                                                                    .WORD   EXPREC
 5575 075446                          300$:     CKLOOP                          ;LOOP IF SELECTED
      075446  104406                                                                    TRAP    C$CLP1
 5576 075450                                    ENDSUB
      075450                                                                  L10072:
      075450  104403                                                                    TRAP    C$ESUB
 5577 075452  023727  002214  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 5578 075460  103402                            BLO     999$                            ;BR, IF LESS THAN 25
 5579 075462  004737  017262                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 5580 075466                          999$:
 5581                                 ;
 5582                                 ;
 5583                                 ;
 5584 075466  004737  016536                    JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
 5585 075472  103002                            BCC     163$                    ;BR, IF NO LOOP REQUIRED
 5586 075474  000137  073330                    JMP     T36LOOP                 ;EXECUTE AGAIN
 5587 075500                          163$:
 5588 075500                                    EXIT    TST                     ;ALL DONE THIS TEST
      075500  104432                                                                    TRAP    C$EXIT
```

```
        075502  003344                                                          .WORD   L10070-.
   5589                         ;*
   5590                         ;LOCAL STORAGE FOR THIS TEST
   5591                         ;-
   5593            075510               .=<.+10>&177770
   5595 075510                  T36PACKET:                          ;COMMAND PACKET FOR TEST
   5596 075510  100004                  .WORD   100004              ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
   5597 075512  075520                  .WORD   T36DATA             ;ADDRESS OF CHARACTERISTICS BLOCK
   5598 075514  000000                  .WORD   0
   5599 075516  000012                  .WORD   10.                 ;STARTING VALUE OF BLOCK SIZE
   5600 075520                  T36DATA:                            ;CHARACTERISTICS DATA BLOCK
   5601 075520  075532                  .WORD   T36BFR              ;ADDRESS OF MESSAGE BUFFER
   5602 075522  000000                  .WORD   0
   5603 075524  000024                  .WORD   20.                 ;LENGTH OF MESSAGE BUFFER
   5604 075526  000000                  .WORD   0
   5605 075530  000000          T36DSW: .WORD   0                   ;SELECT DRIVE 0
   5606 075532                  T36BFR: .BLKW   25.                 ;MESSAGE BUFFER
   5607                         ;
   5608                         ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
   5609                         ;
   5611            075620               .=<.+10>&177770
   5613 075620                  T36PK2:
   5614 075620  100006                  .WORD   100006              ;WRITE SUB SYS MEM COMMAND,  AND ACK
   5615 075622  075640                  .WORD   T36BF2              ;ADDRESS OF SELECT BLOCK DATA
   5616 075624  000000                  .WORD   0
   5617 075626  000006                  .WORD   6.                  ;SIZE OF DATA PACKET
   5618
   5622 075630                  T36PK3:
   5623 075630  100005                  .WORD   100005              ;REREAD COMMAND, AND ACK
   5624 075632                  T36RB:
   5625 075632  003116          T36WB:  .WORD   FREE                ;ADDRESS OF WRITE BUFFER
   5626 075634  000000                  .WORD   0
   5627 075636  000000          T36SZ:  .WORD   0                   ;SIZE OF BUFFER (EXTENT)
   5628                                 .EVEN
   5629                         ;
   5630                         ;
   5631                         ;
   5632 075640                  T36BF2:
   5633 075640      010         T36BS0: .BYTE   10                  ;BSEL0 AREA
   5634 075641      200         T36BS1: .BYTE   200                 ;BSEL1 AREA
   5635 075642  000000          T36S2:  .WORD   0                   ;SEL 2 AREA
   5636 075644  000000          T36S3:  .WORD   0                   ;DATA AREA
   5637                         ;
   5638                         ;
   5639                                 .EVEN
   5640                         ;TAPE MOTION PACKET COMMAND VALUES
   5641
   5642 075646  100205          T36RN:  .WORD   100205              ;REREAD DATA (NEXT)
   5643 075650  100605          T36WDR: .WORD   100605              ;REREAD DATA RETRY
   5644 075652  102205          T36CON: .WORD   102205              ;WRITE CONTINOUS
   5645 075654  177777                  .WORD   177777              ;END OF DATA
   5646
   5647                         ;
   5648 075656  000000          T36CNT: .WORD   0                   ;TAPE TIMER COUNTER STORAGE AREA
   5649 075660  000000          T36CNU: .WORD   0                   ;TAPE TIMER COUNTER STORAGE AREA
   5650 075662  000000          T36DLY: .WORD   0                   ;DELAY COUNTER
   5651                         ;*
```

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                                        ;LOCAL TEXT MESSAGES FOR TEST
                                        ;-
                                        
075664  111  155  160  T36NAS: .ASCIZ  'Improper Tape Controller Buffering Speed'
075735  124  141  160  T36WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
076023  124  123  123  T36RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
076072  122  105  122  T36RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
076167  120  117  123  T36SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
076251  122  111  102  T36LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
076321  124  123  123  T36WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
076376  111  154  154  T36LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
076457  122  105  122  T36SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
076513  124  123  123  T36WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
076565  124  141  160  T36BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XST0)'
076660  127  122  111  T36TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
076735  122  105  122  T36EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
077014  124  123  123  T36TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
077071  122  145  167  T36RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
077140  122  101  115  T36RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
077213  124  123  123  T36AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
077262  104  162  151  T36OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
077335  124  123  123  T36WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
077425  124  123  123  T36WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
077500  103  126  103  T36VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
077553  124  123  102  T36BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
077626  127  122  111  T36WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
077715  122  145  141  T36LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
077777  122  145  141  T36LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
100061  122  145  163  T36PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
100147  122  145  141  T36TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
100235  127  122  111  T36NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
100333  124  123  123  T36SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
100410  124  123  123  T36TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
100472  124  123  123  T36WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
100552  104  141  164  T36DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
100647  122  145  143  TST36ID:        .ASCIZ  'Record Buffering'
                                        .EVEN
                                        ;+
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-
                                        
100670                                  T36REST:
100670                                          SAVREG                  ;SAVE THE REGISTERS
100674  012701  075510                        MOV     #T36PACKET,R1   ;START OF THE PACKET
100700  012721  100004                        MOV     #100004,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK.
100704  012721  075520                        MOV     #T36DATA,(R1)+  ;ADDRESS OF CHARAISTICS DATA BLOCK
100710  005021                              CLR     (R1)+           ;EXTENDED ADDRESS
100712  012721  000012                        MOV     #10.,(R1)+      ;SIZE OF DATA BLOCK IN BYTES
100716  012721  075532                        MOV     #T36BFR,(R1)+   ;ADDRESS OF MESSAGE BUFFER
100722  005021                              CLR     (R1)+
100724  012721  000024                        MOV     #20.,(R1)+      ;LENGTH OF MESSAGE BUFFER
100730  005021                              CLR     (R1)+
100732  012711  000000                        MOV     #0,(R1)         ;SELECT DRIVE ZERO
100736  012702  000030                        MOV     #24.,R2         ;NUMBER OF LOCATIONS TO BE CLEARED
```

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 5709 100742  012762  177777  075532  64$:    MOV     #177777,T36BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
 5710 100750  005742                          TST     -(R2)                   ;NEXT LOCATION
 5711 100752  022702  000000                  CMP     #0,R2                   ;AT END OF LOOP YET
 5712 100756  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
 5713 100760  000207                          RTS     PC                      ;RETURN
 5714
 5715 100762                          T36RT2:
 5716 100762                                  SAVREG                          ;SAVE THE REGISTERS
 5717 100766  012701  075620                  MOV     #T36PK2,R1              ;START OF THE PACKET
 5718 100772  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
 5719 100776  012721  075640                  MOV     #T36BF2,(R1)+           ;ADDRESS OF DATA BLOCK
 5720 101002  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 5721 101004  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
 5722 101010  005021                          CLR     (R1)+
 5723 101012  012701  075640                  MOV     #T36BF2,R1              ;POINT TO DATA SEL AREA
 5724 101016  005021                          CLR     (R1)+
 5725 101020  005011                          CLR     (R1)
 5726 101022  000207                          RTS     PC                      ;RETURN
 5727 101024                          T36RT3:
 5728 101024                                  SAVREG                          ;SAVE REGISTERS
 5729 101030  012701  075630                  MOV     #T36PK3,R1              ;SET UP POINTER ADDRESS
 5730 101034  005021                          CLR     (R1)+                   ;COMMAND SPACE
 5731 101036  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
 5732 101040  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 5733 101042  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
 5734 101044  000207                          RTS     PC                      ;RETURN
 5735 101046                                  ENDTST
      101046                                                                          L10070:
      101046  104401                                                                          TRAP    C$ETST
 5736                                         .SBTTL  TEST  9: FUNCTION TIMING
 5737                                 ;+
 5738                                 ;
 5739                                 ;THIS TEST VERIFIES THAT THE TAPE TRANSPORT SEEMS TO BE WRITING
 5740                                 ;RECORDS, GAPS, AND EXTENDED GAPS OF THE PROPER LENGTH. BOTH LOW
 5741                                 ;AND HIGH SPEED MODES ARE TESTED. IT IS ALSO VERIFIED THAT A
 5742                                 ;SPACE RECORDS COMMAND WITH A RECORD COUNT OF 80 OR MORE, AND A
 5743                                 ;SKIP TAPE MARKS COMMAND WITH A COUNT OF 2 OF MORE, OPERATE THE
 5744                                 ;TAPE IN HIGH-SPEED MODE. THIS TEST CAN ONLY BE RUN IF A
 5745                                 ;REAL-TIME CLOCK IS AVAILIABLE ON THE SYSTEM. THE TEST OPERATES BY
 5746                                 ;TIMING VARIOUS TAPE-MOTION OPERATIONS, USING A NUMBER OF
 5747                                 ;DIFFERENT TEST RECORD LENGTHS.
 5748                                 ;
 5749                                 ;
 5750                                 ;-
 5751 101050                                  BGNTST
      101050                                                                          T9::
 5752 101050  012737  006354  002172          MOV     #EPRT1,EPRTSW           ;PRIMARY ERROR MESSAGE
 5753 101056  004737  017354                  JSR     PC,KTOFF                        ;TURN KT OFF
 5758 101062  012700  105273                  MOV     #T$T37ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
 5759 101066  004737  016570                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
 5760 101072  012737  000005  002210          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
 5761 101100  005037  102336                  CLR     T37CNT                  ;CLEAR TAPE RECORD COUNTER
 5762                                 ;+
 5763                                 ;
 5764                                 ;TEST 9, SUBTEST 1
 5765                                 ;
 5766                                 ;
```

```
5767                                    ;
5768                                    ;
5769                                    ;-
5770
5771 101104                             T37LOOP:
5772 101104                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     101104                                                                             T9.1:
     101104  104402                                                                       TRAP    C$BSUB
5773 101106  005037  002216                     CLR     INTRECV                 ;INTERRUPT INDICATOR
5774 101112  005037  102336                     CLR     T37CNT                  ;TIMER FOR WRITE DATA SPACING
5775 101116  005037  102340                     CLR     T37CNU                  ;TIMER FOR WRITE DATA RETRY SPACING
5776 101122  004737  105314                     JSR     PC,T37REST              ;SET COMMAND PACKET
5777 101126  004737  105406                     JSR     PC,T37RT2               ;SET UP OTHER COMMAND PACKET
5778 101132  004737  105450                     JSR     PC,T37RT3               ;SET UP OTHER COMMAND PACKET
5779 101136  012737  176750  102342             MOV     #65000.,T37DLY          ;SET UP DELAY COUNTER
5780 101144  004737  016054           10$:      JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5781 101150  103426                             BCS     20$                     ;BR IF INIT WAS OK
5782 101152                                     DELAY   250                     ;DELAY ABOUT .25 SEC
     101152  012727  000250                                                             MOV     #250.,(PC)+
     101156  000000                                                                     .WORD   0
     101160  013727  002116                                                             MOV     L$DLY,(PC)+
     101164  000000                                                                     .WORD   0
     101166  005367  177772                                                             DEC     -6(PC)
     101172  001375                                                                     BNE     .-4
     101174  005367  177756                                                             DEC     -22(PC)
     101200  001367                                                                     BNE     .-20
5783 101202  005337  102342                     DEC     T37DLY                  ;BUMP COUNTER
5784 101206  001356                             BNE     10$                     ;BR, IF COUNTER NOT DONE
5785 101210  005237  002214                     INC     FATFLG                          ;ERROR COUNT
5789 101214  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5790 101216                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     101216  104455                                                                     TRAP    C$ERDF
     101220  001605                                                                     .WORD   901
     101222  003646                                                                     .WORD   SFIERR
     101224  012114                                                                     .WORD   SFIMSG
5791 101226  013737  002174  102210  20$:       MOV     UNITN,T37DSW            ;SET UP UNIT NUMBER
5792
5793 101234  012704  102170                     MOV     #T37PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5794 101240  004737  010742                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5795 101244  103407                             BCS     23$                     ;BR, IF COMMAND ISSUED OK
5796 101246  005237  002214                     INC     FATFLG                          ;ERROR COUNT
5800 101252  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5801 101254                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     101254  104456                                                                     TRAP    C$ERHRD
     101256  001606                                                                     .WORD   902
     101260  005052                                                                     .WORD   WRTMSG
     101262  012114                                                                     .WORD   SFIMSG
5802 101264                             23$:    CKLOOP                          ;LOOP IF SELECTED
     101264  104406                                                                     TRAP    C$CLP1
5803 101266  004737  011074                     JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5804 101272  103411                             BCS     30$                     ;BR, IF NO PROBLEM
5805 101274  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5806 101300  010004                             MOV     R0,R4                   ;GET PACKET ADDRESS
5807 101302  005237  002214                     INC     FATFLG                          ;ERROR COUNT
5811 101306                                     ERRHRD  ERRNO,T37RWN,PKTSSR     ;REWIND NOT ACCEPTED
     101306  104456                                                                     TRAP    C$ERHRD
     101310  001607                                                                     .WORD   903
```

```
                101312  103515                                                          .WORD   T37RWN
                101314  012126                                                          .WORD   PKTSSR
5812            101316                          30$:    CKLOOP                  ;LOOP IF SELECTED
                101316  104406                                                          TRAP    C$CLP1
5813            101320  013701  102220                  MOV     T37BFR+6,R1     ;PICK UP XSTO
5814            101324  010102                          MOV     R1,R2           ;SET UP EXPECTED
5815            101326  052702  000002                  BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
5816            101332  020102                          CMP     R1,R2           ;DOES EXP = REC'D
5817            101334  001406                          BEQ     40$             ;BR, IF EQUAL (OK)
5818            101336  005237  002214                  INC     FATFLG                  ;ERROR COUNT
5822            101342                                  ERRHRD  ERRNO,T37BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                101342  104456                                                          TRAP    C$ERHRD
                101344  001610                                                          .WORD   904
                101346  103211                                                          .WORD   T37BOT
                101350  015554                                                          .WORD   EXPREC
5823            101352                          40$:    CKLOOP                  ;LOOP IF SELECTED
                101352  104406                                                          TRAP    C$CLP1
5824            101354  012703  000144                  MOV     #100.,R3        ;NUMBER OF RECORDS TO BE WRITTEN
5825            101360  013737  003116  102312          MOV     FREE,T37WB      ;STARTING WRITE BUFFER ADDRESS
5826            101366  012737  140005  102310  65$:    MOV     #140005,T37PK3  ;WRITE DATA,ACK,CVC=1 COMMAND
5827            101374  012704  102310                  MOV     #T37PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
5828            101400  012737  001130  102316          MOV     #600.,T37SZ     ;SET UP RECORD SIZE IN PACKET
5829            101406  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
5830            101412  004737  016330                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
5831            101416  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
5832            101422  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
5833            101426  020102                          CMP     R1,R2           ;ARE THEY EQUAL
5834            101430  001406                          BEQ     70$             ;BR, IF OK
5835            101432  005237  002214                  INC     FATFLG                  ;ERROR COUNT
5839            101436                                  ERRHRD  ERRNO,T37WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
                101436  104456                                                          TRAP    C$ERHRD
                101440  001611                                                          .WORD   905
                101442  104051                                                          .WORD   T37WDC
                101444  012126                                                          .WORD   PKTSSR
5840            101446                          70$:    CKLOOP                  ;LOOP IF SELECTED
                101446  104406                                                          TRAP    C$CLP1
5841            101450  005303                          DEC     R3              ;DEC RECORD COUNTER
5842            101452  001345                          BNE     65$             ;BR, IF MORE RECORDS TO WRITE
5843            101454  004737  011074                  JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
5844            101460  103411                          BCS     130$            ;BR, IF NO PROBLEM
5845            101462  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
5846            101466  010004                          MOV     R0,R4           ;GET PACKET ADDRESS
5847            101470  005237  002214                  INC     FATFLG                  ;ERROR COUNT
5851            101474                                  ERRHRD  ERRNO,T37RWN,PKTSSR     ;REWIND NOT ACCEPTED
                101474  104456                                                          TRAP    C$ERHRD
                101476  001612                                                          .WORD   906
                101500  103515                                                          .WORD   T37RWN
                101502  012126                                                          .WORD   PKTSSR
5852            101504                          130$:   CKLOOP                  ;LOOP IF SELECTED
                101504  104406                                                          TRAP    C$CLP1
5853            101506  013701  102220                  MOV     T37BFR+6,R1     ;PICK UP XSTO
5854            101512  010102                          MOV     R1,R2           ;SET UP EXPECTED
5855            101514  052702  000002                  BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
5856            101520  020102                          CMP     R1,R2           ;DOES EXP = REC'D
5857            101522  001406                          BEQ     140$            ;BR, IF EQUAL (OK)
5858            101524  005237  002214                  INC     FATFLG                  ;ERROR COUNT
5862            101530                                  ERRHRD  ERRNO,T37BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
```

```
        101530  104456                                                          TRAP    C$ERHRD
        101532  001613                                                          .WORD   907
        101534  103211                                                          .WORD   T37BOT
        101536  015554                                                          .WORD   EXPREC
  5863  101540                          140$:   CKLOOP                  ;LOOP IF SELECTED
        101540  104406                                                          TRAP    C$CLP1
  5864  101542  012704  102310                  MOV     #T37PK3,R4      ;SET UP PACKET ADDRESS
  5865  101546  012737  000037  102312          MOV     #31.,T37RB      ;SET UP RECORDS TO SPACE OVER
  5866  101554  012737  140010  102310          MOV     #140010,T37PK3  ;ACK,CVC=1,SPACE FORWARD COMMAND
  5867  101562  010465  000000          150$:   MOV     R4,TSDB(R5)     ;ISSUE COMMAND
  5868  101566  005237  102336          152$:   INC     T37CNT          ;BUMP TIMER
  5869  101572                                  DELAY   1               ;DELAY ABOUT 100US
        101572  012727  000001                                                  MOV     #1,(PC)+
        101576  000000                                                          .WORD   0
        101600  013727  002116                                                  MOV     L$DLY,(PC)+
        101604  000000                                                          .WORD   0
        101606  005367  177772                                                  DEC     -6(PC)
        101612  001375                                                          BNE     .-4
        101614  005367  177756                                                  DEC     -22(PC)
        101620  001367                                                          BNE     .-20
  5870  101622  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR
  5871  101626  032701  000200                  BIT     #SSR,R1         ;CHECK FOR TSSR'S SSR SET
  5872  101632  001755                          BEQ     152$            ;KEEP COUNTING UNTIL SET
  5873  101634  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
  5874  101640  020201                          CMP     R2,R1           ;WAS EVERYTHING OK
  5875  101642  001406                          BEQ     160$            ;BR, IF ALL IS WELL
  5876  101644  005237  002214                  INC     FATFLG                  ;ERROR COUNT
  5880  101650                                  ERRHRD  ERRNO,T37SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
        101650  104456                                                          TRAP    C$ERHRD
        101652  001614                                                          .WORD   908
        101654  104757                                                          .WORD   T37SCF
        101656  012126                                                          .WORD   PKTSSR
  5881  101660                          160$:   CKLOOP                  ;LOOP IF SELECTED
        101660  104406                                                          TRAP    C$CLP1
  5882  101662  004737  011074                  JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
  5883  101666  103411                          BCS     170$            ;BR, IF NO PROBLEM
  5884  101670  010004                          MOV     R0,R4           ;GET PACKET ADDRESS
  5885  101672  016501  000002                  MOV     TSSR(R5),R1     ;GET STATUS FROM TSSR
  5886  101676  005237  002214                  INC     FATFLG                  ;ERROR COUNT
  5890  101702                                  ERRHRD  ERRNO,T37RWN,PKTSSR     ;REWIND NOT ACCEPTED
        101702  104456                                                          TRAP    C$ERHRD
        101704  001615                                                          .WORD   909
        101706  103515                                                          .WORD   T37RWN
        101710  012126                                                          .WORD   PKTSSR
  5891  101712                          170$:   CKLOOP                  ;LOOP IF SELECTED
        101712  104406                                                          TRAP    C$CLP1
  5892  101714  013701  102220                  MOV     T37BFR+6,R1     ;PICK UP XSTO
  5893  101720  010102                          MOV     R1,R2           ;SET UP EXPECTED
  5894  101722  052702  000002                  BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
  5895  101726  020102                          CMP     R1,R2           ;DOES EXP = REC'D
  5896  101730  001406                          BEQ     175$            ;BR, IF EQUAL (OK)
  5897  101732  005237  002214                  INC     FATFLG                  ;ERROR COUNT
  5901  101736                                  ERRHRD  ERRNO,T37BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        101736  104456                                                          TRAP    C$ERHRD
        101740  001616                                                          .WORD   910
        101742  103211                                                          .WORD   T37BOT
        101744  015554                                                          .WORD   EXPREC
```

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 5902 101746                          175$:  CKLOOP                          ;LOOP IF SELECTED
      101746  104406                                                                 TRAP    C$CLP1
 5903 101750  012704  102310                 MOV     #T37PK3,R4              ;SET UP PACKET ADDRESS
 5904 101754  012737  000121  102312         MOV     #81.,T37RB              ;SET UP RECORDS TO SPACE OVER
 5905 101762  012737  140010  102310         MOV     #140010,T37PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
 5906 101770  010465  000000          250$:  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 5907 101774  005237  102340          252$:  INC     T37CNU                  ;BUMP TIMER
 5908 102000                                 DELAY   1                       ;DELAY ABOUT 100US
      102000  012727  000001                                                         MOV     #1,(PC)+
      102004  000000                                                                 .WORD   0
      102006  013727  002116                                                         MOV     L$DLY,(PC)+
      102012  000000                                                                 .WORD   0
      102014  005367  177772                                                         DEC     -6(PC)
      102020  001375                                                                 BNE     .-4
      102022  005367  177756                                                         DEC     -22(PC)
      102026  001367                                                                 BNE     .-20
 5909 102030  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR
 5910 102034  032701  000200                 BIT     #SSR,R1                 ;CHECK FOR TSSR'S SSR SET
 5911 102040  001755                         BEQ     252$                    ;KEEP COUNTING UNTIL SET
 5912 102042  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
 5913 102046  020201                         CMP     R2,R1                   ;WAS EVERYTHING OK
 5914 102050  001406                         BEQ     260$                    ;BR, IF ALL IS WELL
 5915 102052  005237  002214                 INC     FATFLG                          ;ERROR COUNT
 5919 102056                                 ERRHRD  ERRNO,T37SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      102056  104456                                                                 TRAP    C$ERHRD
      102060  001617                                                                 .WORD   911
      102062  104757                                                                 .WORD   T37SCF
      102064  012126                                                                 .WORD   PKTSSR
 5920 102066                          260$:  CKLOOP                          ;LOOP IF SELECTED
      102066  104406                                                                 TRAP    C$CLP1
 5921 102070  013701  102336                 MOV     T37CNT,R1               ;TIME FOR WRITE SPACING
 5922 102074  013702  102340                 MOV     T37CNU,R2               ;TIME FOR WRITE RETRY SPACING
 5923 102100  042701  000077                 BIC     #000077,R1              ;SETTING UP CONSTANTS
 5924 102104  042702  000077                 BIC     #000077,R2              ;SETTING UP CONSTANTS
 5925 102110  020102                         CMP     R1,R2                   ;CHECK FOR DIFFERENCE
 5926 102112  003406                         BLE     300$                    ;BR, IF GOOD 0000 CHECK 0000
 5927 102114  005237  002214                 INC     FATFLG                          ;ERROR COUNT
 5931 102120                                 ERRHRD  ERRNO,T37TIM,EXPREC     ;TIME WAS NOT DIFFERENT ENOUGH
      102120  104456                                                                 TRAP    C$ERHRD
      102122  001620                                                                 .WORD   912
      102124  103304                                                                 .WORD   T37TIM
      102126  015554                                                                 .WORD   EXPREC
 5932 102130                          300$:  CKLOOP                          ;LOOP IF SELECTED
      102130  104406                                                                 TRAP    C$CLP1
 5933 102132                                 ENDSUB                          ;<<<<<<<<<<<<<< END SUBTEST >>>>>>>>>>>>>
      102132                                                                 L10074:
      102132  104403                                                                 TRAP    C$ESUB
 5934 102134  023727  002214  000017         CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 5935 102142  103402                         BLO     999$                            ;BR, IF LESS THAN 25
 5936 102144  004737  017262                 JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 5937 102150                          999$:
 5938                                 ;
 5939                                 ;
 5940                                 ;
 5941 102150  004737  016536                 JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
 5942 102154  103002                         BCC     163$                    ;BR, IF NO LOOP REQUIRED
 5943 102156  000137  101104                 JMP     T37LOOP                 ;EXECUTE AGAIN
```

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5944 102162                             163$:
5945 102162                                     EXIT    TST                     ;ALL DONE THIS TEST
     102162  104432                                                                       TRAP    C$EXIT
     102164  003306                                                                       .WORD   L10073-.
5946                                    ;*
5947                                    ;LOCAL STORAGE FOR THIS TEST
5948                                    ;-
5950            102170                          .=<.+10>&177770
5952 102170                             T37PACKET:                              ;COMMAND PACKET FOR TEST
5953 102170  100004                             .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
5954 102172  102200                             .WORD   T37DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
5955 102174  000000                             .WORD   0
5956 102176  000012                             .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
5957 102200                             T37DATA:                                ;CHARACTERISTICS DATA BLOCK
5958 102200  102212                             .WORD   T37BFR                  ;ADDRESS OF MESSAGE BUFFER
5959 102202  000000                             .WORD   0
5960 102204  000024                             .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
5961 102206  000000                             .WORD   0
5962 102210  000000                     T37DSW: .WORD   0                       ;SELECT DRIVE 0
5963 102212                             T37BFR: .BLKW   25.                     ;MESSAGE BUFFER
5964                                    ;
5965                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
5966                                    ;
5968            102300                          .=<.+10>&177770
5970 102300                             T37PK2:
5971 102300  100006                             .WORD   100006                  ;WRITE SUB SYS MEM COMMAND,  AND ACK
5972 102302  102320                             .WORD   T37BF2                  ;ADDRESS OF SELECT BLOCK DATA
5973 102304  000000                             .WORD   0
5974 102306  000006                             .WORD   6.                      ;SIZE OF DATA PACKET
5975
5979 102310                             T37PK3:
5980 102310  100005                             .WORD   100005                  ;REREAD COMMAND, AND ACK
5981 102312                             T37RB:
5982 102312  003116                     T37WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
5983 102314  000000                             .WORD   0
5984 102316  000000                     T37SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
5985                                            .EVEN
5986                                    ;
5987                                    ;
5988                                    ;
5989 102320                             T37BF2:
5990 102320     010                     T37BS0: .BYTE   10                      ;BSEL0 AREA
5991 102321     200                     T37BS1: .BYTE   200                     ;BSEL1 AREA
5992 102322  000000                     T37S2:  .WORD   0                       ;SEL 2 AREA
5993 102324  000000                     T37S3:  .WORD   0                       ;DATA AREA
5994                                    ;
5995                                    ;
5996                                            .EVEN
5997                                    ;TAPE MOTION PACKET COMMAND VALUES
5998
5999 102326  100205                     T37RN:  .WORD   100205                  ;REREAD DATA (NEXT)
6000 102330  100605                     T37WDR: .WORD   100605                  ;REREAD DATA RETRY
6001 102332  102205                     T37CON: .WORD   102205                  ;WRITE CONTINOUS
6002 102334  177777                             .WORD   177777                  ;END OF DATA
6003
6004                                    ;
6005 102336  000000                     T37CNT: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
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6006 102340  000000                  T37CNU: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
6007 102342  000000                  T37DLY: .WORD   0                       ;DELAY COUNTER
6008                                 ;*
6009                                 ;LOCAL TEXT MESSAGES FOR TEST
6010                                 ;-
6011
6012 102344      124     141     160 T37WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
6013 102432      124     123     123 T37RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
6014 102501      122     105     122 T37RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
6015 102576      120     117     123 T37SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
6016 102660      122     111     102 T37LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
6017 102730      124     123     123 T37WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
6018 103005      111     154     154 T37LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
6019 103066      122     105     122 T37SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
6020 103122      124     123     123 T37WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command,At BOT'
6021 103211      124     141     160 T37BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XST0)'
6022 103304      127     122     111 T37TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
6023 103361      122     105     122 T37EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
6024 103440      124     123     123 T37TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
6025 103515      122     145     167 T37RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
6026 103564      122     101     115 T37RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
6027 103637      124     123     123 T37AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
6028 103706      104     162     151 T37OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
6029 103761      124     123     123 T37WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
6030 104051      124     123     123 T37WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
6031 104124      103     126     103 T37VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
6032 104177      124     123     102 T37BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
6033 104252      127     122     111 T37WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
6034 104341      122     145     141 T37LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
6035 104423      122     145     141 T37LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
6036 104505      122     145     163 T37PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
6037 104573      122     145     141 T37TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
6038 104661      127     122     111 T37NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
6039 104757      124     123     123 T37SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
6040 105034      124     123     123 T37TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
6041 105116      124     123     123 T37WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
6042 105176      104     141     164 T37DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
6043 105273      106     165     156 TST37ID:        .ASCIZ  'Function Timing'
6044                                         .EVEN
6045                                 ;*
6046                                 ;
6047                                 ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
6048                                 ;WRITE SUBSYSTEM MEMORY COMMAND
6049                                 ;
6050                                 ;-
6051
6052 105314                          T37REST:
6053 105314                                  SAVREG                          ;SAVE THE REGISTERS
6054 105320  012701  102170                 MOV     #T37PACKET,R1           ;START OF THE PACKET
6055 105324  012721  100004                 MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
6056 105330  012721  102200                 MOV     #T37DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
6057 105334  005021                         CLR     (R1)+                   ;EXTENDED ADDRESS
6058 105336  012721  000012                 MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
6059 105342  012721  102212                 MOV     #T37BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
6060 105346  005021                         CLR     (R1)+
6061 105350  012721  000024                 MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
6062 105354  005021                         CLR     (R1)+
```

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 6063 105356  012711  000000                    MOV     #0,(R1)                 ;SELECT DRIVE ZERO
 6064 105362  012702  000030                    MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
 6065 105366  012762  177777  102212  64$:      MOV     #177777,T37BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
 6066 105374  005742                           TST     -(R2)                   ;NEXT LOCATION
 6067 105376  022702  000000                    CMP     #0,R2                   ;AT END OF LOOP YET
 6068 105402  001371                           BNE     64$                     ;KEEP GOING UNTIL DONE
 6069 105404  000207                           RTS     PC                      ;RETURN
 6070
 6071 105406                           T37RT2:
 6072 105406                                   SAVREG                          ;SAVE THE REGISTERS
 6073 105412  012701  102300                    MOV     #T37PK2,R1              ;START OF THE PACKET
 6074 105416  012721  100006                    MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
 6075 105422  012721  102320                    MOV     #T37BF2,(R1)+           ;ADDRESS OF DATA BLOCK
 6076 105426  005021                           CLR     (R1)+                   ;EXTENDED ADDRESS
 6077 105430  012721  000006                    MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
 6078 105434  005021                           CLR     (R1)+
 6079 105436  012701  102320                    MOV     #T37BF2,R1              ;POINT TO DATA SEL AREA
 6080 105442  005021                           CLR     (R1)+
 6081 105444  005011                           CLR     (R1)
 6082 105446  000207                           RTS     PC                      ;RETURN
 6083 105450                           T37RT3:
 6084 105450                                   SAVREG                          ;SAVE REGISTERS
 6085 105454  012701  102310                    MOV     #T37PK3,R1              ;SET UP POINTER ADDRESS
 6086 105460  005021                           CLR     (R1)+                   ;COMMAND SPACE
 6087 105462  005021                           CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
 6088 105464  005021                           CLR     (R1)+                   ;EXTENDED ADDRESS
 6089 105466  005011                           CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
 6090 105470  000207                           RTS     PC                      ;RETURN
 6091 105472                                   ENDTST
      105472                                                         L10073:
      105472  104401                                                         TRAP    C$ETST
 6092 105474                                   ENDMOD
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```
                                        .TITLE  TSV6 - PARAMETER CODING


                                        BGNMOD  TSV6
105474                          TSV6::
                                        .SBTTL  HARDWARE PARAMETER CODING SECTION

                                ;++
                                ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;--
105474                                  BGNHRD
105474  000010                          .WORD L10075-L$HARD/2
105476                          L$HARD::

105476                                  GPRMA   HPM1,0,0,160010,177776,YES      ;GET TSBA/TSDB REGISTER ADDRESS.
105476  000031                          .WORD   T$CODE
105500  105516                          .WORD   HPM1
105502  160010                          .WORD   T$LOLIM
105504  177776                          .WORD   T$HILIM
105506                                  GPRMA   HPM2,2,0,0,776,YES              ;GET VECTOR ADDRESS.
105506  001031                          .WORD   T$CODE
105510  105552                          .WORD   HPM2
105512  000000                          .WORD   T$LOLIM
105514  000776                          .WORD   T$HILIM
                                        ;GPRMD  HPM3,4,0,340,0,7,YES            ;GET INTERRUPT PRIORITY.
105516                                  ENDHRD
                                        .EVEN
105516                          L10075:
105516  104     105     126     HPM1:   .ASCIZ  'DEVICE ADDRESS (TSBA/TSDB) '
105552  111     116     124     HPM2:   .ASCIZ  'INTERRUPT VECTOR    '
105576  111     116     124     HPM3:   .ASCIZ  'INTERRUPT PRIORITY  '
                                        .EVEN
```

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                                        .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.
                                ;--
105626                                  BGNSFT
105626  000003                          .WORD L10076-L$SOFT/2
105630                          L$SOFT::
                                ;       GPRML   SPM1,0,-1,YES                   ; GET TRANSPORT TEST FLAG.
105630                                  GPRML   SPM4,2,-1,YES                   ; GET ITERATION CONTROL.
105630  001130                          .WORD   T$CODE
105632  105666                          .WORD   SPM4
105634  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
105636                                  ENDSFT
                                        .EVEN
105636                          L10076:

105636  105 116 101             SPM1:   .ASCIZ  'ENABLE TRANSPORT TESTS '
105666  111 116 110             SPM4:   .ASCIZ  'INHIBIT ITERATIONS     '
105716  120 105 122             SPM6:   .ASCIZ  'PER TEST ERROR LIMIT   '
105746  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).
                                ;

105776                          PATCH::

105776                                  .BLKW   32.

                                        .=.!377+1
106400                                  LASTAD          ;SET LAST USED ADDRESS.
106400                                  .EVEN
106400  000000                          .WORD   0
106402  000000                          .WORD   0
106404                          L$LAST::
106404                                  ENDMOD
000001                                  .END
```

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SYMBOL TABLE

```
ADDSSR  012206 G        C$AU  = 000052        DEVDRO  023412        FRESIZ  003120 G        INTFLA  016225
ADR   = 000020 G        C$AUTO= 000061        DEVNRD  023331        FUSI    004113          INTMAS  016224
AMBTSS  006713          C$BRK = 000022        DEVNXR  023247        F$AU  = 000015          INTR    016276 G
ASSEMB= 000010          C$BSEG= 000004        DEVONL  023177        F$AUTO= 000020          INTREC  002216 G
A1716 = 000003          C$BSUB= 000002        DEVSUM  023142        F$BGN = 000040          INTVEC  016226
BADDAT  003150 G        C$CEFG= 000045        DFPTBL  002150 G      F$CLEA= 000007          INTX    004274
BADSSR  015760 G        C$CLCK= 000062        DIAGMC= 000000        F$DU  = 000016          INVERT  021222 G
BDVPCR= 177520 G        C$CLEA= 000012        DICED = 000001        F$END = 000041          IOKCKI= 000200
BENBSW  002222 G        C$CLOS= 000035        DSBINT  016264        F$HARD= 000004          IOKSTP= 000001
BIE   = 040000          C$CLP1= 000006        DUAD12  004637        F$HW  = 000013          IPRI    002204 G
BIT0  = 000001 G        C$CVEC= 000036        DUFLG   003104 G      F$INIT= 000006          ISR   = 000100 G
BIT00 = 000001 G        C$DCLN= 000044        DUMMY   003054        F$JMP = 000050          IVEC    002202 G
BIT01 = 000002 G        C$DODU= 000051        EF.CON= 000036 G      F$MOD = 000000          IXE   = 004000 G
BIT02 = 000004 G        C$DRPT= 000024        EF.NEW= 000035 G      F$MSG = 000011          I$AU  = 000041
BIT03 = 000010 G        C$DU  = 000053        EF.PWR= 000034 G      F$PROT= 000021          I$AUTO= 000041
BIT04 = 000020 G        C$EDIT= 000003        EF.RES= 000037 G      F$PWR = 000017          I$CLN = 000041
BIT05 = 000040 G        C$ERDF= 000055        EF.STA= 000040 G      F$RPT = 000012          I$DU  = 000041
BIT06 = 000100 G        C$ERHR= 000056        EMAXDU  017057        F$SEG = 000003          I$HRD = 000041
BIT07 = 000200 G        C$ERRO= 000060        EN    = 000000        F$SOFT= 000005          I$INIT= 000041
BIT08 = 000400 G        C$ERSF= 000054        ENAINT  016232        F$SRV = 000010          I$MOD = 000041
BIT09 = 001000 G        C$ERSO= 000057        ENVIRN  020710        F$SUB = 000002          I$MSG = 000041
BIT1  = 000002 G        C$ESCA= 000010        EPRTSW  002172 G      F$SW  = 000014          I$PROT= 000040
BIT10 = 002000 G        C$ESEG= 000005        EPRT1   006354        F$TEST= 000001          I$PTAB= 000041
BIT11 = 004000 G        C$ESUB= 000003        EPRT2   006413        GDDAT   003152 G        I$PWR = 000041
BIT12 = 010000 G        C$ETST= 000001        ERCM    012013        GERRMA  002166 G        I$RPT = 000041
BIT13 = 020000 G        C$EXIT= 000032        ERRHI   002230 G      GETPAT  020254 G        I$SEG = 000041
BIT14 = 040000 G        C$GETB= 000026        ERRK    017036        GETSEL  020336 G        I$SETU= 000041
BIT15 = 100000 G        C$GETW= 000027        ERRLO   002232 G      G$CNTO= 000200          I$SFT = 000041
BIT2  = 000004 G        C$GMAN= 000043        ERRNO = 001620        G$DELM= 000372          I$SRV = 000041
BIT3  = 000010 G        C$GPHR= 000042        ERRVEC= 000004 G      G$DISP= 000003          I$SUB = 000041
BIT4  = 000020 G        C$GPLO= 000030        ERTABE  003370        G$EXCP= 000400          I$TST = 000041
BIT5  = 000040 G        C$GPRI= 000040        ERTABL  003170        G$HILI= 000002          J$JMP = 000167
BIT6  = 000100 G        C$INIT= 000011        ESUM    017040        G$LOLI= 000001          KIPAR0= 172340
BIT7  = 000200 G        C$INLP= 000020        EVL   = 000004 G      G$NO  = 000000          KIPAR1= 172342
BIT8  = 000400 G        C$MANI= 000050        EXBCNT= 000010        G$OFFS= 000400          KIPAR2= 172344
BIT9  = 001000 G        C$MEM = 000031        EXPBRE  015562 G      G$OFSI= 000376          KIPAR3= 172346
BOE   = 000400 G        C$MSG = 000023        EXPD    002224 G      G$PRMA= 000001          KIPAR4= 172350
BRINIT  004453          C$OPEN= 000034        EXPGOT  004527        G$PRMD= 000002          KIPAR5= 172352
BSEL0 = 000000          C$PNTB= 000014        EXPGT2  004563        G$PRML= 000000          KIPAR6= 172354
BSEL1 = 000001          C$PNTF= 000017        EXPMSG  002314 G      G$RADA= 000140          KIPAR7= 172356
CHKAMB  016124          C$PNTS= 000016        EXPREC  015554 G      G$RADB= 000000          KIPDR0= 172300
CHKMAN  020560 G        C$PNTX= 000015        EXTA    005766        G$RADD= 000040          KIPDR1= 172302
CHKTSS  016416          C$QIO = 000377        EXTEND  005764        G$RADL= 000120          KIPDR2= 172304
CKDROP  017262          C$RDBU= 000007        EXTFEA  002220 G      G$RADO= 000020          KIPDR3= 172306
CKEMAX  017162          C$REFG= 000047        E$END = 002100        G$XFER= 000004          KIPDR4= 172310
CKMSG   011440 G        C$RESE= 000033        E$LOAD= 000035        G$YES = 000010          KIPDR5= 172312
CKMSG2  011560 G        C$REVI= 000003        FATERR= 000060        HIADDR= 001400          KIPDR6= 172314
CKRAM   011174 G        C$RFLA= 000021        FATFLG  002214 G      HOE   = 100000 G        KIPDR7= 172316
CKRAM2  011304 G        C$RPT = 000025        FERCM   012002        HPM1    105516          KTENAB  003126 G
CMDPKT  021274 G        C$SEFG= 000046        FIFEXP  012250 G      HPM2    105552          KTFLG   003124 G
CMPMEM  017740          C$SPRI= 000041        FIF1MS  012322        HPM3    105576          KTINIT  021070
CONFIG  017330          C$SVEC= 000037        FIF2MS  012371        IBE   = 010000 G        KTOFF   017354
COUNT   002302 G        C$TPRI= 000013        FILLME  017502        IDU   = 000040 G        KTON    017336
CSRADD  002200 G        DATA    002304 G      FNOINT  004211        IER   = 020000 G        LERRMA  002164 G
CTAB    003156 G        DATASC  020312        FORCER  002170 G      IFAULT  004252          LISTAL= 000001
CTABE   003170 G        DEBUGM  011712        FREE    003116 G      INCERK  017124          LOE   = 040000 G
CTABM   003156 G        DEVCNT  002212 G      FREEHI  003122        INTCPC  016230          LOOPCN  002210 G
```

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SYMBOL TABLE

```
LOOPCO  013206          L10001  002170          L10073  105472          O$ERRT= 000000          PST32W  003144 G
LOOPFL  003154 G        L10002  005762          L10074  102132          O$GNSW= 000001          PUNIT   022320
LOT   = 000010 G        L10003  012124          L10075  105516          O$POIN= 000001          PW.D11= 000021
L$ACP   002110 G        L10004  012142          L10076  105636          O$SETU= 000000          PW.D13= 000022
L$APT   002036 G        L10005  012160          MEMADD  014034 G        PASRPT  022070          PW.D22= 000020
L$AU    022366 G        L10006  012166          MEMCK   021312 G        PATCH   105776 G        PW.NOP= 000000
L$AUT   002070 G        L10007  012204          MENASC  020527          PATDAT  020310          PW.NO1= 000023
L$AUTO  022572 G        L10010  012222          MENERR  020454          PC.ERA= 002400          PW.RDE= 000024
L$CCP   002106 G        L10011  012246          MENRES  020556          PC.IER= 002000          PW.RDR= 000001
L$CLEA  022652 G        L10012  012320          MMVEC = 000250          PC.NOO= 001000          PW.RDS= 000005
L$CO    002032 G        L10013  012470          MSA.FR= 000006          PC.REL= 000000          PW.RFI= 000003
L$DEPO  002011 G        L10014  013204          MSA.NO= 000000          PC.REW= 000400          PW.WCT= 000006
L$DESC  003402 G        L10015  014032          MSA.NR= 000004          PKBCNT= 000006          PW.WFI= 000004
L$DESP  002076 G        L10016  014054          MSA.VO= 000002          PKHI  = 000004          PW.WFM= 000007
L$DEVP  002060 G        L10017  015560          MSGEXP  012224 G        PKLOW = 000002          PW.WMI= 000010
L$DISP  002124 G        L10020  015566          MSGLOO  013144 G        PKTADD  007632          PW.WNP= 000011
L$DLY   002116 G        L10021  015574          MSGSTA  012430 G        PKTFRM  007574          PW.WTR= 000002
L$DTP   002040 G        L10022  015606          MSGSUB  014022 G        PKTGET  012144 G        P.ACK = 100000
L$DTYP  002034 G        L10023  015630          MS.ATT= 000006          PKTMES  012170 G        P.CMD = 000037
L$DU    022464 G        L10024  015656          MS.EXT= 000200          PKTRAM  004741 G        P.CONT= 000012
L$DUT   002072 G        L10025  016016          MS.RSD= 000001          PKTSSR  012126 G        P.CVC = 040000
L$DVTY  003374 G        L10026  016326          MS.RSF= 000020          PNT   = 001000 G        P.FMT = 000140
L$EF    002052 G        L10030  022316          MS.RST= 000010          PRAMPK  014056          P.FORM= 000011
L$ENVI  002044 G        L10031  022462          M8186   005550          PRASC   014603          P.GETS= 000017
L$ETP   002102 G        L10032  022570          M8189   005641          PRBEXP  015550          P.IE  = 000200
L$EXP1  002046 G        L10033  022650          NBA   = 002000          PRBMSG  015416          P.INIT= 000013
L$EXP4  002064 G        L10034  022676          NEWPAS  022024          PRBREC  015552          P.MODE= 007400
L$EXP5  002066 G        L10035  023140          NODEV   003106 G        PRBTOT  015503          P.OPP = 020000
L$HARD  105476 G        L10036  032262          NOINIT  004331          PRBYTE  015202 G        P.POSI= 000010
L$HIME  002120 G        L10037  024124          NOINTR  004215          PRI   = 002000 G        P.READ= 000001
L$HPCP  002016 G        L10040  024646          NOITS   002162 G        PRIADD  010236          P.SWB = 010000
L$HPTP  002022 G        L10041  025372          NOMAN   020614          PRIAO   010306          P.WRIT= 000005
L$HW    002150 G        L10042  026214          NOMEM   005454          PRIBXO  007670 G        P.WRTC= 000004
L$ICP   002104 G        L10043  041360          NP.IR = 000200          PRIEQU  010136          P.WRTS= 000006
L$INIT  021572 G        L10044  033664          NP.LOO= 000040          PRIPKT  007446 G        QVP     002176 G
L$LADP  002026 G        L10045  035310          NP.OUT= 000100          PRIRAM  010144          RAMASC  014236
L$LAST  106404 G        L10046  035704          NP.WRP= 000020          PRITAD  010352          RAMDAT  002234 G
L$LOAD  002100 G        L10047  036370          NSI     004146          PRITSS  006020          RAMERR  015570 G
L$LUN   002074 G        L10050  046716          NSINIT  004403          PRITO   010434          RAMEXP  015610 G
L$MREV  002050 G        L10051  042252          NUL     004523          PRIT1   010477          RAMFOR  010174
L$NAME  002000 G        L10052  043064          NULCR   004524          PRIXOR  010020 G        RAMSIZ  002274 G
L$PRIO  002042 G        L10053  052774          NXM   = 004000          PRIO0 = 000000 G        RAMTAD  015576 G
L$PROT  021562 G        L10054  047572          NXMFLG  003130 G        PRIO1 = 000040 G        RCVHIA  002276 G
L$PRT   002112 G        L10055  050402          NXMHI   003134 G        PRIO2 = 000100 G        RCVLOA  002300 G
L$REPP  002062 G        L10056  051216          NXMLO   003132 G        PRIO3 = 000140 G        RDERR   005202
L$REV   002010 G        L10057  055770          NXMTST  021466          PRIO4 = 000200 G        RECMSG  002460 G
L$RPT   022700 G        L10060  054436          NXR     003734          PRIO5 = 000240 G        RECV    002226 G
L$SOFT  105630 G        L10061  063342          NXRERR  005732 G        PRIO6 = 000300 G        REGSAV  020220
L$SPC   002056 G        L10062  060426          NXRX    003773          PRIO7 = 000340 G        RETERR  005366
L$SPCP  002020 G        L10063  073272          NXTU    022036          PRMESS  014322          REWIND  011074 G
L$SPTP  002024 G        L10064  064434          OFL   = 000100          PRMNO   002312 G        RMCHBE= 000167
L$STA   002030 G        L10065  065514          ONEFIL= 000000          PRMSGE  014632 G        RMCHEN= 000200
L$SW    002160 G        L10066  066356          O$APTS= 000000          PRMSGO  015012          RMMSGB= 000215
L$TEST  002114 G        L10067  067260          O$AU  = 000001          PRMSG1  015057          RMMSGE= 000234
L$TIML  002014 G        L10070  101046          O$BGNR= 000001          PRMSG2  015115          RMPKTB= 000201
L$UNIT  002012 G        L10071  074366          O$BGNS= 000001          PROASC  014500          RMPKTE= 000210
L10000  002156          L10072  075450          O$DU  = 000001          PR1ASC  014545          RMR   = 010000
```

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SYMBOL TABLE

```
RWPACK  011170          S2.INR= 000020          T$EXCP= 000000          T29CON  026412          T30BOT  037771
SC    = 100000          S2.OUT= 000040          T$FLAG= 000040          T29DAT  026260          T30BS0  036560
SCE   = 020000          S2.UND= 000003          T$GMAN= 000000          T29DLY  026430          T30BS1  036561
SCHERR  005274          1BLEND= 003054 G        T$HILI= 000776          T29DSW  026270          T30CNT  036600
SCME    005007          TCOASC  006554          T$LAST= 000001          T29DTA  027773          T30CNU  036602
SDELAY  010740          TCOCOD  006754          T$LOLI= 000000          T29EOT  030061          T30DAT  036440
SELASC  020522          TEMP1   003110 G        T$LSYM= 010000          T29LON  031155          T30DLY  036606
SELDAT= 000004          TEMP2   003112 G        T$LTNO= 000011          T29LOO  023512          T30DSW  036450
SEL2  = 000002          TERCLS= 000016          T$NEST= 177777          T29LOP  031237          T30DTA  041064
SETMAP  017376          TESTNO= 000011          T$NS0 = 000000          T29LOQ  027356          T30DTR  041020
SETU    022122          TEXASC  006513          T$NS1 = 000005          T29LOR  027231          T30ETM  036446
SFFMSG  012162 G        TFCASC  006615          T$NS2 = 000002          T29NEF  026560          T30FCN  036604
SFHERR  003701          TIMEXP  015632 G        T$PTNU= 000000          T29NEQ  031475          T30IBT  036761
SFIERR  003646          TIMSGO  015660          T$SAVL= 177777          T29OFL  026432          T30IBU  036610
SFIMSG  012114 G        TINERR  012101          T$SEGL= 177777          T29OF7  030445          T30IMV  036566
SFPTBL  002160 G        TMPBFR  002624 G        T$SUBN= 000001          T29PAC  026250          T30LOO  032310
SIFLAG  003146 G        TNAM    016764          T$TAGL= 177777          T29PBP  031321          T30LOQ  037560
SIMSG   012046          TRANST  002160 G        T$TAGN= 010077          T29PK2  026360          T30NEF  040526
SKIPT   003372          TSBA  = 000000 G        T$TEMP= 000000          T29PK3  026370          T30OFL  040237
SOFINI  016054 G        TSBAH = 000001 G        T$TEST= 000011          T29RB   026372          T30PAC  036430
SPACE   010544 G        TSDB  = 000000 G        T$TSTM= 177777          T29RDF  026650          T30PK2  036540
SPM1    105636          TSDBH = 000001 G        T$TSTS= 000001          T29RDG  031573          T30PK3  036550
SPM4    105666          TSFCOD  007314          T$$AU = 010031          T29RES  032076          T30PTB  037172
SPM6    105716          TSREJ = 000006          T$$AUT= 010033          T29RIB  031654          T30RB   036552
SPM7    105746          TSSDEF  006664          T$$CLE= 010034          T29RN   026406          T30RDF  037343
SR0   = 177572          TSSR  = 000002 G        T$$DU = 010032          T29RNC  030304          T30RDG  037421
SR1   = 177574          TSSRBI  003476 G        T$$HAR= 010075          T29RRF  026717          T30RES  041202
SR2   = 177576          TSSRFO  006473          T$$HW = 010000          T29RRG  027033          T30RIB  036675
SR3   = 172516          TSSRH = 000003 G        T$$INI= 010030          T29RRN  031754          T30RN   036566
SSR   = 000200          TSSX    004014          T$$MSG= 010025          T29RSZ  026426          T30RRM  040605
STATCO  012472          TSTBLK  002744 G        T$$PRO= 010027          T29RT2  032170          T30RRN  040663
SVCGBL= 000000          TSTCNT  002206 G        T$$RPT= 010035          T29RT3  032232          T30RRP  040742
SVCINS= 000000          TSTEND  017000          T$$SOF= 010076          T29RWN  030235          T30RT2  041274
SVCSUB= 000001          TSTFLA  002306 G        T$$SRV= 010026          T29SC   027147          T30RT3  041336
SVCTAG= 000000          TSTLOO  016536 G        T$$SUB= 010074          T29SSR  027437          T30RWN  040170
SVCTST= 000001          TSTPTR  002310 G        T$$SW = 010001          T29SZ   026376          T30SKM  037044
S$LSYM= 010000          TSTSET  016570 G        T$$TES= 010073          T29S2   026402          T30SSR  037641
S0.IDB= 000010          TST29I  032047          T1      023462 G        T29S3   026404          T30SZ   036556
S0.IFB= 000002          TST30I  041161          T1.1    023512          T29TM   030157          T30S2   036562
S0.IFP= 000001          TST31I  046473          T1.2    024142          T29TRL  031407          T30S3   036564
S0.ILD= 000020          TST32I  052570          T1.3    024664          T29VCK  030721          T30TM   040036
S0.ION= 000040          TST33I  055575          T1.4    025410          T29WB   026372          T30TMK  040444
S0.IRD= 000100          TST34I  063137          T2      032264 G        T29WDC  030627          T30TM2  040113
S0.IRW= 000004          TST35I  073063          T2.1    032310          T29WDD  030520          T30TPB  037263
S0.ISP= 000200          TST36I  100647          T2.2    033702          T29WDE  027512          T30VCK  040371
S1.ICE= 002000          TST37I  105273          T2.3    035326          T29WDF  027301          T30WB   036552
S1.IEO= 010000          TSV2    002000 G        T2.4    035722          T29WDR  026410          T30WDC  040312
S1.IFM= 001000          TSV3    002170 G        T23A    003136 G        T29WLK  027574          T30WDD  037120
S1.IHE= 000400          TSV4    021562 G        T23B    003140 G        T29WNG  026453          T30WDE  037712
S1.IID= 004000          TSV6    105474 G        T29AM3  030357          T29WRT  027661          T30WDF  037503
S1.I1R= 020000          TSV7B   023462 G        T29BA   030774          T29WSS  031066          T31AM3  044746
S1.I2R= 040000          TTIBFR= 177562 G        T29BFR  026272          T3      041362 G        T31BA   045306
S1.PAR= 100000          TTICSR= 177560 G        T29BF2  026400          T30FLG  003142 G        T31BFR  043142
S2.ATI= 000010          TTIVEC= 000060 G        T29BOT  027726          T3.1    041412          T31BF2  043250
S2.BTI= 000004          T$ARGC= 000003          T29BS0  026400          T3.2    042270          T31BOT  044275
S2.DIM= 000200          T$CODE= 001130          T29BS1  026401          T30BFR  036452          T31BS0  043250
S2.ILW= 000100          T$ERRN= 001620          T29CNT  026424          T30BF2  036560          T31BS1  043251
```

SYMBOL TABLE

```
T31CNT  043266
T31CNU  043270
T31CON  043262
T31DAT  043130
T31DLY  043272
T31DSW  043140
T31DTA  046376
T31EOT  044470
T31LON  045450
T31LOO  041412
T31LOP  045532
T31LOQ  044046
T31LOR  043721
T31NEF  045770
T31OFL  045015
T31PAC  043120
T31PBP  045614
T31PK2  043230
T31PK3  043240
T31RB   043242
T31RDE  043274
T31RDF  043473
T31RES  046540
T31RN   043256
T31RNC  044673
T31RRF  043542
T31RT2  046632
T31RT3  046674
T31RWN  044624
T31SC   043637
T31SCF  046111
T31SSR  044127
T31SZ   043246
T31S2   043252
T31S3   043254
T31TIM  044370
T31TM   044547
T31TRL  045702
T31TSA  046166
T31VCK  045233
T31WB   043242
T31WDC  045160
T31WDD  045070
T31WDE  044163
T31WDF  043771
T31WDR  043260
T31WNG  043421
T31WNH  043340
T31WRF  046273
T31WSS  045361
T32AM3  051677
T32BA   052013
T32BFR  051302
T32BOE  052316
T32BOT  051446
T32CMD  051410
T32CNT  051440
T32CNU  051442
T32DAT  051270
T32DLY  051444
T32DSW  051300
T32ECF  052405
T32EOT  051541
T32ERA  051746
T32LOO  046750
T32OPI  052533
T32PAC  051260
T32PK2  051370
T32PK3  051400
T32RB   051402
T32RES  052630
T32RIB  052066
T32RT2  052722
T32RT3  052752
T32RWN  051630
T32SCF  052164
T32SZ   051406
T32TSA  052241
T32WB   051402
T32WDC  052466
T338FR  054522
T338F2  054630
T338OT  055255
T338S0  054630
T338S1  054631
T33CNT  054646
T33CNU  054650
T33CON  054642
T33DAT  054510
T33DLY  054652
T33DSW  054520
T33DTA  055500
T33LOO  053026
T33PAC  054500
T33PK2  054610
T33PK3  054620
T33RB   054622
T33RBP  054654
T33RES  055612
T33RN   054636
T33RT2  055704
T33RT3  055746
T33RWN  055350
T33SSR  055171
T33SZ   054626
T33S2   054632
T33S3   054634
T33UNC  055012
T33UND  055102
T33WB   054622
T33WDC  055417
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T34BF2  060626
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T34DAT  060500
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T34EOT  062135
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T34ETN  061401
T34ETO  060732
T34ETS  061460
T34ETZ  061552
T34ET2  061317
T34LOO  056022
T34OFL  062457
T34PAC  060470
T34PK2  060600
T34PK3  060610
T34POS  060644
T34RB   060612
T34RES  063162
T34RNC  062336
T34RRE  061016
T34RSZ  060620
T34RT2  063254
T34RT3  063316
T34RWN  062267
T34SSR  062013
T34STM  061630
T34SZ   060616
T34S2   060630
T34S3   060632
T34TM   062213
T34TMK  061713
T34VCK  062723
T34WB   060612
T34WD   060634
T34WDC  062621
T34WDD  062532
T34WDR  060636
T34WSS  063050
T34WTM  061230
T35AM3  070716
T35BA   071256
T35BFR  067342
T35BF2  067450
T35BOT  070270
T35BS0  067450
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T35CNU  067470
T35CON  067462
T35DAT  067330
T35DLY  067472
T35DSW  067340
T35DTA  072255
T35EOT  070440
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T35LOO  063374
T35LOP  071502
T35LOQ  070135
T35LOR  070010
T35MOT  072433
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T35PK3  067440
T35RB   067442
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T35RRF  067631
T35RT2  073206
T35RT3  073250
T35RWE  072720
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T35SC   067726
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T35S2   067452
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T36BA   077553
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T36BOT  076565
T36BS0  075640
T36BS1  075641
T36CNT  075656
T36CNU  075660
T36CON  075652
T36DAT  075520
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T36DTA  100552
T36EOT  076735
T36LON  077715
T36LOO  073330
T36LOP  077777
T36LOQ  076376
T36LOR  076251
T36NAS  075664
T36NEF  100235
T36OFL  077262
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T36RB   075632
T36RDF  076023
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T36RN   075646
T36RNC  077140
T36RRF  076072
T36RT2  100762
T36RT3  101024
T36RWN  077071
T36SC   076167
T36SCF  100333
T36SSR  076457
T36SZ   075636
T36S2   075642
T36S3   075644
T36TIM  076660
T36TM   077014
T36TRL  100147
T36TSA  100410
T36VCK  077500
T36WB   075632
T36WDC  077425
T36WDD  077335
T36WDE  076513
T36WDF  076321
T36WDR  075650
T36WNG  075735
T36WRF  100472
T36WSS  077626
T37AM3  103637
T37BA   104177
T37BFR  102212
T37BF2  102320
T37BOT  103211
T37BS0  102320
T37BS1  102321
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J2

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TSV6 - PARAMETER CODING MACRO M1113  14-JUN-84 16:41                                    SEQ 0229
SYMBOL TABLE

T37CNT  102336        T37SSR  103066        T7.4    066374        WSMBK   021304 G      X$OFFS= 000400
T37CNU  102340        T37SZ   102316        T8      073274 G      XFERAS  016020        X$TRUE= 000020
T37CON  102332        T37S2   102322        T8.1    073330        XNXM    016456        X1.COR= 020000
T37DAT  102200        T37S3   102324        T8.2    074404        XORBFO  007752        X1.DLT= 100000
T37DLY  102342        T37TIM  103304        T9      101050 G      XORFOR  010070        X1.MBZ= 017375
T37DSW  102210        T37TM   103440        T9.1    101104        XST0  = 000006 G      X1.RBP= 000400
T37DTA  105176        T37TRL  104573        UAM   = 000200 G      XST1  = 000010 G      X1.SPA= 040000
T37EOT  103361        T37TSA  105034        UNITN   002174 G      XST2  = 000012 G      X1.UNC= 000002
T37LON  104341        T37VCK  104124        UNREC = 000006        XST3  = 000014 G      X2.BUF= 000100
T37LOO  101104        T37WB   102312        USI     004117        XST4  = 000016 G      X2.EXT= 000200
T37LOP  104423        T37WDC  104051        WAITF   016330 G      XSOBOT= 000002        X2.OPM= 100000
T37LOQ  103005        T37WDD  103761        WC.IFA= 000200        XSOEOT= 000001        X2.RCE= 040000
T37LOR  102660        T37WDE  103122        WC.IFE= 000002        XSOIE = 000040        X2.REV= 000077
T37NEF  104661        T37WDF  102730        WC.IGO= 000001        XSOILA= 000400        X2.SPA= 035400
T37OFL  103706        T37WDR  102330        WC.IRE= 000010        XSOILC= 001000        X2.UNI= 000007
T37PAC  102170        T37WNG  102344        WC.IRW= 000004        XSOLET= 020000        X2.WCF= 002000
T37PBP  104505        T37WRF  105116        WC.IOT= 000100        XSOMOT= 000200        X3.DCK= 000010
T37PK2  102300        T37WSS  104252        WC.I1T= 000040        XSONEF= 002000        X3.MBZ= 000006
T37PK3  102310        T4      046720 G      WC.I5R= 000020        XSOONL= 000100        X3.MDE= 177400
T37RB   102312        T4.1    046750        WF.IED= 000010        XSOPED= 000010        X3.OPI= 000100
T37RDF  102432        T4.2    047610        WF.IER= 000004        XSORLL= 010000        X3.REV= 000040
T37RES  105314        T4.3    050420        WF.IHI= 000200        XSORLS= 040000        X3.RIB= 000001
T37RN   102326        T5      052776 G      WF.IRE= 000040        XSOTMK= 100000        X3.SPA= 000200
T37RNC  103564        T5.1    053026        WF.IWF= 000020        XSOVCK= 000020        X3.TRF= 000020
T37RRF  102501        T6      055772 G      WF.IWR= 000100        XSOWLE= 004000        X4.HSP= 100000
T37RT2  105406        T6.1    056022        WF.I3R= 000002        XSOWLK= 000004        X4.MBZ= 017400
T37RT3  105450        T7      063344 G      WF.I4R= 000001        XXCOMM  003114 G      X4.RCE= 040000
T37RWN  103515        T7.1    063374        WRTCHR  010742 G      X$ALWA= 000000        X4.TSM= 020000
T37SC   102576        T7.2    064452        WRTERR  005107        X$FALS= 000040        X4.WRC= 000377
T37SCF  104757        T7.3    065532        WRTMSG  005052

. ABS.  106404      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  30328 WORDS  ( 119 PAGES)
DYNAMIC MEMORY:  20614 WORDS  ( 79 PAGES)
ELAPSED TIME:  00:38:07
CVTSDC,CVTSDC/-SP=SVC/ML,TSV1D,TSV22D,TSV3B,TSV4,TSV7B,TSV6
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