TSV05 TSV05 CTRL LT3
CVTSCB0

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IDENTIFICATION

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1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS IS A LSI-11 RESIDENT DIAGNOSTIC WHICH CHECKS THE FUNCTIONALITY OF A TSV05 MAGTAPE SUBSYSTEM WHILE CONNECTED TO A LSI-11/23 SYSTEM (QBUS). 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

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

1.3 RELATED DOCUMENTS AND STANDARDS

DIGITAL EQUIPMENT CORPORATION DOCUMENTS:

1. CHQUS XXDP+ USERS MANUAL; DOCUMENT NUMBER AC-F348E MC
   DATE: 14 JULY 1980.

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

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

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

1.4 DIAGNOSTIC HIERARCY PREREQUISITES

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

1.5 ASSUMPTIONS

ALL HARDWARE EXCEPT THE HARDWARE UNDER TEST IS ASSUMED TO WORK PROPERLY OR FALSE ERRORS CAN BE REPORTED.
THE TAPE BEING USED ON THE TS05 TRANSPORT IS A KNOWN GOOD REEL OF TAPE.
CVTSAA AND CVTSBA HAVE SUCESSFULLY RUN.

2.0 OPERATING INSTRUCTIONS

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

2.1 COMMANDS

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

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

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

2.1.1 OPERATOR COMMANDS

THE TSV05 DIAGNOSTIC IS A LSI-11 DIAGNOSTIC SUPERVISOR COMPATIBLE PROGRAM. ALL LOADING AND RUNTIME INSTRUCTIONS CAN BE REFERENCED IN THE CHQUS XXDP+ USERS MANUAL,DOCUMENT NUMBER AC F348E MC. THE USER ENTRY IS IN QUOTES.

BOOT THE DIAGNOSTIC MEDIA

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

2.2 SWITCHES

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

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

EXAMPLE OF SWITCH USAGE:

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

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

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

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

2.3 FLAGS

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

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

*ERROR MESSAGES ARE DESCRIBED IN SECTION 3.1

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

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

2.4 HARDWARE QUESTIONS

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

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

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

```
TSBA/TSDB = 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 M7455 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 LSI-11 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 (0) ?  8<CR>

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

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

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

```
Q-FACTOR (0) 0 ?  <CR>

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

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

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

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

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

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

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

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

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

UNIT 1
CSR ADDRESS (O) ?  160000<CR>
SUB DEVICE # (O) ?  0,1<CR>
Q FACTOR (O) 0 ?  1.0<CR>

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

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

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

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

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

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

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

2.7 QUICK START UP PROCEDURE (XXDP)

TO START UP THIS PROGRAM.

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

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

3.0 ERROR INFORMATION

3.1 TYPES OF ERROR MESSAGES

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

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

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

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

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

3.2 SPECIFIC ERROR MESSAGES

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

ERROR MESSAGE EXAMPLE 1

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

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

 TAPE BUS SIGNALS IN WORD #8: - DESIGNATOR <BIT #>
PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>
IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>
IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>
 TAPE BUS SIGINALS IN WORD #9:
DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>
 MESSAGE BUFFER ADDRESS = 047352
 MESSAGE BUFFER CONTENTS:
WORD #0 EXPD: 100020  RECV: 100020  XOR: 000000
WORD #1 EXPD: 000012  RECV: 000012  XOR: 000000
WORD #2 EXPD: 000000  RECV: 00000C  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 AN UNRECOVERABLE ERROR OCCURED WHICH INDICATES THAT THE CONTROLLER MAY BE DEFECTIVE.

```
CVTSC HRD ERR 00159 ON UNIT 00 TST 001 SUB 005 PC: 026200
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.

```
CVTSC 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 (LSI 11)

```
)R>STA/FLA:PNT:HOE

UNITS (D) ?  1

UNIT 0

DEVICE ADDRESS  (O) 172520 ? <CR>

VECTOR (O) 224 ? <CR>

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

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

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

0 ERRORS
```

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

PROGRAM RUN TIMES

THE AVERAGE RUN TIMES OF THE PROGRAM ARE LISTED BELOW. THESE FIGURES ARE TO BE USED AS A GUIDE. THE TIMING WAS DONE ON A LSI 11 PROCESSOR WITH A LA34 CONSOLE.

THE PROGRAM RUNS IN TWO MODES; NO ITERATIONS AND DEFAULT MODE. IN THE NO ITERATIONS MODE, EACH TEST IS RUN ONCE, WITH NO ITERATIONS. IN THE DEFAULT MODE EACH TEST IS REPEATED BY THE NUMBER OF TIMES INDICATED BY THE ITERATION COUNT. NO ITERATIONS MODE IS SELECTED BY ANSWERING THE INHIBIT ITERATIONS QUESTION WITH A "Y" (YES).

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

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

Q.V. 7 MINUTES
DEFAULT 31 MINUTES

5.0 DEVICE INFORMATION TABLES

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

```
CHANGE HW (L) ?

# UNITS (D) ?  <ENTER THE NUMBER OF M7455 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: INITIALIZE 04 TEST

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

TEST 2: OFF-LINE AND REJECT REWIND

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

TEST 3: BASIC WRITE DATA

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

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

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

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

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

TEST 5: SPACE RECORDS

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

TEST 6: REREADS

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

****
CAUTION

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

TEST 7: WRITE DATA RETRY

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

TEST 8: WRITE/READ TAPE MARK

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

7.0 MAINTENANCE HISTORY

REVISION A JUNE 1983

REVISION B JUNE 1984
UPDATED FOR NEW ORION CPU PROBLEMS, RELATING TO TIMEOUT ERRORS (#311 & #320) ON REWINDS.
ELIMINATED CPU ID MESSAGE.

```
                                        .TITLE  TSV2  PROGRAM HEADER
                                        .SBTTL  PROGRAM HEADER
000000                                  .PSECT  ABS

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

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


002000                                  POINTER BGNSW,BGNSFT,BGNAU,BGNDU,BGNRPT
002000                                  HEADER  CVTSC,B,0,655.,0
002000                          L$NAME::                ;DIAGNOSTIC NAME
002000  103                             .ASCII /C/
002001  126                             .ASCII /V/
002002  124                             .ASCII /T/
002003  123                             .ASCII /S/
002004  103                             .ASCII /C/
002005  000                             .BYTE   0
002006  000                             .BYTE   0
002007  000                             .BYTE   0
002010                          L$REV::                 ;REVISION LEVEL
002010  102                             .ASCII  /B/
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  112730                          .WORD   L$HARD
002020                          L$SPCP::                ;POINTER TO S.W. QUES.
002020  113062                          .WORD   L$SOFT
002022                          L$HPTP::                ;PTR. TO DEF. H.W. PTABLE
002022  002146                          .WORD   L$HW
002024                          L$SPTP::                ;PTR. TO S.W. PTABLE
002024  002156                          .WORD   L$SW
002026                          L$LADP::                ;DIAG. END ADDRESS
002026  113404                          .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
002042  000000                  .WORD   0
002044                  L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
002044  000000                  .WORD   0
002046                  L$EXP1::                ;EXPANSION WORD
002046  000000                  .WORD   0
002050                  L$MREV::                ;SVC REV AND EDIT #
002050     003                  .BYTE   C$REVISION
002051     003                  .BYTE   C$EDIT
002052                  L$EF::                  ;DIAG. EVENT FLAGS
002052  000000                  .WORD   0
002054  000000                  .WORD   0
002056                  L$SPC::
002056  000000                  .WORD   0
002060                  L$DEVP::                ; POINTER TO DEVICE TYPE LIST
002060  003372                  .WORD   L$DVTYP
002062                  L$REPP::                ;PTR. TO REPORT CODE
002062  022710                  .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  022376                  .WORD   L$AU
002072                  L$DUT::                 ;PTR. TO DROP UNIT CODE
002072  022474                  .WORD   L$DU
002074                  L$LUN::                 ;LUN FOR EXERCISERS TO FILL
002074  000000                  .WORD   0
002076                  L$DESP::                ;POINTER TO DIAG. DESCRIPTION
002076  003400                  .WORD   L$DESC
002100                  L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
002100  104035                  EMT     E$LOAD
002102                  L$ETP::                 ;POINTER TO ERRTBL
002102  000000                  .WORD   0
002104                  L$ICP::                 ;PTR. TO INIT CODE
002104  021602                  .WORD   L$INIT
002106                  L$CCP::                 ;PTR. TO CLEAN-UP CODE
002106  022662                  .WORD   L$CLEAN
002110                  L$ACP::                 ;PTR. TO AUTO CODE
002110  022602                  .WORD   L$AUTO
002112                  L$PRT::                 ;PTR. TO PROTECT TABLE
002112  021572                  .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
```

```
                                        .SBTTL  DISPATCH TABLE
                                ;**
                                ; THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
                                ; IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
                                ;
002122                                  DISPATCH 8
002122  000010                          .WORD   8
002124                          L$DISPATCH::
002124  023472                          .WORD   T1
002126  024612                          .WORD   T2
002130  027272                          .WORD   T3
002132  034452                          .WORD   T4
002134  046716                          .WORD   T5
002136  055644                          .WORD   T6
002140  075226                          .WORD   T7
002142  105264                          .WORD   T8

                                        .SBTTL  DEFAULT HARDWARE P-TABLE
                                ;**
                                ; THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
                                ; THE TEST-DEVICE PARAMETERS.  THE STRUCTURE OF THIS TABLE
                                ; IS IDENTICAL TO THE STRUCTURE OF THE RUN-TIME P-TABLE.
                                ;
002144                                  BGNHW   DFPTBL          ;DEFAULT HARD P TABLE
002144  000003                          .WORD   L10000-L$HW/2
002146                          L$HW::
002146                          DFPTBL::
002146  172520                          .WORD   172520          ; 1ST (OF 2) REGISTERS.
002150  000224                          .WORD   224             ; INTERRUPT VECTOR
002152  000200                          .WORD   PRI04           ; INTERRUPT PRIORITY.
002154                                  ENDHW
002154                          L10000:

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

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


                                BGNMOD  TSV3
002166                  TSV3::
                                .SBTTL  GLOBAL EQUATES SECTION

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

002166                          EQUALS          ; GET STANDARD EQUATES.
                                ;
                                ; BIT DIFINITIONS
                                ;
100000                          BIT15== 100000
040000                          BIT14== 40000
020000                          BIT13== 20000
010000                          BIT12== 10000
004000                          BIT11== 4000
002000                          BIT10== 2000
001000                          BIT09== 1000
000400                          BIT08== 400
000200                          BIT07== 200
000100                          BIT06== 100
000040                          BIT05== 40
000020                          BIT04== 20
000010                          EIT03== 10
000004                          BIT02== 4
000002                          BIT01== 2
000001                          BIT00== 1
                                ;
001000                          BIT9==  BIT09
000400                          BIT8==  BIT08
000200                          BIT7==  BIT07
000100                          BIT6==  BIT06
000040                          BIT5==  BIT05
000020                          BIT4==  BIT04
000010                          BIT3==  BIT03
000004                          BIT2==  BIT02
000002                          BIT1==  BIT01
000001                          BIT0==  BIT00
                                ;
                                ; EVENT FLAG DEFINITIONS
                                ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
                                ;
000040                          EF.START==      32.             ; START COMMAND WAS ISSUED
000037                          EF.RESTART==    31.             ; RESTART COMMAND WAS ISSUED
000036                          EF.CONTINUE==   30.             ; CONTINUE COMMAND WAS ISSUED
000035                          EF.NEW==        29.             ; A NEW PASS HAS BEEN STARTED
000034                          EF.PWR==        28.             ; A POWER-FAIL/POWER UP OCCURRED
                                ;
                                ;
                                ; PRIORITY LEVEL DEFINITIONS
```

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

```
                        ;*USER "I" PAGE ADDRESS REGISTERS
                        UIPAR0= 177640
                        UIPAR1= 177642
                        UIPAR2= 177644
                        UIPAR3= 177646
                        UIPAR4= 177650
                        UIPAR5= 177652
                        UIPAR6= 177654
                        UIPAR7= 177656
                        .IF NB
                        ;*USER "D" PAGE ADDRESS REGISTERS
                        UDPAR0= 177660
                        UDPAR1= 177662
                        UDPAR2= 177664
                        UDPAR3= 177666
                        UDPAR4= 177670
                        UDPAR5= 177672
                        UDPAR6= 177674
                        UDPAR7= 177676
                        .ENDC
                        .ENDC
                        .IF NB
                        ;*SUPERVISOR "I" PAGE DESCRIPTOR REGISTERS
                        SIPDR0= 172200
                        SIPDR1= 172202
                        SIPDR2= 172204
                        SIPDR3= 172206
                        SIPDR4= 172210
                        SIPDR5= 172212
                        SIPDR6= 172214
                        SIPDR7= 172216
                        .IF NB
                        ;*SUPERVISOR "D" PAGE DESCRIPTOR REGISTERS
                        SDPDR0= 172220
                        SDPDR1= 172222
                        SDPDR2= 172224
                        SDPDR3= 172226
                        SDPDR4= 172230
                        SDPDR5= 172232
                        SDPDR6= 172234
                        SDPDR7= 172236
                        .ENDC
                        ;*SUPERVISOR "I" PAGE ADDRESS REGISTERS
                        SIPAR0= 172240
                        SIPAR1= 172242
                        SIPAR2= 172244
                        SIPAR3= 172246
                        SIPAR4= 172250
                        SIPAR5= 172252
                        SIPAR6= 172254
                        SIPAR7= 172256
                        .IF NB
                        ;*SUPERVISOR "D' PAGE ADDRESS REGISTERS
                        SDPAR0= 172260
                        SDPAR1= 172262
                        SDPAR2= 172264
                        SDPAR3= 172266
```

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

```
                        .SBTTL  TSV05 REGISTER AND PACKET DEFINITIONS

                        ;
                        ; SOME GENERAL EQUATES.
                        ;

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

                        ;+
                        ;BIT DEFINITIONS FOR TSSR REGISTER
                        ;

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

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

100000                  XSOTMK= BIT15           ;TAPE MARK DETECTED
040000                  XSORLS= BIT14           ;RECORD LENGTH SHORT
020000                  XSOLET= BIT13           ;LOGICAL END OF TAPE
010000                  XSORLL= BIT12           ;RECORD LENGTH LONG
004000                  XSOWLE= BIT11           ;WRITE LOCK ERROR
002000                  XSONEF= BIT10           ;NON EXECUTABLE FUNCTION
001000                  XSOILC= BIT9            ;ILLEGAL COMMAND
000400                  XSOILA= BIT8            ;ILLEGAL ADDRESS
000200                  XSOMOT= BIT7            ;TAPE IN MOTION
000100                  XSOONL= BIT6            ;TRANSPORT ON LINE
000040                  XSOIE=  BIT5            ;INTERRUPT ENABLE
000020                  XSOVCK= BIT4            ;VOLUME CHECK BIT
000010                  XSOPED= BIT3            ;PHASE ENCODED DRIVE
000004                  XSOWLK= BIT2            ;WRITE LOCKED
000002                  XSOBOT= BIT1            ;BEGINNING OF TAPE
000001                  XSOEOT= BIT0            ;END OF TAPE
```

```
                                ;*
                                ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 1
                                ;(XST1)
                                ;
100000                          X1.DLT  = BIT15         ;DATA LATE
040000                          X1.SPARE= BIT14         ;NOT USED
020000                          X1.COR  = BIT13         ;CORRECTABLE DATA ERROR
017375                          X1.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT7+BIT6+BIT5+BIT4+BIT3+BIT2+BIT0 ;ALWAYS 0
000400                          X1.RBP  = BIT8          ;READ BUS PARITY ERROR
000002                          X1.UNC  = BIT1          ;UNCORRECTABLE DATA OR HARD ERROR

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

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

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

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

000006                                  TSREJ=  3+2             ;COMMAND REJECTED
000006                                  UNREC=  6               ;UNRECOVERABLE ERROR
```

```
                        ;*
                        ;
                        ;DEVICE REGISTER OFFSETS
                        ;
                        ;

000000                  TSBA== 0
000000                  TSDB== 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 DFFINITIONS
                        ;
                                P.ACK   = BIT15         ;BUFFER AVAIL FOR CONTROLLER
100000                          P.CVC   = BIT14         ;CLEAR VOLUME CHECK
040000                          P.OPP   = BIT13         ;REVERSE SEQUENCE OF DATA BITS
020000                          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
                        ;-
                                PC.RELEASE      = 0*256.        ;RELEASE BUFFER
000000                          PC.REWIND       = 1*256.        ;REWIND
000400                          PC.NOOP         = 2*256.        ;NO-OP
001000                          PC.IEREW        = 4*256.        ;REWIND IMMEDIATE INTERRUPT
002000                          PC.ERASE        = 5*256.        ;SECURITY ERASE
002400
```

```
                        ;*
                        ; 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                          PK@CNT  = 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          ;ITADO  - 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.
                                ;

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

```
                                .SBTTL  GLOBAL DATA SECTION

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

                        ;
                        ;THE FOLLOWING DATA ARE SET FOR EACH UNIT AT INIT TIME.
                        ;SINGLE UNIT DEFAULTS (LISTED) ARE IN THE DEFAULT P-TABLE.
                        ;
002170  000000          EPRTSW::        .WORD   0       ;PRINT SWITCH
002172  000000          UNITN::         .WORD   0       ;UNIT # UNDER TEST.
002174  000000          QVP::           .WORD   0       ;QUICK VERIFY FLAG.
002176  000000          CSRADDR::       .WORD   0       ;ADDRESS OF CSR FOR CURRENT DEVICE
002200  000224          IVEC::          .WORD   224     ;INTERRUPT VECTOR
002202  000200          IPRI::          .WORD   PRI04   ;INTERRUPT PRIORITY.
002204  000000          TSTCNT::        .WORD   0       ;NUMBER OF TESTS RUN IN THIS PASS
002206  000000          LOOPCNT::       .WORD   0       ;REMAINING ITERATION COUNT FOR TEST
002210  000000          DEVCNT::        .WORD   0       ;NUMBER OF DEVICE UNDER TEST
002212  000000          FATFLG::        .WORD   0       ;SET IF FATAL ERROR IS DETECTED IN TEST
002214  000000          INTRECV::       .WORD   0       ;SET IF TAPE INTERRUPT WAS RECEIVED
002216  000000          EXTFEA::        .WORD   0       ;EXTENDED FEATURES SOFTWARE SW 0=OFF;1=ON
002220  000000          BENBSW::        .WORD   0       ;BUFFER ENABLE SWITCH SW 0=OFF;1=ON
002222  000000          EXPD::          .WORD   0       ;EXPECTED RAM DATA FOR PRAMPKT ROUTINE
002224  000000          RECV::          .WORD   0       ;RECEIVED RAM DATA FOR PRAMPKT ROUTINE
002226  000000          ERRHI::         .WORD   0       ;HIGH ADDRESS MEMORY ERROR
002230  000000          ERRLO::         .WORD   0       ;LOW ADDRESS MEMORY ERROR
002232                  RAMDATA::       .BLKW   16.     ;DATA READ FROM RAM PACKET OR MESSAGE BUF AREA
002272  000000          RAMSIZ::        .WORD   0       ;RAM DATA SIZE FOR PRAMPKT ROUTINE
002274  000000          RCVHIADD::      .WORD   0       ;RECEIVED BUFFER HIGH ADDRESS
002276  000000          RCVLOADD::      .WORD   0       ;RECEIVED BUFFER LOW ADDRESS
002300  000000          COUNT::         .WORD   0       ;TEST COUNT PATTERN
002302  000000          DATA::          .WORD   0       ;TEST DATA
002304  000000          TSTFLAG::       .WORD   0       ;TEST FLAG WORD
002306  000000          TSTPTR::        .WORD   0       ;TSTBLK POINTER
002310  000000          PRMNO::         .WORD   0       ;PRINT ROUTINE TEMP
002312                  EXPMSG::        .BLKB   100.    ;EXPECTED MESSAGE BUFFER DATA
002456                  RECMSG::        .BLKB   100.    ;RECEIVED MESSAGE BUFFER DATA
002622                  TMPBFR::        .BLKB   80.     ;TEMPORARY STORAGE FOR PRINT
```

```
                        .SBTTL  TSTBLK    TEST DATA TABLE

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

002742          TSTBLK::
002742  000000          .WORD   0               ;ALL ZEROS
002744  177777          .WORD   177777          ;ALL ONES
002746  000001          .WORD   BIT0            ;DATA FOR WALKING ONES
002750  000002          .WORD   BIT1
002752  000004          .WORD   BIT2
002754  000010          .WORD   BIT3
002756  000020          .WORD   BIT4
002760  000040          .WORD   BIT5
002762  000100          .WORD   BIT6
002764  000200          .WORD   BIT7
002766  000400          .WORD   BIT8
002770  001000          .WORD   BIT9
002772  002000          .WORD   BIT10
002774  004000          .WORD   BIT11
002776  010000          .WORD   BIT12
003000  020000          .WORD   BIT13
003002  040000          .WORD   BIT14
003004  100000          .WORD   BIT15
003006  177776          .WORD   ^CBIT0          ;DATA FOR WALKING ZEROS
003010  177775          .WORD   ^CBIT1
003012  177773          .WORD   ^CBIT2
003014  177767          .WORD   ^CBIT3
003016  177757          .WORD   ^CBIT4
003020  177737          .WORD   ^CBIT5
003022  177677          .WORD   ^CBIT6
003024  177577          .WORD   ^CBIT7
003026  177377          .WORD   ^CBIT8
003030  176777          .WORD   ^CBIT9
003032  175777          .WORD   ^CBIT10
003034  173777          .WORD   ^CBIT11
003036  167777          .WORD   ^CBIT12
003040  157777          .WORD   ^CBIT13
003042  137777          .WORD   ^CBIT14
003044  077777          .WORD   ^CBIT15
003046  125252          .WORD   125252          ;ALTERNATING ONES, ZEROS
003050  052525          .WORD   052525          ;ALTERNATING ONES, ZERO OPPOSITE FROM ABOVE
003052          TBLEND::
```

```
                                        .SBTTL  GLOBAL ENVIRONMENT STORAGE
                                ;
                                ;STORAGE FOR DEVICE REGISTERS
                                ;
003052  000000  100000  000000  DUMMY:  0,100000,0,0    ;DUMMY DEVICE REGISTERS...
003062  000000  000000  000000          0,0,0,0,0,0,0,0
                                                        ;...FOR MULTI UNIT CHECKOUT.

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

003106  000000                  TEMP1::         .WORD   0               ;SOME TEMP LOCATIONS.
003110  000000                  TEMP2::         .WORD   0
003112  000000                  XXCOMM::        .WORD   0               ;XXDP+ COMM BLOCK POINTER.
003114  000000                  FREE::          .WORD   0               ;1ST FREE MEMORY ADDRESS...
003116  000000                  FRESIZ::        .WORD   0               ;...AND SIZE (IN WORDS).
003120  000000                  FREEHI: .WORD   0               ;LAST WORD IN FREE SPACE
003122  000000                  KTFLG::         .WORD   0               ;KT11, MEM AVAIL FLAG -
                                                                        ;   .WORD       0 = <24K OR NO KT
                                                                        ;- NZ = >24K AND KT.
003124  000000                  KTENABLE::      .WORD   0               ;SET BY TEST ROUTINES TO FLAG >28K UNDER TEST
003126  000000                  NXMFLG::        .WORD   0               ;SET IF WE CAN TEST CLEARED OTHERWISE
003130  000000                  NXMLO::         .WORD   0               ;NXM LO ADDRESS BITS
003132  000000                  NXMHI::         .WORD   0               ;NXM HI ADDRESS BITS FOR DAL S 16 21
003134  000000                  T23A::          .WORD   0               ;11/23A FLAG
003136  000000                  T23B::          .WORD   0               ;11/23B FLAG
003140  000000                  T38FLG::        .WORD   0               ;TEST 38 FLAG +0
003142  002000                  PST32W::        .WORD   2000            ;32W BLOCK ADDRESS FOR 32K START
003144  000000                  SIFLAG::        .WORD   0               ;
003146  000000                  BADDAT::        .WORD   0               ;ACTUAL DATA
003150  000000                  GDDAT::         .WORD   0               ;EXPECTED DATA
003152  000000                  LOOPFL::        .WORD   0
003154                          CTAB::                                  ;CONFIGURATION TABLES.
003154  000000                  CTABM::         .WORD   0               ;CONFIG WORK.
003156  000000                                  .WORD   0
003160  000000                                  .WORD   0
003162  000000                                  .WORD   0
003164  177777                                  .WORD    1              ;END OF MEM TABLE.
003166                          CTABE::
                                ;ERROR STATISTICS TABLE (1 WORD PER UNIT), 64 UNITS MAX:
                                ;
                                ;       0       =       UNIT NOT TESTED
                                ;       100000  =       UNIT ONLINE, NO ERRORS
                                ;       10XXXX  =       UNIT ONLINE, ENCOUNTERED XXXX ERRORS
                                ;       160000  =       UNIT DROPPED, NON-EXISTENT DEVICE REGISTER
                                ;       160001  =       UNIT DROPPED, NOT IDL   AT START
                                ;       14XXXX  =       UNIT DROPPED, ENCOUNTERED XXXX ERRORS
                                ;
003166                          ERTABL:         .BLKW   64.
003366  000000                  ERTABE:         .WORD   0

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

GLOBAL TEXT MESSAGES

```
                                        .SBTTL  GLOBAL TEXT MESSAGES
                                ;**
                                ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS.
                                ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
                                ; MORE THAN ONE TEST.
                                ;
                                ;*
                                ;NAMES OF DEVICES SUPPORTED
                                ;
                                        DEVTYP  <TSV05>
003372                          L$DVTYP::
003372  124  123  126                   .ASCIZ  /TSV05/
                                        .EVEN

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

                                ;*
                                ;BIT TO ASCII CONVERSION FOR TSSR REGISTER
                                ;-
003500  003540  003543  003547  TSSRBIT::       .WORD   1$,2$,3$,4$,5$,6$,7$,8$
003520  003601  003605  003611                  .WORD   9$,10$,11$,12$,13$,14$,15$,16$
003540    123   103     000     1$:     .ASCIZ  'SC'
003543    102   111     105     2$:     .ASCIZ  'BIE'
003547    123   103     105     3$:     .ASCIZ  'SCE'
003553    122   115     122     4$:     .ASCIZ  'RMR'
003557    116   130     115     5$:     .ASCIZ  'NXM'
003563    116   102     101     6$:     .ASCIZ  'NBA'
003567    102   111     124     7$:     .ASCIZ  'BIT9
003574    102   111     124     8$:     .ASCIZ  'BIT8
003601    123   123     122     9$:     .ASCIZ  'SSR
003605    117   106     114     10$:    .ASCIZ  'OFL
003611    102   111     124     11$:    .ASCIZ  'BIT5
003616    102   111     124     12$:    .ASCIZ  'BIT4
003623    102   111     124     13$:    .ASCIZ  'BIT3
003630    102   111     124     14$:    .ASCIZ  'BIT2
003635    102   111     124     15$:    .ASCIZ  'BIT1
003642    102   111     124     16$:    .ASCIZ   BIT0
                                        .EVEN
003650    124   123     123     SFIERR: .ASCIZ  'TSSR ERROR AFTER SOFT INIT'
003703    124   123     123     SFHERR: .ASCIZ  'TSSR ERROR AFTER BUS RESET'
003736    040   040     116     NXR:    .ASCIZ  /  NON-EXISTANT DEVICE REGISTER/
003775    045   101     040     NXRX:   .ASCIZ  /%A  ADDRESS: %O6/
004016    045   101     040     TSSX:   .ASCII  /%A  TSBA,TSSR EXP'D: %O6%A,%O6%N/
004056    045   101     040             .ASCIZ  /%A  TSBA,TSSR REC'D: %O6%A,%O6/
004115    045   116     045     FUSI:   .ASCII  /%N%A/
004121    040   040     125     USI:    .ASCIZ  /  UNEXPECTED INTERRUPT/
004150    040   040     111     NSI:    .ASCIZ  /  INTERRUPT EXPECTED, NOT RECEIVED/
004213    045   116     045     FNOINTR:        .ASCII  /%N%A/
004217    040   040     116     NOINTR: .ASCIZ  /  NO INTERRUPT WAS GENERATED/
004254    040   040     111     IFAULT: .ASCIZ  /  INTERRUPT FAULT/
004276    045   101     040     INTX:   .ASCIZ  /%A  CPU PC: %O6%A  TSBA: %O6/
```

```
633 004333  040  040  042  NOINIT:  .ASCIZ  /  "BUS INIT  DIDN ' INITIALIZE CONTROLLER
634 004405  040  040  042  NSINIT:  .ASCIZ  /  'SOFT INIT  DIDN T INITIALIZE THE DP.
635 004455  040  040  042  BRINIT:  .ASCIZ  /  "BUS RESET' DIDN T INITIALIZE THE DP.
636 004525  000              NUL      .ASCIZ  //
637 004526  045  116  000  NULCR.   .ASCIZ  /%N/
638 004531  045  101  040  EXPGOT:  .ASCIZ  /%A EXP D: %06%A, REC D: %06/
639 004565  045  116  045  EXPGT2:  .ASCIZ  /%N%A EXP D: %06%A, %06%N%A REC D: %06%A, %06/
640 004641  045  101  040  DUAD12:  .ASCIZ  /%A REG(W) WRITTEN TO: %06%A REG(R) READ, EXP D: %06%A, REC D  %06/
641 004743  122  101  115  PKTRAM::          .ASCIZ  'RAM Contents Do Not Match Packet Ser t
642 005011  040  040  103  SCME:    .ASCIZ  /  CONFIG DOESN'T MATCH MFG. MASTER/
643 005054  12?  122  111  WRTMSG:  .ASCIZ  WRITE CHARACTERISTICS Fa.led
644 005111  124  123  123  WRTERR:  .ASCIZ  TSSR Incorrect After WRITE Command, More B.ts Set Then SSR
645 005204  124  123  123  RDERR:   .ASCIZ  'TSSR Incorrect After READ Command, More B.ts Set Then SSR
646 005276  106  101  124  SCHERR:  .ASCIZ  'FATAL ERROR IN SUBTEST   CHECK TAPE,CABLES,TRANSPORT etc
647 005370  105  122  122  RETERR:  .ASCIZ  ERROR IN SUBTEST - WRITE DATA RETRY FIVE TIMES FAILED
648 005456  045  116  045  NOMEM:   .ASCIZ  %N%A ***** NO NXM ADDRESS--CANNOT TEST NXM TIMEOUT, *****%N
649 005552  045  116  045  M8186:   .ASCIZ  %N%A ********************* 11/23A SYSTEM *********************%N
650 005643  045  116  045  M8189:   .ASCIZ  '%N%A ********************* 11/23B SYSTEM *********************%N
651                           .EVEN
652                           .SBTTL  GLOBAL ERROR REPORT SECTION
653
654                           ;++
655                           ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX
656                           ; CALLS THAT ARE USED IN MORE THAN ONE TEST
657                           ; ASCII TEXT STRINGS ARE FOUND IN THE GLOBAL TEXT SECTION
658                           ;
659 005734                        BGNMSG  NXRERR          ;NON-EXISTANT DEVICE REGISTER
    005734                    NXRERR..
660 005734                        PRINTX  @NXRX,NODEV     ;NODEV = NEXM ADDRESS
    005734  013746  003104        MOV     NODEV,-(SP)
    005740  012746  003775        MOV     @NXRX,-(SP)
    005744  012746  000002        MOV     #2, (SP)
    005750  010600                MOV     SP,R0
    005752  104415                TRAP    C$PNTX
    005754  062706  000006        ADD     #6,SP
661 005760  004737  005766        JSR     PC,EXTEND       ; PRINT EXTENSION IF REQUIRED
662 005764                        ENDMSG
    005764                    L10002:
    005764  104423                TRAP    C$MSG
663                           ;
664                           ; THIS ROUTINE APPENDS A UNIQUE EXTENSION (IF REQUIRED)
665                           ; TO ANY OF THE ABOVE ERROR SIGNATURES.
666                           ;
667 005766  005727            EXTEND: TST     (PC)+
668 005770  000000            EXTA:   0                       ; 0 = NO EXTENSION.
669 005772  001402                    BEQ     1$
670 005774  004777  177770            JSR     PC,@EXTA        ; APPEND EXTENSION TEXT.
671 006000                    1$:     PRINTX  #NULCR          ; PRINT A BLANK LINE
    006000  012746  004526        MOV     #NULCR,-(SP)
    006004  012746  000001        MOV     #1,-(SP)
    006010  010600                MOV     SP,R0
    006012  104415                TRAP    C$PNTX
    006014  062706  000004        ADD     #4,SP
672 006020  000207                RTS     PC
```

```
                        .SBTTL  PRITSSR  PRINT TSSR CONTENTS

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

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

```
                006166  012746  000002                  MOV     #2, (SP)
                006172  010600                          MOV     SP,R0
                006174  104415                          TRAP    C$PNTX
                006176  062706  000006                  ADD     #6,SP
        718
        719     006202  010403                  20$:    MOV     R4,R3           ;GET THE TSSR CONTENTS
        720     006204  042703  177761                  BIC     #^CTERCLS,R3    ;CLEAR ALL BUT TERMINATION
        721     006210  016303  006766                  MOV     TCOCOD(R3),R3   ;GET THE TERMINATION CODE MEANING
        722     006214                                  PRINTX  #TCOASC,R3      ;PRINT THE TERMINATION CODE
                006214  010346                          MOV     R3, (SP)
                006216  012746  006566                  MOV     #TCOASC, (SP)
                006222  012746  000002                  MOV     #2,-(SP)
                006226  010600                          MOV     SP,R0
                006230  104415                          TRAP    C$PNTX
                006232  062706  000006                  ADD     #6,SP
        723     006236  010403                          MOV     R4,R3           ;TSSR CONTENTS AGAIN
        724     006240  042703  177717                  BIC     #^CFATERR,R3    ;CLEAR ALL BUT FATAL TERMINATION
        725     006244  001416                          BEQ     25$             ;DON'T PRINT IF ZERO
        726     006246  006203                          ASR     R3
        727     006250  006203                          ASR     R3
        728     006252  006203                          ASR     R3              ;ALINE TERMINATION CODE FOR INDEX
        729     006254  016303  007326                  MOV     TSFCOD(R3),R3   ;GET THE FATAL TERMINAT ON CODE
        730     006260                                  PRINTX  #TFCASC,R3      ;PRINT THE FATAL TERMINATION CODE
                006260  010346                          MOV     R3,-(SP)
                006262  012746  006627                  MOV     #TFCASC,-(SP)
                006266  012746  000002                  MOV     #2, (SP)
                006272  010600                          MOV     SP,R0
                006274  104415                          TRAP    C$PNTX
                006276  062706  000006                  ADD     #6,SP
        731     006302  042704  176377          25$:    BIC     #^CHIADDR,R4    ;CLEAR ALL BUT EXTENDED ADDRESS
        732     006306  001411                          BEQ     30$             ;DON'T PRINT IF ZERO
        733     006310                                  PRINTX  #TEXASC,R4      ;PRINT THE EXTENDED ADDRESS BITS
                006310  010446                          MOV     R4,-(SP)
                006312  012746  006525                  MOV     #TEXASC,-(SP)
                006316  012746  000002                  MOV     #2,-(SP)
                006322  010600                          MOV     SP,R0
                006324  104415                          TRAP    C$PNTX
                006326  062706  000006                  ADD     #6,SP
        734     006332  013703  002170          30$:    MOV     EPRTSW,R3               ;PRINT MEAASGE BUFFER ADDRESS
        735     006336                                  PRINTX  R3                      ;PRINT PROPER MESSAGE
                006336  010346                          MOV     R3,-(SP)
                006340  012746  000001                  MOV     #1,-(SP)
                006344  010600                          MOV     SP,R0
                006346  104415                          TRAP    C$PNTX
                006350  062706  000004                  ADD     #4,^O
        736     006354  000207                          RTS     PC              ;RETURN TO CALLER
```

```
748 006356  045  116  045  EPRT1:  .ASCIZ  '¤N¤A *****CHECK CABLES BETWEEN M7196 AND TRANSPORT*****
749 006446  045  116  045  EPRT2:  .ASCIZ  '¤N¤A *****CHECK TRANSPORT*****
755 006505  045  116  045  TSSRFOR:        .ASCIZ  '¤N¤A TSSR = ¤O6
756 006525  045  116  045  TEXASC:         .ASCIZ  '¤N¤A Extended Address Bits = ¤O6
757 006566  045  116  045  TCOASC:         .ASCIZ  '¤N¤A Termination Class Code = ¤T
758 006627  045  116  045  TFCASC:         .ASCIZ  '¤N¤A Fatal Termination Class Code = ¤T
759 006676  045  116  045  TSSDEF:         .ASCIZ  '¤N¤A TSSR Bits Set: ¤T'
760 006725  045  116  045  AMBTSSR:        .ASCIZ  '¤N¤A TSSR Contents Are Ambiguous
761                                 .EVEN
762 006766  007006  007031  007057  TCOCOD: .WORD   1$,2$,3$,4$,5$,6$,7$,8$
763 007006  116  157  162  1$:     .ASCIZ  'Normal Termination'
764 007031  124  145  162  2$:     .ASCIZ  'Termination Condition'
765 007057  124  141  160  3$:     .ASCIZ  'Tape Status Alert'
766 007101  106  165  156  4$:     .ASCIZ  'Function Reject'
767 007121  122  145  143  5$:     .ASCIZ  'Recoverable Error - Tape Position One Record Down
768 007203  122  145  143  6$:     .ASCIZ  'Recoverable Error - Tape Was Not Moved
769 007252  125  156  162  7$:     .ASCIZ  'Unrecoverable Error
770 007276  106  141  164  8$:     .ASCIZ  'Fatal Controller Error
771                                 .EVEN
772
773 007326  007336  007372  007403  TSFCOD: .WORD   1$,2$,3$,4$
774 007336  111  156  164  1$:     .ASCIZ  'Internal Diagnostic Failure'
775 007372  122  145  163  2$:     .ASCIZ  'Reserved'
776 007403  102  165  163  3$:     .ASCIZ  'Bus Interface or Sanity Check Error'
777 007447  122  145  163  4$:     .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.
                                ;

007460                          PRIPKT::
007460                                  SAVREG                  ;SAVE THE REGISTERS
007464  010005                          MOV     R0,R5           ;SAVE NO. OF WORDS IN PACKET
007466  005737  003124                  TST     KTENABLE        ;ABOVE 28K UNDER TEST?
007472  001001                          BNE     10$             ;BR IF YES
007474  005003                          CLR     R3              ;SET HIGH ORDER ADDRESS TO 0
007476  010301                  10$:    MOV     R3,R1           ;COPY HIGH ORDER ADDRESS
007500  010400                          MOV     R4,R0           ;GET LOWER ADDRESS
007502  006100                          ROL     R0              ;SHIFT BIT 15 INTO C BIT
007504  006101                          ROL     R1              ;AND INTO HIGH ORDER.
007506                                  PRINTB  #PKTADD,R1,R4   ;PRINT PACKET ADDRESS
007506  010446                          MOV     R4,-(SP)
007510  010146                          MOV     R1,-(SP)
007512  012746  007644                  MOV     #PKTADD,-(SP)
007516  012746  000003                  MOV     #3,-(SP)
007522  010600                          MOV     SP,R0
007524  104414                          TRAP    C$PNTB
007526  062706  000010                  ADD     #10,SP
007532  010300                  15$:    MOV     R3,R0           ;GET HIGH ORDER ADDRESS
007534  001404                          BEQ     20$             ;BR IF NOT ABOVE 28K.
007536  010401                          MOV     R4,R1           ;GET LOW ORDER ADDRESS
007540  004737  017406                  JSR     PC,SETMAP       ;SETUP PAR6 MAPPING FOR 18 BIT ADDRESS
007544  010004                          MOV     R0,R4           ;GET RETURNED PAR6 ADDRESS BIAS
007546  005001                  20$:    CLR     R1              ;SAVE WORD NUMBER
007550  012402                  25$:    MOV     (R4)+,R2        ;GET PACKET CONTENTS
007552                                  PRINTB  #PKTFRM,R1,R2   ;PRINT THE DATA
007552  010246                          MOV     R2,-(SP)
007554  010146                          MOV     R1,-(SP)
007556  012746  007606                  MOV     #PKTFRM,-(SP)
007562  012746  000003                  MOV     #3,-(SP)
007566  010600                          MOV     SP,R0
007570  104414                          TRAP    C$PNTB
007572  062706  000010                  ADD     #10,SP
007576  005201                          INC     R1              ;NEXT WORD NUMBER
007600  020105                          CMP     R1,R5           ;DONE ALL PACKET WORDS?
007602  002762                          BLT     25$             ;LOOP TILL ALL DONE
007604  000207                          RTS     PC              ;RETURN

007606      045     116     045 PKTFRM: .ASCIZ  '<CR><LF>Packet Word #<D1>A = <06>'
007644      045     116     045 PKTADD: .ASCIZ  '<LF><CR>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
                ;
                PRIBXOR::
007702                  SAVREG                          ;SAVE THE REGISTERS
007702 010203           MOV     R2,R3                   ;EXPECTED DATA
007706                  XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
007710 012700 177400    MOV     #^C<377>,R0             ;BYTE MASK
007720 040001           BIC     R0,R1                   ;SAVE LOW BYTE RECV
007724 040002           BIC     R0,R2                   ;SAVE LOW BYTE EXPD
007726 040003           BIC     R0,R3                   ;SAVE LOW BYTE XOR
007730                  PRINTB  #XORBFOR,R2,R1,R3 ;PRINT THE MESSAGE
007732 010346           MOV     R3,-(SP)
007734 010146           MOV     R1,-(SP)
007736 010246           MOV     R2,-(SP)
007740 012746 007764    MOV     #XORBFOR,-(SP)
007744 012746 000004    MOV     #4,-(SP)
007750 010600           MOV     SP,R0
007752 104414           TRAP    C$PNTB
007754 062706 000012    ADD     #12,SP
007760 010300           MOV     R3,R0                   ;R0 HAS XOR ON RETURN
007762 000207           RTS     PC                      ;RETURN TO CALLER

007764  045  116  045  XORBFOR:        .ASCIZ  '%N%A EXPD: %03%A RECV: %03%A XOR. %03
                        .EVEN
                        .SBTTL  PRIXOR  - PRINT EXPD, RECV AND XOR
                ;*
                ;
                ;PRINT EXPECTED DATA, RECEIVED DATA, AND XOR OF THE TWO
                ;THIS ROUTINE IS NORMALLY CALLED ONLY FOR PRINT ROUTINES.
                ;
                ;INPUTS:
                ;
                ;       R1      RECEIVED DATA
                ;       R2      EXPECTED DATA
                ;
                ;OUTPUT:
                ;
                ;       R0      XOR OF EXPECTED/RECEIVED DATA
                ;-
010032          PRIXOR::
010032                  SAVREG                          ;SAVE THE REGISTERS
010036 010203           MOV     R2,R3                   ;EXPECTED DATA
010040                  XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
010050                  PRINTB  #XORFOR,R2,R1,R3 ;PRINT THE MESSAGE
```

```
        010050  010346                          MOV     R3, (SP)
        010052  010146                          MOV     R1, (SP)
        010054  010246                          MOV     R2, (SP)
        010056  012746  010102                  MOV     #XORFOR, (SP)
        010062  012746  000004                  MOV     #4,-(SP)
        010066  010600                          MOV     SP,R0
        010070  104414                          TRAP    C$PNTB
        010072  062706  000012                  ADD     #12,SP
    872 010076  010300                          MOV     R3,R0           ;R0 HAS XOR ON RETURN
    873 010100  000207                          RTS     PC              ;RETURN TO CALLER
    874
    875 010102      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
                                ;
                                ;

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

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

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

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

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

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

```
TSV3   GLOBAL AREAS     MACRO M1113  14 JUN 84 14:17                                    SEQ 0048
PRITADD   PRINT MEMORY TEST ADDRESS

        010416  062706  000006                  ADD     #6,SP
    960 010422                                  PRINTB  #PRIT1,R2       ;PRINT MEMORY ADDRESS HIGH IN ERROR
        010422  010246                          MOV     R2,-(SP)
        010424  012746  010511                  MOV     #PRIT1, (SP)
        010430  012746  000002                  MOV     #2,-(SP)
        010434  010600                          MOV     SP,R0
        010436  104414                          TRAP    C$PNTB
        010440  062706  000006                  ADD     #6,SP
    961 010444  000207                          RTS     PC              ;RETURN
    962
    963 010446     045     116     045  PRIT0:  .ASCIZ  '<N><A MEMORY TEST ADDRESS LOW = <06
    964 010511     045     116     045  PRIT1:  .ASCIZ  '<N><A MEMORY TEST ADDRESS HIGH = <06
    965                                         .EVEN
```

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

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

010556                  SPACE::
010556                          SAVREG                          ;SAVE THE GENERAL REGISTERS
010562  012737  000764  010750          MOV     #500.,SDELAY    ;SET UP DELAY
010570  012737  140010  010740          MOV     #140010,80$     ;SET UP COMMAND, SPACE FORWARD
010576  005703                          TST     R3              ;CHECK FOR DIRECTION
010600  100403                          BMI     5$              ;BR, IF REVERSE INDICATED
010602  010337  010742                  MOV     R3,90$          ;LOAD UP NUMBER OF RECORDS TO SPACE
010606  000407                          BR      10$             ;GO DO COMMAND
010610  042703  100000          5$:     BIC     #BIT15,R3       ;CLEAR DIRECTION BIT
010614  010337  010742                  MOV     R3,90$          ;LOAD UP NUMBER OF RECORDS TO SPACE
010620  052737  000400  010740          BIS     #BIT8,80$       ;SET REVERSE BIT IN COMMAND PACKET
010626  012704  010740          10$:    MOV     #80$,R4         ;SET UP R4 WITH PACKET ADDRESS
010632  010465  000000                  MOV     R4,TSDB(R5)     ;SEND OUT COMMAND
010636  004737  016340          15$:    JSR     PC,WAITF        ;WAIT FOR SSR
010642  103420                          BCS     20$             ;BR, IF SSR IS SET AND OK
010644                                  DELAY   250             ;DELAY ABOUT .25 SECONDS
010644  012727  000250                  MOV     #250,(PC)+
010650  000000                          .WORD   0
010652  013727  002116                  MOV     L$DLY,(PC)+
010656  000000                          .WORD   0
010660  005367  177772                  DEC      6(PC)
010664  001375                          BNE     . 4
```

```
        010666  005367  177756                  DEC     22(PC)
        010672  001367                          BNE     .-20
   1018 010674  005337  010750                  DEC     SDELAY                  ;BUMP DELAY COUNTER DOWN
   1019 010700  001356                          BNE     15$                     ;BR, IF MORE DELAY
   1020 010702  000411                          BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
   1021 010704  016501  000002          20$:    MOV     TSSR(R5),R1             ;READ TSSR
   1022 010710  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
   1023 010714  020201                  25$:    CMP     R2,R1                   ;ARE THEY OK
   1024 010716  001401                          BEQ     40$                     ;BR, IF EQUAL = OK
   1025 010720  000402                          BR      60$                     ;TROUBLE EXIT
   1026 010722  000261                  40$:    SEC                             ;SET CARRY NO TROUBLE
   1027 010724  000401                          BR      70$                     ;EXIT
   1028 010726  000241                  60$:    CLC                             ;CARRY CLEAR = ERROR
   1029 010730                          70$:
   1030 010730  010400                          MOV     R4,R0                   ;PASS PACKET ADDRESS
   1031 010732  000207                          RTS     PC                      ;RETURN
   1032                                 ;
   1033                                 ;
   1034                                 ;
   1035                                 ;PACKET FOR SPACE COMMAND
   1036                                 ;
   1038         010740                          ^<.+10>&177770
   1040                                 ;
   1041                                 ;COMMAND WORD
   1042 010740  000000                  80$:    .WORD
   1043                                 ;NUMBER OF RECORDS TO BE SPACED OVER WORD
   1044 010742  000000                  90$:    .WORD
   1045 010744  000000                          .WORD
   1046 010746  000000                          .WORD
   1047 010750  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:
                                ;
010752                          WRTCHR::
010752                                  SAVREG                          ;SAVE THE GENERAL REGISTERS
010756  005037  002220                  CLR     BENBSW          ;CLEAR BUFFER ENABLE SWITCH
010762  005037  002216                  CLR     EXTFEA                  ;CLEAR EXTENDED FEATURES SW SWITCH
010766  010465  000000          10$:    MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
010772  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
010776  103401                          BCS     20$                     ;BR, IF SSR IS SET AND OK
011000  000435                          BR      60$                     ;BR IF TROUBLE CARRY = CLEAR
011002  016501  000002          20$:    MOV     TSSR(R5),R1             ;READ TSSR
011006  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
011012  032701  000100                  BIT     #OFL,R1                 ;WAS OFF LINE SET IN TSSR
011016  001402                          BEQ     25$                     ;BR, IF NO OFL SET
011020  052702  000100                  BIS     #OFL,R2                 ;MAKE THEM LOOK ALIKE
011024  020201          25$:    CMP     R2,R1                   ;ARE THEY OK
011026  001401                          BEQ     40$                     ;BR, IF EQUAL = OK
011030  000421                          BR      60$                     ;TROUBLE EXIT
011032  062704  000010          40$:    ADD     #8.,R4                  ;POINT TO WRT CHARA DATA PACKET
011036  011403                          MOV     (R4),R3                 ;GET ADDRESS OF MESSAGE BUFFER
011040  032763  000200  000012          BIT     #X2.EXTF,XST2(R3)       ;EXTENDED FEATURES BIT SET?
011046  001402                          BEQ     45$                     ;BR IF NO
011050  005237  002216                  INC     EXTFEA                  ;SET EXTENDED FEATURES SW SWITCH
011054                          45$:
011054  032763  000100  000012          BIT     #X2.BUFE,XST2(R3)       ;BUFFER ENABLE SWITCH SET
011062  001402                          BEQ     50$                     ;BR, IF SWITCH NOT SET
011064  005237  002220                  INC     BENBSW                  ;SET SOFTWARE SWITCH FOR ENABLED
011070                          50$:
011070  000261                          SEC                             ;SET CARRY NO TROUBLE
011072  000401                          BR      70$                     ;EXIT
011074  000241          60$:    CLC                             ;CARRY CLEAR = ERROR
011076  016500  000002          70$:    MOV     TSSR(R5),R0             ;RETURN TSSR CONTENTS
011102  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
                                ;
                                .
                                ;-
011104                          REWIND::
011104                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011110  012704  011200                  MOV     @RWPACK,R4              ;GET PACKET ADDRESS
011114  010465  000000                  MOV     R4,TSDB(R5)             ;SEND PACKET ADDRESS TO EXECUTE
011120  012703  000550                  MOV     @360.,R3                ;ENOUGH TIME FOR 2400  REEL TO REWIND
011124  004737  016340          10$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
011130  103417                          BCS     20$                     ;LEAVE WHEN SSR IS SET
011132                                  DELAY   250.                    ;WAIT FOR .25 SECONDS
011132  012727  000372                  MOV     @250.,(PC)+
011136  000000                          .WORD   0
011140  013727  002116                  MOV     L$DLY,(PC)+
011144  000000                          .WORD   0
011146  005367  177772                  DEC     -6(PC)
011152  001375                          BNE     . 4
011154  005367  177756                  DEC      22(PC)
011160  001367                          BNE     .-20
011162  005303                          DEC     R3                      ;BUMP COUNTER DOWN
011164  001357                          BNE     10$                     ;KEEP GOING
011166  000241                          CLC                             ;CLEAR CARRY TO SET ERROR
011170  010400          20$:    MOV     R4,R0                           ;PASS THE PACKET ADDRESS
011172  000207                  RTS     PC                              ;RETURN

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

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

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

```
                        .SBTTL  CKRAM2    COMPARE RAM TO I/O CHARACTERISTICS DATA
                ;+
                ;
                ;ROUTINE TO READ THE FIRST 8 OR 10 BYTES FROM RAM
                ;MEMORY AND COMPARE THIS DATA TO A CHARACTERISTICS DATA BLOCK.
                ;
                ;INPUT:
                ;
                ;       R4      ADDRESS OF THE CHARACTERISTICS DATA
                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                ;
                ;OUTPUT:
                ;
                ;       CARRY   SET - RAM MATCHES PACKET
                ;               CLR - RAM DOES NOT MATCH PACKET
                ;
                ;IMPLICIT OUTPUT:
                ;
                ;       THE TABLE RAMDATA IS FILLED WITH THE
                ;       DATA HELD IN RAM.
                ;       RAMSIZ IS SET TO 8. OR 10. FOR PRAMPKT ROUTINE
                ;
                ;SIDE EFFECTS:
                ;
                ;       THE SUBSYSTEM IS LEFT IN MAINTENANCE MODE
                ;
011314          CKRAM2::
                        SAVREG                          ;SAVE THE GENERAL REGISTERS
011320  012701  002232  MOV     #RAMDATA,R1             ;ADDRESS TO SAVE THE RAM DATA
011324  012702  000167  MOV     #RMCHBEG,R2             ;BYTE ADDRESS OF FIRST RAM DATA
011330  005003          CLR     R3                      ;CLEAR THE ERROR FLAG
011332  004737  016426  JSR     PC,CHKTSSR              ;WAIT FOR SSR
011336  112765  000000  000000  MOVB    #0,TSDB(R5)     ;SET MAINTENANCE MODE
011344  004737  016426  10$:    JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
011350  010265  000000  MOV     R2,TSDB(R5)             ;SELECT NEXT RAM ADDRESS
011354  004737  016426  JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011360  116511  000000  MOVB    TSBA(R5),(R1)           ;READ THE RAM DATA
011364  122124          CMPB    (R1)+,(R4)+             ;COMPARE TO EXPECTED
011366  001401          BEQ     20$                     ;BRANCH IF OK
011370  005203          INC     R3                      ;SET ERROR FLAG
011372  005202  20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
011374  012737  000010  002272  MOV     #8.,RAMSIZ      ;ASSUME EXTFEA NOT SET
011402  005737  002216  TST     EXTFEA                  ;IS THE SOFTWARE EXTENDED FEATURES SET
011406  001407          BEQ     25$                     ;BR, IF NOT SET
011410  012737  000012  002272  MOV     #10.,RAMSIZ     ;SET RAMSIZ FOR EXTEND FEATURES
011416  020227  000200  CMP     R2,#RMCHEND             ;AT END OF EXTENDED BUFFER
011422  003750          BLE     10$                     ;BR, IF NOT AT END YET
011424  000403          BR      27$                     ;AT END BRANCH
011426  020227  000176  25$:    CMP     R2,#RMCHEND-2   ;REACHED END YET ?
011432  003744          BLE     10$                     ;BRANCH TILL ALL READ
011434  005703  27$:    TST     R3                      ;WAS AN ERROR FOUND ?
011436  001402          BEQ     30$                     ;BRANCH IF NOT
011440  000241          CLC                             ;CLEAR CARRY TO SHOW ERROR
011442  000401          BR      50$                     ;AND EXIT
011444  000261  30$:    SEC                             ;SHOW GOOD COMPARE
011446  000207  50$:    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
                                ;
                                ;-
011450                          CKMSG::
011450                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
011454  010037  002274                  MOV     R0,RCVHIADD     ;SAVE RECV HIGH ADDRESS
011460  010137  002276                  MOV     R1,RCVLOAD      ;SAVE RECV LOW ADDRESS
011464  005737  003124                  TST     KTENABLE        ;TESTING ABOVE 28K?
011470  001403                          BEQ     10$             ;BR IF NO
011472  004737  017406                  JSR     PC,SETMAP       ;RETURN ADDRESS BIASED TO PAR6 IN R0
011476  010001                          MOV     R0,R1           ;GET RETURNED ADDRESS BIASED TO PAR6
011500  005004                  10$:    CLR     R4              ;WORD IN BUFFER
011502  005003                          CLR     R3              ;CLEAR ERROR SEEN FLAG
011504  010205                          MOV     R2,R5           ;GET EXPD BUFFER ADDRESS
011506  011264  002312          15$:    MOV     (R2),EXPMSG(R4) ;SAVE EXPD FOR ERROR REPORT
011512  011164  002456                  MOV     (R1),RECMSG(R4) ;SAVE RECV FOR ERROR REPORT
011516  022221                          CMP     (R2)+,(R1)+     ;EXPD EQUAL RECV?
011520  001401                          BEQ     25$             ;BR IF YES
011522  005203                          INC     R3              ;SET ERROR SEEN FLAG
011524  062704  000002          25$:    ADD     #2,R4           ;POINT TO NEXT WORD ADDRESS
011530  020427  000014                  CMP     R4,#14          ;DONE FIRST 7 WORDS?
011534  003764                          BLE     15$             ;BR IF NO
011536  032765  000200  000012          BIT     #X2.EXTF,XST2(R5);IS EXTENDED FEATURES SET IN EXPD?
011544  001403                          BEQ     50$             ;BR IF NO
011546  020427  000016                  CMP     R4,#16          ;DONE EXTENDED FEATURES WORD?
011552  003755                          BLE     15$             ;BR IF NO
011554  005703                  50$:    TST     R3              ;ANY ERRORS SEEN?
011556  001402                          BEQ     55$             ;BR IF NO
011560  000241                          CLC                     ;SET FAILURE
011562  000401                          BR      60$             ;
011564  000261                  55$:    SEC                     ;SET SUCCESS
011566  000207                  60$:    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
                                ;-
011570                          CKMSG2::
011570                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011574  020327  000144                   CMP     R3,#RECMSG-EXPMSG;@@D IS COUNT ABOVE MAX ALLOWED?
011600  003412                           BLE     5$                      ;@@D BR IF NO
011602  012703  000144                   MOV     #RECMSG-EXPMSG,R3;@@D
011606                                  PRINTF  #DEBUGMSG               ;@@D
011606  012746  011722                   MOV     #DEBUGMSG,-(SP)
011612  012746  000001                   MOV     #1,-(SP)
011616  010600                           MOV     SP,R0
011620  104417                           TRAP    C$PNTF
011622  062706  000004                   ADD     #4,SP
011626  010037  002274          5$:      MOV     R0,RCVHIADD     ;SAVE RECV HIGH ADDRESS
011632  010137  002276                   MOV     R1,RCVLOAD      ;SAVE RECV LOW ADDRESS
011636  005737  003124                   TST     KTENABLE        ;TESTING ABOVE 28K?
011642  001403                           BEQ     10$             ;BR IF NO
011644  004737  017406                   JSR     PC,SETMAP       ;RETURN ADDRESS BIASED TO PAR6 IN R0
011650  010001                           MOV     R0,R1           ;GET RETURNED ADDRESS BIASED TO PAR6
011652  005004          10$:     CLR     R4                      ;WORD IN BUFFER
011654  005005                           CLR     R5              ;CLEAR ERROR SEEN FLAG
011656  111264  002312          15$:     MOVB    (R2),EXPMSG(R4) ;SAVE EXPD FOR ERROR REPORT
011662  111164  002456                   MOVB    (R1),RECMSG(R4) ;SAVE RECV FOR ERROR REPORT
011666  122221                           CMPB    (R2)+,(R1)+     ;EXPD EQUAL RECV?
011670  001401                           BEQ     25$             ;BR IF YES
011672  005205                           INC     R5              ;SET ERROR SEEN FLAG
011674  062704  000001          25$:     ADD     #1,R4           ;POINT TO NEXT BYTE
011700  020403                           CMP     R4,R3           ;DONE ALL BYTES?
011702  002001                           BGE     50$             ;BR IF YES
011704  000764                           BR      15$             ;DO NEXT BYTE
011706  005705          50$:     TST     R5                      ;ANY ERRORS SEEN?
011710  001402                           BEQ     55$             ;BR IF NO
011712  000241                           CLC                     ;SET FAILURE
011714  000401                           BR      60$             ;
011716  000261          55$:     SEC                             ;SET SUCCESS
011720  000207          60$:     RTS     PC                      ;RETURN
```

```
1371 011722      120      122      117  DEBUGMSG: .ASCIZ 'PROGRAM INTERNAL ERROR -CKMSG2 MESSAGE BUFFER EXCEEDED ';@@D
1372 012012      045      116      045  FERCM:   .ASCII  /%N%A  ***/
1373 012023      040      040      124  ERCM:    .ASCIZ  /  TSSR ERROR CODE REC'D = /
1374 012056      056      056      056  SIMSG:   .ASCIZ  /.... AFTER DOING SOFT INIT/
1375 012111      124      105      123  TINERR:  .ASCIZ  /TEST: .../
1376                                            .EVEN
1377                                    ;*
1378                                    ;
1379                                    ;PRINT ROUTINE TO FATAL SOFT INIT ERRORS
1380                                    ;
1381                                    ;INPUT:
1382                                    ;
1383                                    ;       R1      CONTENTS OF TSSR AT ERROR
1384                                    ;
1385                                    ;SIDE EFFECTS:
1386                                    ;
1387                                    ;       EXECUTES DROP UNIT TO CEASE TESTING
1388                                    ;
1389                                    ;
1390
1391 012124                                         BGNMSG  SFIMSG
     012124                             SFIMSG::
1392 012124  004737  006022                         JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
1393 012130  004737  017272                         JSR     PC,CKDROP       ;DROP UNIT, IF ALLOWED
1394 012134                                         ENDMSG
     012134                             L10003:
     012134  104423                             TRAP    C$MSG
1395
1396                                    ;*
1397                                    ;PRINT ROUTINE TO PRINT THE CONTENTS OF
1398                                    ;TSSR AND A COMMAND PACKET OTHER THAN GET STATUS COMMAND PACKET.
1399                                    ;
1400                                    ;INPUTS:
1401                                    ;
1402                                    ;       R1      TSSR CONTENTS
1403                                    ;       R4      ADDRESS OF COMMAND PACKET
1404                                    ;
1405                                    ;
1406
1407 012136                                         BGNMSG  PKTSSR
     012136                             PKTSSR::
1408 012136  004737  006022                         JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
1409 012142  012700  000004                         MOV     #4,R0           ;NO. OF WORDS IN PACKET
1410 012146  004737  007460                         JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
1411 012152                                         ENDMSG
     012152                             L10004:
     012152  104423                             TRAP    C$MSG
```

```
                                ;*
                                ;PRINT ROUTINE TO PRINT THE CONTENTS OF
                                ;TSSR AND A GET STATUS COMMAND PACKET.
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      TSSR CONTENTS
                                ;       R4      ADDRESS OF COMMAND PACKET
                                ;
                                        BGNMSG  PKTGETS
012154                          PKTGETS::
012154  004737  006022                  JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012160  012700  000002                  MOV     #2,R0           ;NO. OF WORDS IN GET STATUS PACKET
012164  004737  007460                  JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
012170                                  ENDMSG
012170                          L10005:
012170  104423                          TRAP    C$MSG
                                ;*
                                ;PRINT TSSR ERRORS FOR INITIALIZATION TESTS
                                ;
                                ;INPUTS:
                                ;       R1      TSSR CONTENTS
                                ;       R4      ADDRESS OF COMMAND PACKET
                                ;
012172                                  BGNMSG  SFFMSG
012172                          SFFMSG::
012172  004737  006022                  JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
012176                                  ENDMSG
012176                          L10006:
012176  104423                          TRAP    C$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
                                ;
012200                                  BGNMSG  PKTMES
012200                          PKTMES::
012200  004737  006022                  JSR     PC,PRITSSR              ;PRINT CONTENTS OF TSSR
012204  010200                          MOV     R2,R0                   ;LOW ORDER ADDRESS
012206  010301                          MOV     R3,R1                   ;HIGH ORDER ADDRESS
012210  004737  014332                  JSR     PC,PRMESS               ;PRINT THE MESSAGE BUFFER
012214                                  ENDMSG
012214                          L10007:
012214  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
012216                          ADDSSR::
012216  004737  010364                  JSR     PC,PRITADD      ;PRINT MEMORY TEST ADDRESS
012222  016501  000002                  MOV     TSSR(R5),R1     ;GET CURRENT TSSR
012226  004737  006022                  JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
012232                                  ENDMSG
012232                          L10010:
012232  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
012234                          MSGEXP::
012234  012700  000007                  MOV     #7,R0           ;ASSUME NO EXT FEATURES
012240  005737  002216                  TST     EXTFEA          ;EXT FEATURES SET?
012244  001402                          BEQ     5$              ;BR IF NO
012246  012700  000010                  MOV     #8.,R0          ;EXT FEATURE BUFFER IS 8 WORDS
012252  004737  014642          5$:     JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
012256                                  ENDMSG
012256                          L10011:
012256  104423                          TRAP    C$MSG
```

```
1494                                            .SBTTL  FIFEXP    PRINT FIFO EXP/RLCV DATA
1495                                    ;*
1496                                    ;
1497                                    ;PRINT ROUTINE TO PRINT FIFO EXP/RECV DATA
1498                                    ;
1499                                    ;       R1      - BYTE COUNT
1500                                    ;
1501                                    ;IMPLICIT INPUTS:
1502                                    ;
1503                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY
1504                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY)
1505                                    ;
1506 012260                                    BGNMSG  FIFEXP
     012260                             FIFEXP::
1507 012260                                    PRINTX  #FIF1MSG,R1     ;PRINT BYTES TRANSFERRED
     012260  010146                             MOV     R1,-(SP)
     012262  012746  012332                     MOV     #FIF1MSG,-(SP)
     012266  012746  000002                     MOV     #2,-(SP)
     012272  010600                             MOV     SP,R0
     012274  104415                             TRAP    C$PNTX
     012276  062706  000006                     ADD     #6,SP
1508 012302                                    PRINTX  #FIF2MSG        ;PRINT HEADER MSG
     012302  012746  012401                     MOV     #FIF2MSG,-(SP)
     012306  012746  000001                     MOV     #1,-(SP)
     012312  010600                             MOV     SP,R0
     012314  104415                             TRAP    C$PNTX
     012316  062706  000004                     ADD     #4,SP
1509 012322  010100                             MOV     R1,R0           ;GET BYTE COUNT
1510 012324  004737  015212                     JSR     PC,PRBYTEXP     ;PRINT FIFO BYTES IN ERROR
1511 012330                                    ENDMSG
     012330                             L10012:
     012330  104423                             TRAP    C$MSG
1512 012332     045     116     045   FIF1MSG:        .ASCIZ  '<N><A NUMBER OF BYTES TRANSFERRED = <D2
1513 012401     045     116     045   FIF2MSG:        .ASCIZ  '<N><A FIFO DATA BYTES IN ERROR:
1514                                            .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
                                ;
012440                                  BGNMSG  MSGSTAT
012440                          MSGSTAT::
012440  012701  012502                   MOV     @STATCOD,R1     ;ASCII ADDRESS TABLE
012444  012100                  10$:     MOV     (R1)+,R0        ;DONE ALL MSG LINES?
012446  001410                           BEQ     20$             ;BR IF YES
012450                                   PRINTX  R0              ;PRINT STATUS BIT NAMES
012450  010046                           MOV     R0,-(SP)
012452  012746  000001                   MOV     @1,-(SP)
012456  010600                           MOV     SP,R0
012460  104415                           TRAP    C$PNTX
012462  062706  000004                   ADD     @4,SP
012466  000766                           BR      10$             ;DO ANOTHER MSG LINE
012470  012700  000012          20$:     MOV     @10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
012474  004737  014642                   JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
012500                                   ENDMSG
012500                          L10013:
012500  104423                           TRAP    C$MSG

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

```
                                        .SBTTL  MSGLOOP   PRINT LOOPBACK HEADER AND MESSAGE BUFFERS
                                ;*
                                ;
                                ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER
                                ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
                                ;
                                        BGNMSG  MSGLOOP
013154                          MSGLOOP::
013154  012701  013216                  MOV     #LOOPCOD,R1     ;ASCII ADDRESS TABLE
013160  012100                  10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
013162  001410                          BEQ     20$             ;BR IF YES
013164                                  PRINTX  R0              ;PRINT STATUS BIT NAMES
013164  010046                          MOV     R0,-(SP)
013166  012746  000001                  MOV     #1,-(SP)
013172  010600                          MOV     SP,R0
013174  104415                          TRAP    C$PNTX
013176  062706  000004                  ADD     #4,SP
013202  000766                          BR      10$             ;DO ANOTHER MSG LINE
013204  012700  000012          20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
013210  004737  014642                  JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
013214                                  ENDMSG
013214                          L10014:
013214  104423                          TRAP    C$MSG

                                LOOPCOD:        .WORD   1$,2$,3$,4$,5$,6$,7$,0
013236  045  116  045  1$:.ASCIZ  '%N%A Tape Bus Loopback Signals in Word #0:'
013311  045  116  045  2$:.ASCIZ  '%N%A       PARERR<15>          IRESV2<14>          IRESV1<13>'
013410  045  116  045  3$:.ASCIZ  '%N%A IHISP=>IEOT<12>    IWRT=>IIDENT<11>    IREV  =>ICER  <10>'
013507  045  116  045  4$:.ASCIZ  '%N%A IWFM =>IFMK<09>    IEDIT=>IHER <08>    IFAD  =>ISPEED<07>'
013606  045  116  045  5$:.ASCIZ  '%N%A ITADO=>IRDY<06>    ITAD1=>IONL <05>    IERASE=>ILDP  <04>'
013705  045  116  045  6$:.ASCIZ  '%N%A IREW =>IDBY<03>    IRWU =>IRWD <02>    IFEN  =>IFBY  <01>'
014004  045  116  045  7$:.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
                                ;
014032                          BGNMSG  MSGSUB
014032                          MSGSUB::
014032  012700  000012                  MOV     #10.,R0         ;SIZE OF WRITE SUBSYSTEM BUFFER
014036  004737  014642                  JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
014042                          ENDMSG
014042                          L10015:
014042  104423                          TRAP    C$MSG

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

```
                                .SBTTL  PRAMPKT   PRINT RAM AND PACKET DATA
                        ;*
                        ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                        ;WHEN THE RAM DATA DOES NOT MATCH.
                        ;
                        ;INPUTS:
                        ;
                        ;       R4      POINTER TO COMMAND PACKET
                        ;IMPLICIT INPUTS:
                        ;       RAMDATA         DATA AS READ FROM THE RAM
                        ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                        ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                        ;
                        ;IMPLICIT OUTPUTS:
                        ;       RAMSIZ  SET TO 0
                        ;
014066                  PRAMPKT:
014066                          SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
014072  012701  002232          MOV     @RAMDATA,R1             ;DATA FROM THE RAM
014076  005002                  CLR     R2                      ;INIT BYTE NUMBER
014100  122124          5$:     CMPB    (R1)+,(R4)+             ;COMPARE EXPECTED, RECEIVED
014102  001005                  BNE     7$                      ;BR IF NO MATCH
014104                          FORCERROR       7$,NOTSSR
014114  000436                  BR      10$                     ;BGD
014116  116105  177777  7$:     MOVB    -1(R1),R5               ;GET RECV RAM DATA
014122  116403  177777          MOVB    -1(R4),R3               ;GET EXPD PACKET DATA
014126                          XOR     R5,R3                   ;XOR EXPD/RECV
014136  042703  177400          BIC     @177400,R3              ;LOW BYTE ONLY
014142  116137  177777  002224  MOVB    -1(R1),RECV             ;GET RECEIVED RAM DATA
014150  116437  177777  002222  MOVB    -1(R4),EXPD             ;GET EXPECTED RAM DATA
014156                          PRINTB  @RAMASC,R2,RECV,EXPD,R3
014156  010346                  MOV     R3,-(SP)
014160  013746  002222          MOV     EXPD,-(SP)
014164  013746  002224          MOV     RECV,-(SP)
014170  010246                  MOV     R2,-(SP)
014172  012746  014246          MOV     @RAMASC,-(SP)
014176  012746  000005          MOV     @5,-(SP)
014202  010600                  MOV     SP,R0
014204  104414                  TRAP    C$PNTB
014206  062706  000014          ADD     @14,SP
014212  005202          10$:    INC     R2                      ;UPDATE BYTE COUNT
014214  005737  002272          TST     RAMSIZ                  ;DEFAULT TO 8.?
014220  001404                  BEQ     15$                     ;BR IF YES
014222  020237  002272          CMP     R2,RAMSIZ               ;DONE ALL BYTES?
014226  003724                  BLE     5$                      ;BR IF NO
014230  000403                  BR      25$                     ;
014232  020227  000010  15$     CMP     R2,@8                   ;DONE DEFAULT NUMBER OF BYTES?
014236  002720          20$:    BLT     5$                      ;BR IF NO
014240  005037  002272  25$:    CLR     RAMSIZ                  ;SET DEFAULT RAMSIZ
014244  000207                  RTS     PC                      ;RETURN
                        ;
014246  045 116 045     RAMASC: ASCIZ   %N%A  BYTE: %D2%A RAM: %03%A Packet: %03%A XOR %03
                                .EVEN
```

```
                                        .SBTTL  PRMESS   PRINT CONTENTS OF MESSAGE BUFFER
                                ;+
                                ;THIS ROUTINE PRINTS THE CONTENTS OF
                                ;THE 7 OR 8 WORD MESSAGE BUFFER RETURNED BY THE TSV 05
                                ;
                                ;INPUT
                                .       R0      LOW ORDER ADDRESS OF MESSAGE BUFFER
                                .       R1      HIGH ORDER ADDRESS OF MESSAGE BUFFER
                                .       NOTE: R1 IS IGNORED IF XTENABLE FLAG IS CLEAR
                                .THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                                ;
014332                          PRMESS  SAVREG                  ;SAVE THE REGISTERS
014336  010005                          MOV     R0,R5           ;SAVE LOW ORDER ADDRESS
014340  005737  003124                  TST     XTENABLE        ;ADDRESS ABOVE 28K?
014344  001001                          BNE     10$             ;BR IF YES
014346  005001                          CLR     R1              ;SET HIGH ORDER ADDRESS TO 0
014350  010103                  10$     MOV     R1,R3           ;SAVE HIGH ORDER ADDRESS
014352  006100                          ROL     R0              ;SHIFT BIT15 TO C BIT
014354  006101                          ROL     R1              ;SHIFT TO HIGH ORDER FOR PRINTOUT
014356                                  PRINTX  #PROASC,R1,R5   ;PRINT MESSAGE BUFFER ADDRESS
014356  010546                          MOV     R5,-(SP)
014360  010146                          MOV     R1,-(SP)
014362  012746  014510                  MOV     #PROASC,-(SP)
014366  012746  000003                  MOV     #3,-(SP)
014372  010600                          MOV     SP,R0
014374  104415                          TRAP    C$PNTX
014376  062706  000010                  ADD     #10,SP
014402                                  PRINTX  #PR1ASC         ;PRINT HEADER FOR CONTENTS
014402  012746  014555                  MOV     #PR1ASC,-(SP)
014406  012746  000001                  MOV     #1,-(SP)
014412  010600                          MOV     SP,R0
014414  104415                          TRAP    C$PNTX
014416  062706  000004                  ADD     #4,SP
014422  005004                          CLR     R4              ;NUMBER OF THE NEXT WORD
014424  010501                          MOV     R5,R1           ;COPY LOW ORDER ADDRESS
014426  010300                          MOV     R3,R0           ;COPY HIGH ORDER ADDRESS
014430  001403                          BEQ     20$             ;BR IF NOT ABOVE 28K
014432  004737  017406                  JSR     PC,SETMAP       ;SETUP PAR ADDRESS IN R0
014436  010005                          MOV     R0,R5           ;GET PAR FORMAT ADDRESS ABOVE 28K
014440                          20$:    PRINTX  #PRASC,R4,(R5)+ ;PRINT THE CONTENTS OF MEMORY BUFFER
014440  012546                          MOV     (R5)+,-(SP)
014442  010446                          MOV     R4,-(SP)
014444  012746  014613                  MOV     #PRASC,-(SP)
014450  012746  000003                  MOV     #3,-(SP)
014454  010600                          MOV     SP,R0
014456  104415                          TRAP    C$PNTX
014460  062706  000010                  ADD     #10,SP
014464  005204                          INC     R4              ;NUMBER OF THE NEXT
014466  020427  000007                  CMP     R4,#7           ;DONE ALL YET ?
014472  003005                          BGT     50$             ;BRANCH IF ALL DONE
014474  002761                          BLT     20$             ;PRINT FIRST 7 WORDS
014476  032763  000200  000012          BIT     #X2.EXTF,XST2(R3);EXTENDED FEATUTES ON ?
014504  001355                          BNE     20$             ;PRINT EXTENDED STATUS WORD
014506  000207                  50$:    RTS     PC              ;RETURN
014510     045     116     045  PROASC: .ASCIZ  '<NL>A Message Buffer Address = <01><05>'
014555     045     116     045  PR1ASC: .ASCIZ  '<NL>A Message Buffer Contents:'
014613     045     116     045  PRASC:  .ASCIZ  '<NL>A    Words<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
                                ;
                                PRMSGEXP::
                                        SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
                                        MOV     R0,R5           ;SAVE NUMBER OF WORDS
                                        MOV     RCVLOADD,R0     ;GET RECV LOW ADDRESS
                                        MOV     R0,R4           ;COPY LOW ADDRESS
                                        MOV     RCVHIADD,R1     ;GET RECV HIGH ADDRESS
                                        ROL     R0              ;SHIFT BIT15 TO C BIT
                                        ROL     R1              ;SHIFT TO HIGH ORDER FOR PRINTOUT
                                        PRINTX  #PRMSG0,R1,R4   ;PRINT MESSAGE BUFFER ADDRESS
                                        MOV     R4,-(SP)
                                        MOV     R1,-(SP)
                                        MOV     #PRMSG0, (SP)
                                        MOV     #3,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
                                        ADD     #10,SP
                                        PRINTX  #PRMSG1         ;PRINT HEADER FOR CONTENTS
                                        MOV     #PRMSG1, (SP)
                                        MOV     #1,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
                                        ADD     #4,SP
                                        CLR     R4              ;NUMBER OF THE CURRENT WORD
                                        MOV     #EXPMSG,R1      ;GET EXPD BUFFER ADDRESS
                                        MOV     #RECMSG,R2      ;GET RECV BUFFER ADDRESS
                                20$:    MOV     (R1),R0         ;GET EXPD
                                        MOV     (R2),R3         ;GET RECV
                                        XOR     R0,R3           ;XOR EXPD/RECV
                                        PRINTX  #PRMSG2,R4,(R1)+,(R2)+,R3
                                        MOV     R3,-(SP)
                                        MOV     (R2)+,-(SP)
                                        MOV     (R1)+,-(SP)
                                        MOV     R4,-(SP)
                                        MOV     #PRMSG2,-(SP)
                                        MOV     #5,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
                                        ADD     #14,SP
                                        INC     R4              ;NUMBER OF THE NEXT
                                        CMP     R4,R5           ;DONE ALL YET?
                                        BGE     50$             ;BR IF YES
                                        BR      20$             ;DO ANOTHER
                                50$:    RTS     PC              ;RETURN
                                PRMSG0: .ASCIZ  '%N%A Message Buffer Address = %01%05
                                PRMSG1: .ASCIZ  '%N%A Message Buffer Contents:'
                                PRMSG2: .ASCIZ  '%N%A   WORD #%02%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
                                        ;
                                        PRBYTEXP::
                                                SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
                                                MOV     R0,R5           ;SAVE NUMBER OF BYTES
                                                CLR     PRMNO           ;INIT ERROR COUNT
                                                CLR     R4              ;NUMBER OF THE CURRENT BYTE
                                                MOV     #EXPMSG,R1      ;GET EXPD BUFFER ADDRESS
                                                MOV     #RECMSG,R2      ;GET RECV BUFFER ADDRESS
                                        20$:    MOVB    (R1),R0         ;GET EXPD BYTE
                                                BIC     #^C<377>,R0     ;CLEAR UPPER BYTE
                                                MOVB    R0,PRBEXP       ;SAVE FOR ERROR REPORT
                                                MOVB    (R2),R3         ;GET RECV BYTE
                                                BIC     #^C<377>,R3     ;CLEAR UPPER BYTE
                                                MOVB    R3,PRBREC       ;FOR ERROR REPORT
                                                XOR     R0,R3           ;XOR EXPD/RECV
                                                CMPB    (R1)+,(R2)+     ;EXPD = RECV?
                                                BEQ     30$             ;BR IF YES
                                                INC     PRMNO           ;UPDATE ERROR COUNT
                                                CMP     PRMNO,#8.       ;PRINTED 8?
                                                BHI     30$             ;BR IF YES
                                        27$:    PRINTX  #PRBMSG,R4,PRBEXP,PRBREC,R3
                                                MOV     R3,-(SP)
                                                MOV     PRBREC,-(SP)
                                                MOV     PRBEXP,-(SP)
                                                MOV     R4,-(SP)
                                                MOV     #PRBMSG,-(SP)
                                                MOV     #5,-(SP)
                                                MOV     SP,R0
                                                TRAP    C$PNTX
                                                ADD     #14,SP
                                                FORCEXIT        50$     ;BUG
                                                BR      35$             ;BUG
                                        30$:
                                                FORCERROR  27$,NOTSSR   ;BUG
                                        35$:                            ;BUG
                                                INC     R4              ;NUMBER OF THE NEXT
                                                CMP     R4,R5           ;DONE ALL YET?
                                                BGE     50$             ;BR IF YES
                                                BR      20$             ;DO ANOTHER
                                        50$:    PRINTX  #PRBTOT,PRMNO   ;PRINT TOTAL ERROR COUNT
                                                MOV     PRMNO,-(SP)
                                                MOV     #PRBTOT,-(SP)
                                                MOV     #2,-(SP)
                                                MOV     SP,R0
```

```
                015416  104415                          TRAP    C$PNTX
                015420  062706  000006                  ADD     #6,SP
1783            015424  000207                          RTS     PC              ;RETURN
1784
1785            015426      045     116     045 PRBMSG: .ASCIZ  '<CR><LF>  BYTE #D2<LF>  EXPD: <03><LF>  RECV: <03><LF>  XOR: <03>'
1786            015513      045     116     045 PRBTOT: .ASCIZ  '<CR><LF> NUMBER OF BYTES IN ERROR = <D2>
1787                                                .EVEN
1788            015560  000000                  PRBEXP: .WORD   0               ;EXPD
1789            015562  000000                  PRBREC: .WORD   0               ;RECV
1790                                                    .SBTTL  EXPREC    PRINT EXPD/RECV WORD DATA
1791                                            ;+
1792                                            ;
1793                                            ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
1794                                            ;
1795                                            ;INPUTS:
1796                                            ;
1797                                            ;       R1      RECEIVED DATA
1798                                            ;       R2      EXPECTED DATA
1799                                            ;
1800                                            ;
1801
1802            015564                          EXPREC: BGNMSG  EXPREC
                015564                          EXPREC::
1803            015564  004737  010032                  JSR     PC,PRIXOR               ;PRINT THE DATA
1804            015570                                  ENDMSG
                015570                          L10017:
                015570  104423                          TRAP    C$MSG
1805                                                    .SBTTL  EXPBREC - PRINT EXPD/RECV BYTE DATA
1806                                            ;+
1807                                            ;
1808                                            ;PRINT ROUTINE TO DISPLAY BYTE EXPD/RECV DATA
1809                                            ;
1810                                            ;INPUTS:
1811                                            ;
1812                                            ;       R1      RECEIVED DATA BYTE
1813                                            ;       R2      EXPECTED DATA BYTE
1814                                            ;
1815                                            ;
1816
1817             015572                         EXPBREC: BGNMSG EXPBREC
                015572                          EXPBREC::
1818            015572  004737  007702                  JSR     PC,PRIBXOR              ;PRINT THE DATA
1819            015576                                  ENDMSG
                015576                          L10020:
                015576  104423                          TRAP    C$MSG
1820
1821
1822                                                    .SBTTL  RAMERR  - PRINT RAM AND PACKET DATA
1823                                            ;+
1824                                            ;
1825                                            ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
1826                                            ;
1827                                            ;INPUTS:
1828                                            ;
1829                                            ;       R4      POINTER TO COMMAND PACKET
1830                                            ;
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
                        RAMERR::
015600  004737  014066          JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
                                ENDMSG
                        L10021:
015604  104423                 TRAP    C$MSG

                                .SBTTL  RAMTADD   PRINT TEST ADDRESS, RAM AND PACKET DATA
                        ;*
                        ;
                        ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
                        ;
                        ;INPUTS:
                        ;
                        ;       R4      POINTER TO COMMAND PACKET
                        ;
                        ;IMPLICIT INPUTS:
                        ;
                        ;       PAMDATA         DATA AS READ FROM THE RAM
                        ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                        ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                        ;       ERRHI           HIGH ORDER TEST ADDRESS
                        ;       ERRLO           LOW ORDER TEST ADDRESS
                        ;
                        ;IMPLICIT OUTPUTS:
                        ;
                        ;       RAMSIZ  SET TO 0
                        ;

                                BGNMSG  RAMTADD
                        RAMTADD::
015606  004737  010364          JSR     PC,PRITADD      ;PRINT TEST ADDRESS
015612  004737  014066          JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
                                ENDMSG
                        L10022:
015616  104423                 TRAP    C$MSG

                                .SBTTL  RAMEXP  - PRINT RAM EXPD/RECV DATA
                        ;*
                        ;
                        ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                        ;
                        ;INPUTS:
                        ;
                        ;       R1      RECEIVED DATA
                        ;       R2      EXPECTED DATA
```

```
                                        ;       R4      CONTROLLER RAM ADDRESS
                                        ;
                                                BGNMSG  RAMEXP
                                        RAMEXP::
                                                BIC     #^C<377>,R1             ;SAVE EXPD RAM DATA BYTE
                                                BIC     #^C<377>,R2             ;SAVE EXPD RAM DATA BYTE
                                                JSR     PC,PRIRAM               ;PRINT THE RAM ADDRESS
                                                JSR     PC,PRIXOR               ;PRINT THE DATA
                                                ENDMSG
                                        L10023:
                                                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  #TIMSGO                 ;PRINT HEADER
                                                MOV     #TIMSGO,-(SP)
                                                MOV     #1,-(SP)
                                                MOV     SP,R0
                                                TRAP    C$PNTX
                                                ADD     #4,SP
                                                JSR     PC,PRIXOR               ;PRINT THE DATA
                                                ENDMSG
                                        L10024:
                                                TRAP    C$MSG

                045     116     045     TIMSGO: .ASCIZ  '<NL>A TIMER A STATUS IS IN BIT 3<NL>A TIMER B STATUS IS IN BIT 2
                                                .EVEN
                                                .SBTTL  BADSSR  PRINT TSSR ERRORS ON DATA TRANSFERS

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

                                                BGNMSG  BADSSR
                                        BADSSR::
                                                MOV     R2,-(SP)                ;SAVE DATA TRANSFERRED
                                                BIC     #177400,R2              ;GET JUST ONE BYTE
```

```
1928 015776                                    PRINTB  #XFERASC,R2
     015776  010246                            MOV     R2,-(SP)
     016000  012746  016030                    MOV     #XFERASC,-(SP)
     016004  012746  000002                    MOV     #2, (SP)
     016010  010600                            MOV     SP,R0
     016012  104414                            TRAP    C$PNTB
     016014  062706  000006                    ADD     #6,SP
1929 016020  012602                            MOV     (SP)+,R2                ;RESTORE R2
1930 016022  004737  006022                    JSR     PC,PRITSSR              ;DECODE TSSR CONTENTS
1931 016026                                    ENDMSG
     016026                            L10025:
     016026  104423                            TRAP    C$MSG
1932 016030    045   116   045  XFERASC:        .ASCIZ  '%NSA Data Transferred = %03
```

```
                        .SBTTL  GLOBAL SUBROUTINES SECTION

                        ;**
                        ; THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
                        ; THAT ARE USED IN MORE THAN ONE TEST.
                        ; -
                                .SBTTL  SOFINIT - SOFT INITIALIZE OF CONTROLLER

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

016064                  SOFINIT::
016064                          SAVREG                          ; SAVE THE REGISTERS
016070  012765  000000  000002          MOV     #0,TSSR(R5)     ; DO THE INIT.
016076  004737  016340                  JSR     PC,WAITF        ; WAIT FOR SSR
016102  016500  000002                  MOV     TSSR(R5),R0     ;GET THE TSSR REGISTER
016106  010004                          MOV     R0,R4           ;TSSR CONTENTS
016110  042704  176277                  BIC     #^C<HIADDR!OFL>,R4
016114  052704  002200                  BIS     #SSR!NBA,R4     ;R4 HAS EXPECTED CONTENTS
016120  020400                          CMP     R4,R0           ;ONLY EXPECTED BITS SET ?
016122  001402                          BEQ     5$              ;BRANCH IF OKAY
016124  000241                          CLC                     ;CLEAR THE CARRY FOR ERROR
016126  000401                          BR      10$             ;GO TO EXIT
016130  000261                  5$:     SEC                     ;SET THE CARRY BIT
016132  000207                  10$:    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
                                ;
                                ;-

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

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

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

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

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

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

                                        BGNSRV  INTR            ;DEFINE INTERRUPT ENTRY
016306                          INTR::
016306  012737  000001  002214          MOV     #1,INTRECV      ;SET FLAG TO SHOW INTERRUPT RECEIVED
016314  105037  016235                  CLRB    INTFLAG         ;CLEAR FLAG TO SAY WE GOT INTERRUPT
016320  132737  000001  016234          BITB    #IOKSTP,INTMASK ;EXPECTING STOP INTERRUPT?
016326  001003                          BNE     1$              ;BR IF YES
016330  152737  000001  016235          BISB    #IOKSTP,INTFLAG ;NO. SET THE ERROR FLAG.

                                ;SAVE REGISTERS, MSG BUFFER, ETC.
016336                          1$:
016336                                  ENDSRV
016336                          L10026:
016336  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
                                ;
016340  000401                  WAITF:: BR      1$              ;NOP WHEN SUPER FIXED
016342                                  BREAK                   ; DO A SUPVSR BREAK FIRST.
016342  104422                          TRAP    C$BRK
016344  012746  011000          1$:     MOV     #11000,-(SP)    ;25-APRIL-83 REV B    1100 MSEC TIMER
016350  016500  000002          2$:     MOV     TSSR(R5),R0     ;READ THE TSSR REGISTER
016354  105700                          TSTB    R0              ;TEST FOR READY BIT SET
                                
016356  100420                          BMI     3$              ; EXIT ON STOP FLAG.
016360                                  DELAY   1               ; WAIT 100 USEC
016360  012727  000001                  MOV     #1,(PC)+
016364  000000                          .WORD   0
016366  013727  002116                  MOV     L$DLY,(PC)+
016372  000000                          .WORD   0
016374  005367  177772                  DEC     -6(PC)
016400  001375                          BNE     .-4
016402  005367  177756                  DEC     -22(PC)
016406  001367                          BNE     .-20
016410  005316                          DEC     (SP)            ;REDUCE DELAY COUNT
016412  001356                          BNE     2$              ;RETRY UNTIL TIMER EXPIRES
016414  000241                          CLC                     ; C = 0, CONTROLLER STILL RUNNING...
016416  000401                          BR      4$              ;...OR HUNG-UP AFTER 300 MSEC.
016420  000261                  3$:     SEC                     ; C = 1, CONTROLLER IS STOPPED.
016422  005326                  4$:     DEC     (SP)+           ;RESTORE STACK WITHOUT CHANGING CARRY BIT
016424  000207                          RTS     PC
```

```
                        .SBTTL  CHKTSSR   CHECK TSSR FOR READY
                        ;+
                        ;THIS ROUTINE WAITS FOR READY IN THE TSSR
                        ;AND TESTS FOR AMBIGUOUS BIT SETTINGS IN TSSR.
                        ;
                        ;INPUT:
                        ;       R5      ADDRESS OF CSR REGISTERS
                        ;
                        ;OUTPUT:
                        ;       R0      CONTENTS OF TSSR
                        ;       CARRY   SET   OKAY
                        ;               CLR - NOT READY AMBIGUOUS, OR SC SET
                        ;
016426                  CHKTSSR:
016426  004737  016340          JSR     PC,WAITF                ;WAIT FOR READY
016432  103014                  BCC     20$                     ;BRANCH IF TIME OUT
016434  004737  016134          JSR     PC,CHKAMB               ;TSSR AMBIGOUS?
016440  103006                  BCC     10$                     ;BR IF YES
016442  032700  100000          BIT     #SC,R0                  ;SPECIAL CONDITION SET?
016446  001405                  BEQ     15$                     ;BR IF NO
016450  032700  074000          BIT     #<SCE!BIE!RMR!NXM>,R0   ;ANY ERROR BITS SET?
016454  001402                  BEQ     15$                     ;BR IF NO
016456  000241          10$:    CLC                             ;SET FAILURE
016460  000401                  BR      20$                     ;
016462  000261          15$:    SEC                             ;SET SUCCESS
016464  000207          20$:    RTS     PC                      ;RETURN TO CALLER
                                .SBTTL  XNXM    - CHECK FOR NONEXISTENT MEMORY
                        ;+
                        ; ROUTINE TO TEST FOR A NEXM IN THE RANGE (R1) THRU (R2).
                        ; ON RETURN, IF "C" = 1, (R1) = NEXM ADDRESS.
                        ;               "C" = 0, ALL ADDRESSES OK.
                        ;
                        ;CALL:  MOV ADR1,R1
                        ;       MOV ADR2,R2
                        ;       JSR PC,NXM
                        ;       RETURN          ;TEST "C" AND PROCEED.
016466  012737  016520  000004  XNXM:   MOV     #2$,@#4         ; SET BUSERR VECTOR.
016474  012737  000200  000006          MOV     #PRI04,@#6
016502  005003                  CLR     R3                      ;FLAG.
016504  005711          1$:     TST     (R1)                    ;TEST THE ADDRESS(ES).
                                                                ;IF ANY TRAP, CONTINUE AT 2$.
016506  020102                  CMP     R1,R2                   ;OTHERWISE, CONTINUE HERE.
016510  001407                  BEQ     3$                      ;BR IF FINISHED (NO NEXM S).
016512  062701  000002          ADD     #2,R1                   ;SET NEXT ADDRESS...
016516  000772                  BR      1$                      ;...AND CONTINUE.
016520  005103          2$:     COM     R3                      ;GOT ONE, SET FLAG...
016522  012716  016530          MOV     #3$,(SP)
016526  000002                  RTI                             ;...AND DISMISS INTERRUPT...
016530                  3$:     CLRVEC  #4                      ;...AND GIVE BACK THE VECTOR.
016530  012700  000004          MOV     #4,R0
016534  104436                  TRAP    C$CVEC
016536  005703                  TST     R3                      ;DID WE CATCH ONE ??
016540  001401                  BEQ     .+4                     ;NO, "C" = 0, SKIP NEXT.
016542  000261                  SEC                             ;YES, "C" = 1, (R1) = NEXM ADDR
016544  000207                  RTS     PC
```

```
                                        .SBTTL  TSTLOOP  CHECK ITERATION COUNT
                                ;*
                                ; SUBROUTINE TO EXECUTE TEST ITERATIONS.
                                ; EXIT WITH 'C  SET IF LOOPS ALLOWED AND LOOP COUNT NON ZER
                                ; LOOP COUNTER IS SET BY "BEGIN.TEST  MACRO.
                                ;
                                ; CALL: LOOPTO  ARG
                                ;
016546                          TSTLOOP::
016546  005737  002160                  TST     NOITS           ; ITERATIONS INHIBITED?
016552  001006                          BNE     1$              ; YES.
016554  005737  002174                  TST     QVP             ; NO.
016560  100403                          BMI     1$              ;LOOPS DISALLOWED IN QUICK PASS.
016562  005337  002206                  DEC     LOOPCNT         ; BUMP LOOP COUNTER
016566  001002                          BNE     2$
016570  000241                  1$:     CLC                     ;LOOP DISALLOWED, OR DONE.
016572  000401                          BR      3$
016574  000261                  2$:     SEC                     ;LOOP ENABLED.
016576  00020                   3$:     RTS     PC
                                        .SBTTL  TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS
                                ;*
                                ; PRINT THE NUMBER AND NAME OF EACH TEST AS WE GO ALONG.
                                ; INCREMENT "TESTK" TO INDICATE THE NUMBER OF TESTS
                                ; IN THE CURRENT RUN SEQUENCE.
                                ; CLEAR THE ERROR COUNTER AND SIGNATURE EXTENSION FLAGS.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      POINTER TO TEST ID ASCIZ STRING
                                ;
                                ;OUTPUT:
                                ;
                                ;       R5      ADDRESS OF FIRST DEVICE REGISTER
                                ;
                                ;IMPLICIT OUTPUTS.
                                ;
                                ;       TSTCNT  UPDATED TO COUNT TESTS PERFORMED SINCE START OR RESTART
                                ;
                                ;SIDE EFFECTS:
                                ;
                                ;       INTERRUPT LEVEL IS RAISED TO LEVEL OF
                                ;       THE DEVICE UNDER TEST
                                ;
                                ;
016600                          TSTSETUP::
016600  010046                          MOV     R0, (SP)        ;SAVE THE TEST ID MESSAGE
016602  005037  003144                  CLR     SIFLAG          ; CLEAR "SOFT INIT" FLAG
016606  005037  017046                  CLR     ERRK            ; CLEAR LOCAL ERROR COUNTER
016612  005037  005770                  CLR     EXTA            ; CLEAR ERROR EXTENSION FLAG
016616  105037  016234                  CLRB    INTMASK         ; CLEAR INTERRUPT MASK (CHECK ERROR)
016622  013700  002172                  MOV     UNITN,R0        ; GET THE UNIT NUMBER.
016626  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET
016630  005737  003104                  TST     NODEV           ; DID STARTUP FIND THE DEVICE?
016634  001430                          BEQ     4$              ; BR IF YES
016636  100010                          BPL     3$              ; BR IF NOT IDLE
```

```
                016640  052760  160000  003166          BIS     #160000,ERTABL(R0) ; FLAG ERROR IN THE ERROR TABLE
                016646                                  ERRDF   1,NXR,NXRERR       ; NO DEVICE HERE    PRINT IT
                016646  104455                          TRAP    C$ERDF
                016650  000001                           WORD   1
                016652  003736                          .WORD   NXR
                016654  005734                          .WORD   NXRERR
                016656  000407                          BR      2$
                016660  052760  160001  003166    3$    BIS     #160001,ERTABL(R0)      ; FLAG ERROR IN THE ERROR TABLE
                016666                                  ERRDF   2,NOINIT        ; DEVICE NOT IDLE
                016666  104455                          TRAP    C$ERDF
                016670  000002                          .WORD   2
                016672  004333                          .WORD   NOINIT
                016674  000000                          .WORD   0
                016676  012737  177777  003102    2$    MOV     #-1,DUFLG       ; DROP THE UNIT
                016704                                  DODU    UNITN
                016704  013700  002172                  MOV     UNITN,R0
                016710  104451                          TRAP    C$DODU
                016712                                  DOCLN                   ; ABORT THE PASS
                016712  104444                          TRAP    C$DCLN
                016714  000423                          BR      5$

                016716                          4$      RFLAGS  R0              ; GET THE OPERATOR FLAGS
                016716  104421                          TRAP    C$RFLA
                016720  032700  001000                  BIT     #PNT,R0         ; PRINT THE TEST NUMBERS?
                016724  001412                          BEQ     1$              ; BR IF NO
                016726  011600                          MOV     (SP),R0         ;GET THE ID MESSAGE
                016730                                  PRINTF  #TNAM,R0                ;DISPLAY THE TEST ID
                016730  010046                          MOV     R0,-(SP)
                016732  012746  016774                  MOV     #TNAM,-(SP)
                016736  012746  000002                  MOV     #2,-(SP)
                016742  010600                          MOV     SP,R0
                016744  104417                          TRAP    C$PNTF
                016746  062706  000006                  ADD     #6,SP
                016752  005237  002204          1$.     INC     TSTCNT          ; BUMP TEST COUNTER.
                016756                                  SETPRI  IPRI            ;PRIORITY THAT OF DEVICE
                016756  013700  002202                  MOV     IPRI,R0
                016762  104441                          TRAP    C$SPRI
                016764  005726                  5$:     TST     (SP)+           ;FIX UP THE STACK
                016766  013705  002176                  MOV     CSRADDR,R5      ; ADDRESS OF TSV REGISTERS ON UNIBUS
                016772  000207                          RTS     PC
                016774     045     123     045  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).
                                            ;
                017010                      TSTEND: RFLAGS  R0
                017010  104421                          TRAP    C$RFLA
                017012  030027  020000                  BIT     R0,#IER
                017016  001412                          BEQ     1$              ; BR IF "IER" NOT SET.
                017020                                  PRINTF  #ESUM,ERRK      ; PRINT ERROR COUNT.
                017020  013746  017046                  MOV     ERRK,-(SP)
                017024  012746  017050                  MOV     #ESUM,-(SP)
                017030  012746  000002                  MOV     #2,-(SP)
                017034  010600                          MOV     SP,R0
                017036  104417                          TRAP    C$PNTF
```

```
        017040  062706  000006                  ADD     #6,SP
   2249 017044  00020?                  1$:     RTS     PC
   2250
   2251 017046  000000                  ERRK:   0                       ; LOCAL ERROR COUN?.
   2252 017050     045     101     040  ESUM:   .ASCIZ  /%A %D%A ERRORS/
   2253 01706?     105     122     122  EMAXDU: .ASCIZ  /ERROR LIMIT REACHED    DROPPING UNI?
   2254                                 .EVEN
```

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

017172  010046                  CKEMAX: MOV     R0,(SP)         ; SAVE R0
017174  013700  002172                  MOV     UNITN,R0        ; GET UNIT NUMBER
017200  006300                          ASL     R0              ; ... AND MAKE IT A WORD OFFSET
017202  016000  003166                  MOV     ERTABL(R0),R0   ; GET ERROR TABLE ENTRY
017206  042700  170000                  BIC     #170000,R0      ; EXTRACT ERROR COUNT FIELD
017212  020037  002164                  CMP     R0,GERRMAX      ; IS GLOBAL LIMIT EXCEEDED FOR THIS UNIT?
017216  103004                          BHIS    1$              ; BR IF YES
017220  023737  017046  002162          CMP     ERRK,LERRMAX    ; IS LOCAL LIMIT EXCEEDED FOR THIS TEST?
017226  103417                          BLO     2$              ; BR IF NO
017230                          1$:     RFLAGS  R0              ; GET OPERATOR FLAGS
017230  104421                          TRAP    C$RFLA
017232  032700  000040                  BIT     #IDU,R0         ; IS DROPPING INHIBITED?
017236  001013                          BNE     2$              ; BR IF YES.
017240  012737  177777  003102          MOV     #-1,DUFLG       ; NO  - DROP THE UNIT
017246                                  ERRDF   4,EMAXDU
017246  104455                          TRAP    C$ERDF
017250  000004                          .WORD   4
017252  017067                          .WORD   EMAXDU
017254  000000                          .WORD   0
017256                                  DODU    UNITN
017256  013700  002172                  MOV     UNITN,R0
017262  104451                          TRAP    C$DODU
017264                                  DOCLN
017264  104444                          TRAP    C$DCLN
017266  012600                  2$:     MOV     (SP)+,R0        ; RESTORE R0
017270  000207                          RTS     PC              ; RETURN TO CALLER
```

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


                                        .SBTTL  CONFIG  - DETERMINE CONFIGURATION OF SYSTEM
                                ;
                                ; SUBROUTINE - DETERMINE CONFIGURATION OF TSV05 SYSTEM.
                                ;
017340                          CONFIG:
017340  004737  016064                  JSR     PC,SOFINIT
017344  000207                          RTS     PC
                                        .SBTTL  KTON,KTOFF        ENABLE/DISABLE MEMORY MANAGEMENT
                                ;
                                ; SUBROUTINE - ENABLE MEM MGT.
                                ;
017346  005737  003122          KTON:   TST     KTFLG           ; GOT KT?
017352  001403                          BEQ     1$              ; NO.
017354  012737  000001  177572          MOV     #1,SR0          ; YES. ENABLE KT11.
017362  000207                  1$:     RTS     PC


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

```
                                        .SBTTL  SETMAP    SETUP PAR6 MAPPING

                                ;*
                                ;
                                ;THIS ROUTINE SETS UP KERNEL PAR6 TP HANDLE
                                ;AN 18 BIT ADDRESS. THE OFFSET INTO THE PAGE
                                ;IS RETURNED BIASED TO PAR6.
                                ;
                                ;INPUTS:
                                ;
                                ;       R0      HIGH ORDER ADDRESS BITS
                                ;       R1      LOW ORDER ADDRESS BITS
                                ;
                                ;OUTPUTS:
                                ;
                                ;       R0      OFFSET INTO BLOCK WITH PAR6 BIAS (I.E. THE ADDRESS)
                                ;       CARRY   SET IF SUCCESS
                                ;               CLR IF ERROR
                                ;
017406                          SETMAP:
017406                                  SAVREG                          ;SAVE R1-R4 UNTIL NEXT RETURN
017412  005737  003122                  TST     KTFLG                   ;SYSTEM HAVE ABOVE 28K?
017416  001433                          BEQ     10$                     ;BR IF NO
017420  010102                          MOV     R1,R2                   ;SAVE LOW ORDER BITS
        000006                          .REPT   6
                                        ASR     R0                      ;CONVERT WORD ADDRESS TO 32W BLOCKS
                                        ROR     R1                      ;MAKE IT DOUBLE PRECISION
                                        .ENDR
017452  042701  000177                  BIC     #177,R1                 ;ALINE FOR LOWER 4K BOUNDARY
017456  020137  003122                  CMP     R1,KTFLG                ;HIGHER THAN EXISTING MEMORY?
017462  103011                          BHIS    10$                     ;BR IF YES
017464  010137  172354                  MOV     R1,@#KIPAR6             ;SETUP MAPPING REGISTER PAR6
017470  042702  160000                  BIC     #160000,R2              ;SETUP DISPLACEMENT IN PAGE
017474  062702  140000                  ADD     #140000,R2              ;ADD IN PAR6 BIAS
017500  010200                          MOV     R2,R0                   ;RETURN IN R0
017502  000261                          SEC                             ;SET SUCCESS
017504  000401                          BR      15$                     ;
017506  000241                  10$:    CLC                             ;SET FAILURE
017510  000207                  15$:    RTS     PC                      ;RETURN
                                        .SBTTL  FILLMEM - FILL MEMORY WITH BACKGROUND PATTERN
                                ;*
                                ;  FILL MEMORY WITH A BACKGROUND PATTERN
                                ;
                                ; INPUTS:
                                ;
                                ;       R0 = BACKGROUND PATTERN
                                ;       FREE    = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
                                ;       KTFLG   = SET TO HIGHEST MEMORY LOCATION IF > 28K.
                                ;
                                ; OUTPUTS:
                                ;
                                ;       NONE
                                ;
                                ;
017512                          FILLMEM:
017512                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
017516  004737  017364                  JSR     PC,KTOFF        ;DISABLE KT.
```

```
2391 017522  010003                        MOV     R0,R3           ;COPY TEST PATTERN
2392 017524  013701  003114                MOV     FREE,R1         ;GET FIRST FREE LOCATION
2393 017530  013702  003116                MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
2394 017534  010321              10$:      MOV     R3,(R1)+        ;STORE A BACKGROUND WORD
2395 017536  005302                        DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
2396 017540  003375                        BGT     10$             ;BR IF NO
2397 017542  005737  003122                TST     KTFLG           ; GOT KT?
2398 017546  001477                        BEQ     55$             ; NO. GET OUT.
2399 017550  004737  017346                JSR     PC,KTON         ; YES. ENABLE KT.
2400 017554  005000                        CLR     R0              ;HIGH ORDER ADDRESS START
2401 017556  013701  003142                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 017626  004737  017406                JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
2408 017632  010320              30$:      MOV     R3,(R0)+        ;STORE TEST PATTERN IN >28K ADDRESS
2409 017634  020027  160000                CMP     R0,#160000      ;END OF PAR6 MAPPING AREA?
2410 017640  103774                        BLO     30$             ;BR IF NO
2411 017642  162700  020000                SUB     #20000,R0       ;BACKUP INTO PAR6 MAPPING BEGIN
2412 017646  062737  000200  172354        ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
2413 017654  023737  172354  003122        CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
2414 017662  001427                        BEQ     50$             ;BR IF YES
2415 017664  005737  003134                TST     T23A            ;11/23A?
2416 017670  001407                        BEQ     35$             ;NO KEEP GOING
2417 017672  013704  177572                MOV     SR0,R4          ;GET SR0 CONTENTS
2418 017676  042704  177761                BIC     #177761,R4      ;CLEAR ALL BUT PAGE NUMBER
2419 017702  022704  000016                CMP     #16,R4          ;SEE IF PAGE 7
2420 017706  001415                        BEQ     50$             ;EXIT IF THERE
2421 017710  005737  003136        35$:    TST     T23B            ;11/23B?
2422 017714  001410                        BEQ     45$             ;NO KEEP GOING
2423 017716  023727  172354  007600        CMP     @#KIPAR6,#^600  ;REACHED 18 BITS?
2424 017724  103001                        BHIS    40$             ;YES
2425 017726  000403                        BR      45$             ;NO KEEP GOING
2426 017730  012737  000020  172516  40$:  MOV     #20,SR3         ;SET 22 BIT RELOCATION
2427 017736  000137  017632        45$:    JMP     30$             ;KEEP GOING ON ETC.
2428 017742  004737  017364        50$:    JSR     PC,KTOFF        ; DISABLE KT.
2429 017746  000207              55$:      RTS     PC
```

```
                                        .SBTTL  CMPMEM    COMPARE MEMORY TO BACKGROUND PATTERN
                                ;*
                                ; COMPARE MEMORY WITH A BACKGROUND PATTERN
                                ;
                                ; INPUTS:
                                ;
                                ;       R0 = BACKGROUND PATTERN
                                ;       FREE    = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
                                ;       KTFLG   = SET TO HIGHEST MEMORY LOCATION IF > 28K.
                                ;
                                ; OUTPUTS:
                                ;
                                ;       CARRY   - SET IF NO ERROR
                                ;       CARRY     CLR IF ERROR
                                ;
                                ; IMPLICIT OUTPUTS:
                                ;
                                ;       ERRHI   - ERROR HIGH ADDRESS
                                ;       ERRLO   - ERROR LOW ADDRESS
                                ;       EXPD    - EXPECTED DATA
                                ;       RECV    - RECEIVED DATA
                                ;
017750                          CMPMEM:
017750                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
017754  010003                          MOV     R0,R3           ;COPY TEST PATTERN
017756  004737  017364                  JSR     PC,KTOFF        ;DISABLE KT.
017762  013701  003114                  MOV     FREE,R1         ;GET FIRST FREE LOCATION
017766  013702  003116                  MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
017772  020311                  10$:    CMP     R3,(R1)         ;FREE SPACE LOCATION EQUAL TO EXPD?
017774  001411                          BEQ     15$             ;BR IF YES
017776  010137  002230                  MOV     R1,ERRLO        ;SAVE ADDRESS IN ERROR
020002  005037  002226                  CLR     ERRHI           ;NO HIGH ADDRESS
020006  010337  002222                  MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
020012  011137  002224                  MOV     (R1),RECV       ;SAVE RECV FOR ERROR REPORT
020016  000474                          BR      50$             ;
020020  005721                  15$:    TST     (R1)+           ;POINT TO NEXT ADDRESS
020022  005302                          DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
020024  003362                          BGT     10$             ;BR IF NO
020026  005737  003122                  TST     KTFLG           ; GOT KT?
020032  001472                          BEQ     55$             ; NO. GET OUT.
020034  004737  017346                  JSR     PC,KTON         ; YES. ENABLE KT.
020040  005000                          CLR     R0              ;HIGH ORDER ADDRESS START
020042  013701  003142                  MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
                000006                  .REPT   6
                                        ROL     R1              ;CONVERT BLOCKS TO WORDS
                                        ROL     R0              ;MAKE IT DOUBLE PRECISION
                                        .ENDR
020076  042701  000177                  BIC     #177,R1         ;ALINE 4K BOUNDARY
020102  010046                          MOV     R0,-(SP)        ;SAVE HIGH ORDER
020104  010146                          MOV     R1,-(SP)        ;SAVE LOW ORDER
020106  004737  017406                  JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
020112  010004                          MOV     R0,R4           ;COPY ADDRESS BIASED TO PAR6
020114  012601                          MOV     (SP)+,R1        ;RESTORE LOW ORDER IN NON PAR6 FORMAT
020116  012600                          MOV     (SP)+,R0        ;RESTORE HIGH ORDER IN NON PAR6 FORMAT
020120  020314                  30$:    CMP     R3,(R4)         ;ABOVE 28K LOCATION EQUAL EXPD?
020122  001411                          BEQ     32$             ;BR IF YES
020124  010037  002226                  MOV     R0,ERRHI        ;SAVE HIGH ORDER IN ERROR
```

```
2488 020130  010137  002230                    MOV     R1,ERRLO        ;SAVE LOW ORDER IN ERROR
2489 020134  010337  002222                    MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
2490 020140  011437  002224                    MOV     (R4),RECV       ;SAVE RECV FOR ERROR REPORT
2491 020144  000421                            BR      50$             ;
2492 020146  062701  000002          32$:      ADD     #2,R1           ;UPDATE NON PAR6 ADDRESS
2493 020152  005500                            ADC     R0              ;MAKE IT DOUBLE PRECISION ADD
2494 020154  062704  000002                    ADD     #2,R4           ;UPDATE PAR FORMAT ADDRESS
2495 020160  020427  160000                    CMP     R4,#160000      ;END OF PAR6 MAPPING AREA?
2496 020164  103755                            BLO     30$             ;BR IF NO
2497 020166  162704  020000                    SUB     #20000,R4       ;BACKUP INTO PAR6 MAPPING BEGIN
2498 020172  062737  000200  172354            ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
2499 020200  023737  172354  003122            CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
2500 020206  101744                            BLOS    30$             ;BR IF NO
2501 020210  004737  017364          50$:      JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2502 020214  000241                            CLC                     ;SET FAILURE
2503 020216  000403                            BR      60$             ;
2504 020220  004737  017364          55$:      JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
2505 020224  000261                            SEC                     ;SET SUCCESS
2506 020226  000207                  60$:      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 020230                         REGSAV:
2528 020230  010446                            MOV     R4,-(SP)
2529 020232  010346                            MOV     R3,-(SP)
2530 020234  010246                            MOV     R2,-(SP)
2531 020236  010146                            MOV     R1,-(SP)
2532 020240  010546                            MOV     R5,-(SP)
2533 020242  016605  000012                    MOV     10.(SP),R5
2534 020246  004736                            JSR     PC,@(SP)+
2535 020250  012601                            MOV     (SP)+,R1
2536 020252  012602                            MOV     (SP)+,R2
2537 020254  012603                            MOV     (SP)+,R3
2538 020256  012604                            MOV     (SP)+,R4
2539 020260  012605                            MOV     (SP)+,R5
2540 020262  000207                            RTS     PC
```

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

                                ;+
                                ;LOCAL DATA AREA
                                ;-

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

```
                                .SBTTL  GETSEL  - ISSUE MENU AND GET OPERATOR RESPONSE
                                ;+
                                ;ROUTINE TO ISSUE A MENU AND GET THE OPERATOR'S RESPONSE.
                                ;
                                ;INPUTS:
                                ;       R0      ADDRESS OF ASCIZ STRING OF MENU
                                ;       R1      MAXIMUM ALLOWABLE OPERATOR RESPONSE
                                ;
                                ;OUTPUTS:
                                ;       R0      NUMBER OF THE OPERATOR'S SELECTION
                                ;
                                GETSEL::
020346                                  SAVREG                          ;SAVE GENERAL REGISTERS
020346                                  MOV     R0,R2                   ;SAVE THE MENU ADDRESS
020352  010002                  1$:     MOV     R2,R3                   ;START OF MENU STRING
020354  010203                  2$:     TST     (R3)                    ;END OF ASCII ?
020356  005713                          BEQ     3$                      ;BRANCH IF ALL LINES DISPLAYED
020360  001412                          PRINTF  @SELASC,(R3)+           ;DISPLAY THE MENU
020362                                  MOV     (R3)+,-(SP)
020362  012346                          MOV     @SELASC,-(SP)
020364  012746  020532                  MOV     #2,-(SP)
020370  012746  000002                  MOV     SP,R0
020374  010600                          TRAP    C$PNTF
020376  104417                          ADD     #6,SP
020400  062706  000006                  BR      2$
020402  000764                  3$:     GMANID  MENASC,MENRES,D,-1,0, 1,NO
020406                                  TRAP    C$GMAN
020406  104443                          BR      10001$
020410  000406                          .WORD   MENRES
020412  020566                          .WORD   T$CODE
020414  000042                          .WORD   MENASC
020416  020537                          .WORD   -1
020420  177777                          .WORD   T$LOLIM
020422  000000                          .WORD   T$HILIM
020424  177777                  10001$:
020426                                  BNCOMPLETF      1$              ;RETRY IF ERROR
020426  103352                          BCC     1$
020430  013700  020566                  MOV     MENRES,R0               ;GET THE OPERATOR'S REPLY
020434  020001                          CMP     R0,R1                   ;COMPARE TO MAXIMUM ALLOWED
020436  101411                          BLOS    5$                      ;BRANCH IF OK
020440                                  PRINTF  @MENERR                 ;DISPLAY ERROR MESSAGE
020440  012746  020464                  MOV     @MENERR,-(SP)
020444  012746  000001                  MOV     #1,-(SP)
020450  010600                          MOV     SP,R0
020452  104417                          TRAP    C$PNTF
020454  062706  000004                  ADD     #4,SP
020460  000735                          BR      1$                      ;RETRY
020462  000207                  5$:     RTS     PC                      ;RETURN TO CALLER
020464     045     116     045  MENERR: .ASCIZ  '<N><A *** Menu Selection Too Large ***
020532     045     116     045  SELASC: .ASCIZ  '<N><T>'
020537     105     156     164  MENASC: .ASCIZ  'Enter Menu Selection: '
                                        .EVEN
020566  000000                  MENRES:         .WORD   0
```

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

020570                          CHKMAN::
020570                                  SAVREG                  ;SAVE THE REGISTERS
020574                                  MANUAL                  ;SEE IF MANUAL INTERVENTION OK
020574  104450                          TRAP    C$MANI
020576  103411                          BCOMPLETE 1$            ;BRANCH IF ALLOWED
020600                                  BCS     1$
020600  012746  020624                  PRINTF  #NOMAN          ;PRINT THE WARNING MESSAGE
020604  012746  000001                  MOV     #NOMAN,(SP)
020610  010600                          MOV     #1,-(SP)
020612  104417                          MOV     SP,R0
020614  062706  000004                  TRAP    C$PNTF
020620  000241                          ADD     #4,SP
020622  000207                          CLC                             ;CLEAR CARRY FOR ERROR
                                1$:     RTS     PC                      ;RETURN

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

```
                                        .SBTTL  ENVIRN    SETUP FREE DIAGNOSTIC SPACE
                                ;
                                ; SUBROUTINE TO SET-UP VARIOUS ENVIRONMENTAL PARAMETERS.
                                ;
020720                          ENVIRN: MEMORY  R0
020720  104431                         TRAP    C$MEM
020722  010037  003114                 MOV     R0,FREE         ; GET 1ST FREE ADDRESS...
020726  062737  000002  003114         ADD     #2,FREE
020734  011037  003116                 MOV     (R0),FRESIZ     ;...AND WORD COUNT.
020740  162737  000004  003116         SUB     #4,FRESIZ
020746  013702  002012                 MOV     L$UNIT,R2       ; GET NUMBER OF UNITS
020752  162737  000007  003116 10$:    SUB     #7,FRESIZ       ; TAKE AWAY 7 WORDS PER UNIT
020760  005302                         DEC     R2
020762  001373                         BNE     10$
020764  013700  003114                 MOV     FREE,R0         ;GET FIRST FREE ADDRESS
020770  063700  003116                 ADD     FRESIZ,R0       ;POINT TO LAST FREE ADDRESS
020774  162700  000002                 SUB     #2,R0           ;BACKUP 1 WORD
021000  010037  003120                 MOV     R0,FREEHI       ;STORE LAST FREE ADDRESS
021004  000240                         NOP                     ;*****************************************
021006  012701  177520                 MOV     #BDVPCR,R1      ;GET BDV11 PCR ADDRESS
021012  010102                         MOV     R1,R2           ;COPY TO R2
021014  062702  000002                 ADD     #2,R2           ;SET THE RANGE
021020  004737  016466                 JSR     PC,XNXM         ;SEE IF WE HAVE ONE
021024  103001                         BCC     15$             ;OK TO SET FLAGS
021026  000423                         BR      40$             ;RETURN WITH FLAGS CLEAR
021030  013701  177520         15$:    MOV     BDVPCR,R1       ;SAVE PCR CONTENTS
021034  062701  000001                 ADD     #1,R1           ;ADD ONE TO IT
021040  012702  177520                 MOV     #BDVPCR,R2      ;GET BDV11 PCR ADDRESS
021044  005212                         INC     (R2)            ;TRY TO WRITE TO IT
021046  013703  177520                 MOV     BDVPCR,R3       ;GET RESULTS
021052  020103                         CMP     R1,R3           ;DID IT CHANGE?
021054  001006                         BNE     20$             ;NO, MUST BE 11/23B
021056  005237  003134                 INC     T23A            ;SET THE FLAG
021062  042737  170000  002120         BIC     #170000,L$HIME  ;SUPERVISOR COULD BE WRONG
                                ;               NOP                     ;BR 40$ FOR RELEASE
                                ;               PRINTF  #M8136          ;TELL THE SYSTEM TYPE
021070  000402                         BR      40$             ;RETURN
021072  005237  003136         20$:    INC     T23B            ;SET THE FLAG
                                ;               NOP                     ;BR 40$ FOR RELEASE
                                ;               PRINTF  #M8189          ;TELL THE SYSTEM TYPE
021076                          40$:
021076  000207                         RTS     PC              ;RETURN
```

```
                                        .SBTTL  KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS
                                ;+
                                ;
                                ;ROUTINE TO INIT KT 11
                                ;
                                ;
021100                          KTINIT:
021100  005037  003122                  CLR     KTFLG           ; INIT >28K MEMORY FLAG
021104  005037  003124                  CLR     KTENABLE        ; INIT TEST >28K FLAG
021110  023727  002120  001577          CMP     L$HIME,#1577    ; GOT ENOUGH MEMORY (>28K)?
021116  101444                          BLOS    9$              ; NO.
021120  013700  000004                  MOV     @#ERRVEC,R0     ; SAVE OLD ERR VEC PTR.
021124  012737  021216  000004          MOV     #2$,@#ERRVEC    ; SET ERR VEC PTR.
021132  005737  177572                  TST     @#SR0           ; GOT KT11?
021136  000240                          NOP                     ;  (TRAP IF NO).
021140  013737  002120  003122          MOV     L$HIME,KTFLG    ; YES. SET KT FLAG.
021146  042737  000177  003122          BIC     #177,KTFLG      ;
021154  010037  000004                  MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
021160  005000                          CLR     R0              ; R0 = AR DATA.
021162  012701  172340                  MOV     #KIPAR0,R1      ; R1 = KI REGS PTR.
021166  012761  077406  177740  1$:     MOV     #77406,-40(R1)  ; SET DESCRIPTOR REG.
021174  010021                          MOV     R0,(R1)+        ; SET KIPAR REG.
021176  062700  000200                  ADD     #200,R0         ; BUMP AR DATA BY "4K".
021202  020027  002000                  CMP     R0,#2000        ; AT "I/O"?
021206  001367                          BNE     1$              ;  NO.
021210  012741  177600                  MOV     #177600,-(R1)   ; YES. SET KTPAR7 FOR I/O.
021214  000405                          BR      9$
                                ;
021216  012716  021224          2$:     MOV     #6$,(SP)        ; SET UP RETURN
021222  000002                          RTI                     ; RTI TO NEXT LOCATION
                                ;
021224  010037  000004          6$:     MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR
                                ;
021230  000207                  9$:     RTS     PC
```

```
2713                                    ;*
2714                                    .       SUBROUTINE TO SET EXTENDED FEATURES SWITCH
2715                                    ;
2716                                    .       Requires that SOFINIT and WRTCHR have been done previous to call
2717                                    .
2718                                    ;
2719                                    ;INPUTS
2720                                    ;       R5      CURRENT UNIT NUMBER
2721                                    ;OUTPUTS:
2722                                    .       The Extended Features Switch is set.
2723                                    .
2724                                    .
2725
2726 021232                            INVERT::
2727
2728 021232  005737  002216                    TST     EXTFEA                  ; IS SWITCH SET?
2729 021236  001020                            BNE     1$                      ; YES,EXIT STAGE RIGHT!(or the next one outa town!)
2730 021240  012737  100206  021304            MOV     #100206,CMDPKT          ; WRT SUB SYS MEM CMD
2731 021246  012737  021314  021306            MOV     #WSMBK,CMDPKT+2         ; MSG BUF ADDR
2732 021254  012737  000006  021312            MOV     #6,CMDPKT+6             ; BYTE COUNT
2733 021262  012737  100010  021314            MOV     #100010,WSMBK           ; INVERT THE SWITCH
2734 021270  012704  021304                    MOV     #CMDPKT,R4              ; SET CMDPKT INTO R4
2735 021274  004737  010752                    JSR     PC,WRTCHR               ; DO IT
2736 021300  000207            1$:     RTS     PC                      ; RETURN
2737
2738                                    ;       COMMAND PACKET.
2739
2740         021304                     .       .       <.+3>&177774    ;MUST BE ON MOD 4 BOUNDRY.
2741
2742 021304  000000                    CMDPKT:: 0                      ;1ST WORD IS TSO5 COMMAND.
2743 021306  000000                             0                      ;2ND WORD IS THE BUFFER LOW ADDRESS.
2744 021310  000000                             0                      ;3RD WORD IS THE BUFFER HIGH ADDRESS.
2745 021312  000000                             0                      ;4TH WORD IS THE BYTE/RECORD/FILE COUNT.
2746
2747                                    ;       WRITE SUB SYSTEM MEMORY CHARACTERISTIC BLOCK.
2748
2749 021314  000000                    WSMBK:: 0                       ;1ST WORD:: SEL 0
2750 021316  000000                            0                       ;2ND WORD:: SEL 2
2751 021320  000000                            0                       ;3RD WORD:: SEL 4
2752                                            .EVEN
2753                                    ;*
2754                                    ;       SUBROUTINE TO CHECK WETHER OR NOT WE'LL TEST NXM
2755                                    ;
2756                                    ;
2757                                    ;INPUTS:
2758                                    ;OUTPUTS:
2759                                    ;       The NXMFLG is set if we can test.
2760                                    ;       The NXMLO and NXMHI addresses are setup.
2761                                    ;-
2762
2763 021322                            MEMCK::
2764
2765 021322                                    SAVREG                          ;SAVE THE REGISTERS
2766 021326  005037  003126                    CLR     NXMFLG                  ;CLEAR THE FLAG
2767 021332  005037  003130                    CLR     NXMLO                   ;CLEAR THE TEST ADDRESS LO
2768 021336  005037  003132                    CLR     NXMHI                   ;CLEAR THE TEST ADDRESS HI
2769 021342  005737  003136                    TST     T23B                    ;IS IT A 11/23B?
```

```
2770 021346  001407                        BEQ     1$                      ;NO
2771 021350  023727  002120  007777        CMP     L$HIME,#7777            ; GREATER THAN 128K
2772 021356  103406                        BLO     2$                      ; NO
2773 021360  004737  021476                JSR     PC,NXMTST               ;SETUP THE ADDRESS
2774 021364  000427                        BR      13$                     ;SET THE FLAG AND EXIT
2775 021366  005737  003134          1$:   TST     T23A                    ;IS IT A 11/23A?
2776 021372  001413                        BEQ     4$                      ;NO
2777 021374  023727  002120  005777  2$:   CMP     L$HIME,#5777            ;GREATER THAN 96K
2778 021402  101023                        BHI     14$                     ;YES,23A/23B WITH 128K MEMORY
2779 021404  023727  002120  003777        CMP     L$HIME,#3777            ;GREATER THAN 64K BUT LESS THAN 92K?
2780 021412  103403                        BLO     4$                      ;NO, CHECK 24K
2781 021414  004737  021476                JSR     PC,NXMTST               ;SETUP THE ADDRESS
2782 021420  000411                        BR      13$                     ;SET THE FLAG AND EXIT
2783 021422  023727  002120  001577  4$:   CMP     L$HIME,#1577            ;GREATER THAN 24K BUT LESS THAN 64K?
2784 021430  103410                        BLO     14$                     ;NO, TELL THEM AND EXIT WITH FLAG CLEAR
2785 021432  004737  021476                JSR     PC,NXMTST               ;SETUP THE ADDRESS
2786 021436  062737  000077  003132        ADD     #77,NXMHI               ;FOOL THE 11/02 & 11/03
2787 021444  005237  003126          13$:  INC     NXMFLG                  ;SET THE FLAG
2788 021450  000411                        BR      15$                     ;EXIT
2789 021452  000410                14$:    BR      15$                     ;NOP FOR PRINTOUT
2790 021454                                PRINTF  #NOMEM                  ;TELL THEM & EXIT ...NO PRINT.....
     021454  012746  005456                MOV     #NOMEM,-(SP)
     021460  012746  000001                MOV     #1,-(SP)
     021464  010600                        MOV     SP,R0
     021466  104417                        TRAP    C$PNTF
     021470  062706  000004                ADD     #4,SP
2791 021474  000207                15$:    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 021476  013701  002120          NXMTST: MOV     L$HIME,R1               ;GET TOP OF MEMORY
2801 021502  062701  000200                  ADD     #200,R1                 ;MAKE IT I/O BLOCK OR OTHER NXM
2802 021506  042701  000177                  BIC     #177,R1
2803 021512  010102                          MOV     R1,R2                   ;RESAVE RESULTS
2804         000006                          .REPT   6
2805                                         ASL     R1                      ;PUT IN PLACE FOR XFER
2806                                         .ENDR
2807 021530  010137  003130                  MOV     R1,NXMLO                ;SAVE TEST ADDRESS LOW
2808         000012                          .REPT   10.
2809                                         ASR     R2                      ;PUT IN PLACE FOR XFER
2810                                         .ENDR
2811 021560  042702  177700                  BIC     #177700,R2              ;DON'T WANT ILA!
2812 021564  010237  003132                  MOV     R2,NXMHI                ;SAVE TEST ADDRESS HIGH
2813 021570  000207                          RTS     PC                      ;RETURN
2814
2815 021572                                  ENDMOD
```

```
                                        .TITLE  TSV4  MISCELLANEOUS SECTIONS
                                        
021572                                  BGNMOD  TSV4
021572                          TSV4::
                                        
                                        
                                        
                                        
                                        .SBTTL  PROTECTION TABLE
021572                                  BGNPROT
021572                          L$PROT::
021572  177777  177777  177777          .WORD   -1,  1,  1,  1          ;NO DEVICE PROTECTION REQUIRED.
021602                                  ENDPROT
```

INITIALIZE SECTION

```
                                        .SBTTL  INITIALIZE SECTION

                                ;++
                                ;THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
                                ;AT THE BEGINNING OF EACH PASS.
                                ;
                                ;IF "START" OR "RESTART", SET QUICK-PASS FLAG AND BUS INIT
                                ;IF "CONTINUE", NOTHING IS REQUIRED.
                                ;
                                ;
                                ;-
                                ;INSERT TEMPORARY JUMP TO ODT
                                ;
021602                                  BGNINIT
021602                          L$INIT::
021602  005037  002216          40$:    CLR     EXTFEA
021606  005037  003126                  CLR     NXMFLG
021612  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY MESSAGE FOR REPLACEMENT
021620  005037  003144                  CLR     SIFLAG                  ;CLEAR "SOFT INIT" FLAG
021624  005037  003124                  CLR     KTENABLE                ;CLEAR TEST ABOVE 28K FLAG
021630  005037  002272                  CLR     RAMSIZ                  ;CLEAR RAM SIZE FOR RAMERR ROUTINE
021634                                  READEF  #EF.CONTINUE
021634  012700  000036                  MOV     #EF.CONTINUE,R0
021640  104447                          TRAP    C$REFG
021642                                  BNCOMPLETE 1$
021642  103023                          BCC     1$
021644  023737  002172  002012          CMP     UNITN,L$UNIT            ;UNIT IN RANGE?
021652  103070                          BHIS    4$                      ;BR IF NO.
021654  005737  003102                  TST     DUFLG                   ;DROPPED UNIT?
021660  100472                          BMI     NXTU                    ;BR IF YES
021662  013701  002172                  MOV     UNITN,R1
021666  006301                          ASL     R1
021670  005761  003166                  TST     ERTABL(R1)
021674  001516                          BEQ     SETU
021676  032761  040000  003166          BIT     #BIT14,ERTABL(R1)       ;DROPPED?
021704  001060                          BNE     NXTU
021706                                  EXIT    INIT                    ;DO NOTHING IF "CONTINUE".
021706  104432                          TRAP    C$EXIT
021710  000416                          .WORD   L10030-.
021712                          1$:     READEF  #EF.NEW
021712  012700  000035                  MOV     #EF.NEW,R0
021716  104447                          TRAP    C$REFG
021720                                  BNCOMPLETE NXTU                 ;TAKE NEXT UNIT IF NOT NEW PASS.
021720  103052                          BCC     NXTU
021722                                  READEF  #EF.START
021722  012700  000040                  MOV     #EF.START,R0
021726  104447                          TRAP    C$REFG
021730                                  BCOMPLETE 2$
021730  103404                          BCS     2$
021732                                  READEF  #EF.RESTART
021732  012700  000037                  MOV     #EF.RESTART,R0
021736  104447                          TRAP    C$REFG
021740                                  BNCOMPLETE 31$
021740  103031                          BCC     31$
021742                          2$:                                     ;1ST PASS, BUS INIT...
021742                                  BRESET                          ;BUS RESET.
021742  104433                          TRAP    C$RESET
```

INITIALIZE SECTION

```
                                        CLR     TSTCNT                  ;NUMBER OF TESTS RUN IN PASS
                                        CLR     FATFLG                  ;CLEAR FATAL ERROR COUNT
                                        CLR     T23A                    ;CLEAR 11/23A FLAG
                                        CLR     T23B                    ;CLEAR 11/23B FLAG
                                ;       MOV     #340, (SP)
                                ;       MOV     #20$,-(SP)              ;RETURN TO DEBUGGER
                                ;       JMP     O.ODT           ;;@@ENTER THE DEBUGGER
                                        CLR     SKIPT           ;CLEAR THE SUBTEST "SKIPPER"
                                20$:
                                        MOV     #-1,QVP                 ;...QUICK VERIFY...
                                        JSR     PC,ENVIRN               ;SET ENVIRONMENT.
                                        JSR     PC,KTINIT               ;INITIALIZE KT MEMORY MANAGEMENT
                                        MOV     #ERTABL,R0
                                30$:    CLR     (R0)+                   ;CLEAR THE ERROR TABLE
                                        CMP     R0,#ERTABE
                                        BLO     30$
                                        BR      4$
                                31$:    CLR     QVP
                                        JMP     PASRPT                  ;GO REPORT THE STATUS

                                4$:
                                NEWPAS: MOV     #-1,UNITN               ;INIT UNIT NUMBER...
                                        CLR     DEVCNT                  ;CLEAR COUNT OF DEVICES RUNNING
                                NXTU:   BREAK
                                        TRAP    C$BRK
                                        INC     UNITN                   ;...AND SET NEXT UNIT NUMBER.
                                        CMP     UNITN,L$UNIT
                                        BLO     SETU
                                        MOV     #-1,DUFLG
                                        BR      11$
                                        DOCLN                           ;ABORT, NO MORE UNITS.
                                        TRAP    C$DCLN
                                11$:    NOP
                                PASRPT:
                                        CMP     L$UNIT,#1               ;HOW MANY UNITS SELECTED?
                                        BLOS    NEWPAS                  ;BR IF ONLY 1
                                        TST     DEVCNT                  ;ARE ANY STILL RUNNING?
                                        BEQ     NEWPAS                  ;BR IF NO
                                        RFLAGS  R0
                                        TRAP    C$RFLA
                                        BIT     #ISR,R0                 ;SHOULD WE PRINT STATISTICS
                                        BNE     NEWPAS                  ;BR IF NO

                                        DORPT
                                        TRAP    C$DRPT
                                        BR      NEWPAS
                                10$:

                                SETU:   GPHARD  UNITN,R0                ;GET UNIT N P TABLE POINTER.
                                        MOV     UNITN,R0
                                        TRAP    C$GPHRD
                                        BNCOMPLETE NXTU                 ;BR IF UNIT NOT AVAILABLE.
                                        BCC     NXTU
                                        CLR     DUFLG                   ;CLEAR "DROPPED" FLAG.
                                        INC     DEVCNT
                                        MOV     (R0)+,R1                ;GET 1ST REGISTER ADDRESS.
                                        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
```

```
160                                             .SBTTL  ADD AND DROP UNITS SECTIONS
161
162                                     ;**
163                                     ; THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
164                                     ; TO BE (A) ADDED TO THE TEST LIST FOR THE FIRST TIME,
165                                     ;    OR (B) RE-INSERTED IF IT HAD BEEN PREVIOUSLY DROPPED.
166                                     ;
167 022376                                      BGNAU
    022376                              L$AU::
168 022376  010001                              MOV     R0,R1                   ; GET UNIT TO BE ADDED (R0)
169 022400  006301                              ASL     R1                      ; MAKE IT A WORD INDEX
170 022402  052761  100000  003166              BIS     #100000,ERTABL(R1)      ; SET THE "ACTIVE" BIT
171 022410  042761  040000  003166              BIC     #40000,ERTABL(R1)       ; CLEAR THE "DROPPED" BIT
172 022416                                      PRINTF  #1$,R0
    022416  010046                              MOV     R0,-(SP)
    022420  012746  022444                      MOV     #1$,-(SP)
    022424  012746  000002                      MOV     #2,-(SP)
    022430  010600                              MOV     SP,R0
    022432  104417                              TRAP    C$PNTF
    022434  062706  000006                      ADD     #6,SP
173 022440                                      EXIT    AU
    022440  000167                              .WORD   J$JMP
    022442  000026                              .WORD   L10031 2-.
174 022444     045     116     045      1$:     .ASCIZ  /%N%A  UNIT %D%A ADDED/
175                                             .EVEN
176
177 022472                                      ENDAU           ; UNUSED.
    022472                              L10031:
    022472  104452                              TRAP    C$AU
178                                     ;**
179                                     ; THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
180                                     ; TO BE REMOVED FROM THE TEST LIST.
181                                     ;
182                                     ; SUPVSR DOES THE "DROPPING".  THIS IS JUST TO TELL THE MAN.
183                                     ; "DROPPED" UNITS ARE RE-SELECTED ON OPERATOR "STA" OR "ADD"
184                                     ; COMMAND, OTHERWISE REMAIN INACTIVE.  THE "DISPLAY" COMMAND
185                                     ; WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
186                                     ; WHICH ARE STILL ACTIVE.
187                                     ; UPON ENTRY, R0 CONTAINS THE UNIT TO BE DROPPED.
188
189 022474                                      BGNDU
    022474                              L$DU::
190 022474  012737  177777  003102              MOV     #-1,DUFLG
191 022502  010001                              MOV     R0,R1
192 022504  006301                              ASL     R1
193 022506  052761  140000  003166              BIS     #140000,ERTABL(R1)      ; SAY DROPPED
194 022514  000240  000240  000240              240,240,240                     ; ?????????
195 022522                                      PRINTF  #1$,R0
    022522  010046                              MOV     R0,-(SP)
    022524  012746  022550                      MOV     #1$,-(SP)
    022530  012746  000002                      MOV     #2,-(SP)
    022534  010600                              MOV     SP,R0
    022536  104417                              TRAP    C$PNTF
    022540  062706  000006                      ADD     #6,SP
196 022544                                      EXIT    DU
    022544  000167                              .WORD   J$JMP
    022546  000030                              .WORD   L10032-2 .
```

```
    197 022550      045     116     045 1$:     .ASCIZ  /%N%A  UNIT %D%A DROPPED/
    198                                         .EVEN
    199 022600                                  ENDDU
        022600                          L10032:
        022600  104453                         TRAP    C$DU
    200                                 ;**
    201                                 ; AUTO-DROP CODE SECTION.
    202                                 ;
    203 022602                                  BGNAUTO
        022602                          L$AUTO::
    204 022602  013705  002176                  MOV     CSRADDR,R5          ;POINT TO DEVICE REGISTER
    205 022606  012703  000550                  MOV     #360.,R3            ;ENOUGH TIME FOR 2400' REEL TO REWIND
    206 022612  004737  016340          10$:    JSR     PC,WAITF            ;WAIT FOR SSR TO SET
    207 022616  103420                          BCS     20$                 ;LEAVE WHEN SSR IS SET
    208 022620                                  DELAY   250.                ;WAIT FOR .25 SECONDS
        022620  012727  000372                  MOV     #250.,(PC)+
        022624  000000                          .WORD   0
        022626  013727  002116                  MOV     L$DLY,(PC)+
        022632  000000                          .WORD   0
        022634  005367  177772                  DEC     -6(PC)
        022640  001375                          BNE     .-4
        022642  005367  177756                  DEC     -22(PC)
        022646  001367                          BNE     .-20
    209 022650  005303                          DEC     R3                  ;BUMP COUNTER DOWN
    210 022652  001357                          BNE     10$                 ;KEEP GOING
    211 022654  004737  017272                  JSR     PC,CKDROP           ;TRY AND DROP UNIT
    212 022660                          20$:
    213 022660                                  ENDAUTO                     ; UNUSED.
        022660                          L10033:
        022660  104461                         TRAP    C$AUTO
```

```
                                        .SBTTL  CLEAN UP AND REPORT CODING SECTIONS

                                ;**
                                ; THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS
                                ; EXECUTED AT THE END OF EACH PASS (OR SUB PASS).
                                ; USE TO RETURN DEVICE UNDER TEST TO A NEUTRAL STATE.
                                ;
022662                                  BGNCLN
022662                          L$CLEAN::
022662  013705  002176                   MOV     CSRADDR,R5              ;POINT TO DEVICE REGISTER
022666  005737  003102                   TST     DUFLG           ;"DROPPED" FLAG IS SET ON...
022672  100405                           BMI     1$              ;...AND GROSS CONTROLLER FAULT...
                                                                 ;...DON'T TRY TO XCT CLEANUP CODE.

022674  012765  000000  000002           MOV     #0,TSSR(R5)     ;DO SOFT INIT
022702  004737  016340                   JSR     PC,WAITF
022706                          1$:
022706                          2$:     ENDCLN
022706                          L10034:
022706  104412                           TRAP    C$CLEAN

                                ;**
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;
022710                                  BGNRPT
022710                          L$RPT::
022710                                  PRINTS  #DEVSUM
022710  012746  023152                   MOV     #DEVSUM,-(SP)
022714  012746  000001                   MOV     #1,-(SP)
022720  010600                           MOV     SP,R0
022722  104416                           TRAP    C$PNTS
022724  062706  000004                   ADD     #4,SP
022730  010246                           MOV     R2,-(SP)
022732  010346                           MOV     R3,-(SP)
022734  010446                           MOV     R4,-(SP)
022736  012704  003166                   MOV     #ERTABL,R4      ; GET START OF ERROR TABLE.
022742  005003                           CLR     R3              ; CLEAR UNIT NUMBER
022744  011402                  1$:      MOV     (R4),R2         ; GET ERROR TABLE ENTRY & TEST IT.
022746  001467                           BEQ     4$              ; ZERO IF UNIT NOT RUN
022750  100066                           BPL     4$
022752  032702  040000                   BIT     #BIT14,R2       ; WAS UNIT DROPPED?
022756  001015                           BNE     2$              ; BR IF YES
022760  042702  170000                   BIC     #^C7777,R2      ; GET ERROR COUNT FIELD
022764                                   PRINTS  #DEVONL,R3,R2   ; PRINT
022764  010246                           MOV     R2,-(SP)
022766  010346                           MOV     R3,-(SP)
022770  012746  023207                   MOV     #DEVONL,-(SP)
022774  012746  000003                   MOV     #3,-(SP)
023000  010600                           MOV     SP,R0
023002  104416                           TRAP    C$PNTS
023004  062706  000010                   ADD     #10,SP
023010  000446                           BR      4$
023012  020227  160000          2$:      CMP     R2,#160000      ; WAS UNIT NON EXISTENT?
023016  001012                           BNE     3$              ; BR IF NO
023020                                   PRINTS  #DEVNXR,R3
023020  010346                           MOV     R3, (SP)
023022  012746  023257                   MOV     #DEVNXR,-(SP)
```

CLEAN-UP AND REPORT CODING SECTIONS

```
        023026  012746  000002                  MOV     #2, (SP)
        023032  010600                          MOV     SP,R0
        023034  104416                          TRAP    C$PNTS
        023036  062706  000006                  ADD     #6,SP
    254 023042  000431                          BR      4$
    255 023044  020227  160001          3$:     CMP     R2,#160001      ; WAS UNIT NOT READY AT STARTUP?
    256 023050  001012                          BNE     30$             ; BR IF NO.
    257 023052                                  PRINTS  #DEVNRD,R3
        023052  010346                          MOV     R3,-(SP)
        023054  012746  023341                  MOV     #DEVNRD,-(SP)
        023060  012746  000002                  MOV     #2,-(SP)
        023064  010600                          MOV     SP,R0
        023066  104416                          TRAP    C$PNTS
        023070  062706  000006                  ADD     #6,SP
    258 023074  000414                          BR      4$
    259 023076  042702  170000          30$:    BIC     #^C7777,R2
    260 023102                                  PRINTS  #DEVDRO,R3,R2
        023102  010246                          MOV     R2,-(SP)
        023104  010346                          MOV     R3,-(SP)
        023106  012746  023422                  MOV     #DEVDRO,-(SP)
        023112  012746  000003                  MOV     #3,-(SP)
        023116  010600                          MOV     SP,R0
        023120  104416                          TRAP    C$PNTS
        023122  062706  000010                  ADD     #10,SP
    261 023126  062704  000002          4$:     ADD     #2,R4
    262 023132  005203                          INC     R3
    263 023134  020427  003366                  CMP     R4,#ERTABE
    264 023140  103701                          BLO     1$
    265 023142  012604                          MOV     (SP)+,R4
    266 023144  012603                          MOV     (SP)+,R3
    267 023146  012602                          MOV     (SP)+,R2
    268 023150                                  ENDRPT          ; UNUSED.
        023150                          L10035:
        023150  104425                          TRAP    C$RFT
    269
    270 023152     045     116     045  DEVSUM: .ASCIZ  '$N$ADEVICE STATUS SUMMARY:$N/
    271 023207     045     101     040  DEVONL: .ASCIZ  /$A  UNIT $D3$A   ONLINE,  ERRORS = $D$N/
    272 023257     045     101     040  DEVNXR: .ASCIZ  /$A  UNIT $D3$A   DROPPED, NON-EXISTENT REGISTER$N/
    273 023341     045     101     040  DEVNRD: .ASCIZ  /$A  UNIT $D3$A   DROPPED, NOT READY AT STARTUP$N/
    274 023422     045     101     040  DEVDRO: .ASCIZ  /$A  UNIT $D3$A   DROPPED, ERRORS = $D$N/
    275                                         .EVEN
    276
    277 023472                                  ENDMOD
    278
```

CLEAN UP AND REPORT CODING SECTIONS

```
                                        .TITLE  TSV7 - HARDWARE TESTS 1-8
                                        BGNMOD  TSV7
023472                          TSV7::
                                        .SBTTL  TEST  1: INITIALIZE #4 TEST
                                ;*
                                ;
                                ;THIS TEST VERIFIES THAT WRITING INTO THE TSSR RETURNS THE
                                ;CONTROLLER TO ITS INITIALIZED STATE FROM VARIOUS CONDITIONS
                                ;(I.E. LOOPBACK ENABLED, FORCING WRONG PARITY, INVERTING SENSE OF
                                ;EXTENDED FEATURES SWITCH, ETC.)
                                ;
                                ;
                                        BGNTST
023472                                                                          T1::
023472  012737  006356  002170            MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
                                ;
                                ;
                                ;TEST 1
                                ;
                                ;
                                ;
023500  004737  016274                  JSR     PC,DSBINT               ;DISABLE INTERRUPTS
023504  012700  024434                  MOV     #TST21ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
023510  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
023514  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
023522                          T21LOOP:
023522  004737  024456                  JSR     PC,T21REST              ;SET COMMAND PACKET
023526  004737  024546                  JSR     PC,T21RT2               ;SET UP OTHER COMMAND PACKET
                                ;*************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*************************************************************
023532  012737  176750  024112          MOV     #65000.,T21DLY          ;SET DELAY ROUTINE
023540  004737  016064          11$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
023544  103426                  20$     BCS     20$                     ;BR IF INIT WAS OK
023546                                  DELAY   250                     ;DELAY FOR A REWIND TO FINISH
023546  012727  000250                                                          MOV     #250.,(PC)+
023552  000000                                                                  .WORD   0
023554  013727  002116                                                          MOV     L$DLY,(PC)+
023560  000000                                                                  .WORD   0
023562  005367  177772                                                          DEC     -6(PC)
023566  001375                                                                  BNE     .-4
023570  005367  177756                                                          DEC     -22(PC)
023574  001367                                                                  BNE     .-20
023576  005337  024112                  DEC     T21DLY                  ;BUMP COUNTER DOWN
023602  001356                          BNE     11$                     ;BR, IF MORE TIME TO GO
023604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
023610  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
```

```
                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
023612  104455                                                          TRAP    C$ERDF
023614  000145                                                          .WORD   101
023616  003650                                                          .WORD   SFIERR
023620  012124                                                          .WORD   SFIMSG
                                20$:
023622  012704  024070                  MOV     #T21PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                ;*****************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*****************************************************************

023626  013737  002172  024110          MOV     UNITN,T21DSW            ;SET UP DRIVE NUMBER
023634  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
023640  103407                          BCS     23$                     ;BR, IF COMMAND ISSUED OK
023642  005237  002212                  INC     FATFLG                  ;BUMP COUNT
023646  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
023650                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
023650  104456                                                          TRAP    C$ERHRD
023652  000146                                                          .WORD   102
023654  005054                                                          .WORD   WRTMSG
023656  012124                                                          .WORD   SFIMSG
023660                          23$:    CKLOOP
023660  104406                                                          TRAP    C$CLP1
023662  112737  000200  024210          MOVB    #200,T21BS0             ;WRITE MISCELLANEOUS CONT/READ STATUS
023670  112737  000010  024211          MOVB    #10,T21BS1              ;FUNCTION SELECTION BIT
023676                          25$:
023676  012704  024200                  MOV     #T21PK2,R4              ;WRITE SUBSYS MEM PACKET
023702  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
023706  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
023712  103407                          BCS     30$                     ;BR, IF NO ERROR
023714  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
023716  005237  002212                  INC     FATFLG                  ;BUMP COUNT
023722                                  ERRHRD  ERRNO,T21SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
023722  104456                                                          TRAP    C$ERHRD
023724  000147                                                          .WORD   103
023726  024216                                                          .WORD   T21SSR
023730  012136                                                          .WORD   PKTSSR
023732                          30$:    CKLOOP                          ;SCOPE LOOP
023732  104406                                                          TRAP    C$CLP1
023734  012765  000000  000002          MOV     #0,TSSR(R5)             ;ISSUE A SOFT INITIALIZE
023742  004737  016340                  JSR     PC,WAITF                ;WAIT FOR JUST THE SSR BIT TO SET
023746  016501  000002                  MOV     TSSR(R5),R1             ;READ THE TSSR BACK
023752  010102                          MOV     R1,R2                   ;WORK REGISTER
023754  042702  176377                  BIC     #^C<HIADDR>,R2          ;CLEAR OUT OTHER BITS
023760  052702  002200                  BIS     #SSR!NBA,R2             ;SOME OF THE BITS THAT SHOULD BE SET
023764  032701  000100                  BIT     #OFL,R1                 ;IS OFF LINE BIT SET
023770  001012                          BNE     38$                     ;BR, IF DRIVE IS OFF LINE
023772  020102                  35$:    CMP     R1,R2                   ;EXPECTED (R2) = RECEIVED (R1)
023774  001406                          BEQ     37$                     ;BR, IF THEY ARE EQUAL (OK)
023776  005237  002212                  INC     FATFLG                  ;BUMP COUNT
024002                                  ERRHRD  ERRNO,T21AM3,EXPREC     ;"ERROR TRYING TO INIT AFTER WRITE MISC.
024002  104456                                                          TRAP    C$ERHRD
024004  000150                                                          .WORD   104
024006  024313                                                          .WORD   T21AM3
```

```
                024010  015564                                                          .WORD   EXPREC
122             024012                  37$:    CKLOOP                  ;LOOP IF SELECTED
                024012  104406                                                          TRAP    C$CLP1
123             024014  000406                  BR      40$             ;SKIP OVER OFF LINE STUFF
124             024016                  38$:
128             024016                  ERRDF   ERRNO,T210FL,EXPREC     ;DRIVE IS OFF LINE
                024016  104455                                                          TRAP    C$ERDF
                024020  000151                                                          .WORD   105
                024022  024413                                                          .WORD   T210FL
                024024  015564                                                          .WORD   EXPREC
129             024026  004737  017272          JSR     PC,CKDROP       ;TRY AND DROP UNIT
130             024032  000241          40$:    CLC                     ;DON'T LET CARRY SNEAK IN
131             024034  106037  024211          RORB    T21BS1          ;TRY NEXT "LOWEST" BIT POSITION
132             024040  001316                  BNE     25$             ;LOOP UNTIL ALL EIGHT BITS TESTED
133             024042                  50$:    CKLOOP                  ;SCOPE LOOP
                024042  104406                                                          TRAP    C$CLP1
134             024044  004737  016546          JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
135             024050  103002                  BCC     63$             ;BR, IF NO LOOP REQUIRED
136             024052  000137  023522          JMP     T21LOOP         ;EXECUTE AGAIN
137             024056                  63$:    EXIT    TST             ;ALL DONE THIS TEST
                024056  104432                                                          TRAP    C$EXIT
                024060  000530                                                          .WORD   L10036 .
138
139                                     ;*
140                                     ;LOCAL STORAGE FOR THIS TEST
141                                     ;
143             024062                          .BLKB   10-<.-TSV2&7>
145             024070                  T21PACKET:                      ;COMMAND PACKET FOR TEST
146             024070  100004                  .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH, ACK
147             024072  024100                  .WORD   T21DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
148             024074  000000                  .WORD   0
149             024076  000012                  .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
150             024100                  T21DATA:                        ;CHARACTERISTICS DATA BLOCK
151             024100  024114                  .WORD   T21BFR          ;ADDRESS OF MESSAGE BUFFER
152             024102  000000                  .WORD   0
153             024104  000024                  .WORD   20.             ;LENGTH OF MESSAGE BUFFER
154             024106  000000                  .WORD   0
155             024110  000000          T21DSW: .WORD   0               ;DRIVE SELECT WORD
156             024112  000000          T21DLY: .WORD   0               ;DELAY COUNTER
157             024114                  T21BFR: .BLKW   25.             ;MESSAGE BUFFER
158                                     ;
159                                     ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
160                                     ;
162             024176                          .BLKB   10-<. TSV2&7>
164             024200                  T21PK2:
165             024200  100206                  .WORD   100206          ;WRITE SUB SYS MEM COMMAND, IE AND ACK
166             024202  024210                  .WORD   T21BF2          ;ADDRESS OF SELECT BLOCK DATA
167             024204  000000                  .WORD   0
168             024206  000006                  .WORD   6.              ;SIZE OF DATA PACKET
169
170                                             .EVEN
171             024210                  T21BF2:
172             024210      000         T21BS0: .BYTE   0               ;BSEL0 AREA - "COMMAND" BYTE
173             024211      000         T21BS1: .BYTE   0               ;BSEL1 AREA
174             024212  000000          T21S2:  .WORD   0               ;SEL 2 AREA
175             024214  000000          T21S3:  .WORD   0               ;DATA AREA
176
```

```
177
178                                     ;*
179                                     ;LOCAL TEXT MESSAGES FOR TEST
180                                     ;
181
182 024216      127     122     111     T21SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted
183 024313      124     123     123     T21AM3: .ASCIZ  'TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS
184 024413      104     162     151     T21OFL: .ASCIZ   Drive is OFFLINE
185 024434      111     156     151     TST21ID:        .ASCIZ  'Initialization 04
186                                             .EVEN
187                                     ;*
188                                     ;
189                                     ;ROUTINE TO RESTORE COMMAND PACKET TO START UP (DEFAULT) VALUES
190                                     ;WRITE SUBSYSTEM MEMORY COMMAND
191                                     ;
192                                     .
193
194 024456                               T2:REST:
195 024456                                      SAVREG                          ;SAVE THE REGISTERS
196 024462  012701  024070                      MOV     #T21PACKET,R1           ;START OF THE PACKET
197 024466  012721  100004                      MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
198 024472  012721  024100                      MOV     #T21DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
199 024476  005021                              CLR     (R1)+                   ;EXTENDED ADDRESS
200 024500  012721  000010                      MOV     #8.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
201 024504  012721  024114                      MOV     #T21BFR,(P1)+           ;ADDRESS OF MESSAGE BUFFER
202 024510  005021                              CLR     (R1)+
203 024512  012721  000024                      MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
204 024516  005021                              CLR     (R1)+
205 024520  005011                              CLR     (R1)
206 024522  012702  000020                      MOV     #20,R2                  ;NUMBER OF LOCATIONS TO BE CLEARED
207 024526  012762  177777  024114  64$:       MOV     #177777,T21BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
208 024534  005742                              TST     -(R2)                   ;NEXT LOCATION
209 024536  020227  000000                      CMP     R2,#0                   ;CHECK R2 FOR ZERO
210 024542  001371                              BNE     64$                     ;BR. IF NOT AT ZERO YET
211 024544  000207                              RTS     PC                      ;RETURN
212
213
214 024546                              T21RT2:
215 024546                                      SAVREG                          ;SAVE THE REGISTERS
216 024552  012701  024200                      MOV     #T21PK2,R1              ;START OF THE PACKET
217 024556  012721  100206                      MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK. IE
218 024562  012721  024210                      MOV     #T21BF2,(R1)+           ;ADDRESS OF DATA BLOCK
219 024566  005021                              CLR     (R1)+                   ;EXTENDED ADDRESS
220 024570  012721  000006                      MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
221 024574  005021                              CLR     (R1)+
222 024576  012701  024210                      MOV     #T21BF2,R1              ;ADDRESS OF DATA FOR WRT SUB SYS MEM
223 024602  005021                              CLR     (R1)+
224 024604  005011                              CLR     (R1)
225 024606  000207                              RTS     PC                      ;RETURN
226 024610                                      ENDTST
    024610                                                                              L10036:
    024610  104401                                                                             TRAP    C$ETST
227
228                                             .SBTTL  TEST  2: OFF-LINE AND REJECT REWIND
229                                     ;*
230                                     ;
231                                     ;THIS TEST VERIFIES BASIC TAPE MOTION COMMAND DECODING AND BASIC
```

```
                                ;OPERATION OF THE REWIND POSITIONING COMMAND. IT DOES NOT
                                ;NECESSARILY DEMONSTRATE THAT THE TRANSPORT CAN BE REWOUND FROM AN
                                ;ARBITRARY POSITION ON THE TAPE. SUBSEQUENT TESTS IMPLICITLY
                                ;CHECK THE OPERATION OF THE REWIND COMMAND SINCE THEY MUST
                                ;TYPICALLY REWIND THE TAPE IN THE NORMAL COURSE OF THEIR TEST
                                ;SEQUENCES. THE TEST CONSISTS OF THE FOLLOWING THREE SUBTESTS
                                ;
                                ;
                                ;
241 024612                              BGNTST
    024612                                                                      T2::
242 024612  012737  006356  002170          MOV     @#PRT1,PRTSW            ;SET UP PRIMARY ERROR MESSAGE
247 024620  004737  016274                  JSR     PC,DSBINT               ;DISABLE INTERRUPTS
248 024624  012700  027077                  MOV     #TST22ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
249 024630  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
250 024634  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
251                             ;*
252                             ;
253                             ;TEST 2, SUBTEST 1
254                             ;
255                             ;VERIFIES THAT ALL TAPE-MOTION COMMANDS (WITH VALID
256                             ;MODE CODES) TERMINATE WITH FUNCTION REJECT AND
257                             ;OFF-LINE STATUS WHEN THE TAPE TRANSPORT IS OFF-LINE.
258                             ;THE SUBTEST OPERATES BY PLACING THE CONTROLLER INTO
259                             ;EXTENDED MODE, SELECTING UNIT 7, AND ISSUING EACH
260                             ;TAPE-MOTION COMMAND, CHECKING, AFTER EACH COMMAND,
261                             ;THAT FUNCTION REJECT TERMINATION WAS ACCOMPLISHED.
262                             ;-
263
264 024642                    T22LOOP:
265 024642                          BGNSUB                                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
    024642                                                                      T2.1:
    024642  104402                                                                 TRAP    C$BSUB
266 024644  004737  027132          JSR     PC,T22REST                      ;SET COMMAND PACKET
267 024650  004737  027224          JSR     PC,T22RT2                       ;SET UP OTHER COMMAND PACKET
268
269                             ;*****************************************************************
270                             ;
271                             ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
272                             ;
273                             ;*****************************************************************
274
275 024654  004737  016064          JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
276 024660  103407                  BCS     20$                             ;BR IF INIT WAS OK
277 024662  005237  002212          INC     FATFLG                          ;BUMP COUNT
281 024666  010001                  MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
282 024670                          ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
    024670  104455                                                                  TRAP    C$ERDF
    024672  000311                                                                  .WORD   201
    024674  003650                                                                  .WORD   SFIERR
    024676  012124                                                                  .WORD   SFIMSG
283 024700                  20$:
284 024700  012704  026160          MOV     #T22PACKET,R4                   ;SUBROUTINE NEEDS PACKET ADDRESS
285
286                             ;*****************************************************************
287                             ;
288                             ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
```

```
                                        ;
                                        ;*************************************************************
                                        ;
024704  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
024710  103407                          BCS     23$                     ;BR. IF COMMAND ISSUED OK
024712  005237  002212                  INC     FATFLG                  ;BUMP COUNT
024716  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
024720                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
024720  104456                                                                  TRAP    C$ERHRD
024722  000312                                                                  .WORD   202
024724  005054                                                                  .WORD   WRTMSG
024726  012124                                                                  .WORD   SFIMSG
024730                          23$:    CKLOOP
024730  104406                                                                  TRAP    C$CLP1
024732  013701  026210                  MOV     T22BFR+6,R1             ;PICK UP XTSO
024736  032701  000004                  BIT     #4,R1                   ;IS UNIT WRITE-LOCKED?
024742  001407                          BEQ     24$                     ;NO,PROCEED WITH TESTING
024744  005237  002212                  INC     FATFLG                  ;BUMP COUNT
024750                                  ERRDF   ERRNO,T22WLK,SFIMSG     ;TAPE IS WRITE LOCKED
024750  104455                                                                  TRAP    C$ERDF
024752  000313                                                                  .WORD   203
024754  027012                                                                  .WORD   T22WLK
024756  012124                                                                  .WORD   SFIMSG
024760                                  DOCLN
024760  104444                                                                  TRAP    C$DCLN
024762                          24$:    CKLOOP
024762  104406                                                                  TRAP    C$CLP1
024764  005737  002216                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
024770  001041                          BNE     50$                     ;BR IF SWITCH IS ON
024772  112737  000200  026301          MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
025000  112737  000010  026300          MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
025006  012704  026270                  MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
025012  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
025016  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR
025022  103407                          BCS     30$                     ;BR. IF NO ERROR
025024  010001                          MOV     R0,R1                   ;ERROR, SAVE TSSR
025026  005237  002212                  INC     FATFLG                  ;BUMP COUNT
025032                                  ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
025032  104456                                                                  TRAP    C$ERHRD
025034  000314                                                                  .WORD   204
025036  026320                                                                  .WORD   T22SSR
025040  012136                                                                  .WORD   PKTSSR
025042                          30$:    CKLOOP                          ;LOOP IF SELECTED
025042  104406                                                                  TRAP    C$CLP1
025044  012704  026160                  MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

025050  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
025054  103407                          BCS     50$                     ;BR. IF COMMAND ISSUED OK
025056  005237  002212                  INC     FATFLG                  ;BUMP COUNT
025062  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
025064                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
```

```
        025064  104456                                                          TRAP    C$ERHRD
        025066  000315                                                          .WORD   205
        025070  005054                                                          .WORD   WRTMSG
        025072  012124                                                          .WORD   SFIMSG
    342 025074                          50$:    CKLOOP                          ;SCOPE LOOP
        025074  104406                                                          TRAP    C$CLP1
    343 025076  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    344 025102  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
    345 025106  001006                          BNE     60$                     ;BR, IF OFFLINE (GOOD)
    346 025110  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    350 025114                                  ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
        025114  104455                                                          TRAP    C$ERDF
        025116  000316                                                          .WORD   206
        025120  026515                                                          .WORD   T22OFL
        025122  012124                                                          .WORD   SFIMSG
    351 025124                          60$:    CKLOOP                          ;LOOP IF SELECTED
        025124  104406                                                          TRAP    C$CLP1
    352 025126  012703  026306                  MOV     #T22RD,R3               ;POINTER FOR COMMANDS
    353 025132  011337  026270          65$:    MOV     (R3),T22PK2             ;TAPE MOTION COMMAND IN PLACE
    354 025136  012704  026270                  MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
    355 025142  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    356 025146  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    357 025152  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    358 025156  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
    359 025162  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    360 025164  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
    361 025166  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    365 025172                                  ERRHRD  ERRNO,T22TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
        025172  104456                                                          TRAP    C$ERHRD
        025174  000317                                                          .WORD   207
        025176  026570                                                          .WORD   T22TM
        025200  015564                                                          .WORD   EXPREC
    366 025202                          80$:    CKLOOP                          ;LOOP IF SELECTED
        025202  104406                                                          TRAP    C$CLP1
    367 025204  005723                          TST     (R3)+                   ;POINT TO NEXT COMMAND
    368 025206  022713  177777                  CMP     #177777,(R3)            ;END OF THE COMMANDS YET
    369 025212  001401                          BEQ     90$                     ;BR, IF DONE
    370 025214  000746                          BR      65$                     ;MORE COMMAND(S) TO GO
    371 025216                          90$:
    372 025216                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        025216                                                                          L10040:
        025216  104403                                                                  TRAP    C$ESUB
    373 025220  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
    374 025226  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
    375 025230  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
    376 025234                          999$:
    377
    378                                 ;+
    379                                 ;
    380                                 ;TEST 2, SUBTEST 2
    381                                 ;
    382                                 ;VERIFIES THAT A REWIND COMMAND, WITH THE CLEAR VOLUME
    383                                 ;CHECK (CVC) BIT CLEAR, IS REJECTED IF THE VOLUME CHECK
    384                                 ;(VCK) FLAG IS SET.
    385                                 ;
    386                                 ;
    387                                 ;
```

```
                                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>
                                                                                          T2.2:
                                                                                  TRAP    C$BSUB
                        004737  027132          JSR     PC,T22REST      ;SET COMMAND PACKET
                        004737  027224          JSR     PC,T22RT2       ;SET UP OTHER COMMAND PACKET

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

                        004737  016064          JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
                        103407                  BCS     20$             ;BR IF INIT WAS OK
                        005237  002212          INC     FATFLG          ;BUMP COUNT
                        010001                  MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
                                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                        104455                                                  TRAP    C$ERDF
                        000320                                                  .WORD   208
                        003650                                                  .WORD   SFIERR
                        012124                                                  .WORD   SFIMSG
                                20$:
                        012704  026160          MOV     #T22PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS

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

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

                        112737  000200  026301          MOVB    #200,T22BS1     ;WRITE MISCELLANEOUS CONT/READ STATUS
                        112737  000010  026300          MOVB    #10,T22BS0      ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
                        012704  026270          MOV     #T22PK2,R4      ;WRITE SUBSYS MEM PACKET
                        010465  000000          MOV     R4,TSDB(R5)     ;ISSUE COMMAND
                        004737  016426          JSR     PC,CHKTSSR      ;WAIT FOR SSR
                        103407                  BCS     30$             ;BR, IF NO ERROR
                        010001                  MOV     R0,R1           ;ERROR, SAVE TSSR
                        005237  002212          INC     FATFLG          ;BUMP COUNT
                                        ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
                        104456                                                  TRAP    C$ERHRD
                        000322                                                  .WORD   210
                        026320                                                  .WORD   T22SSR
                        012136                                                  .WORD   PKTSSR
                                30$:    CKLOOP                          ;LOOP IF SELECTED
                        104406                                                  TRAP    C$CLP1
```

```
439 025402  012704  026160                  MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
440
441                                 ;*****************************************************************
442                                 ;
443                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
444                                 ;
445                                 ;*****************************************************************
446
447 025406  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
448 025412  103407                          BCS     50$                     ;BR, IF COMMAND ISSUED OK
449 025414  005237  002212                  INC     FATFLG                  ;BUMP COUNT
453 025420  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
454 025422                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    025422  104456                                                              TRAP    C$ERHRD
    025424  000323                                                              .WORD   211
    025426  005054                                                              .WORD   WRTMSG
    025430  012124                                                              .WORD   SFIMSG
455 025432                          50$:    CKLOOP                          ;SCOPE LOOP
    025432  104406                                                              TRAP    C$CLP1
456 025434  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
457 025440  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
458 025444  001006                          BNE     60$                     ;BR, IF OFFLINE (GOOD)
459 025446  005237  002212                  INC     FATFLG                  ;BUMP COUNT
463 025452                                  ERRDF   ERRNO,T220FL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    025452  104455                                                              TRAP    C$ERDF
    025454  000324                                                              .WORD   212
    025456  026515                                                              .WORD   T220FL
    025460  012124                                                              .WORD   SFIMSG
464 025462                          60$:    CKLOOP                          ;LOOP IF SELECTED
    025462  104406                                                              TRAP    C$CLP1
465 025464  012737  102210  026270  65$:     MOV     #102210,T22PK2          ;POSITION COMMAND (REWIND MODE)
466 025472  012704  026270                  MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
467 025476  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
468 025502  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
469 025506  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
470 025512  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
471 025516  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
472 025520  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
473 025522  005237  002212                  INC     FATFLG                  ;BUMP COUNT
477 025526                                  ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
    025526  104456                                                              TRAP    C$ERHRD
    025530  000325                                                              .WORD   213
    025532  026664                                                              .WORD   T22RWJ
    025534  015564                                                              .WORD   EXPREC
478 025536                          80$:    CKLOOP                          ;LOOP IF SELECTED
    025536  104406                                                              TRAP    C$CLP1
479 025540                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    025540                                                                      L10041:
    025540  104403                                                              TRAP    C$ESUB
480 025542  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
481 025550  103402                          BLO     999$                    ;BR, IF LESS THAN 25
482 025552  004737  017272                  JSP     PC,CKDROP               ;TRY TO DROP THE UNIT
483 025556                          999$:
484
485                                 ;*
486                                 ;
487                                 ;TEST 2, SUBTEST 3
```

```
                                        ;
                                        ;VERIFIES THAT A REWIND COMMAND WITH CVC=1 CLEARS VCK
                                        ;AND RETURNS PROPER STATUS IN THE MESSAGE BUFFER.
                                        ;
                                        ;
                                        ;
025556                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
025556                                                                                          T2.3:
025556  104402                                                                                          TRAP    C$BSUB
027132                                          JSR     PC,T22REST              ;SET COMMAND PACKET
027224                                          JSR     PC,T22RT2               ;SET UP OTHER COMMAND PACKET
                                        ;
                                        ;*****************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*****************************************************************

016064                                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                                BCS     20$                     ;BR IF INIT WAS OK
002212                                          INC     FATFLG                  ;BUMP COUNT
                                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
025604  104455                                                                                  TRAP    C$ERDF
025606  000326                                                                                  .WORD   214
025610  003650                                                                                  .WORD   SFIERR
025612  012124                                                                                  .WORD   SFIMSG
025614                                  20$:
026160                                          MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                        ;
                                        ;*****************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*****************************************************************

010752                                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                                BCS     23$                     ;BR, IF COMMAND ISSUED OK
002212                                          INC     FATFLG                  ;BUMP COUNT
                                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
                                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
025634  104456                                                                                  TRAP    C$ERHRD
025636  000327                                                                                  .WORD   215
025640  005054                                                                                  .WORD   WRTMSG
025642  012124                                                                                  .WORD   SFIMSG
002216                          23$:            TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
                                                BNE     50$                     ;BR IF SWITCH IS ON
                                        ;
026301                                          MOVB    #200,T22BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
026300                                          MOVB    #10,T22BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
026270                                          MOV     #T22PK2,R4              ;WRITE SUBSYS MEM PACKET
000000                                          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
016426                                          JSR     PC,CHKTSSR              ;WAIT FOR SSR
                                                BCS     30$                     ;BR, IF NO ERROR
                                                MOV     R0,R1                   ;ERROR, SAVE TSSR
002212                                          INC     FATFLG                  ;BUMP COUNT
                                                ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
```

```
        025712  104456                                                          TRAP    C$ERHRD
        025714  000330                                                          .WORD   216
        025716  026320                                                          .WORD   T22SSR
        025720  012136                                                          .WORD   PKTSSR
    544 025722                          30$:    CKLOOP                          ;LOOP IF SELECTED
        025722  104406                                                          TRAP    C$CLP1
    545 025724  012704  026160                  MOV     #T22PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
    546
    547                                 ;*************************************************************************
    548                                 ;
    549                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
    550                                 ;
    551                                 ;*************************************************************************
    552
    553 025730  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
    554 025734  103407                          BCS     50$                     ;BR, IF COMMAND ISSUED OK
    555 025736  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    559 025742  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
    560 025744                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        025744  104456                                                          TRAP    C$ERHRD
        025746  000331                                                          .WORD   217
        025750  005054                                                          .WORD   WRTMSG
        025752  012124                                                          .WORD   SFIMSG
    561 025754                          50$:    CKLOOP                          ;SCOPE LOOP
        025754  104406                                                          TRAP    C$CLP1
    562 025756  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    563 025762  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
    564 025766  001006                          BNE     60$                     ;BR, IF OFFLINE (GOOD)
    565 025770  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    569 025774                                  ERRDF   ERRNO,T22OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
        025774  104455                                                          TRAP    C$ERDF
        025776  000332                                                          .WORD   218
        026000  026515                                                          .WORD   T22OFL
        026002  012124                                                          .WORD   SFIMSG
    570 026004                          60$:    CKLOOP                          ;LOOP IF SELECTED
        026004  104406                                                          TRAP    C$CLP1
    571 026006  012737  142010  026270  65$:    MOV     #142010,T22PK2          ;POSITION COMMAND (REWIND MODE) CVC=1
    572 026014  012704  026270                  MOV     #T22PK2,R4              ;R4 = POINTER TO PACKET
    573 026020  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    574 026024  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    575 026030  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    576 026034  012702  100306                  MOV     #SSR!OFL!SC!BIT1!BIT2,R2;SET UP EXPECTED
    577 026040  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    578 026042  001400                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
    579 026044  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    583 026050                                  ERRHRD  ERRNO,T22RWJ,EXPREC     ;TSSR INCORRECT AFTER TAPE MOTION CMD
        026050  104456                                                          TRAP    C$ERHRD
        026052  000333                                                          .WORD   219
        026054  026664                                                          .WORD   T22RWJ
        026056  015564                                                          .WORD   EXPREC
    584 026060                          80$:    CKLOOP                          ;LOOP IF SELECTED
        026060  104406                                                          TRAP    C$CLP1
    585 026062  012703  026202                  MOV     #T22BFR,R3              ;POINTER TO MESSAGE BUFFER
    586 026066  016301  000006                  MOV     XST0(R3),R1             ;PICK UP XST0 FROM MESSAGE BUFFER
    587 026072  010102                          MOV     R1,R2                   ;SET UP EXPECTED
    588 026074  042702  000020                  BIC     #BIT4,R2                ;VCK SHOULD BE CLEAR
    589 026100  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
```

```
590 026102  001406                          BEQ     90$                     ;BR, IF OK (GOOD)
591 026104  005237  002212                  INC     FATFLG                  ;BUMP COUNT
595 026110                                  ERRHRD  ERRNO,T22VCK,EXPREC     ;VCK WASN'T CLEAR (BAD)
    026110  104456                                                              TRAP    C$ERHRD
    026112  000334                                                              .WORD   220
    026114  026737                                                              .WORD   T22VCK
    026116  015564                                                              .WORD   EXPREC
596 026120                          90$:
597 026120                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
    026120                                                                      L10042:
    026120  104403                                                              TRAP    C$ESUB
598 026122  023727  002212  000017          CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
599 026130  103402                          BLO     999$                        ;BR, IF LESS THAN 25
600 026132  004737  017272                  JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
601 026136                          999$:
602 026136  004737  016546                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
603 026142  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
604 026144  000137  024642                  JMP     T22LOOP                 ;EXECUTE AGAIN
605 026150                          163$:   EXIT    TST                     ;ALL DONE THIS TEST
    026150  104432                                                              TRAP    C$EXIT
    026152  001116                                                              .WORD   L10037 .
606
607                                 ;+
608                                 ;LOCAL STORAGE FOR THIS TEST
609                                 ;
611 026154                                  .BLKB   10-<.-TSV2&7>
613 026160                          T22PACKET:                              ;COMMAND PACKET FOR TEST
614 026160  100204                          .WORD   100204                  ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
615 026162  026170                          .WORD   T22DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
616 026164  000000                          .WORD   0
617 026166  000012                          .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
618 026170                          T22DATA:                                ;CHARACTERISTICS DATA BLOCK
619 026170  026202                          .WORD   T22BFR                  ;ADDRESS OF MESSAGE BUFFER
620 026172  000000                          .WORD   0
621 026174  000024                          .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
622 026176  000000                          .WORD   0
623 026200  000007                          .WORD   7                       ;SELECT DRIVE 7
624 026202                          T22BFR: .BLKW   25.                     ;MESSAGE BUFFER
625                                 ;
626                                 ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
627                                 ;
629 026264                                  .BLKB   10-<.-TSV2&7>
631 026270                          T22PK2:
632 026270  100206                          .WORD   100206                  ;WRITE SUB SYS MEM COMMAND, IE AND ACK
633 026272  026300                          .WORD   T22BF2                  ;ADDRESS OF SELECT BLOCK DATA
634 026274  000000                          .WORD   0
635 026276  000006                          .WORD   6.                      ;SIZE OF DATA PACKET
636
637                                         .EVEN
638 026300                          T22BF2:
639 026300      000                 T22BS0: .BYTE   0                       ;BSEL0 AREA
640 026301      000                 T22BS1: .BYTE   0                       ;BSEL1 AREA
641 026302  000000                  T22S2:  .WORD   0                       ;SEL 2 AREA
642 026304  000000                  T22S3:  .WORD   0                       ;DATA AREA
643                                 ;
644                                 ;
645                                         .EVEN
```

```
                                        ;TAPE MOTION PACKET COMMAND VALUES
                                T22RD:  .WORD   100201          ;READ TAPE FORWARD
                                T22WRT: .WORD   100205          ;WRITE TAPE FORWARD
                                T22POS: .WORD   100210          ;POSITION TAPE
                                T22FOR: .WORD   100211          ;FORMAT TAPE
                                        .WORD   177777          ;END OF DATA


                                ;*
                                ;LOCAL TEXT MESSAGES FOR TEST
                                ;-

                                T22SSR: .ASCIZ  'WRITE MISCELLANEOUS CONTROL/READ STATUS Command Not Accepted'
                                T22AM3: .ASCIZ  'TSSR Init. Failed After WRITE MISCELLANEOUS CONRTOL/READ STATUS
                                T22OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
                                T22TM:  .ASCIZ  'TSSR Incorrect After Tape Motion Command To Off-Line Device
                                T22RWJ: .ASCIZ  'TSSR Not Correct After REWIND With VCK Set'
                                T22VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
                                T22WLK: .ASCIZ  '*****TAPE IS WRITE-LOCKED AND WILL CAUSE ERRORS*****
                                TST22ID:        .ASCIZ  'Off-Line And Reject Rewind'
                                        .EVEN
                                ;*
                                ;
                                ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                ;WRITE SUBSYSTEM MEMORY COMMAND
                                ;
                                ;

                                T22REST:
                                SAVREG                          ;SAVE THE REGISTERS
                                MOV     #T22PACKET,R1           ;START OF THE PACKET
                                MOV     #100204,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
                                MOV     #T22DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
                                CLR     (R1)+                   ;EXTENDED ADDRESS
                                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
                                MOV     #T22BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
                                CLR     (R1)+
                                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
                                CLR     (R1)+
                                MOV     #7,(R1)                 ;SELECT DRIVE SEVEN
                                MOV     #20,R2                  ;NUMBER OF LOCATIONS TO BE CLEARED
                        64$:    MOV     #177777,T22BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
                                TST     -(R2)                   ;BUMP R2 DOWN
                                CMP     R2,#0                   ;IS R2 AT ZERO YET
                                BNE     64$                     ;KEEP GOING UNTIL DONE
                                RTS     PC                      ;RETURN


                        T22RT2:
                                SAVREG                          ;SAVE THE REGISTERS
                                MOV     #T22PK2,R1              ;START OF THE PACKET
                                MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
                                MOV     #T22BF2,(R1)+           ;ADDRESS OF DATA BLOCK
                                CLR     (R1)+                   ;EXTENDED ADDRESS
                                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
                                CLR     (R1)+
                                MOV     #T22BF2,R1              ;POINT TO DATA SEL AREA
```

```
703 027260  005021                        CLR     (R1)+
704 027262  005011                        CLR     (R1)
705 027264  005011                        CLR     (R1)                ;LAST LOC TO BE CLEARED
706 027266  000207                        RTS     PC                  ;RETURN
707 027270                                ENDTST
    027270                                                                L10037:
    027270  104401                                                                TRAP    C$ETST
708
709                                       .SBTTL  TEST  3: BASIC WRITE DATA
710                                 ;+
711                                 ;
712                                 ;THIS TEST VERIFIES THAT THE WRITE DATA (NEXT) COMMAND OPERATES
713                                 ;PROPERLY, UP TO THE POINT OF CHECKING THAT THE DATA WAS ACTUALLY
714                                 ;WRITTEN ONTO THE TAPE CORRECTLY. CHECKING IN THIS TEST IS
715                                 ;LIMITED TO VERIFYING THAT THE COMMAND TERMINATED CORRECTLY WITH
716                                 ;THE CORRECT REGISTER, MESSAGE BUFFER AND RAM CONTENTS.
717                                 ;
718                                 ;THE TEST CONSISTS OF THE FOLLOWING 7 SUBTESTS
719                                 ;
720                                 ;
721                                 ;
722                                 ;
723 027272                                BGNTST
    027272                                                                T3::
724 027272  012737  006356  002170        MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
725 027300  005037  003124                CLR     KTENABLE                        ;TURN OFF KT11
726 027304  004737  017364                JSR     PC,KTOFF                        ;TURN OFF KT11
731 027310  004737  016274                JSR     PC,DSBINT               ;DISABLE INTERRUPTS
732 027314  012700  034066                MOV     #TST23ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
733 027320  004737  016600                JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
734 027324  004737  021322                JSR     PC,MEMCK                ;CHECK FOR MEMORY
735 027330  005037  003126                CLR     NXMFLG                  ;SET FLAG
736 027334  012737  000005  002206        MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
737                                 ;+
738                                 ;
739                                 ;TEST 3, SUBTEST 1
740                                 ;
741                                 ;VERIFIES THAT A WRITE COMMAND (ANY VALID MODE CODE)
742                                 ;WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS
743                                 ;REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL
744                                 ;VALID MODE CODES ARE CHECKED (WRITE DATA, WRITE
745                                 ;RETRY).
746                                 ;-
747
748 027342                          T23LOOP:
749 027342                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
    027342                                                                      T3.1:
    027342  104402                                                                   TRAP    C$BSUB
750 027344  004737  034102                JSR     PC,T23REST              ;SET COMMAND PACKET
751 027350  004737  034174                JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
752
753                                 ;*************************************   ***************************************
754                                 ;
755                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
756                                 ;
757                                 ;*****************************************************************************
758
```

```
                                JSR     PC,SDFINIT              ;DO INITIALIZE ON CONTROLLER
                                BCS     20$                     ;BR IF INIT WAS OK
                                INC     FATFLG                  ;BUMP COUNT
                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                        TRAP    C$ERDF
                                                                        .WORD   301
                                                                        .WORD   SFIERR
                                                                        .WORD   SFIMSG
                        20$:
                                MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
                                MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

                                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                BCS     23$                     ;BR, IF COMMAND ISSUED OK
                                INC     FATFLG                  ;BUMP COUNT
                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                                                                        TRAP    C$ERHRD
                                                                        .WORD   302
                                                                        .WORD   WRTMSG
                                                                        .WORD   SFIMSG
                        23$:    TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
                                BNE     50$                     ;BR IF SWITCH IS ON

                                MOVB    #200,T23BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
                                MOVB    #10,T23BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
                                MOV     #T23PK2,R4              ;WRITE SUBSYS MEM PACKET
                                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
                                JSR     PC,CHKTSSR              ;WAIT FOR SSR
                                BCS     30$                     ;BR, IF NO ERROR
                                MOV     R0,R1                   ;ERROR, SAVE TSSR
                                INC     FATFLG                  ;BUMP COUNT
                                ERRHRD  ERRNO,T23SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
                                                                        TRAP    C$ERHRD
                                                                        .WORD   303
                                                                        .WORD   T23SSR
                                                                        .WORD   PKTSSR
                        30$:    CKLOOP                          ;LOOP IF SELECTED
                                                                        TRAP    C$CLP1
                                MOV     #7,T23DSW               ;SET DRIVE NUMBER IN PACKET
                                MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

                                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                BCS     50$                     ;BR, IF COMMAND ISSUED OK
```

```
812 027536  005237  002212              INC     FATFLG                  ;BUMP COUNT
816 027542  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
817 027544                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
    027544  104456                                                              TRAP    C$ERHRD
    027546  000460                                                              .WORD   304
    027550  005054                                                              .WORD   WRTMSG
    027552  012124                                                              .WORD   SFIMSG
818 027554                      50$:    CKLOOP                          ;SCOPE LOOP
    027554  104406                                                              TRAP    C$CLP1
819 027556  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
820 027562  032701  000100              BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
821 027566  001006                      BNE     60$                     ;BR, IF OFFLINE (GOOD)
822 027570  005237  002212              INC     FATFLG                  ;BUMP COUNT
826 027574                              ERRDF   ERRNO,T230FL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
    027574  104455                                                              TRAP    C$ERDF
    027576  000461                                                              .WORD   305
    027600  033406                                                              .WORD   T230FL
    027602  012124                                                              .WORD   SFIMSG
827 027604                      60$:    CKLOOP                          ;LOOP IF SELECTED
    027604  104406                                                              TRAP    C$CLP1
828 027606  012703  032734              MOV     #T23WD,R3               ;POINTER FOR COMMANDS
829 027612  011337  032670      65$:    MOV     (R3),T23PK2             ;TAPE MOTION COMMAND IN PLACE
830 027616  012704  032670              MOV     #T23PK2,R4              ;R4 = POINTER TO PACKET
831 027622  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
832 027626  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
833 027632  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
834 027636  012702  100306              MOV     #SSR!SC!OFL!BIT1!BIT2,R2;SET UP EXPECTED
835 027642  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
836 027644  001406                      BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
837 027646  005237  002212              INC     FATFLG                  ;BUMP COUNT
841 027652                              ERRHRD  ERRNO,T23TM,EXPREC      ;TSSR INCORRECT AFTER TAPE MOTION CMD
    027652  104456                                                              TRAP    C$ERHRD
    027654  000462                                                              .WORD   306
    027656  033142                                                              .WORD   T23TM
    027660  015564                                                              .WORD   EXPREC
842 027662                      80$:    CKLOOP                          ;LOOP IF SELECTED
    027662  104406                                                              TRAP    C$CLP1
843 027664  005723                      TST     (R3)+                   ;POINT TO NEXT COMMAND
844 027666  022713  177777              CMP     #177777,(R3)            ;END OF THE COMMANDS YET
845 027672  001401                      BEQ     90$                     ;BR, IF DONE
846 027674  000746                      BR      65$                     ;MORE COMMAND(S) TO GO
847 027676                      90$:
848 027676                              ENDSUB                          ;>>>>>>>:>>>>> END SUBTEST >>>>>>>>>>>>
    027676                                                                      L10044:
    027676  104403                                                              TRAP    C$ESUB
849 027700  023727  002212  000017              CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
850 027706  103402                              BLO     999$                    ;BR, IF LESS THAN 25
851 027710  004737  017272                      JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
852 027714                      999$:
853
854                             ;+
855                             ;
856                             ;TEST 3, SUBTEST 2
857                             ;
858                             ;VERIFIES THAT WRITE DATA COMMANDS WITH CVC=1 AND THE
859                             ;SWAP BYTES (SWB) BIT CLEAR OPERATES PROPERLY. THE
860                             ;BYTE COUNT (RECORD SIZE) VARIES FROM 20 THROUGH 64<
```

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                                ;IN VARYING INCREMENTS (DEPENDING UPON WHETHER OR NOT
                                ;THE DIAGNOSTIC IS RUNNING IN THE LONG VERIFICATION
                                ;MODE). THE TAPE IS NOT REWOUND BETWEEN SUCCESSIVE
                                ;RECORDS BUT IS REWOUND AFTER THE FINAL RECORD IS
                                ;WRITTEN. AN INCREMENTING COUNT PATTERN IS SUPPLIED
                                ;IN THE DATA BUFFER. AFTER EACH BLOCK IS WRITTEN, THE
                                ;TSSR AND TSBA REGISTERS, THE MESSAGE BUFFER, AND THE
                                ;RAM CONTENTS ARE CHECKED. (THE RAM CONTENTS ARE CHECKED
                                ;USING THE WRITE SUBSYSTEM MEMORY COMMAND.
                                ;
                                ;
                                ;
                                ;
027714                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST  >>>>>>>>>>>
                                                                                        T3.2:
027714                                                                                          TRAP    C$BSUB
027714  104402
027716  013701  003116                    MOV     FRESIZ,R1               ;GET SIZE OF AVAILIABLE MEMORY
027722  000241                          CLC                             ;CLEAR THE CARRY BIT
027724  006101                          ROL     R1                      ;MAKE INTO BYTES
027726  010137  032720                  MOV     R1,T23RSZ               ;STORE IN TEST FOR USE LATER
027732  004737  034102                  JSR     PC,T23REST              ;SET COMMAND PACKET
027736  004737  034236                  JSR     PC,T23RT3               ;RESTORE PACKET
027742  004737  034174                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET

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

027746  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
027752  103407                          BCS     20$                     ;BR IF INIT WAS OK
027754  005237  002212                  INC     FATFLG                  ;BUMP COUNT
027760  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
027762                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
027762  104455                                                                          TRAP    C$ERDF
027764  000463                                                                          .WORD   307
027766  003650                                                                          .WORD   SFIERR
027770  012124                                                                          .WORD   SFIMSG
027772                          20$:
027772  013737  002172  032600          MOV     UNITN,T23DSW            ;LOAD UP SELECTED UNIT NUMBER
030000  012704  032560                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

030004  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
030010  103407                          BCS     23$                     ;BR, IF COMMAND ISSUED OK
030012  005237  002212                  INC     FATFLG                  ;BUMP COUNT
030016  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
030020                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
030020  104456                                                                          TRAP    C$ERHRD
030022  000464                                                                          .WORD   308
030024  005054                                                                          .WORD   WRTMSG
```

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                030026  012124                                                          .WORD   SFIMSG
    915         030030                  23$:    CKLOOP                  ;LOOP IF SELECTED
                030030  104406                                                          TRAP    C$CLP1
    916
    917                                 ;*******************************************************************
    918                                 ;
    919                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
    920                                 ;
    921                                 ;*******************************************************************
    922
    923 030032  004737  011104          JSR     PC,REWIND               ;CALL THE TAPE REWIND
    924 030036  012703  000024          MOV     #20.,R3                 ;STARTING RECORD SIZE
    925 030042  013737  003114  032712  65$:    MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
    926
    927                                 ;*******************************************************************
    928                                 ;
    929                                 ;WRITE DATA,CVC=1,ACK COMMAND
    930                                 ;
    931                                 ;*******************************************************************
    932
    933 030050  012737  140005  032710          MOV     #140005,T23PK3          ;WRITE DATA,CVC=1,ACK COMMAND
    934 030056  012737  140005  032732          MOV     #140005,T23WRT          ;SETUP FOR RETRY COMMAND
    935 030064  052737  004000  032732          BIS     #4000,T23WRT            ;MAKE IT A RETRY
    936 030072  012704  032710                  MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
    937 030076  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
    938 030100  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
    939 030104  010337  032716                  MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
    940 030110  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
    941 030114  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
    942 030120  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
    943 030124  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
    944 030130  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
    945 030132  001402                          BEQ     80$                     ;BR. IF OK
    946 030134  004737  034262                  JSR     PC,T23CHK               ;CHECK SPECIAL CONDITION
    947 030140                  80$:    CKLOOP                  ;LOOP IF SELECTED
                030140  104406                                                          TRAP    C$CLP1
    948 030142  016501  000000                  MOV     TSBA(R5),R1             ;GET TSBA CONTENTS
    949 030146  012702  032602                  MOV     #T23BFR,R2              ;SET UP EXPECTED
    950 030152  062702  000016                  ADD     #16,R2                  ;SET TO END OF MESSAGE BUFFER
    951 030156  005737  002216                  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SET
    952 030162  001402                          BEQ     85$                     ;BR. IF IT NOT SET
    953 030164  062702  000002                  ADD     #2,R2                   ;BUMP R2 FOR EXTRA DATA
    954 030170  020102                  85$:    CMP     R1,R2                   ;ARE THEY EQUAL
    955 030172  001406                          BEQ     90$                     ;BR. IF TSBA IS CORRECT
    956 030174  005237  002212                  INC     FATFLG                  ;BUMP COUNT
    960 030200                                  ERRHRD  ERR#0,T23BA,EXPREC      ;TSBA WAS NOT CORRECT AFTER WRITE DATA
                030200  104456                                                          TRAP    C$ERHRD
                030202  000465                                                          .WORD   309
                030204  033725                                                          .WORD   T23BA
                030206  015564                                                          .WORD   EXPREC
    961 030210                  90$:    CKLOOP                  ;LOOP IF SELECTED
                030210  104406                                                          TRAP    C$CLP1
    962 030212  020327  007376                  CMP     R3,#7376                ;ONLY CHECK RAM UNTIL ITS FULL
    963 030216  002114                          BGE     115$                    ;IT WRAPS AROUND ETC.
    964 030220  004737  034174                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
    965 030224  012737  000400  032724          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
    966 030232  112737  000000  032722          MOVB    #0,T23BSO               ;STOP INTERNAL TSV05 DIAGNOSTICS
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 967 030240  112737  000000  032723          MOVB    #0,T23BS1               ;SIZE OF RAM READ
 968 030246  012704  032670                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
 969 030252  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
 970 030256  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
 971 030262  103407                          BCS     92$                     ;BR, IF NO ERRORS IN TSSR
 972 030264  010001                          MOV     R0,R1                   ;SAVE TSSR
 973 030266  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 977 030272                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     030272  104456                                                              TRAP    C$ERHRD
     030274  000466                                                              .WORD   310
     030276  033777                                                              .WORD   T23WSS
     030300  012136                                                              .WORD   PKTSSR
 978 030302                          92$:    CKLOOP                          ;LOOP IF SELECTED
     030302  104406                                                              TRAP    C$CLP1
 979 030304  004737  034174                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
 980 030310  012737  000400  032724          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
 981 030316  112737  000001  032722          MOVB    #1,T23BS0               ;READ RAM COMMAND FOR WRITE SUB SYS M.
 982 030324  112737  000002  032723          MOVB    #2,T23BS1               ;SIZE OF RAM READ
 983 030332  012704  032670                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
 984 030336  010465  000000          95$:    MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
 985 030342  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
 986 030346  103407                          BCS     100$                    ;BR, IF NO ERRORS IN TSSP
 987 030350  010001                          MOV     R0,R1                   ;SAVE TSSR
 988 030352  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 992 030356                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
     030356  104456                                                              TRAP    C$ERHRD
     030360  000467                                                              .WORD   311
     030362  033777                                                              .WORD   T23WSS
     030364  012136                                                              .WORD   PKTSSR
 993 030366                          100$:   CKLOOP                          ;LOOP IF SELECTED
     030366  104406                                                              TRAP    C$CLP1
 994 030370  005001                          CLR     R1                      ;CLEAR REGISTER
 995 030372  005002                          CLR     R2                      ;CLEAR REGISTER
 996 030374  013701  032622                  MOV     T23BFR+20,R1            ;PICK UP BYTE READ FROM RAM
 997 030400  010302                          MOV     R3,R2                   ;SET UP EXPECTED
 998 030402  020102                          CMP     R1,R2                   ;IS RAM DATA CORRECT
 999 030404  001406                          BEQ     110$                    ;BR, IF OK (EQUAL)
1000 030406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1004 030412                                  ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC=RAM NOT CORRECT
     030412  104456                                                              TRAP    C$ERHRD
     030414  000470                                                              .WORD   312
     030416  033265                                                              .WORD   T23RNC
     030420  015564                                                              .WORD   EXPREC
1005 030422                          110$:   CKLOOP                          ;LOOP IF SELECTED
     030422  104406                                                              TRAP    C$CLP1
1006 030424  005237  032724                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1007 030430  005237  032724                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1008 030434  010301                          MOV     R3,R1                   ;GET SIZE OF RECORD
1009 030436  062701  000400                  ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
1010 030442  023701  032724                  CMP     T23S2,R1                ;AT END OF RAM CHECK YET
1011 030446  001333                          BNE     95$                     ;BR, IF MORE TO CHECK
1012 030450  062703  001750          115$:   ADD     #1000.,R3               ;NEXT RECORD SIZE/DATA PATTERN
1013 030454  020337  032720                  CMP     R3,T23RSZ               ;IS R3 OVER MAX RECORD SIZE
1014 030460  002005                          BGE     120$                    ;IF RECORD SIZE IS TOO BIG QUIT
1015 030462  020327  177776                  CMP     R3,#65534.              ;END OF SUBTEST MAX RECORD SIZE
1016 030466  001402                          BEQ     120$                    ;BR, IF COMPLETED
1017 030470  000137  030042                  JMP     65$                     ;DO MORE RECORDS
```

```
1018 030474                          120$:
1019 030474  004737  034236                  JSR     PC,T23RT3               ;RESTORE PACKET
1020 030500  004737  034174                  JSR     PC,T23RT2               ;CLEAN UP PACKET
1021 030504  012737  102010  0326'0          MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1022 030512  012704  032670                  MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1023 030516  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1024 030522  004737  016426                  JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1025 030526  103407                          BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1026 030530  010001                          MOV     R0,R1                   ;SAVE TSSR CONTENTS
1027 030532  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1031 030536                                  ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     030536  104456                                                                  TRAP    C$ERHRD
     030540  000471                                                                  .WORD   313
     030542  033216                                                                  .WORD   T23RWN
     030544  012136                                                                  .WORD   PKTSSR
1032 030546                          130$:
1033 030546                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     030546                                                                       L10045:
     030546  104403                                                                  TRAP    C$ESUB
1034 030550  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1035 030556  103402                          BLO     999$                            ;BR, IF LESS THAN 25
1036 030560  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1037 030564                          999$:
1038
1039                                 ;+
1040                                 ;
1041                                 ;TEST 3, SUBTEST 3
1042                                 ;
1043                                 ;VERIFIES THAT WRITE DATA COMMANDS WITH CVC=1 AND THE
1044                                 ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
1045                                 ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
1046                                 ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
1047                                 ;
1048                                 ;
1049                                 ;
1050                                 ;-
1051 030564                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     030564                                                                       T3.3:
     030564  104402                                                                  TRAP    C$BSUB
1052 030566  004737  034102                  JSR     PC,T23REST              ;SET COMMAND PACKET
1053 030572  004737  034174                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1054
1055                                 ;*************************************************************************
1056                                 ;
1057                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1058                                 ;
1059                                 ;*************************************************************************
1060
1061 030576  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1062 030602  103407                          BCS     20$                     ;BR IF INIT WAS OK
1063 030604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1067 030610  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1068 030612                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     030612  104455                                                                  TRAP    C$ERDF
     030614  000472                                                                  .WORD   314
     030616  003650                                                                  .WORD   SFIERR
     030620  012124                                                                  .WORD   SFIMSG
```

```
1069 030622                                  20$:
1070 030622  013737  002172  032600                MOV     UNITN,T23DSW            ;SET UP UNIT NUMBER
1071 030630  012704  032560                        MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1072
1073                                         ;*****************************************************************
1074                                         ;
1075                                         ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHK)
1076                                         ;
1077                                         ;*****************************************************************
1078
1079 030634  004737  010752                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1080 030640  103407                                BCS     23$                     ;BR, IF COMMAND ISSUED OK
1081 030642  005237  002212                        INC     FATFLG                  ;BUMP COUNT
1085 030646  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1086 030650                                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     030650  104456                                                                        TRAP    C$ERHRD
     030652  000473                                                                        .WORD   315
     030654  005054                                                                        .WORD   WRTMSG
     030656  012124                                                                        .WORD   SFIMSG
1087 030660                                  23$:
1088 030660  012703  000024                        MOV     #20.,R3                 ;STARTING RECORD SIZE
1089 030664  013737  003114  032712  65$:    MOV     FREE,T23WB              ;STARTING WRITE BUFFER ADDRESS
1090
1091                                         ;*****************************************************************
1092                                         ;
1093                                         ;WRITE DATA,CVC=1,ACK,SWB COMMAND
1094                                         ;
1095                                         ;*****************************************************************
1096
1097 030672  012737  150005  032710                MOV     #150005,T23PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
1098 030700  012737  150005  032732                MOV     #150005,T23WRT          ;SETUP FOR RETRY COMMAND
1099 030706  052737  004000  032732                BIS     #4000,T23WRT            ;MAKE IT A RETRY
1100 030714  012704  032710                        MOV     #T23PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
1101 030720  010300                                MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
1102 030722  004737  017512                        JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
1103 030726  010337  032716                        MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
1104 030732  010465  000000                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1105 030736  004737  016340                        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1106 030742  016501  000002                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1107 030746  012702  000200                        MOV     #SSR,R2                 ;SET UP EXPECTED
1108 030752  020102                                CMP     R1,R2                   ;ARE THEY EQUAL
1109 030754  001402                                BEQ     80$                     ;BR, IF OK
1110 030756  004737  034262                        JSR     PC,T23CHK               ;CHECK SPECIAL CONDITION
1111 030762                                  80$:  CKLOOP                          ;LOOP IF SELECTED
     030762  104406                                                                        TRAP    C$CLP1
1112 030764  016501  000000                        MOV     TSBA(R5),R1             ;GET TSBA CONTENTS
1113 030770  012702  032602                        MOV     #T23BFR,R2              ;SET UP EXPECTED
1114 030774  062702  000016                        ADD     #16,R2                  ;SET TO END OF MESSAGE BUFFER
1115 031000  005737  002216                        TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SET
1116 031004  001402                                BEQ     85$                     ;BR, IF IT NOT SET
1117 031006  062702  000002                        ADD     #2,R2                   ;BUMP R2 FOR EXTRA DATA
1118 031012  020102                          85$:  CMP     R1,R2                   ;ARE THEY EQUAL
1119 031014  001406                                BEQ     90$                     ;BR, IF TSBA IS CORRECT
1120 031016  005237  002212                        INC     FATFLG                  ;BUMP COUNT
1124 031022                                        ERRHRD  ERRNO,T23BA,EXPREC      ;TSBA WAS NOT CORRECT AFTER WRITE DATA
     031022  104456                                                                        TRAP    C$ERHRD
     031024  000474                                                                        .WORD   316
```

```
        031026  033725                                                          .WORD   T23BA
        031030  015564                                                          .WORD   EXPREC
1125    031032                          90$:    CKLOOP                          ;LOOP IF SELECTED
        031032  104406                                                          TRAP    C$CLP1
1126    031034  020327  007376                  CMP     R3,#7376                ;ONLY CHECK RAM UNTIL ITS FULL
1127    031040  002115                          BGE     115$                    ;IT WRAPS AROUND ETC.
1128    031042  004737  034174                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
1129    031046  012737  000400  032724          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
1130    031054  112737  000000  032722          MOVB    #0,T23BS0               ;STOP INTERNAL TSV05 DIAGNOSTICS
1131    031062  112737  000000  032723          MOVB    #0,T23BS1               ;SIZE OF RAM READ
1132    031070  012704  032670                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
1133    031074  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM COMMAND
1134    031100  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
1135    031104  103407                          BCS     92$                     ;BR. IF NO ERRORS IN TSSR
1136    031106  010001                          MOV     R0,R1                   ;SAVE TSSR
1137    031110  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1141    031114                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
        031114  104456                                                          TRAP    C$ERHRD
        031116  000475                                                          .WORD   317
        031120  033777                                                          .WORD   T23WSS
        031122  012136                                                          .WORD   PKTSSR
1142    031124                          92$:    CKLOOP                          ;LOOP IF SELECTED
        031124  104406                                                          TRAP    C$CLP1
1143    031126  004737  034174                  JSR     PC,T23RT2               ;MAKE SURE PACKET AND DATA ARE CLEAN
1144    031132  012737  000400  032724          MOV     #256.,T23S2             ;STARTING RAM ADDRESS
1145    031140  112737  000001  032722          MOVB    #1,T23BS0               ;READ RAM COMMAND FOR WRITE SUB SYS M.
1146    031146  112737  000002  032723          MOVB    #2,T23BS1               ;SIZE OF RAM READ
1147    031154  012704  032670                  MOV     #T23PK2,R4              ;SET R4 WITH PACKET ADDRESS
1148    031160  010465  000000          95$:    MOV     R4,TSDB(R5)             ;ISSUE WRITE SUB SYS MEM CMD (READ RAM)
1149    031164  004737  016426                  JSR     PC,CHKTSSR              ;CHECK TSSR AND WAIT FOR SSR TO SET
1150    031170  103407                          BCS     100$                    ;BR. IF NO ERRORS IN TSSR
1151    031172  010001                          MOV     R0,R1                   ;SAVE TSSR
1152    031174  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1156    031200                                  ERRHRD  ERRNO,T23WSS,PKTSSR     ;TSSR BAD AFTER WRITE SUB SYS MEM
        031200  104456                                                          TRAP    C$ERHRD
        031202  000476                                                          .WORD   318
        031204  033777                                                          .WORD   T23WSS
        031206  012136                                                          .WORD   PKTSSR
1157    031210                  100$:   CKLOOP                                  ;LOOP IF SELECTED
        031210  104406                                                          TRAP    C$CLP1
1158    031212  005001                          CLR     R1                      ;CLEAR REGISTERS
1159    031214  005002                          CLR     R2                      ;CLEAR REGISTERS
1160    031216  013701  032622                  MOV     T23BFR+20,R1            ;PICK UP BYTE READ FROM RAM
1161    031222  010302                          MOV     R3,R2                   ;SET UP EXPECTED
1162    031224  000302                          SWAB    R2                      ;SWAP BYTES
1163    031226  020102                          CMP     R1,R2                   ;IS RAM DATA CORRECT
1164    031230  001406                          BEQ     110$                    ;BR. IF OK (EQUAL)
1165    031232  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1169    031236                                  ERRHRD  ERRNO,T23RNC,EXPREC     ;RNC=RAM NOT CORRECT
        031236  104456                                                          TRAP    C$ERHRD
        031240  000477                                                          .WORD   319
        031242  033265                                                          .WORD   T23RNC
        031244  015564                                                          .WORD   EXPREC
1170    031246                  110$:   CKLOOP                                  ;LOOP IF SELECTED
        031246  104406                                                          TRAP    C$CLP1
1171    031250  005237  032724                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
1172    031254  005237  032724                  INC     T23S2                   ;BUMP RAM ADDRESS TO BE CHECKED
```

```
1173 031260  010301                        MOV     R3,R1                   ;GET SIZE OF RECORD
1174 031262  062701  000400                ADD     #256.,R1                ;FIGURE OUT END RECORD ADDRESS
1175 031266  023701  032724                CMP     T23S2,R1                ;AT END OF RAM CHECK YET
1176 031272  001332                        BNE     95$                     ;BR, IF MORE TO CHECK
1177 031274  062703  001750          115$: ADD     #1000.,R3               ;NEXT RECORD SIZE/DATA PATTERN
1178 031300  020337  032720                CMP     R3,T23RSZ               ;IS R3 OVER MAX RECORD SIZE
1179 031304  002005                        BGE     120$                    ;IF RECORD SIZE IS TOO BIG QUIT
1180 031306  020327  177776                CMP     R3,#65534.              ;END OF SUBTEST MAX RECORD SIZE
1181 031312  001402                        BEQ     120$                    ;BR, IF COMPLETED
1182 031314  000137  030664                JMP     65$                     ;DO MORE RECORDS
1183 031320                          120$:
1184 031320  004737  034174                JSR     PC,T23RT2               ;CLEAN UP PACKET
1185 031324  012737  102010  032670        MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1186 031332  012704  032670                MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1187 031336  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1188 031342  004737  016426                JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1189 031346  103407                        BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1190 031350  010001                        MOV     R0,R1                   ;SAVE TSSR CONTENTS
1191 031352  005237  002212                INC     FATFLG                  ;BUMP COUNT
1195 031356                                ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
     031356  104456                                                                TRAP    C$ERHRD
     031360  000500                                                                .WORD   320
     031362  033216                                                                .WORD   T23RWN
     031364  012136                                                                .WORD   PKTSSR
1196 031366                          130$:
1197 031366                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     031366                                                                     L10046:
     031366  104403                                                                TRAP    C$ESUB
1198 031370  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1199 031376  103402                        BLO     999$                            ;BR, IF LESS THAN 25
1200 031400  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1201 031404                          999$:
1202
1203                                       ;*
1204                                       ;
1205                                       ;TEST 3, SUBTEST 4
1206                                       ;
1207                                       ;VERIFIES THAT A WRITE COMMAND WITH AN ILLEGAL MODE
1208                                       ;FIELD OR AN ILLEGAL BUFFER ADDRESS IS REJECTED WITH
1209                                       ;THE PROPER ERROR STATUS AND THAT TAPE DOES NOT MOVE
1210                                       ;
1211                                       ;
1212                                       ;-
1213
1214 031404                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     031404                                                                     T3.4:
     031404  104402                                                                TRAP    C$BSUB
1215 031406  004737  034102                JSR     PC,T23REST              ;SET COMMAND PACKET
1216 031412  004737  034236                JSR     PC,T23RT3               ;RESTORE PACKET
1217 031416  004737  034174                JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1218
1219                                       ;*************************************************************************
1220                                       ;
1221                                       ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1222                                       ;
1223                                       ;*************************************************************************
1224
```

```
1225 031422  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1226 031426  10340~                        BCS     20$                     ;BR IF INIT WAS OK
1227 031430  005237  002212                INC     FATFLG                  ;BUMP COUNT
1231 031434  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1232 031436                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     031436  104455                                                                TRAP    C$ERDF
     031440  000501                                                                .WORD   321
     031442  003650                                                                .WORD   SFIERR
     031444  012124                                                                .WORD   SFIMSG
1233 031446                          20$:
1234 031446  013737  002172  032600          MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
1235 031454  012704  032560                MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1236
1237                                       ;*************************************************************************
1238                                       ;
1239                                       ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1240                                       ;
1241                                       ;*************************************************************************
1242
1243 031460  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1244 031464  103407                        BCS     23$                     ;BR, IF COMMAND ISSUED OK
1245 031466  005237  002212                INC     FATFLG                  ;BUMP COUNT
1249 031472  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1250 031474                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     031474  104456                                                                TRAP    C$ERHRD
     031476  000502                                                                .WORD   322
     031500  005054                                                                .WORD   WRTMSG
     031502  012124                                                                .WORD   SFIMSG
1251
1252                                       ;*************************************************************************
1253                                       ;
1254                                       ;WRITE DATA, ACK, ILLEGAL BITS
1255                                       ;
1256                                       ;*************************************************************************
1257
1258 031504  012737  104405  032710  23$:  MOV     #104405,T23PK3          ;WRITE DATA, ACK, ILLEGAL BITS
1259 031512  013737  003114  032712        MOV     ^^EE,T23WB              ;SET UP WRITE BUFFER ADDRESS
1260 031520  062737  000001  032712        ADD     #1,T23WB                ;MAKE ADDRESS ODD (ILLEGAL)
1261 031526  012737  000400  032716        MOV     #256.,T23SZ             ;SET UP BUFFER SIZE
1262 031534  012704  032710                MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
1263 031540  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1264 031544  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1265 031550  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1266 031554  012702  100206                MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
1267 031560  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
1268 031562  001406                        BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1269 031564  005237  002212                INC     FATFLG                  ;BUMP COUNT
1273 031570                                ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     031570  104456                                                                TRAP    C$ERHRD
     031572  000503                                                                .WORD   323
     031574  033142                                                                .WORD   T23TM
     031576  012136                                                                .WORD   PKTSSR
1274 031600                          80$:  CKLOOP                          ;LOOP IF SELECTED
     031600  104406                                                                TRAP    C$CLP1
1275 031602                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     031602                                                                  L10047:
     031602  104403                                                                TRAP    C$ESUB
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```
1276 031604  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1277 031612  103402                          BLO     999$                            ;BR. IF LESS THAN 25
1278 031614  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNI
1279 031620                          999$:
1280
1281                                 ;*
1282                                 ;
1283                                 ;TEST 3, SUBTEST 5
1284                                 ;
1285                                 ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
1286                                 ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
1287                                 ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
1288                                 ;
1289                                 ;
1290
1291 031620                          BGNSUB                                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      031620                                                                                T3.5:
      031620  104402                                                                          TRAP    C$BSUB
1292 031622  005737  003126                  TST     NXMFLG                  ;DO WE HAVE IT?
1293 031626  001002                          BNE     10$                     ;BR, IF  ENOUGH
1294 031630  000137  032150                  JMP     90$                     ;SKIP THIS TEST IF NOT
1295 031634  004737  034102          10$:    JSR     PC,T23REST              ;SET COMMAND PACKET
1296 031640  004737  034236                  JSR     PC,T23RT3               ;RESTORE PACKET
1297 031644  004737  034174                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1298
1299                                 ;*****************************************************************
1300                                 ;
1301                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1302                                 ;
1303                                 ;*****************************************************************
1304
1305 031650  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1306 031654  103407                          BCS     20$                     ;BR IF INIT WAS OK
1307 031656  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1311 031662  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1312 031664                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      031664  104455                                                                        TRAP    C$ERDF
      031666  000504                                                                        .WORD   324
      031670  003650                                                                        .WORD   SFIERR
      031672  012124                                                                        .WORD   SFIMSG
1313 031674                          20$:
1314 031674  013737  002172  032600          MOV     UNITN,T23DSW            ;SET DRIVE NUMBER UP
1315 031702  012704  032560                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1316
1317                                 ;*****************************************************************
1318                                 ;
1319                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1320                                 ;
1321                                 ;*****************************************************************
1322
1323 031706  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1324 031712  103407                          BCS     123$                    ;BR, IF COMMAND ISSUED OK
1325 031714  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1329 031720  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1330 031722                                  FRRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      031722  104456                                                                        TRAP    C$ERHRD
      031724  000505                                                                        .WORD   325
```

```
        031726  005054                                                          .WORD   WRTMSG
        031730  012124                                                          .WORD   SFIMSG
   1331
   1332                                 ;*****************************************************************
   1333                                 ;
   1334                                 ;WRITE DATA, ACK, CVC=1
   1335                                 ;
   1336                                 ;*****************************************************************
   1337
   1338 031732                          123$:
   1339 031732  005737  002216                 TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
   1340 031736  001026                         BNE     130$                    ;BR IF SWITCH IS ON
   1341 031740  005237  002216                 INC     EXTFEA                  ;ONLY ONE TIME
   1342 031744  112737  000200  032723         MOVB    #200,T23BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
   1343 031752  112737  000010  032722         MOVB    #10,T23BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
   1344 031760  012704  032670                 MOV     #T23PK2,R4              ;WRITE SUBSYS MEM PACKET
   1345 031764  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
   1346 031770  004737  016426                 JSR     PC,CHKTSSR              ;WAIT FOR SSR
   1347 031774  103407                         BCS     130$                    ;BR, IF NO ERROR
   1348 031776  010001                         MOV     R0,R1                   ;ERROR, SAVE TSSR
   1349 032000  005237  002212                 INC     FATFLG                  ;BUMP COUNT
   1353 032004                                 ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
        032004  104456                                                         TRAP    C$ERHRD
        032006  000506                                                         .WORD   326
        032010  026320                                                         .WORD   T22SSR
        032012  012136                                                         .WORD   PKTSSR
   1354 032014                          130$:   CKLOOP                          ;LOOP IF SELECTED
        032014  104406                                                         TRAP    C$CLP1
   1355
   1356 032016  012701  160000                 MOV     #160000,R1              ;NXM LOW ADDRESS START
   1357 032022  012702  177776                 MOV     #177776,R2              ;LIMIT CHECK FOR NXM (HIGHEST)
   1358 032026  004737  016466                 JSR     PC,XNXM                 ;LOOK FOR NXM ADDRESS
   1359 032032  103045                         BCC     80$                     ;BR, IF NON FOUND
   1360 032034  010137  003130                 MOV     R1,NXMLO                ;SET ADDRESS UP FOR TEST
   1361
   1362
   1363 032040  005037  032714                 CLR     T23WB+2                 ;CLEAR OUT THE HIGH BITS AREA
   1364 032044                          24$:
   1365 032044  012737  140005  032710         MOV     #140005,T23PK3          ;WRITE DATA, ACK, CVC=1
   1366 032052  013737  003130  032712         MOV     NXMLO,T23WB             ;SET UP WRITE BUFFER ADDRESS
   1367 032060  012737  000100  032716         MOV     #64.,T23SZ              ;SET UP BUFFER SIZE
   1368 032066  012704  032710                 MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
   1369 032072  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
   1370 032076  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
   1371 032102  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
   1372 032106  012702  104210                 MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
   1373 032112  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
   1374 032114  001414                         BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
   1375 032116  005237  032714                 INC     T23WB+2                 ;BUMP TO NEXT ADDRESS BIT
   1376 032122  023727  032714  000004         CMP     T23WB+2,#4              ;CHECK TO SEE IF OVERFLOW INTO 19 BIT
   1377 032130  001345                         BNE     24$                     ;BR, IF BITS 17 AND 18
   1378 032132  005237  002212          25$:   INC     FATFLG                  ;BUMP COUNT
   1382 032136                                 ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
        032136  104456                                                         TRAP    C$ERHRD
        032140  000507                                                         .WORD   327
        032142  033142                                                         .WORD   T23TM
        032144  012136                                                         .WORD   PKTSSR
```

```
1383 032146                          80$:    CKLOOP                          ;LOOP IF SELECTED
     032146  104406                                                                  TRAP    C$CLP1
1384 032150                          90$:
1385 032150                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     032150                                                                       L10050:
     032150  104403                                                                  TRAP    C$ESUB
1386 032152  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1387 032160  103402                          BLO     999$                            ;BR, IF LESS THAN 25
1388 032162  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1389 032166                          999$:
1390
1391                                 ;*
1392                                 ;
1393                                 ;TEST 3, SUBTEST 6
1394                                 ;
1395                                 ;VERIFIES THAT A WRITE DATA COMMAND SPECIFYING A DATA
1396                                 ;BUFFER STARTING IN EXISTANT MEMORY BUT RUNNING INTO
1397                                 ;NONEXISTENT MEMORY TERMINATES WITH THE PROPER ERROR
1398                                 ;STATUS. A LARGE ENOUGH RECORD SIZE IS SPECIFIED SUCH
1399                                 ;THAT TAPE IS ACTUALLY MOVED AND WRITTEN.
1400                                 ;
1401
1402 032166                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     032166                                                                       T3.6:
     032166  104402                                                                  TRAP    C$BSUB
1403 032170  005737  003126                  TST     NXMFLG                  ;DO WE HAVE IT?
1404 032174  001002                          BNE     10$                     ;BR, IF  ENOUGH
1405 032176  000137  032514                  JMP     130$                    ;SKIP THIS TEST IF NOT
1406 032202  004737  034236          10$:    JSR     PC,T23RT3               ;RESTORE PACKET
1407 032206  004737  034102                  JSR     PC,T23REST              ;SET COMMAND PACKET
1408 032212  004737  034174                  JSR     PC,T23RT2               ;SET UP OTHER COMMAND PACKET
1409
1410                                 ;*************************************************************************
1411                                 ;
1412                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1413                                 ;
1414                                 ;*************************************************************************
1415
1416 032216  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1417 032222  103407                          BCS     20$                     ;BR IF INIT WAS OK
1418 032224  005237  002212                  INC     FATFLG                  ;BUMP COUNT
1422 032230  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1423 032232                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     032232  104455                                                                  TRAP    C$ERDF
     032234  000510                                                                  .WORD   328
     032236  003650                                                                  .WORD   SFIERR
     032240  012124                                                                  .WORD   SFIMSG
1424 032242                          20$:
1425 032242  013737  002172  032600          MOV     UNITN,T23DSW            ;SET DRIVE NUMBER IN PACKET
1426 032250  012704  032560                  MOV     #T23PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1427
1428                                 ;*************************************************************************
1429                                 ;
1430                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1431                                 ;
1432                                 ;*************************************************************************
1433
```

```
1434 032254  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1435 032260  103407                        BCS     23$                     ;BR, IF COMMAND ISSUED OK
1436 032262  005237  002212                INC     FATFLG                  ;BUMP COUNT
1440 032266  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1441 032270                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     032270  104456                                                                TRAP    C$ERHRD
     032272  000511                                                                .WORD   329
     032274  005054                                                                .WORD   WRTMSG
     032276  012124                                                                .WORD   SFIMSG
1442
1443                                ;*****************************************************************
1444                                ;
1445                                ;WRITE DATA, ACK,CVC=1
1446                                ;
1447                                ;*****************************************************************
1448
1449 032300                         23$:
1450 032300  012701  160000                MOV     #160000,R1              ;NXM LOW ADDRESS START
1451 032304  012702  177776                MOV     #177776,R2              ;LIMIT CHECK FOR NXM (HIGHEST)
1452 032310  004737  016466                JSR     PC,XNXM                 ;LOOK FOR NXM ADDRESS
1453 032314  103051                        BCC     80$                     ;BR, IF NON FOUND
1454 032316  010137  003130                MOV     R1,NXMLO                ;SET ADDRESS UP FOR TEST
1455 032322  012737  000000  032714        MOV     #0,T23WB+2              ;SET TO 16 BIT ADDRESS
1456 032330                         24$:
1457 032330  012737  140005  032710        MOV     #140005,T23PK3          ;WRITE DATA, ACK,CVC=1
1458 032336  013701  003130                MOV     NXMLO,R1                ;HIGHEST MEMORY ADDRESS LOW BITS
1459 032342  162701  000500                SUB     #500,R1                 ;SET ADDRESS A LITTLE LOWER
1460 032346  010137  032712                MOV     R1,T23WB                ;LOAD INTO THE PACKET
1461 032352  012737  000000  032716        MOV     #0.,T23SZ               ;SET UP BUFFER SIZE (64K BYTES)
1462 032360  012704  032710                MOV     #T23PK3,R4              ;R4 = POINTER TO PACKET
1463 032364  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1464 032370  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1465 032374  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1466 032400  012702  104210                MOV     #SC!NXM!SSR!BIT3,R2     ;SET UP EXPECTED
1467 032404  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
1468 032406  001414                        BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1469 032410  005237  032714                INC     T23WB+2                 ;BUMP TO NEXT ADDRESS RANGE
1470 032414  023727  032714  000004        CMP     T23WB+2,#4              ;CHECK TO SEE IF WE WENT TO HIGH
1471 032422  001342                        BNE     24$                     ;BR, IF NO OVER FLOW
1472 032424  005237  002212          25$:  INC     FATFLG                  ;BUMP COUNT
1476 032430                                ERRHRD  ERRNO,T23TM,PKTSSR      ;TSSR INCORRECT AFTER WRITE COMMAND
     032430  104456                                                                TRAP    C$ERHRD
     032432  000512                                                                .WORD   330
     032434  033142                                                                .WORD   T23TM
     032436  012136                                                                .WORD   PKTSSR
1477 032440                         80$:  CKLOOP                          ;LOOP IF SELECTED
     032440  104406                                                                TRAP    C$CLP1
1478 032442  004737  034174                JSR     PC,T23RT2               ;CLEAN UP PACKET
1479 032446  004737  034236                JSR     PC,T23RT3               ;RESTORE PACKET
1480 032452  012737  102010  032670        MOV     #102010,T23PK2          ;REWIND (POSITION) COMMAND
1481 032460  012704  032670                MOV     #T23PK2,R4              ;LOAD R4 WITH PACKET ADDRESS
1482 032464  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE REWIND COMMAND
1483 032470  004737  016426                JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
1484 032474  103407                        BCS     130$                    ;BR, IF TSSR IS OK (GOOD)
1485 032476  010001                        MOV     R0,R1                   ;SAVE TSSR CONTENTS
1486 032500  005237  002212                INC     FATFLG                  ;BUMP COUNT
1490 032504                                ERRHRD  ERRNO,T23RWN,PKTSSR     ;TSSR IS INCORRECT AFTER REWIND
```

```
        032504  104456                                                          TRAP    C$ERHRD
        032506  000513                                                          .WORD   331
        032510  033216                                                          .WORD   T23RWN
        032512  012136                                                          .WORD   PKTSSR
  1491  032514                          130$:
  1492  032514                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        032514                                                                  L10051:
        032514  104403                                                          TRAP    C$ESUB
  1493  032516  023727  002212  000017         CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
  1494  032524  103402                         BLO     999$                    ;BR, IF LESS THAN 25
  1495  032526  004737  017272                 JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  1496  032532                          999$:
  1497  032532  004737  016546                 JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
  1498  032536  103002                         BCC     163$                    ;BR, IF NO LOOP REQUIRED
  1499  032540  000137  027342                 JMP     T23LOOP                 ;EXECUTE AGAIN
  1500  032544                          163$:
  1501  032544                                  EXIT    TST                     ;ALL DONE THIS TEST
        032544  104432                                                          TRAP    C$EXIT
        032546  001702                                                          .WORD   L10043 .
  1502
  1503                                  ;*
  1504                                  ;LOCAL STORAGE FOR THIS TEST
  1505                                  ;
  1507  032550                                  .BLKB   10-<.-TSV2&7>
  1509  032560                          T23PACKET:                              ;COMMAND PACKET FOR TEST
  1510  032560  100004                         .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH ACK
  1511  032562  032570                         .WORD   T23DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
  1512  032564  000000                         .WORD   0
  1513  032566  000010                         .WORD   8.                      ;STARTING VALUE OF BLOCK SIZE
  1514  032570                          T23DATA:                                ;CHARACTERISTICS DATA BLOCK
  1515  032570  032602                         .WORD   T23BFR                  ;ADDRESS OF MESSAGE BUFFER
  1516  032572  000000                         .WORD   0
  1517  032574  000012                         .WORD   10.                     ;LENGTH OF MESSAGE BUFFER
  1518  032576  000000                         .WORD   0
  1519  032600  000000                 T23DSW: .WORD   0                       ;SELECT DRIVE 0
  1520  032602                          T23BFR: .BLKW   25.                     ;MESSAGE BUFFER
  1521                                  ;
  1522                                  ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
  1523                                  ;
  1525  032664                                  .BLKB   10 <. TSV2&7>
  1527  032670                          T23PK2:
  1528  032670  100006                         .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, AND ACK
  1529  032672  032722                         .WORD   T23BF2                  ;ADDRESS OF SELECT BLOCK DATA
  1530  032674  000000                         .WORD   0
  1531  032676  000006                         .WORD   6.                      ;SIZE OF DATA PACKET
  1532
  1534  032700                                  .BLKB   10 <.-TSV2&7>
  1536  032710                          T23PK3:
  1537  032710  100005                         .WORD   100005                  ;WRITE COMMAND,  AND ACK
  1538  032712  000000                 T23WB:  .WORD   0                       ;ADDRESS OF WRITE BUFFER
  1539  032714  000000                         .WORD   0
  1540  032716  000000                 T23SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
  1541                                          .EVEN
  1542                                  ;
  1543  032720  000000                 T23RSZ: .WORD   0                       ;LARGEST TAPE RECORD IN BYTES
  1544                                  ;
  1545                                  ;
```

```
1546 032722                          T23BF2:
1547 032722      010                 T23BS0: .BYTE   10                      ;BSEL0 AREA
1548 032723      200                 T23BS1: .BYTE   200                     ;BSEL1 AREA
1549 032724  000000                  T23S2:  .WORD   0                       ;SEL 2 AREA
1550 032726  000000                  T23S3:  .WORD   0                       ;DATA AREA
1551                                 ;
1552                                 ;
1553 032730  000000                  T23TMP: .WORD   0                       ;TEMPORARY REGISTER
1554 032732  000000                  T23WRT: .WORD   0                       ;RETRY COMMAND
1555                                 ;
1556                                         .EVEN
1557                                 ;TAPE MOTION PACKET COMMAND VALUES
1558
1559 032734  100005                  T23WD:  .WORD   100005                  ;WRITE DATA (NEXT)
1560 032736  100405                  T23WDR: .WORD   100405                  ;WRITE DATA RETRY
1561 032740  102005                  T23CON: .WORD   102005                  ;WRITE CONTINOUS
1562 032742  177777                          .WORD   177777                  ;END OF DATA
1563
1564                                 ;+
1565                                 ;LOCAL TEXT MESSAGES FOR TEST
1566                                 ;-
1567
1568 032744      127     122     111  T23SSR: .ASCIZ  'WRITE Command Not Accepted'
1569 032777      105     117     124  T23ET:  .ASCIZ  'EOT Not Found In 12000 4k Writes, (Use Shorter Tape)'
1570 033064      127     122     111  T23EOT: .ASCIZ  'WRITE DATA OVER EOT GAVE NO TAPE STATUS ALERT
1571 033142      124     123     123  T23TM:  .ASCIZ  'TSSR Not Correct After WRITE Command Reject
1572 033216      122     145     167  T23RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
1573 033265      122     101     115  T23RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
1574 033340      124     123     123  T23AM3: .ASCIZ  'TSSR Init. Failed After WRITE Command'
1575 033406      104     162     151  T23OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR
1576 033461      124     123     123  T23WDO: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, SWB Bit Set'
1577 033550      124     123     123  T23WDC: .ASCIZ  'TSSR Not Correct After WRITE DATA Command, Check For Tape Offline'
1578 033652      103     126     103  T23VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
1579 033725      124     123     102  T23BA:  .ASCIZ  'TSBA Not Correct After WRITE DATA Command'
1580 033777      127     122     111  T23WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
1581 034066      102     141     163  TST23ID:        .ASCIZ  'Basic Write'
1582                                         .EVEN
1583                                 ;+
1584                                 ;
1585                                 ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
1586                                 ;WRITE SUBSYSTEM MEMORY COMMAND
1587                                 ;
1588                                 ;-
1589
1590 034102                          T23REST:
1591 034102                                  SAVREG                          ;SAVE THE REGISTERS
1592 034106  012701  032560                 MOV     @T23PACKET,R1           ;START OF THE PACKET
1593 034112  012721  100004                 MOV     @100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
1594 034116  012721  032570                 MOV     @T23DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
1595 034122  005021                         CLR     (R1)+                   ;EXTENDED ADDRESS
1596 034124  012721  000012                 MOV     @10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
1597 034130  012721  032602                 MOV     @T23BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
1598 034134  005021                         CLR     (R1)+
1599 034136  012721  000024                 MOV     @20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
1600 034142  005021                         CLR     (R1)+
1601 034144  012711  000000                 MOV     @0,(R1)                 ;SELECT DRIVE ZERO
1602 034150  012702  000030                 MOV     @24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
```

```
1603 034154  012762  1777?  032602  64$:   MOV     #177777,T23BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
1604 034162  005742                        TST     (R2)                    ;BUMP DOWN TO NEXT LOCATION
1605 034164  020227  000000                CMP     R2,#0                   ;R2 AT ZERO YET
1606 034170  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
1607 034172  000207                        RTS     PC                      ;RETURN
1608
1609
1610 034174                         T23RT2:
1611 034174                                 SAVREG                          ;SAVE THE REGISTERS
1612 034200  012701  032670                MOV     #T23PK2,R1              ;START OF THE PACKET
1613 034204  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
1614 034210  012721  032722                MOV     #T23BF2,(R1)+           ;ADDRESS OF DATA BLOCK
1615 034214  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
1616 034216  012721  000006                MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
1617 034222  012701  032722                MOV     #T23BF2,R1              ;POINT TO DATA SEL AREA
1618 034226  005021                        CLR     (R1)+
1619 034230  005021                        CLR     (R1)+
1620 034232  005011                        CLR     (R1)
1621 034234  000207                        RTS     PC                      ;RETURN
1622 034236                         T23RT3:
1623 034236                                 SAVREG                          ;SAVE THE REGISTERS
1624 034242  012701  032710                MOV     #T23PK3,R1              ;START OF THE PACKET
1625 034246  012721  100005                MOV     #100005,(R1)+           ;WRITE  TAPE. WITH ACK
1626 034252  005021                        CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
1627 034254  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
1628 034256  005011                        CLR     (R1)                    ;SIZE OF DATA BLOCK
1629 034260  000207                        RTS     PC                              ;RETURN
1630                                ;+
1631                                ;
1632                                ;ROUTINE TO RETRY WRITE DATA IN CASE OF BAD TAPE FOR TEST
1633                                ;3,SUBTEST 2 & 3
1634                                ;
1635                                ;INPUTS:        R1=TSSR
1636                                ;               SUBROUTINE SETS UP T23WRT FOR RETRY
1637                                ;-
1638
1639 034262                         T23CHK:
1640 034262                                 SAVREG                                  ;SAVE THE REGISTERS
1641 034266  005037  032730                CLR     T23TMP                          ;CLEAR LOCAL REGISTER
1642 034272  032701  100000                BIT     #SC,R1                          ;IS SC SET IN TSSR?
1643 034276  001452                        BEQ     FATAL                           ;NO, YOU GOT PROBLEMS!
1644 034300  013702  032612                MOV     T23BFR+10,R2                    ;YES,GET XSTAT1
1645 034304  032702  000002                BIT     #X1.UNC,R2                      ;IS UNC SET IN XSTAT1?
1646 034310  001401                        BEQ     1$                              ;NO, CHECK COR
1647 034312  000405                        BR      RETRY                           ;YES,DO WRITE DATA RETRY
1648 034314  032702  020000         1$:    BIT     #X1.COR,R2                      ;IS COR SET IN XSTAT1 THEN?
1649 034320  001002                        BNE     RETRY                           ;YES SO RETRY
1650 034322  000440                        BR      FATAL                           ;NO, YOU GOT PROBLEMS
1651 034324  000207                EXIT:   RTS     PC                              ;RETURN
1652
1653 034326                         RETRY:
1654 034326  012703  000024         2$:    MOV     #20.,R3                         ;STARTING RECORD SIZE
1655 034332  013737  003114  032712        MOV     FREE,T23WB                      ;STARTING WRITE BUFFER ADDRESS
1656 034340  012737  032732  032710        MOV     #T23WRT,T23PK3                  ;WRITE DATA RETRY COMMAND SETUP BY SUBROUTINE
1657 034346  012704  032710                MOV     #T23PK3,R4                      ;SET UP R4 WITH PACKET ADDRESS
1658 034352  010300                        MOV     R3,R0                           ;SET PATTERN IN CORRECT REGISTER
1659 034354  004737  017512                JSR     PC,FILLMEM                      ;FILL MEMORY WITH RECORD SIZE
```

```
1660 034360  010337  032716                  MOV     R3,T23SZ                ;SET UP RECORD SIZE IN PACKET
1661 034364  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1662 034370  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1663 034374  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1664 034400  012702  00020?                  MOV     #SSR,R2                 ;SET UP EXPECTED
1665 034404  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
1666 034406  001746                          BEQ     EXIT                    ;BR, IF OK
1667 034410  005237  032730                  INC     T23TMP                  ;TRY FIVE TIMES THEN EXIT
1668 034414  022737  000005  032730          CMP     #5,T23TMP               ;DONE FIVE YET?
1669 034422  001341                          BNE     2$                      ;NO GO AGAIN
1670 034424  005237  002212          FATAL:  INC     FATFLG                  ;BUMP COUNT
1674 034430  013702  032602                  MOV     T23BFR,R2               ;LOW ORDER MSGBUF
1675 034434                                  ERRHRD  ERRNO,SCHERR,PKTMES     ;TSSR INCORRECT AFTER WRITE DATA
     034434  104456                                                                  TRAP    C$ERHRD
     034436  000514                                                                  .WORD   332
     034440  005276                                                                  .WORD   SCHERR
     034442  012200                                                                  .WORD   PKTMES
1676 034444  004737  017272                  JSR     PC,CKDROP               ;DROP THE UNIT
1677 034450                                  ENDTST
     034450                                                                  L10043:
     034450  104401                                                                  TRAP    C$ETST
1678
1679                                         .SBTTL  TEST  4: BASIC READ DATA (FORWARD AND REVERSE)
1680                                 ;*
1681                                 ;
1682                                 ;THIS TEST VERIFIES THAT THE READ FORWARD AND READ REVERSE
1683                                 ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
1684                                 ;DATA BUFFER BOUNDARIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
1685                                 ;SPACE IS AVAILIABLE), AND BYTE-SWAP CONTROL ARE USED. THIS TEST
1686                                 ;OF COURSE, FURTHER VERIFIES THE WRITE DATA COMMAND BY ACTUALLY
1687                                 ;READING AND VERIFYING WRITTEN DATA. ALSO TESTED ARE PROPER
1688                                 ;TERMINATIONS ON EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH
1689                                 ;LONG, RECORD LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA
1690                                 ;BUFFER ADDRESSES, ILLEGAL CODES IN THE MODE FIELD OF THE BASIC
1691                                 ;READ COMMAND, AND DATA BUFFERS IN NON-EXISTANT MEMORY. THE TEST
1692                                 ;
1693                                 ;
1694                                 ;THE TEST CONSISTS OF THE FOLLOWING 14 SUBTESTS
1695                                 ;
1696                                 ;
1697                                 ;
1698                                 ;
1699 034452                                  BGNTST
     034452                                                                  T4::
1700 034452  012737  006356  002170          MOV     #EPRT1,EPRTSW           ;SET UP PRIMARY ERROR MESSAGE
1701 034460  005037  003124                  CLR     KTENABLE                ;TURN OFF KT11
1702 034464  004737  017364                  JSR     PC,KTOFF                ;TURN KT11 OFF
1707 034470  012700  046462                  MOV     #TST24ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
1708 034474  004737  016600                  JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
1709 034500  004737  021322                  JSR     PC,MEMCK                ;CHECK FOR MEMORY
1710 034504  005037  003126                  CLR     NXMFLG                  ;SET FLAG
1711 034510  012737  000005  002206          MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
1712                                 ;*
1713                                 ;
1714                                 ;TEST 4, SUBTEST 1
1715                                 ;
1716                                 ;
```

```
1717                                    ;VERIFIES THAT A READ DATA COMMAND WITH THE CLEAR
1718                                    ;VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE
1719                                    ;VOLUME CHECK (VCK) IS SET.  ALL LEGAL
1720                                    ;COMBINATIONS OF THE COMMAND MODE FIELD ARE TESTED
1721                                    ;(I.E., IT IS VERIFIED THAT THE COMMAND IS REJECTED
1722                                    ;DUE TO VCK BEING SET RATHER THAN ERRONEOUS DECODING
1723                                    ;OF THE MODE FIELD.
1724                                    ;
1725                                    ;
1726                                    ;
1727
1728 034516                            T24LOOP:
1729 034516                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST <<<<<<<<<<<<
      034516                                                                                T4.1:
      034516  104402                                                                          TRAP    C$BSUB
1730 034520  004737  046530                    JSR     PC,T24REST              ;SET COMMAND PACKET
1731 034524  004737  046664                    JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
1732 034530  004737  046622                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
1733 034534  012737  176750  044216            MOV     #65000.,T24DLY          ;LOAD UP DELAY ROUTINE
1734
1735                                    ;*****************************************************************
1736                                    ;
1737                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
1738                                    ;
1739                                    ;*****************************************************************
1740
1741 034542  004737  016064            5$:     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1742 034546  103426                            BCS     20$                     ;BR IF INIT WAS OK
1743 034550                                    DELAY   250                     ;DELAY AWHILE
      034550  012727  000250                                                        MOV     #250.,(PC)+
      034554  000000                                                                .WORD   0
      034556  013727  002116                                                        MOV     L$DLY,(PC)+
      034562  000000                                                                .WORD   0
      034564  005367  177772                                                        DEC     -6(PC)
      034570  001375                                                                BNE     .-4
      034572  005367  177756                                                        DEC     -22(PC)
      034576  001367                                                                BNE     .-20
1744 034600  005337  044216                    DEC     T24DLY                  ;BUMP DELAY COUNTER
1745 034604  001356                            BNE     5$                      ;BR, IF MORE DELAY REQUIRED
1746 034606  005237  002212                    INC     FATFLG                  ;BUMP COUNT
1750 034612  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1751 034614                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      034614  104455                                                                TRAP    C$ERDF
      034616  000621                                                                .WORD   401
      034620  003650                                                                .WORD   SFIERR
      034622  012124                                                                .WORD   SFIMSG
1752 034624                            20$:
1753 034624  012737  000007  044060            MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
1754 034632  012704  044040                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1755
1756                                    ;*****************************************************************
1757                                    ;
1758                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1759                                    ;
1760                                    ;*****************************************************************
1761
1762 034636  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

```
1763 034642  103407                        BCS     24$                     ;BR, IF COMMAND ISSUED OK
1764 034644  005237  002212                INC     FATFLG                  ;BUMP COUNT
1768 034650  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1769 034652                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     034652  104456                                                               TRAP    C$ERHRD
     034654  000622                                                               .WORD   402
     034656  005054                                                               .WORD   WRTMSG
     034660  012124                                                               .WORD   SFIMSG
1770 034662  005737  002216          24$:   TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
1771 034666  001044                        BNE     50$                     ;BR IF SWITCH IS ON
1772
1773 034670  112737  000200  044201        MOVB    #200,T24BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
1774 034676  112737  000010  044200        MOVB    #10,T24BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
1775 034704  012704  044150                MOV     #T24PK2,R4              ;WRITE SUBSYS MEM PACKET
1776 034710  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1777 034714  004737  016426                JSR     PC,CHKTSSR              ;WAIT FOR SSR
1778 034720  103407                        BCS     30$                     ;BR, IF NO ERROR
1779 034722  010001                        MOV     R0,R1                   ;ERROR, SAVE TSSR
1780 034724  005237  002212                INC     FATFLG                  ;BUMP COUNT
1784 034730                                ERRHRD  ERRNO,T24SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     034730  104456                                                               TRAP    C$ERHRD
     034732  000623                                                               .WORD   403
     034734  044737                                                               .WORD   T24SSR
     034736  012136                                                               .WORD   PKTSSR
1785 034740                        30$:    CKLOOP                          ;LOOP IF SELECTED
     034740  104406                                                               TRAP    C$CLP1
1786 034742  012737  000007  044060        MOV     #7,T24DSW               ;SET DRIVE NUMBER IN PACKET
1787 034750  012704  044040                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1788
1789                                       ;*************************************************************
1790                                       ;
1791                                       ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1792                                       ;
1793                                       ;*************************************************************
1794
1795 034754  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1796 034760  103407                        BCS     50$                     ;BR, IF COMMAND ISSUED OK
1797 034762  005237  002212                INC     FATFLG                  ;BUMP COUNT
1801 034766  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1802 034770                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     034770  104456                                                               TRAP    C$ERHRD
     034772  000624                                                               .WORD   404
     034774  005054                                                               .WORD   WRTMSG
     034776  012124                                                               .WORD   SFIMSG
1803 035000                        50$:    CKLOOP                          ;SCOPE LOOP
     035000  104406                                                               TRAP    C$CLP1
1804 035002  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1805 035006  032701  000100                BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
1806 035012  001006                        BNE     60$                     ;BR, IF OFFLINE (GOOD)
1807 035014  005237  002212                INC     FATFLG                  ;BUMP COUNT
1811 035020                                ERRDF   ERRNO,T240FL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
     035020  104455                                                               TRAP    C$ERDF
     035022  000625                                                               .WORD   405
     035024  045515                                                               .WORD   T240FL
     035026  012124                                                               .WORD   SFIMSG
1812 035030                        60$:    CKLOOP                          ;LOOP IF SELECTED
     035030  104406                                                               TRAP    C$CLP1
```

```
1813 035032  012703  044206                    MOV     #T24RN,R3               ;POINTER FOR COMMANDS
1814
1815                                ;*****************************************************************
1816                                ;
1817                                ;TAPE READ COMMAND IN PLACE
1818                                ;
1819                                ;*****************************************************************
1820
1821 035036  011337  044170         65$:    MOV     (R3),T24PK3             ;TAPE READ COMMAND IN PLACE
1822 035042  012704  044170                 MOV     #T24PK3,R4              ;R4 = POINTER TO PACKET
1823 035046  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
1824 035052  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
1825 035056  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
1826 035062  012702  100306                 MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
1827 035066  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
1828 035070  001406                         BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
1829 035072  005237  002212                 INC     FATFLG                  ;BUMP COUNT
1833 035076                                 ERRHRD  ERRNO,T24TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
     035076  104456                                                                 TRAP    C$ERHRD
     035100  000626                                                                 .WORD   406
     035102  045253                                                                 .WORD   T24TM
     035104  012136                                                                 .WORD   PKTSSR
1834 035106                         80$:    CKLOOP                          ;LOOP IF SELECTED
     035106  104406                                                                 TRAP    C$CLP1
1835 035110  005723                         TST     (R3)+                   ;BUMP TO NEXT COMMAND
1836 035112  022713  177777                 CMP     #177777,(R3)            ;END OF THE COMMANDS YET
1837 035116  001401                         BEQ     90$                     ;BR, IF DONE
1838 035120  000746                         BR      65$                     ;MORE COMMAND(S) TO GO
1839 035122                         90$:
1840 035122                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     035122                                                                     L10053:
     035122  104403                                                                 TRAP    C$ESUB
1841 035124  023727  002212  000017                 CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
1842 035132  103402                                 BLO     999$                            ;BR, IF LESS THAN 25
1843 035134  004737  017272                         JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
1844 035140                         999$:
1845
1846                                ;*
1847                                ;
1848                                ;TEST 4, SUBTEST 2
1849                                ;
1850                                ;VERIFIES THAT READ FORWARD COMMANDS WITH SWB=0
1851                                ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
1852                                ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
1853                                ;LENGTH AND DATA CONTENT. THE TAPE IS THEN REWOUND
1854                                ;AGAIN AND THE RECORD READ SEQUENTIALLY AND RESULTS
1855                                ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
1856                                ;EACH READ FORWARD COMMAND IS SET TO THE LENGTH OF THE
1857                                ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
1858                                ;OCCUR.
1859                                ;
1860                                ;
1861                                ;
1862                                ;
1863 035140                                 BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     035140                                                                     T4.2:
     035140  104402                                                                 TRAP    C$BSUB
```

```
1864 035142  004737  046664                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
1865 035146  004737  046530                  JSR     PC,T24REST              ;SET COMMAND PACKET
1866 035152  004737  046622                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
1867
1868                                 ;*****************************************************************
1869                                 ;
1870                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
1871                                 ;
1872                                 ;*****************************************************************
1873
1874 035156  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
1875 035162  103407                         BCS     20$                     ;BR IF INIT WAS OK
1876 035164  005237  002212                 INC     FATFL                   ;BUMP COUNT
1880 035170  010001                         MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
1881 035172                                 ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     035172  104455                                                                 TRAP    C$ERDF
     035174  000627                                                                 .WORD   407
     035176  003650                                                                 .WORD   SFIERR
     035200  012124                                                                 .WORD   SFIMSG
1882 035202                         20$:
1883 035202  013737  002172  044060          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
1884 035210  012704  044040                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
1885
1886                                 ;*****************************************************************
1887                                 ;
1888                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
1889                                 ;
1890                                 ;*****************************************************************
1891
1892 035214  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
1893 035220  103407                         BCS     24$                     ;BR, IF COMMAND ISSUED OK
1894 035222  005237  002212                 INC     FATFLG                  ;BUMP COUNT
1898 035226  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
1899 035230                                 ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     035230  104456                                                                 TRAP    C$ERHRD
     035232  000630                                                                 .WORD   408
     035234  005054                                                                 .WORD   WRTMSG
     035236  012124                                                                 .WORD   SFIMSG
1900 035240                         24$:    CKLOOP                          ;LOOP IF SELECTED
     035240  104406                                                                 TRAP    C$CLP1
1901
1902                                 ;*****************************************************************
1903                                 ;
1904                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
1905                                 ;
1906                                 ;*****************************************************************
1907
1908 035242  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
1909 035246  103407                         BCS     30$                     ;BR, IF NO PROBLEM
1910 035250  010001                         MOV     R0,R1                   ;SAVE TSSR
1911 035252  005237  002212                 INC     FATFLG                  ;BUMP COUNT
1915 035256                                 ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     035256  104456                                                                 TRAP    C$ERHRD
     035260  000631                                                                 .WORD   409
     035262  045326                                                                 .WORD   T24RWN
     035264  012136                                                                 .WORD   PKTSSR
1916 035266                         30$:    CKLOOP                          ;LOOP IF SELECTED
```

```
      035266  104406                                                          TRAP    C$CLP1
 1917
 1918                                ;*****************************************************************
 1919                                ;
 1920                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 1921                                ;
 1922                                ;*****************************************************************
 1923
 1924 035270  013701  044070                MOV     T24BFR+6,R1             ;PICK UP XSTO
 1925 035274  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 1926 035276  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 1927 035302  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 1928 035304  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
 1929 035306  005237  002212                INC     FATFLG                  ;BUMP COUNT
 1933 035312                                ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      035312  104456                                                          TRAP    C$ERHRD
      035314  000632                                                          .WORD   410
      035316  045043                                                          .WORD   T24BOT
      035320  015564                                                          .WORD   EXPREC
 1934 035322                          40$:    CKLOOP                          ;LOOP IF SELECTED
      035322  104406                                                          TRAP    C$CLP1
 1935 035324  012703  000400                MOV     #256.,R3                ;RECORD SIZE
 1936 035330  013737  003114  044172        MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
 1937
 1938                                ;*****************************************************************
 1939                                ;
 1940                                ;WRITE DATA,CVC=1,ACK COMMAND
 1941                                ;
 1942                                ;*****************************************************************
 1943
 1944 035336  012737  140005  044170        MOV     #140005,T24PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 1945 035344  012704  044170                MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 1946 035350                          65$:
 1947 035350  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 1948 035352  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 1949 035356  010337  044176                MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
 1950 035362  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 1951 035366  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 1952 035372  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 1953 035376  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 1954 035402  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 1955 035404  001406                        BEQ     75$                     ;BR, IF OK
 1956 035406  005237  002212                INC     FATFLG                  ;BUMP COUNT
 1960 035412                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      035412  104456                                                          TRAP    C$ERHRD
      035414  000633                                                          .WORD   411
      035416  005111                                                          .WORD   WRTERR
      035420  012136                                                          .WORD   PKTSSR
 1961 035422                          75$:    CKLOOP                          ;LOOP IF SELECTED
      035422  104406                                                          TRAP    C$CLP1
 1962 035424  005723                        TST     (R3)+           ;BUMP RECORD SIZE
 1963 035426  022703  000414                CMP     #268.,R3                ;END OF RECORD YET
 1964 035432  001346                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 1965 035434                          80$:    CKLOOP                          ;LOOP IF SELECTED
      035434  104406                                                          TRAP    C$CLP1
 1966 035436                          120$:
 1967
```

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

035436  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
035442  004737  016426            JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
035446  103407                    BCS     130$                    ;BR, IF NO PROBLEM
035450  010001                    MOV     R0,R1                   ;SAVE TSSR
035452  005237  002212            INC     FATFLG                  ;BUMP COUNT
035456                            ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
035456  104456                                                                    TRAP    C$ERHRD
035460  000634                                                                    .WORD   412
035462  045326                                                                    .WORD   T24RWN
035464  012136                                                                    .WORD   PKTSSR
035466                          130$:   CKLOOP                  ;LOOP IF SELECTED
035465  104406                                                                    TRAP    C$CLP1

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

035470  013701  044070            MOV     T24BFR+6,R1             ;PICK UP XST0
035474  010102                    MOV     R1,R2                   ;SET UP EXPECTED
035476  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
035502  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
035504  001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
035506  005237  002212            INC     FATFLG                  ;BUMP COUNT
035512                            ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
035512  104456                                                                    TRAP    C$ERHRD
035514  000635                                                                    .WORD   413
035516  045043                                                                    .WORD   T24BOT
035520  015564                                                                    .WORD   EXPREC
035522                          140$:   CKLOOP                  ;LOOP IF SELECTED
035522  104406                                                                    TRAP    C$CLP1
035524  012703  000400            MOV     #256.,R3                ;RECORD SIZE
035530  013737  003114  044172    MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS

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

035536  012737  140001  044170    MOV     #140001,T24PK3          ;READ DATA,CVC=1,ACK COMMAND
035544  012704  044170          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
035550  010337  044176            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
035554  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
035560  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
035564  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
035570  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
035574  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
035576  001406                    BEQ     170$                    ;BR, IF OK
035600  005237  002212            INC     FATFLG                  ;BUMP COUNT
```

```
2024 035604                          ERRHRD  ERRNO,RDFRR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     035604  104456                                                          TRAP    C$ERHRD
     035606  000636                                                          .WORD   414
     035610  005204                                                          .WORD   RDERR
     035612  012136                                                          .WORD   PKTSSR
2025 035614                   170$:  CKLOOP                               ;LOOP IF SELECTED
     035614  104406                                                          TRAP    C$CLP1
2026 035616  013702  003114           MOV     FREE,R2                     ;GET BUFFER ADDRESS
2027 035622  010304                   MOV     R3,R4                       ;CURRENT RECORD SIZE
2028 035624  162704  000400           SUB     #256.,R4                    ;FIRST LOCATION IN BUFFER
2029 035630  060204                   ADD     R2,R4                       ;GET LOCATION IN BUFFER (ADDRESS)
2030 035632  021403                   CMP     (R4),R3                     ;CHECK DATA READ (R3=DATA ALSO)
2031 035634  001410                   BEQ     180$                        ;BR. IF ALL IS WELL
2032 035636  011401                   MOV     (R4),R1                     ;RECD DATA
2033 035640  010302                   MOV     R3,R2                       ;EXPECTED DATA
2034 035642  005237  002212           INC     FATFLG                      ;BUMP COUNT
2038 035646                          ERRHRD  ERRNO,T24DTA,EXPREC         ;DATA READ NOT = WRITTEN
     035646  104456                                                          TRAP    C$ERHRD
     035650  000637                                                          .WORD   415
     035652  045110                                                          .WORD   T24DTA
     035654  015564                                                          .WORD   EXPREC
2039 035656                   180$:  CKLOOP                               ;LOOP IF SELECTED
     03565a  104406                                                          TRAP    C$CLP1
2040 035660  005724                   TST     (R4)+           ;BUMP TO NEXT LOCATION
2041 035662  160204                   SUB     R2,R4           ;GET BACK TO CORRECT SIZE
2042 035664  020403                   CMP     R4,R3                   ;END OF RECORD YET
2043 035666  001360                   BNE     173$                    ;BR. IF NOT AT END OF RECORD
2044 035670  005723                   TST     (R3)+                   ;BUMP RECORD SIZE
2045 035672  022703  000412           CMP     #266.,R3                ;END OF RECORD YET
2046 035676  001322                   BNE     165$                    ;BR. IF MORE RECORDS TO WRITE
2047 035700                   190$:  CKLOOP                           ;LOOP IF SELECTED
     035700  104406                                                          TRAP    C$CLP1
2048 035702                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     035702                                                                L10054:
     035702  104403                                                          TRAP    C$ESUB
2049 035704  023727  002212  000017          CMP     FATFLG,#15.                 ;IS ERROR COUNT AT 25
2050 035712  103402                          BLO     999$                        ;BR. IF LESS THAN 25
2051 035714  004737  017272                  JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
2052 035720                   999$:
2053
2054                                 ;+
2055                                 ;
2056                                 ;TEST 4, SUBTEST 3
2057                                 ;
2058                                 ;VERIFIES THAT READ DATA COMMANDS WITH CVC=1 AND THE
2059                                 ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
2060                                 ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
2061                                 ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
2062                                 ;
2063                                 ;
2064                                 ;
2065                                 ;
2066 035720                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     035720                                                                T4.3:
     035720  104402                                                          TRAP    C$BSUB
2067 035722  004737  046664                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2068 035726  004737  046530                  JSR     PC,T24REST              ;SET COMMAND PACKET
```

```
2069 035732  004737  046622                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2070
2071                                 ;*****************************************************************
2072                                 ;
2073                                 ;ISSUE CONTPOLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
2074                                 ;
2075                                 ;*****************************************************************
2076
2077 035736  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2078 035742  103407                          BCS     20$                     ;BR IF INIT WAS OK
2079 035744  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2083 035750  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2084 035752                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     035752  104455                                                          TRAP    C$ERDF
     035754  000640                                                          .WORD   416
     035756  003650                                                          .WORD   SFIERR
     035760  012124                                                          .WORD   SFIMSG
2085 035762                          20$:
2086 035762  013737  002172  044060          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2087 035770  012704  044040                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2088
2089                                 ;*****************************************************************
2090                                 ;
2091                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2092                                 ;
2093                                 ;*****************************************************************
2094
2095 035774  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2096 036000  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
2097 036002  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2101 036006  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2102 036010                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     036010  104456                                                          TRAP    C$ERHRD
     036012  000641                                                          .WORD   417
     036014  005054                                                          .WORD   WRTMSG
     036016  012124                                                          .WORD   SFIMSG
2103 036020                          24$:    CKLOOP                          ;LOOP IF SELECTED
     036020  104406                                                          TRAP    C$CLP1
2104
2105                                 ;*****************************************************************
2106                                 ;
2107                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2108                                 ;
2109                                 ;*****************************************************************
2110
2111 036022  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2112 036026  103407                          BCS     30$                     ;BR, IF NO PROBLEM
2113 036030  010001                          MOV     R0,R1                   ;SAVE TSSR
2114 036032  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2118 036036                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     036036  104456                                                          TRAP    C$ERHRD
     036040  000642                                                          .WORD   418
     036042  045326                                                          .WORD   T24RWN
     036044  012136                                                          .WORD   PKTSSR
2119 036046                          30$:    CKLOOP                          ;LOOP IF SELECTED
     036046  104406                                                          TRAP    C$CLP1
2120
```

```
2121                                    ;*****************************************************************
2122                                    ;
2123                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2124                                    ;
2125                                    ;*****************************************************************
2126
2127 036050  013701  044070            MOV     T24BFR+6,R1             ;PICK UP XST0
2128 036054  010102                    MOV     R1,R2                   ;SET UP EXPECTED
2129 036056  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2130 036062  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
2131 036064  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
2132 036066  005237  002212            INC     FATFLG                  ;BUMP COUNT
2136 036072                            ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     036072  104456                                                            TRAP    C$ERHRD
     036074  000643                                                            .WORD   419
     036076  045043                                                            .WORD   T24BOT
     036100  015564                                                            .WORD   EXPREC
2137 036102                    40$:    CKLOOP                          ;LOOP IF SELECTED
     036102  104406                                                            TRAP    C$CLP1
2138 036104  012703  000400            MOV     #256.,R3                ;RECORD SIZE
2139 036110  013737  003114  044172    MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2140
2141                                    ;*****************************************************************
2142                                    ;
2143                                    ;WRITE DATA,ACK,SWB,CVC=1 COMMAND
2144                                    ;
2145                                    ;*****************************************************************
2146
2147 036116  012737  150005  044170            MOV     #150005,T24PK3          ;WRITE DATA,ACK,SWB,CVC=1 COMMAND
2148 036124  012704  044170                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2149 036130                            65$:
2150 036130  010300                    MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
2151 036132  004737  017512            JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2152 036136  010337  044176            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2153 036142  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2154 036146  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2155 036152  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2156 036156  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
2157 036162  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
2158 036164  001406                    BEQ     75$                     ;BR, IF OK
2159 036166  005237  002212            INC     FATFLG                  ;BUMP COUNT
2163 036172                            ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     036172  104456                                                            TRAP    C$ERHRD
     036174  000644                                                            .WORD   420
     036176  005111                                                            .WORD   WRTERR
     036200  012136                                                            .WORD   PKTSSR
2164 036202                    75$:    CKLOOP                          ;LOOP IF SELECTED
     036202  104406                                                            TRAP    C$CLP1
2165 036204  005723                    TST     (R3)+           ;BUMP RECORD SIZE
2166 036206  022703  000414            CMP     #268.,R3                ;END OF RECORD YET
2167 036212  001346                    BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
2168 036214                            80$:    CKLOOP                  ;LOOP IF SELECTED
     036214  104406                                                            TRAP    C$CLP1
2169 036216                            120$:
2170
2171                                    ;*****************************************************************
2172                                    ;
```

```
2173                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2174                                    ;
2175                                    ;*****************************************************************
2176
2177 036216  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2178 036222  103407                            BCS     130$                    ;BR. IF NO PROBLEM
2179 036224  010001                            MOV     R0,R1                   ;SAVE TSSR
2180 036226  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2184 036232                                    ERRHRD  ERRNO,T24RWN,EXPREC     ;REWIND NOT ACCEPTED
     036232  104456                                                                    TRAP    C$ERHRD
     036234  000645                                                                    .WORD   421
     036236  045326                                                                    .WORD   T24RWN
     036240  015564                                                                    .WORD   EXPREC
2185 036242                            130$:   CKLOOP                          ;LOOP IF SELECTED
     036242  104406                                                                    TRAP    C$CLP1
2186
2187                                    ;*****************************************************************
2188                                    ;
2189                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2190                                    ;
2191                                    ;*****************************************************************
2192
2193 036244  013701  044070                    MOV     T24BFR+6,R1             ;PICK UP XST0
2194 036250  010102                            MOV     R1,R2                   ;SET UP EXPECTED
2195 036252  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2196 036256  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
2197 036260  001406                            BEQ     140$                    ;BR. IF EQUAL (OK)
2198 036262  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2202 036266                                    ERRHRD  ERRNO,T24BOT,FXPREC     ;TAPE NOT AT BOT AFTER REWIND
     036266  104456                                                                    TRAP    C$ERHRD
     036270  000646                                                                    .WORD   422
     036272  045043                                                                    .WORD   T24BOT
     036274  015564                                                                    .WORD   EXPREC
2203 036276                            140$:   CKLOOP                          ;LOOP IF SELECTED
     036276  104406                                                                    TRAP    C$CLP1
2204 036300  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
2205 036304  013737  003114  044172            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2206
2207                                    ;*****************************************************************
2208                                    ;
2209                                    ;READ DATA,IE,ACK,SWB COMMAND
2210                                    ;
2211                                    ;*****************************************************************
2212
2213 036312  012737  110001  044170            MOV     #110001,T24PK3          ;READ DATA,IE,ACK,SWB COMMAND
2214 036320  012704  044170            165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2215 036324  010337  044176                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2216 036330  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2217 036334  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2218 036340  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2219 036344  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
2220 036350  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
2221 036352  001406                            BEQ     170$                    ;BR. IF OK
2222 036354  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2226 036360                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     036360  104456                                                                    TRAP    C$ERHRD
     036362  000647                                                                    .WORD   423
```

```
      036364  005204                                                                  .WORD   RDERR
      036366  012136                                                                  .WORD   PKTSSR
 2227 036370                          170$.   CKLOOP                  ;LOOP IF SELECTED
      036370  104406                                                                  TRAP    C$CLP1
 2228 036372  013702  003114                  MOV     FREE,R2         ;GET BUFFER ADDRESS
 2229 036376  010304                          MOV     R3,R4           ;CURRENT RECORD SIZE
 2230 036400  162704  000400                  SUB     #256.,R4        ;FIRST LOCATION IN BUFFER
 2231 036404  060204                  173$:   ADD     R2,R4           ;GET LOCATION IN BUFFER (ADDRESS)
 2232 036406  021403                          CMP     (R4),R3         ;CHECK DATA READ (R3=DATA ALSO)
 2233 036410  001410                          BEQ     180$            ;BR, IF ALL IS WELL
 2234 036412  011401                          MOV     (R4),R1         ;RECD DATA
 2235 036414  010302                          MOV     R3,R2           ;EXPECTED DATA
 2236 036416  005237  002212                  INC     FATFLG          ;BUMP COUNT
 2240 036422                                  ERRHRD  ERRNO,T24DTA,EXPREC     ;DATA READ NOT = WRITTEN
      036422  104456                                                                  TRAP    C$ERHRD
      036424  000650                                                                  .WORD   424
      036426  045110                                                                  .WORD   T24DTA
      036430  015564                                                                  .WORD   EXPREC
 2241 036432                          180$:   CKLOOP                  ;LOOP IF SELECTED
      036432  104406                                                                  TRAP    C$CLP1
 2242 036434  005724                          TST     (R4)+           ;BUMP TO NEXT LOCATION
 2243 036436  160204                          SUB     R2,R4           ;SET SIZE TO CORRECT VALUE
 2244 036440  020403                          CMP     R4,R3           ;END OF RECORD YET
 2245 036442  001360                          BNE     173$            ;BR, IF NOT AT END OF RECORD
 2246 036444  005723                          TST     (R3)+           ;BUMP RECORD SIZE
 2247 036446  022703  000412                  CMP     #266.,R3        ;END OF RECORD YET
 2248 036452  001322                          BNE     165$            ;BR, IF MORE RECORDS TO WRITE
 2249 036454                          190$:   CKLOOP                  ;LOOP IF SELECTED
      036454  104406                                                                  TRAP    C$CLP1
 2250 036456                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >.>>>>>>>>>>
      036456                                                                  L10055:
      036456  104403                                                                  TRAP    C$ESUB
 2251 036460  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 2252 036466  103402                          BLO     999$            ;BR, IF LESS THAN 25
 2253 036470  004737  017272                  JSR     PC,CKDROP       ;TRY TO DROP THE UNIT
 2254 036474                          999$:
 2255
 2256                                 ;*
 2257                                 ;
 2258                                 ;TEST 4, SUBTEST 4
 2259                                 ;
 2260                                 ;VERIFIES THAT A READ FORWARD COMMAND READING A RECORD
 2261                                 ;LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
 2262                                 ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG
 2263                                 ;(RLL) BIT SET.
 2264                                 ;
 2265                                 ;
 2266                                 ;
 2267
 2268 036474                                  BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      036474                                                                  T4.4:
      036474  104402                                                                  TRAP    C$BSUB
 2269 036476  004737  046664                  JSR     PC,T24RT3       ;SET UP OTHER COMMAND PACKET
 2270 036502  004737  046530                  JSR     PC,T24REST      ;SET COMMAND PACKET
 2271 036506  004737  046622                  JSR     PC,T24RT2       ;SET UP OTHER COMMAND PACKET
 2272
 2273                                 ;*****************************************************************
```

```
2274                                    ;
2275                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
2276                                    ;
2277                                    ;*****************************************************************
2278
2279 036512  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2280 036516  103407                            BCS     20$                     ;BR IF INIT WAS OK
2281 036520  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2285 036524  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2286 036526                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     036526  104455                                                                    TRAP    C$ERDF
     036530  000651                                                                    .WORD   425
     036532  003650                                                                    .WORD   SFIERR
     036534  012124                                                                    .WORD   SFIMSG
2287 036536                            20$:
2288 036536  013737  002172  044060              MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2289 036544  012704  044040                      MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2290
2291                                    ;*****************************************************************
2292                                    ;
2293                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2294                                    ;
2295                                    ;*****************************************************************
2296
2297 036550  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2298 036554  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
2299 036556  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2303 036562  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2304 036564                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     036564  104456                                                                    TRAP    C$ERHRD
     036566  000652                                                                    .WORD   426
     036570  005054                                                                    .WORD   WRTMSG
     036572  012124                                                                    .WORD   SFIMSG
2305 036574                            24$:    CKLOOP                          ;LOOP IF SELECTED
     036574  104406                                                                    TRAP    C$CLP1
2306
2307                                    ;*****************************************************************
2308                                    ;
2309                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2310                                    ;
2311                                    ;*****************************************************************
2312
2313 036576  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2314 036602  103407                            BCS     30$                     ;BR, IF NO PROBLEM
2315 036604  010001                            MOV     R0,R1                   ;SAVE TSSR
2316 036606  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2320 036612                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     036612  104456                                                                    TRAP    C$ERHRD
     036614  000653                                                                    .WORD   427
     036616  045326                                                                    .WORD   T24RWN
     036620  012136                                                                    .WORD   PKTSSR
2321 036622                            30$:    CKLOOP                          ;LOOP IF SELECTED
     036622  104406                                                                    TRAP    C$CLP1
2322
2323                                    ;*****************************************************************
2324                                    ;
2325                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
```

```
2326                                    ;
2327                                    ;*****************************************************************
2328
2329 036624  013701  044070                    MOV     T24BFR+6,R1             ;PICK UP XSTO
2330 036630  010102                            MOV     R1,R2                   ;SET UP EXPECTED
2331 036632  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2332 036636  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
2333 036640  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
2334 036642  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2338 036646                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     036646  104456                                                            TRAP    C$ERHRD
     036650  000654                                                            .WORD   428
     036652  045043                                                            .WORD   T24BOT
     036654  015564                                                            .WORD   EXPREC
2339 036656                            40$:    CKLOOP                          ;LOOP IF SELECTED
     036656  104406                                                            TRAP    C$CLP1
2340 036660  012703  001000                    MOV     #512.,R3                ;RECORD SIZE
2341 036664  013737  003114  044172            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2342
2343                                    ;*****************************************************************
2344                                    ;
2345                                    ;WRITE DATA,ACK,CVC=1 COMMAND
2346                                    ;
2347                                    ;*****************************************************************
2348
2349 036672  012737  140005  044170            MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2350 036700  012704  044170                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2351 036704                            65$:
2352 036704  010337  044176                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2353 036710  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2354 036714  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2355 036720  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2356 036724  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
2357 036730  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
2358 036732  001406                            BEQ     75$                     ;BR, IF OK
2359 036734  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2363 036740                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     036740  104456                                                            TRAP    C$ERHRD
     036742  000655                                                            .WORD   429
     036744  005111                                                            .WORD   WRTERR
     036746  012136                                                            .WORD   PKTSSR
2364 036750                            75$:    CKLOOP                          ;LOOP IF SELECTED
     036750  104406                                                            TRAP    C$CLP1
2365 036752                            120$:
2366
2367                                    ;*****************************************************************
2368                                    ;
2369                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2370                                    ;
2371                                    ;*****************************************************************
2372
2373 036752  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2374 036756  103407                            BCS     130$                    ;BR, IF NO PROBLEM
2375 036760  010001                            MOV     R0,R1                   ;SAVE TSSR
2376 036762  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2380 036766                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     036766  104456                                                            TRAP    C$ERHRD
```

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                036770  000656                                                          .WORD   430
                036772  045326                                                          .WORD   T24RWN
                036774  012136                                                          .WORD   PKTSSR
2381            036776                  130$:   CKLOOP                  ;LOOP IF SELECTED
                036776  104406                                                          TRAP    C$CLP1
2382
2383                                    ;*******************************************************************
2384                                    ;
2385                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2386                                    ;
2387                                    ;*******************************************************************
2388
2389 037000  013701  044070                    MOV     T24BFR+6,R1             ;PICK UP XST0
2390 037004  010102                            MOV     R1,R2                   ;SET UP EXPECTED
2391 037006  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
2392 037012  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
2393 037014  001406                            BEQ     140$                    ;BR. IF EQUAL (OK)
2394 037016  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2398 037022                                    ERRHRD  ERRNO,T24BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                037022  104456                                                          TRAP    C$ERHRD
                037024  000657                                                          .WORD   431
                037026  045043                                                          .WORD   T24BOT
                037030  015564                                                          .WORD   EXPREC
2399 037032                     140$:   CKLOOP                  ;LOOP IF SELECTED
                037032  104406                                                          TRAP    C$CLP1
2400 037034  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
2401 037040  013737  003114  044172            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2402
2403                                    ;*******************************************************************
2404                                    ;
2405                                    ;READ DATA,ACK,CVC=1 COMMAND
2406                                    ;
2407                                    ;*******************************************************************
2408
2409 037046  012737  140001  044170            MOV     #140001,T24PK3          ;READ DATA,ACK,CVC=1 COMMAND
2410 037054  012704  044170            165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2411 037060  010337  044176                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2412 037064  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2413 037070  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2414 037074  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2415 037100  012702  100204                    MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
2416 037104  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
2417 037106  001406                            BEQ     170$                    ;BR. IF OK
2418 037110  005237  002212                    INC     FATFLG                  ;BUMP COUNT
2422 037114                                    ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
                037114  104456                                                          TRAP    C$ERHRD
                037116  000660                                                          .WORD   432
                037120  046374                                                          .WORD   T24TRL
                037122  012136                                                          .WORD   PKTSSR
2423 037124                     170$:   CKLOOP                  ;LOOP IF SELECTED
                037124  104406                                                          TRAP    C$CLP1
2424
2425                                    ;*******************************************************************
2426                                    ;
2427                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2428                                    ;
2429                                    ;*******************************************************************
```

```
2430
2431 037126  013701  044070                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
2432 037132  010102                          MOV     R1,R2                   ;SET UP EXPECTED
2433 037134  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
2434 037140  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2435 037142  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
2436 037144  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2440 037150                                  ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     037150  104456                                                                  TRAP    C$ERHRD
     037152  000661                                                                  .WORD   433
     037154  046142                                                                  .WORD   T24LON
     037156  015564                                                                  .WORD   EXPREC
2441 037160                          180$:
2442 037160                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     037160                                                                       L10056:
     037160  104403                                                                  TRAP    C$ESUB
2443 037162  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
2444 037170  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
2445 037172  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
2446 037176                          999$:
2447
2448                                 ;+
2449                                 ;
2450                                 ;TEST 4, SUBTEST 5
2451                                 ;
2452                                 ;VERIFIES THAT A READ FORWARD COMMAND READING A RECORD
2453                                 ;SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
2454                                 ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT
2455                                 ;(RLS) BITS SET. IT IS VERIFIED THAT THE RESIDUAL BYTE
2456                                 ;COUNT (RBPCR) IN THE MESSAGE BUFFER CONTAINS THE
2457                                 ;PROPER NONZERO VALUE (E.G. THE DIFFERENCE BETWEEN
2458                                 ;THE ORIGINAL BYTE COUNT AND THE ACTUAL RECORD
2459                                 ;LENGTH).
2460                                 ;
2461                                 ;
2462                                 ;
2463                                 ;-
2464
2465 037176                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     037176                                                                       T4.5:
     037176  104402                                                                  TRAP    C$BSUB
2466 037200  004737  046664                  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2467 037204  004737  046530                  JSR     PC,T24REST              ;SET COMMAND PACKET
2468 037210  004737  046622                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2469
2470                                 ;******************************************************************
2471                                 ;
2472                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
2473                                 ;
2474                                 ;******************************************************************
2475
2476 037214  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2477 037220  103407                          BCS     20$                     ;BR IF INIT WAS OK
2478 037222  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2482 037226  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2483 037230                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     037230  104455                                                                  TRAP    C$ERDF
```

```
                037232  000662                                                          .WORD   434
                037234  003650                                                          .WORD   SFIERR
                037236  012124                                                          .WORD   SFIMSG
2484            037240                          20$:
2485            037240  013737  002172  044060          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2486            037246  012704  044040                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2487
2488                                            ;*****************************************************************
2489                                            ;
2490                                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2491                                            ;
2492                                            ;*****************************************************************
2493
2494            037252  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2495            037256  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
2496            037260  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2500            037264  010001                          MOV     R0, :                   ;SAVE CONTENTS OF TSSR
2501            037266                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                037266  104456                                                          TRAP    C$ERHRD
                037270  000663                                                          .WORD   435
                037272  005054                                                          .WORD   WRTMSG
                037274  012124                                                          .WORD   SFIMSG
2502            037276                          24$:    CKLOOP                          ;LOOP IF SELECTED
                037276  104406                                                          TRAP    C$CLP1
2503
2504                                            ;*****************************************************************
2505                                            ;
2506                                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2507                                            ;
2508                                            ;*****************************************************************
2509
2510            037300  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2511            037304  103407                          BCS     30$                     ;BR, IF NO PROBLEM
2512            037306  010001                          MOV     R0,R1                   ;SAVE TSSR
2513            037310  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2517            037314                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
                037314  104456                                                          TRAP    C$ERHRD
                037316  000664                                                          .WORD   436
                037320  045326                                                          .WORD   T24RWN
                037322  012136                                                          .WORD   PKTSSR
2518            037324                          30$:    CKLOOP                          ;LOOP IF SELECTED
                037324  104406                                                          TRAP    C$CLP1
2519            037326  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
2520            037332  013737  003114  044172          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2521
2522                                            ;*****************************************************************
2523                                            ;
2524                                            ;WRITE DATA,ACK,CVC=1 COMMAND
2525                                            ;
2526                                            ;*****************************************************************
2527
2528            037340  012737  140005  044170          MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2529            037346  012704  044170                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2530            037352                          63$:
2531            037352  010337  044176                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2532            037356  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2533            037362  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
```

```
2534 037366  016501  000002                ;GET TSSR CONTENTS
2535 037372  012702  000200                ;SET UP EXPECTED
2536 037376  020102                        ;ARE THEY EQUAL
2537 037400  001406                        ;BR, IF OK
2538 037402  005237  002212                ;BUMP COUNT
2542 037406                                ;TSSR INCORRECT AFTER WRITE DATA
     037406  104456                                                  TRAP    C$ERHRD
     037410  000665                                                  .WORD   437
     037412  005111                                                  .WORD   WRTERR
     037414  012136                                                  .WORD   PKTSSR
2543 037416                        75$:    CKLOOP                  ;LOOP IF SELECTED
     037416  104406                                                  TRAP    C$CLP1
2544 037420                        120$:
2545
2546                               ;*****************************************************************
2547                               ;
2548                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2549                               ;
2550                               ;*****************************************************************
2551
2552 037420  004737  011104                ;CALL TAPE REWIND COMMAND
2553 037424  103407                        ;BR, IF NO PROBLEM
2554 037426  010001                        ;SAVE TSSR
2555 037430  005237  002212                ;BUMP COUNT
2559 037434                                ;REWIND NOT ACCEPTED
     037434  104456                                                  TRAP    C$ERHRD
     037436  000666                                                  .WORD   438
     037440  045326                                                  .WORD   T24RWN
     037442  012136                                                  .WORD   PKTSSR
2560 037444                        130$:   CKLOOP                  ;LOOP IF SELECTED
     037444  104406                                                  TRAP    C$CLP1
2561 037446  012703  001000                ;RECORD SIZE
2562 037452  013737  003114  044172        ;STARTING READ BUFFER ADDRESS
2563
2564                               ;*****************************************************************
2565                               ;
2566                               ;READ DATA,ACK,CVC=1 COMMAND
2567                               ;
2568                               ;*****************************************************************
2569
2570 037460  012737  140001  044170        ;READ DATA,ACK,CVC=1 COMMAND
2571 037466  012704  044170        165$:   ;SET UP R4 WITH PACKET ADDRESS
2572 037472  010337  044176                ;SET UP RECORD SIZE IN PACKET
2573 037476  010465  000000                ;ISSUE COMMAND
2574 037502  004737  016340                ;WAIT FOR SSR TO SET
2575 037506  016501  000002                ;GET TSSR CONTENTS
2576 037512  012702  100204                ;SET UP EXPECTED
2577 037516  020102                        ;ARE THEY EQUAL
2578 037520  001406                        ;BR, IF OK
2579 037522  005237  002212                ;BUMP COUNT
2583 037526                                ;TSSR INCORRECT AFTER READ DATA
     037526  104456                                                  TRAP    C$ERHRD
     037530  000667                                                  .WORD   439
     037532  046374                                                  .WORD   T24TRL
     037534  015564                                                  .WORD   EXPREC
2584 037536                        170$:   CKLOOP                  ;LOOP IF SELECTED
     037536  104406                                                  TRAP    C$CLP1
```

```
2585
2586                                    ;*********************************************************************
2587                                    ;
2588                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
2589                                    ;
2590                                    ;*********************************************************************
2591
2592 037540  013701  044070                     MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
2593 037544  010102                             MOV     R1,R2                   ;SET UP EXPECTED
2594 037546  052702  040000                     BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
2595 037552  020102                             CMP     R1,R2                   ;ARE THEY EQUAL
2596 037554  001406                             BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
2597 037556  005237  002212                     INC     FATFLG                  ;BUMP COUNT
2601 037562                                     ERRHRD  ERRNO,T24LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     037562  104456                                                                     TRAP    C$ERHRD
     037564  000670                                                                     .WORD   440
     037566  046224                                                                     .WORD   T24LOP
     037570  015564                                                                     .WORD   EXPREC
2602 037572                                180$:
2603 037572  013701  044066                     MOV     T24BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
2604 037576  012702  000400                     MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
2605 037602  020102                             CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
2606 037604  001406                             BEQ     190$                    ;BR, IF CORRECT
2607 037606  005237  002212                     INC     FATFLG                  ;BUMP COUNT
2611 037612                                     ERRHRD  ERRNO,T24PBP,EXPREC     ;RBPCR NOT CORRECT
     037612  104456                                                                     TRAP    C$ERHRD
     037614  000671                                                                     .WORD   441
     037616  046306                                                                     .WORD   T24PBP
     037620  015564                                                                     .WORD   EXPREC
2612 037622                                190$:   CKLOOP                          ;LOOP IF SELECTED
     037622  104406                                                                     TRAP    C$CLP1
2613 037624                                     ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     037624                                                                             L10057:
     037624  104403                                                                     TRAP    C$ESUB
2614 037626  023727  002212  000017                 CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
2615 037634  103402                                 BLO     999$                            ;BR, IF LESS THAN 25
2616 037636  004737  017272                         JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
2617 037642                                999$:
2618
2619                                    ;*
2620                                    ;
2621                                    ;TEST 4, SUBTEST 6
2622                                    ;
2623                                    ;VERIFIES THAT READ REVERSE COMMANDS WITH SWB=0
2624                                    ;OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN
2625                                    ;WRITTEN WITH A SERIES OF TEST RECORDS VARING IN
2626                                    ;LENGTH AND DATA CONTENT. THE TAPE IS THEN READ IN REVERSE
2627                                    ;SEQUENTIALLY AND THE RESULTS
2628                                    ;(STATUS, DATA, ETC.) VERIFIED. THE BYTE COUNT ON
2629                                    ;EACH READ REVERSE COMMAND IS SET TO THE LENGTH OF THE
2630                                    ;EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD
2631                                    ;OCCUR.
2632                                    ;
2633                                    ;
2634                                    ;
2635                                    ;
2636 037642                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
```

```
                                                                                T4.6:
      037642  104402                                                                TRAP    C$BSUB
2637  037644  004737  046664                JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
2638  037650  004737  046530                JSR     PC,T24REST              ;SET COMMAND PACKET
2639  037654  004737  046622                JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
2640
2641                                ;*****************************************************************
2642                                ;
2643                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
2644                                ;
2645                                ;*****************************************************************
2646
2647  037660  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2648  037664  103407                        BCS     20$                     ;BR IF INIT WAS OK
2649  037666  005237  002212                INC     FATFLG                  ;BUMP COUNT
2653  037672  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2654  037674                                EPRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      037674  104455                                                                TRAP    C$ERDF
      037676  000672                                                                .WORD   442
      037700  003650                                                                .WORD   SFIERR
      037702  012124                                                                .WORD   SFIMSG
2655  037704                          20$:
2656  037704  013737  002172  044060          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2657  037712  012704  044040                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2658
2659                                ;*****************************************************************
2660                                ;
2661                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2662                                ;
2663                                ;*****************************************************************
2664
2665  037716  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2666  037722  103407                        BCS     24$                     ;BR, IF COMMAND ISSUED OK
2667  037724  005237  002212                INC     FATFLG                  ;BUMP COUNT
2671  037730  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2672  037732                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      037732  104456                                                                TRAP    C$ERHRD
      037734  000673                                                                .WORD   443
      037736  005054                                                                .WORD   WRTMSG
      037740  012124                                                                .WORD   SFIMSG
2673  037742                          24$:    CKLOOP                          ;LOOP IF SELECTED
      037742  104406                                                                TRAP    C$CLP1
2674
2675                                ;*****************************************************************
2676                                ;
2677                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2678                                ;
2679                                ;*****************************************************************
2680
2681  037744  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2682  037750  103407                        BCS     30$                     ;BR, IF NO PROBLEM
2683  037752  010001                        MOV     R0,R1                   ;SAVE TSSR
2684  037754  005237  002212                INC     FATFLG                  ;BUMP COUNT
2688  037760                                ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      037760  104456                                                                TRAP    C$ERHRD
      037762  000674                                                                .WORD   444
      037764  045326                                                                .WORD   T24RWN
```

```
     037766  012136                                                          .WORD   PKTSSR
2689 037770                  30$:   CKLOOP                  ;LOOP IF SELECTED
     037770  104406                                                          TRAP    C$CLP1
2690 037772  012703  000400         MOV     #256.,R3        ;RECORD SIZE
2691 037776  013737  003114 044172 MOV     FREE,T24RB      ;STARTING WRITE BUFFER ADDRESS
2692
2693                         ;*****************************************************************
2694                         ;
2695                         ;WRITE DATA,ACK,CVC=1 COMMAND
2696                         ;
2697                         ;*****************************************************************
2698
2699 040004  012737  140005 044170 MOV     #140005,T24PK3  ;WRITE DATA,ACK,CVC=1 COMMAND
2700 040012  012704  044170         MOV     #T24PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
2701 040016                  65$:
2702 040016  010300                 MOV     R3,R0           ;SET PATTERN IN CORRECT REGISTER
2703 040020  004737  017512         JSR     PC,FILLMEM      ;FILL MEMORY WITH RECORD SIZE
2704 040024  010337  044176         MOV     R3,T24SZ        ;SET UP RECORD SIZE IN PACKET
2705 040030  010465  000000         MOV     R4,TSDB(R5)     ;ISSUE COMMAND
2706 040034  004737  016340         JSR     PC,WAITF        ;WAIT FOR SSR TO SET
2707 040040  016501  000002         MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
2708 040044  012702  000200         MOV     #SSR,R2         ;SET UP EXPECTED
2709 040050  020102                 CMP     R1,R2           ;ARE THEY EQUAL
2710 040052  001406                 BEQ     75$             ;BR, IF OK
2711 040054  005237  002212         INC     FATFLG          ;BUMP COUNT
2715 040060                         ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     040060  104456                                                          TRAP    C$ERHRD
     040062  000675                                                          .WORD   445
     040064  005111                                                          .WORD   WRTERR
     040066  012136                                                          .WORD   PKTSSR
2716 040070                  75$:   CKLOOP                  ;LOOP IF SELECTED
     040070  104406                                                          TRAP    C$CLP1
2717 040072  005723                 TST     (R3)+           ;BUMP RECORD SIZE
2718 040074  022703  000414         CMP     #268.,R3        ;END OF RECORD YET
2719 040100  001346                 BNE     65$             ;BR, IF MORE RECORDS TO WRITE
2720 040102                  80$:   CKLOOP                  ;LOOP IF SELECTED
     040102  104406                                                          TRAP    C$CLP1
2721 040104  005743                 TST     -(R3)           ;SET BACK TO 512.
2722 040106  013737  003114 044172 MOV     FREE,T24RB      ;STARTING READ BUFFER ADDRESS
2723
2724                         ;*****************************************************************
2725                         ;
2726                         ;READ REVERSE DATA,ACK COMMAND
2727                         ;
2728                         ;*****************************************************************
2729
2730 040114  012737  100401 044170 MOV     #100401,T24PK3  ;READ REVERSE DATA,ACK COMMAND
2731 040122  012704  044170         MOV     #T24PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
2732 040126  010337  044176         MOV     R3,T24SZ        ;SET UP RECORD SIZE IN PACKET
2733 040132  010465  000000         MOV     R4,TSDB(R5)     ;ISSUE COMMAND
2734 040136  004737  016340         JSR     PC,WAITF        ;WAIT FOR SSR TO SET
2735 040142  016501  000002         MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
2736 040146  012702  000200         MOV     #SSR,R2         ;SET UP EXPECTED
2737 040152  020102                 CMP     R1,R2           ;ARE THEY EQUAL
2738 040154  001406                 BEQ     170$            ;BR, IF OK
2739 040156  005237  002212         INC     FATFLG          ;BUMP COUNT
2743 040162                         ERRHRD  ERRNO,T24WDC,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
```

```
      040162  104456                                                                  TRAP    C$ERHRD
      040164  000676                                                                  .WORD   446
      040166  045656                                                                  .WORD   T24WDC
      040170  012136                                                                  .WORD   PKTSSR
 2744 040172                          170$:   CKLOOP                                ;LOOP IF SELECTED
      040172  104406                                                                  TRAP    C$CLP1
 2745 040174  013702  003114                  MOV     FREE,R2                       ;GET BUFFER ADDRESS
 2746 040200  010304                          MOV     R3,R4                         ;CURRENT RECORD SIZE
 2747 040202  162704  000400                  SUB     #256.,R4                      ;FIRST LOCATION IN BUFFER
 2748 040206  060204                  173$:   ADD     R2,R4                         ;SET POINTER TO FRAME (WORD)
 2749 040210  021403                          CMP     (R4),R3                       ;CHECK DATA READ (R3=DATA ALSO)
 2750 040212  001410                          BEQ     180$                          ;BR, IF ALL IS WELL
 2751 040214  011401                          MOV     (R4),R1                       ;RECD DATA
 2752 040216  010302                          MOV     R3,R2                         ;EXPECTED DATA
 2753 040220  005237  002212                  INC     FATFLG                        ;BUMP COUNT
 2757 040224                                  ERRHRD  ERRNO,T24DTA,EXPREC           ;DATA READ NOT = WRITTEN
      040224  104456                                                                  TRAP    C$ERHRD
      040226  000677                                                                  .WORD   447
      040230  045110                                                                  .WORD   T24DTA
      040232  015564                                                                  .WORD   EXPREC
 2758 040234                          180$:   CKLOOP                                ;LOOP IF SELECTED
      040234  104406                                                                  TRAP    C$CLP1
 2759 040236  005724                          TST     (R4)+                         ;BUMP TO NEXT LOCATION
 2760 040240  160204                          SUB     R2,R4                         ;GET RID OF BASE ADDRESS
 2761 040242  020403                          CMP     R4,R3                         ;END OF RECORD YET
 2762 040244  001360                          BNE     173$                          ;BR, IF NOT AT END OF RECORD
 2763 040246  005743                          TST     -(R3)                         ;BUMP RECORD SIZE
 2764 040250  022703  000400                  CMP     #256.,R3                      ;END OF RECORD YET
 2765 040254  001322                          BNE     165$                          ;BR, IF MORE RECORDS TO WRITE
 2766 040256                          190$:   CKLOOP                                ;LOOP IF SELECTED
      040256  104406                                                                  TRAP    C$CLP1
 2767 040260                                  ENDSUB                                ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      040260                                                                          L10060:
      040260  104403                                                                  TRAP    C$ESUB
 2768 040262  023727  002212  000017                  CMP     FATFLG,#15.                   ;IS ERROR COUNT AT 25
 2769 040270  103402                                  BLO     999$                          ;BR, IF LESS THAN 25
 2770 040272  004737  017272                          JSR     PC,CKDROP                     ;TRY TO DROP THE UNIT
 2771 040276                          999$:
 2772
 2773                                 ;*
 2774                                 ;
 2775                                 ;TEST 4, SUBTEST 7
 2776                                 ;
 2777                                 ;VERIFIES THAT READ DATA COMMANDS WITH CVC=1 AND THE
 2778                                 ;SWAP BYTES (SWB) BIT SET OPERATES PROPERLY. THE TEST
 2779                                 ;SEQUENCE IS IDENTICAL TO THAT USED IN SUBTEST 2.
 2780                                 ;THE RESULTS, EXCEPT FOR RAM CONTENTS, SHOULD BE THE SAME.
 2781                                 ;
 2782                                 ;
 2783                                 ;
 2784                                 ;
 2785 040276                                  BGNSUB                                ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      040276                                                                          T4.7:
      040276  104402                                                                  TRAP    C$BSUB
 2786 040300  004737  046664                  JSR     PC,T24RT3                     ;SET UP OTHER COMMAND PACKET
 2787 040304  004737  046530                  JSR     PC,T24REST                    ;SET COMMAND PACKET
 2788 040310  004737  046622                  JSR     PC,T24RT2                     ;SET UP OTHER COMMAND PACKET
```

```
2789
2790                                    ;*****************************************************************
2791                                    ;
2792                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
2793                                    ;
2794                                    ;*****************************************************************
2795
2796 040314  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2797 040320  103407                             BCS     20$                     ;BR IF INIT WAS OK
2798 040322  005237  002212                     INC     FATFLG                  ;BUMP COUNT
2802 040326  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2803 040330                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      040330  104455                                                                  TRAP    C$ERDF
      040332  000700                                                                  .WORD   448
      040334  003650                                                                  .WORD   SFIERR
      040336  012124                                                                  .WORD   SFIMSG
2804 040340                                    20$:
2805 040340  013737  002172  044060                 MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2806 040346  012704  044040                     MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2807
2808                                    ;*****************************************************************
2809                                    ;
2810                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2811                                    ;
2812                                    ;*****************************************************************
2813
2814 040352  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2815 040356  103407                             BCS     24$                     ;BR, IF COMMAND ISSUED OK
2816 040360  005237  002212                     INC     FATFLG                  ;BUMP COUNT
2820 040364  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2821 040366                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      040366  104456                                                                  TRAP    C$ERHRD
      040370  000701                                                                  .WORD   449
      040372  005054                                                                  .WORD   WRTMSG
      040374  012124                                                                  .WORD   SFIMSG
2822 040376                                    24$:    CKLOOP                  ;LOOP IF SELECTED
      040376  104406                                                                  TRAP    C$CLP1
2823
2824                                    ;*****************************************************************
2825                                    ;
2826                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2827                                    ;
2828                                    ;*****************************************************************
2829
2830 040400  004737  011104                     JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2831 040404  103407                             BCS     30$                     ;BR, IF NO PROBLEM
2832 040406  010001                             MOV     R0,R1                   ;SAVE TSSR
2833 040410  005237  002212                     INC     FATFLG                  ;BUMP COUNT
2837 040414                                     ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
      040414  104456                                                                  TRAP    C$ERHRD
      040416  000702                                                                  .WORD   450
      040420  045326                                                                  .WORD   T24RWN
      040422  012136                                                                  .WORD   PKTSSR
2838 040424                                    30$:    CKLOOP                  ;LOOP IF SELECTED
      040424  104406                                                                  TRAP    C$CLP1
2839 040426  012703  000400                     MOV     #256.,R3                ;RECORD SIZE
2840 040432  013737  003114  044172                 MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
```

```
2841
2842                                    ;*************************************************************
2843                                    ;
2844                                    ;WRITE DATA,ACK,CVC=1,SW8 COMMAND
2845                                    ;
2846                                    ;*************************************************************
2847
2848 040440  012737  150005  044170          MOV     #150005,T24PK3          ;WRITE DATA,ACK,CVC=1,SW8 COMMAND
2849 040446  012704  044170                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2850 040452                             65$:
2851 040452  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
2852 040454  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
2853 040460  010337  044176                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2854 040464  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2855 040470  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2856 040474  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2857 040500  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2858 040504  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2859 040506  001406                          BEQ     75$                     ;BR, IF OK
2860 040510  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2864 040514                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     040514  104456                                                                  TRAP    C$ERHRD
     040516  000703                                                                  .WORD   451
     040520  005111                                                                  .WORD   WRTERR
     040522  012136                                                                  .WORD   PKTSSR
2865 040524                             75$:    CKLOOP                          ;LOOP IF SELECTED
     040524  104406                                                                  TRAP    C$CLP1
2866 040526  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
2867 040530  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
2868 040534  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
2869 040536                             80$:    CKLOOP                          ;LOOP IF SELECTED
     040536  104406                                                                  TRAP    C$CLP1
2870 040540  005743                          TST     -(R3)                   ;SET RECORD SIZE BACK TO 512.
2871 040542  013737  003114  044172          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
2872
2873                                    ;***************** ***********************************************
2874                                    ;
2875                                    ;READ REVERSE DATA,ACK,SW8 COMMAND
2876                                    ;
2877                                    ;*************************************************************
2878
2879 040550  012737  110401  044170          MOV     #110401,T24PK3          ;READ REVERSE DATA,ACK,SW8 COMMAND
2880 040556  012704  044170             165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2881 040562  010337  044176                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
2882 040566  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
2883 040572  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
2884 040576  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
2885 040602  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
2886 040606  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
2887 040610  001406                          BEQ     170$                    ;BR, IF OK
2888 040612  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2892 040616                                  ERRHRD  ERRNO,T24WDC,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     040616  104456                                                                  TRAP    C$ERHRD
     040620  000704                                                                  .WORD   452
     040622  045656                                                                  .WORD   T24WDC
     040624  015564                                                                  .WORD   EXPREC
2893 040626                             170$:   CKLOOP                          ;LOOP IF SELECTED
```

```
                                                                                    TRAP    C$CLP1
2894 040630  013702  003114                    MOV     FREE,R2                   ;GET BUFFER ADDRESS
2895 040634  010304                            MOV     R3,R4                     ;CURRENT RECORD SIZE
2896 040636  162704  000400                    SUB     #256.,R4                  ;FIRST LOCATION IN BUFFER
2897 040642  060204                 173$:      ADD     R2,R4                     ;SET POINTER TO FRAME (WORD)
2898 040644  021403                            CMP     (R4),R3                   ;CHECK DATA READ (R3=DATA ALSO)
2899 040646  001410                            BEQ     180$                      ;BR, IF ALL IS WELL
2900 040650  011401                            MOV     (R4),R1                   ;RECD DATA
2901 040652  010302                            MOV     R3,R2                     ;EXPECTED DATA
2902 040654  005237  002212                    INC     FATFLG                    ;BUMP COUNT
2906 040660                                    ERRHRD  ERRNO,T24DTA,EXPREC       ;DATA READ NOT = WRITTEN
     040660  104456                                                                    TRAP    C$ERHRD
     040662  000705                                                                    .WORD   453
     040664  045110                                                                    .WORD   T24DTA
     040666  015564                                                                    .WORD   EXPREC
2907 040670                         180$:      CKLOOP                            ;LOOP IF SELECTED
     040670  104406                                                                    TRAP    C$CLP1
2908 040672  005724                            TST     (R4)+                     ;BUMP TO NEXT LOCATION
2909 040674  160204                            SUB     R2,R4                     ;GET RID OF BASE ADDRESS
2910 040676  020403                            CMP     R4,R3                     ;END OF RECORD YET
2911 040700  001360                            BNE     173$                      ;BR, IF NOT AT END OF RECORD
2912 040702  005743                            TST     -(R3)                     ;BUMP RECORD SIZE
2913 040704  022703  000400                    CMP     #256.,R3                  ;END OF RECORD YET
2914 040710  001322                            BNE     165$                      ;BR, IF MORE RECORDS TO WRITE
2915 040712                         190$:      CKLOOP                            ;LOOP IF SELECTED
     040712  104406                                                                    TRAP    C$CLP1
2916 040714                                    ENDSUB                            ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     040714                                                                         L10061:
     040714  104403                                                                    TRAP    C$ESUB
2917 040716  023727  002212  000017                CMP     FATFLG,#15.           ;IS ERROR COUNT AT 25
2918 040724  103402                                BLO     999$                  ;BR, IF LESS THAN 25
2919 040726  004737  017272                        JSR     PC,CKDROP             ;TRY TO DROP THE UNIT
2920 040732                         999$:
2921                                ;*
2922                                ;
2923                                ;TEST 4, SUBTEST 8
2924                                ;
2925                                ;VERIFIES THAT A READ REVERSE COMMAND READING A RECORD
2926                                ;LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE
2927                                ;STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG
2928                                ;(RLL) BIT SET.
2929                                ;
2930                                ;
2931                                ;
2932
2933 040732                                    BGNSUB                            ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>> >>
     040732                                                                         T4.8:
     040732  104402                                                                    TRAP    C$BSUB
2934 040734  004737  046664                        JSR     PC,T24RT3             ;SET UP OTHER COMMAND PACKET
2935 040740  004737  046530                        JSR     PC,T24REST            ;SET COMMAND PACKET
2936 040744  004737  046622                        JSR     PC,T24RT2             ;SET UP OTHER COMMAND PACKET
2937
2938                                ;*****************************************************************
2939                                ;
2940                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
2941                                ;
2942                                ;*****************************************************************
```

```
2943
2944 040750  004737  0160F'                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
2945 040754  103407                          BCS     20$                     ;BR IF INIT WAS OK
2946 040756  005237  00221C                  INC     FATFLG                  ;BUMP COUNT
2950 040762  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
2951 040764                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     040764  104455                                                          TRAP    C$ERDF
     040766  000706                                                          .WORD   454
     040770  003650                                                          .WORD   SFIERR
     040772  012124                                                          .WORD   SFIMSG
2952 040774                          20$:
2953 040774  013737  002172  044060          MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
2954 041002  012704  044040                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
2955
2956                                 ;*****************************************************************
2957                                 ;
2958                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
2959                                 ;
2960                                 ;*****************************************************************
2961
2962 041006  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
2963 041012  103407                          BCS     24$                     ;BR, IF COMMAND ISSUED OK
2964 041014  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2968 041020  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
2969 041022                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     041022  104456                                                          TRAP    C$ERHRD
     041024  000707                                                          .WORD   455
     041026  005054                                                          .WORD   WRTMSG
     041030  012124                                                          .WORD   SFIMSG
2970 041032                          24$:    CKLOOP                          ;LOOP IF SELECTED
     041032  104406                                                          TRAP    C$CLP1
2971
2972                                 ;*****************************************************************
2973                                 ;
2974                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
2975                                 ;
2976                                 ;*****************************************************************
2977
2978 041034  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
2979 041040  004737  016426                  JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
2980 041044  103407                          BCS     30$                     ;BR, IF NO PROBLEM
2981 041046  010001                          MOV     R0,R1                   ;SAVE TSSR
2982 041050  005237  002212                  INC     FATFLG                  ;BUMP COUNT
2986 041054                                  ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     041054  104456                                                          TRAP    C$ERHRD
     041056  000710                                                          .WORD   456
     041060  045326                                                          .WORD   T24RWN
     041062  012136                                                          .WORD   PKTSSR
2987 041064                          30$:    CKLOOP                          ;LOOP IF SELECTED
     041064  104406                                                          TRAP    C$CLP1
2988 041066  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
2989 041072  013737  003114  044172          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
2990
2991                                 ;*****************************************************************
2992                                 ;
2993                                 ;WRITE DATA,ACK,CVC=1 COMMAND
2994                                 ;
```

```
2995                                    ;*****************************************************************
2996
2997 041100  012737  140005  044170          MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
2998 041106  012704  044170                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
2999 041112                             65$:
3000 041112  010337  044176                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3001 041116  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3002 041122  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3003 041126  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3004 041132  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
3005 041136  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3006 041140  001406                          BEQ     75$                     ;BR, IF OK
3007 041142  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3011 041146                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     041146  104456                                                              TRAP    C$ERHRD
     041150  000711                                                              .WORD   457
     041152  005111                                                              .WORD   WRTERR
     041154  012136                                                              .WORD   PKTSSR
3012 041156                             75$:    CKLOOP                          ;LOOP IF SELECTED
     041156  104406                                                              TRAP    C$CLP1
3013 041160  012703  000400                  MOV     #256.,R3                ;SIZE OF RECORD
3014 041164  013737  003114  044172          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3015
3016                                    ;*****************************************************************
3017                                    ;
3018                                    ;READ DATA,ACK COMMAND
3019                                    ;
3020                                    ;*****************************************************************
3021
3022 041172  012737  100401  044170          MOV     #100401,T24PK3          ;READ DATA,ACK COMMAND
3023 041200  012704  044170             165$:MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3024 041204  010337  044176                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3025 041210  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3026 041214  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3027 041220  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3028 041224  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
3029 041230  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3030 041232  001406                          BEQ     170$                    ;BR, IF OK
3031 041234  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3035 041240                                  ERRHRD  ERRNO,T24TRL,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     041240  104456                                                              TRAP    C$ERHRD
     041242  000712                                                              .WORD   458
     041244  046374                                                              .WORD   T24TRL
     041246  015564                                                              .WORD   EXPREC
3036 041250                             170$:   CKLOOP                          ;LOOP IF SELECTED
     041250  104406                                                              TRAP    C$CLP1
3037
3038                                    ;*****************************************************************
3039                                    ;
3040                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3041                                    ;
3042                                    ;*****************************************************************
3043
3044 041252  013701  044070                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER (XST0)
3045 041256  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3046 041260  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
3047 041264  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
```

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3048 041266  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3049 041270  005237  002212                INC     FATFLG                  ;BUMP COUNT
3053 041274                                ERRHRD  ERRNO,T24LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     041274  104456                                                            TRAP    C$ERHRD
     041276  000713                                                            .WORD   459
     041300  046142                                                            .WORD   T24LON
     041302  015564                                                            .WORD   EXPREC
3054 041304                         180$:  CKLOOP
     041304  104406                                                            TRAP    C$CLP1
3055 041306                                ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     041306                                                                   L10062:
     041306  104403                                                            TRAP    C$ESUB
3056 041310  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3057 041316  103402                        BLO     999$                            ;BR, IF LESS THAN 25
3058 041320  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
3059 041324                         999$:
3060
3061                                ;*
3062                                ;
3063                                ;TEST 4, SUBTEST 9
3064                                ;
3065                                ;VERIFIES THAT A READ REVERSE COMMAND SPECIFYING A DATA
3066                                ;BUFFER STARTING IN NONEXISTANT MEMORY TERMINATES WITH
3067                                ;THE PROPER ERROR STATUS WITHOUT MOVING TAPE
3068                                ;
3069
3070 041324                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     041324                                                                   T4.9:
     041324  104402                                                            TRAP    C$BSUB
3071 041326  005737  003126                TST     NXMFLG                  ;DO WE HAVE IT?
3072 041332  001002                        BNE     10$                     ;BR, IF  ENOUGH
3073 041334  000137  042010                JMP     180$                    ;SKIP THIS TEST IF NOT
3074 041340  004737  046664          10$:  JSR     PC,T24RT3               ;SET UP OTHER COMMAND PACKET
3075 041344  004737  046530                JSR     PC,T24REST              ;SET COMMAND PACKET
3076 041350  004737  046622                JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3077
3078                                ;*****************************************************************
3079                                ;
3080                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3081                                ;
3082                                ;*****************************************************************
3083
3084 041354  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3085 041360  103407                        BCS     20$                     ;BR IF INIT WAS OK
3086 041362  005237  002212                INC     FATFLG                  ;BUMP COUNT
3090 041366  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3091 041370                                ERRDF   ERRNO,SFIEPR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     041370  104455                                                            TRAP    C$ERDF
     041372  000714                                                            .WORD   460
     041374  003650                                                            .WORD   SFIERR
     041376  012124                                                            .WORD   SFIMSG
3092 041400                         20$:
3093 041400  013737  002172  044060        MOV     UNITN,T24DSW            ;SET DRIVE NUMBER IN PACKET
3094 041406  012704  044040                MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3095
3096                                ;*****************************************************************
3097                                ;
```

```
3098                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3099                                    ;
3100                                    ;*****************************************************************
3101
3102 041412  004737  010752             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3103 041416  103407                     BCS     24$                     ;BR, IF COMMAND ISSUED OK
3104 041420  005237  002212             INC     FATFLG                  ;BUMP COUNT
3108 041424  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3109 041426                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     041426  104456                                                             TRAP    C$ERHRD
     041430  000715                                                             .WORD   461
     041432  005054                                                             .WORD   WRTMSG
     041434  012124                                                             .WORD   SFIMSG
3110 041436                     24$:    CKLOOP                          ;LOOP IF SELECTED
     041436  104406                                                             TRAP    C$CLP1
3111
3112                                    ;*****************************************************************
3113                                    ;
3114                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3115                                    ;
3116                                    ;*****************************************************************
3117
3118
3119 041440  005737  002216             TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
3120 041444  001024                     BNE     27$                     ;BR IF SWITCH IS ON
3121 041446  112737  000200  044201     MOVB    #200,T24BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
3122 041454  112737  000010  044200     MOVB    #10,T24BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
3123 041462  012704  044150             MOV     #T24PK2,R4              ;WRITE SUBSYS MEM PACKET
3124 041466  010465  000000             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3125 041472  004737  016426             JSR     PC,CHKTSSR              ;WAIT FOR SSR
3126 041476  103407                     BCS     28$                     ;BR, IF NO ERROR
3127 041500  010001                     MOV     R0,R1                   ;ERROR, SAVE TSSR
3128 041502  005237  002212             INC     FATFLG                  ;BUMP COUNT
3132 041506                             ERRHRD  ERRNO,T22SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
     041506  104456                                                             TRAP    C$ERHRD
     041510  000716                                                             .WORD   462
     041512  026320                                                             .WORD   T22SSR
     041514  012136                                                             .WORD   PKTSSR
3133 041516                     27$:
3134 041516                     28$:    CKLOOP                          ;LOOP IF SELECTED
     041516  104406                                                             TRAP    C$CLP1
3135
3136
3137
3138 041520  004737  011104             JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3139 041524  004737  016426             JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
3140 041530  103407                     BCS     30$                     ;BR, IF NO PROBLEM
3141 041532  010001                     MOV     R0,R1                   ;SAVE TSSR
3142 041534  005237  002212             INC     FATFLG                  ;BUMP COUNT
3146 041540                             ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     041540  104456                                                             TRAP    C$ERHRD
     041542  000717                                                             .WORD   463
     041544  045326                                                             .WORD   T24RWN
     041546  012136                                                             .WORD   PKTSSR
3147 041550                     30$:    CKLOOP                          ;LOOP IF SELECTED
     041550  104406                                                             TRAP    C$CLP1
3148 041552  012703  000005             MOV     #5.,R3                  ;NUMBER OF RECORDS
```

```
3149 041556  013737  003114  044172          MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3150                                 ;*****************************************************************
3151                                 ;
3152                                 ;WRITE DATA,ACK,CVC=1 COMMAND
3153                                 ;
3154                                 ;*****************************************************************
3155
3156 041564  012737  140005  044170          MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
3157 041572  012704  044170                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3158 041576                          65$:
3159 041576  012737  000256  044176          MOV     #256,T24SZ              ;SET UP RECORD SIZE IN PACKET
3160 041604  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3161 041610  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3162 041614  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3163 041620  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
3164 041624  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3165 041626  001406                          BEQ     75$                     ;BR, IF OK
3166 041630  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3170 041634                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     041634  104456                                                                  TRAP    C$ERHRD
     041636  000720                                                                  .WORD   464
     041640  005111                                                                  .WORD   WRTERR
     041642  012136                                                                  .WORD   PKTSSR
3171 041644                          75$:    CKLOOP                          ;LOOP IF SELECTED
     041644  104406                                                                  TRAP    C$CLP1
3172 041646  005303                          DEC     R3                      ;BUMP DOWN RECORD COUNTER
3173 041650  001352                          BNE     65$                     ;BR, IF NOT AT 5 RECORDS YET
3174 041652  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
3175 041656  012701  160000                  MOV     #160000,R1              ;NXM LOW ADDRESS START
3176 041662  012702  177776                  MOV     #177776,R2              ;LIMIT CHECK FOR NXM (HIGHEST)
3177 041666  004737  016466                  JSR     PC,XNXM                 ;LOOK FOR NXM ADDRESS
3178 041672  103046                          BCC     180$                    ;BR, IF NON FOUND
3179 041674  010137  003130                  MOV     R1,NXMLO                ;SET ADDRESS UP FOR TEST
3180 041700  013737  003130  044172          MOV     NXMLO,T24RB             ;STARTING READ BUFFER ADDRESS
3181 041706  005037  044174                  CLR     T24RB+2                 ;SET TO 16 BIT ADDRESSING
3182
3183                                 ;*****************************************************************
3184                                 ;
3185                                 ;READ DATA,ACK COMMAND
3186                                 ;
3187                                 ;*****************************************************************
3188
3189 041712  012737  100001  044170          MOV     #100001,T24PK3          ;READ DATA,ACK COMMAND
3190 041720  012704  044170          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3191 041724  012737  000400  044176          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
3192 041732  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3193 041736  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3194 041742  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3195 041746  012702  104210                  MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
3196 041752  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3197 041754  001414                          BEQ     170$                    ;BR, IF OK
3198 041756  005237  044174                  INC     T24RB+2                 ;SET TO NEXT HIGHER ADDRESSING MODE
3199 041762  023727  044174  000004          CMP     T24RB+2,#4              ;DID WE OVERFLOW INTO 19 BITS
3200 041770  001353                          BNE     165$                    ;BR, IF STILL IN 16-18 BITS RANGE
3201 041772  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3205 041776                                  ERRHRD  ERRNO,T24NXM,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     041776  104456                                                                  TRAP    C$ERHRD
```

```
        042000  000721                                                          .WORD   465
        042002  044431                                                          .WORD   T24NXM
        042004  012136                                                          .WORD   PKTSSR
   3206 042006                          170$:   CKLOOP                  ;LOOP IF SELECTED
        042006  104406                                                          TRAP    C$CLP1
   3207 042010                          180$:
   3208 042010                                  ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
        042010                                                                  L10063:
        042010  104403                                                          TRAP    C$ESUB
   3209 042012  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
   3210 042020  103402                          BLO     999$                    ;BR, IF LESS THAN 25
   3211 042022  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
   3212 042026                          999$:
   3213
   3214                                 ;*
   3215                                 ;
   3216                                 ;TEST 4, SUBTEST 10
   3217                                 ;
   3218                                 ;VERIFIES THAT ILLEGAL MODE FIELD CODES IN THE READ
   3219                                 ;COMMAND CAUSE A FUNCTION REJECT TERMINATION WITH THE
   3220                                 ;ILLEGAL COMMAND (ILC) ERROR BIT SET.
   3221                                 ;
   3222                                 ;
   3223                                 ;
   3224                                 ;
   3225
   3226 042026                                  BGNSUB                  ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
        042026                                                                  T4.10:
        042026  104402                                                          TRAP    C$BSUB
   3227 042030  004737  046664                  JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
   3228 042034  004737  046530                  JSR     PC,T24REST              ;SET COMMAND PACKET
   3229 042040  004737  046622                  JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
   3230
   3231                                 ;*****************************************************************
   3232                                 ;
   3233                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
   3234                                 ;
   3235                                 ;*****************************************************************
   3236
   3237 042044  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
   3238 042050  103407                          BCS     20$                     ;BR IF INIT WAS OK
   3239 042052  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   3243 042056  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
   3244 042060                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        042060  104455                                                          TRAP    C$ERDF
        042062  000722                                                          .WORD   466
        042064  003650                                                          .WORD   SFIERR
        042066  012124                                                          .WORD   SFIMSG
   3245 042070                          20$:
   3246 042070  013737  002172  044060          MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
   3247 042076  012704  044040                  MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
   3248
   3249                                 ;*****************************************************************
   3250                                 ;
   3251                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
   3252                                 ;
   3253                                 ;*****************************************************************
```

```
3254
3255 042102  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3256 042106  103407                      BCS     24$                     ;BR, IF COMMAND ISSUED OK
3257 042110  005237  002212              INC     FATFLG                  ;BUMP COUNT
3261 042114  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3262 042116                              ERRHRD  EHRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     042116  104456                                                      TRAP    C$ERHRD
     042120  000723                                                      .WORD   467
     042122  005054                                                      .WORD   WRTMSG
     042124  012124                                                      .WORD   SFIMSG
3263 042126                      24$:    CKLOOP                          ;LOOP IF SELECTED
     042126  104406                                                      TRAP    C$CLP1
3264 042130  013737  003114  044172      MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3265
3266                             ;*****************************************************************
3267                             ;
3268                             ;ILLEGAL MODE DATA,ACK COMMAND
3269                             ;
3270                             ;*****************************************************************
3271
3272 042136  012737  104001  044170      MOV     #104001,T24PK3          ;ILLEGAL MODE DATA,ACK COMMAND
3273 042144  012704  044170              MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3274 042150  012737  000400  044176      MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
3275 042156  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3276 042162  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
3277 042166  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3278 042172  012702  100206              MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
3279 042176  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
3280 042200  001406                      BEQ     75$                     ;BR, IF OK
3281 042202  005237  002212              INC     FATFLG                  ;BUMP COUNT
3285 042206                              ERRHRD  ERRNO,T24WDF,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     042206  104456                                                      TRAP    C$ERHRD
     042210  000724                                                      .WORD   468
     042212  044515                                                      .WORD   T24WDF
     042214  012136                                                      .WORD   PKTSSR
3286 042216                      75$:    CKLOOP                          ;LOOP IF SELECTED
     042216  104406                                                      TRAP    C$CLP1
3287
3288                             ;*****************************************************************
3289                             ;
3290                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3291                             ;
3292                             ;*****************************************************************
3293
3294 042220  013701  044070              MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3295 042224  010102                      MOV     R1,R2                   ;SET UP EXPECTED
3296 042226  052702  001000              BIS     #BIT9,R2                ;SET THE ILC BIT IN EXPECTED
3297 042232  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
3298 042234  001406                      BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3299 042236  005237  002212              INC     FATFLG                  ;BUMP COUNT
3303 042242                              ERRHRD  ERRNO,T24LOQ,EXPREC     ;THE ILC BIT WAS NOT SET IN XST0
     042242  104456                                                      TRAP    C$ERHRD
     042244  000725                                                      .WORD   469
     042246  044656                                                      .WORD   T24LOQ
     042250  015564                                                      .WORD   EXPREC
3304 042252                      180$:   CKLOOP
     042252  104406                                                      TRAP    C$CLP1
```

```
3305 042254                                    ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     042254                                                                                    L10064:
     042254  104403                                                                                    TRAP    C$ESUB
3306 042256  023727  002212  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3307 042264  103402                            BLO     999$                    ;BR, IF LESS THAN 25
3308 042266  004737  017272                    JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
3309 042272                              999$:
3310
3311                                     ;*
3312                                     ;
3313                                     ;TEST 4, SUBTEST 11
3314                                     ;
3315                                     ;VFRIFIES THAT ILLEGAL BUFFER ADDRESSES CAUSE A
3316                                     ;FUNCTION REJECT TERMINATION WITH ILLEGAL ADDRESS
3317                                     ;(ILA) ERROR BIT SET.
3318                                     ;
3319                                     ;
3320                                     ;
3321                                     ;
3322
3323 042272                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     042272                                                                                    T4.11:
     042272  104402                                                                                    TRAP    C$BSUB
3324 042274  004737  046664                    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3325 042300  004737  046530                    JSR     PC,T24REST              ;SET COMMAND PACKET
3326 042304  004737  046622                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3327
3328                                     ;*****************************************************************
3329                                     ;
3330                                     ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3331                                     ;
3332                                     ;*****************************************************************
3333
3334 042310  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3335 042314  103407                            BCS     20$                     ;BR IF INIT WAS OK
3336 042316  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3340 042322  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3341 042324                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     042324  104455                                                                                    TRAP    C$ERDF
     042326  000726                                                                                    .WORD   470
     042330  003650                                                                                    .WORD   SFIERR
     042332  012124                                                                                    .WORD   SFIMSG
3342 042334                              20$:
3343 042334  013737  002172  044060              MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3344 042342  012704  044040                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3345
3346                                     ;*****************************************************************
3347                                     ;
3348                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3349                                     ;
3350                                     ;*****************************************************************
3351
3352 042346  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3353 042352  103407                            BCS     24$                     ;BR, IF COMMAND ISSUED OK
3354 042354  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3358 042360  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3359 042362                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
```

```
                042362  104456                                                          TRAP    C$ERHRD
                042364  00072?                                                          .WORD   471
                042366  005054                                                          .WORD   WRTMSG
                042370  012124                                                          .WORD   SFIMSG
3360            042372                          24$:    CKLOOP                          ;LOOP IF SELECTED
                042372  104406                                                          TRAP    C$CLP1
3361            042374  013737  003114  044172          MOV     FREE,T24RB              ;ILLEGAL STARTING READ BUFFER ADDRESS
3362            042402  012737  177700  044174          MOV     #177700,T24RB+2         ;CREATE ILLEGAL ADDRESS
3363
3364                            ;*****************************************************************
3365                            ;
3366                            ;LEGAL MODE,ACK,CVC=1,READ COMMAND
3367                            ;
3368                            ;*****************************************************************
3369
3370            042410  012737  140001  044170          MOV     #140001,T24PK3          ;LEGAL MODE,ACK,CVC=1,READ COMMAND
3371            042416  012704  044170                  MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3372            042422  012737  000400  044176          MOV     #256.,T24SZ             ;SET UP RECORD SIZE IN PACKET
3373            042430  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3374            042434  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR!BIT1!BIT2 TO SET
3375            042440  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3376            042444  012702  100206                  MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
3377            042450  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3378            042452  001406                          BEQ     75$                     ;BR, IF OK
3379            042454  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3383            042460                                  ERRHRD  ERRNO,T24WDG,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
                042460  104456                                                          TRAP    C$ERHRD
                042462  000730                                                          .WORD   472
                042464  044342                                                          .WORD   T24WDG
                042466  012136                                                          .WORD   PKTSSR
3384            042470                          75$:    CKLOOP                          ;LOOP IF SELECTED
                042470  104406                                                          TRAP    C$CLP1
3385
3386                            ;*****************************************************************
3387                            ;
3388                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3389                            ;
3390                            ;*****************************************************************
3391
3392            042472  013701  044070                  MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3393            042476  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3394            042500  052702  000400                  BIS     #BIT8,R2                ;SET THE ILA BIT IN EXPECTED
3395            042504  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3396            042506  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3397            042510  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3401            042514                                  ERRHRD  ERRNO,T24ILA,EXPREC     ;THE ILA BIT WAS NOT SET IN XST0
                042514  104456                                                          TRAP    C$ERHRD
                042516  000731                                                          .WORD   473
                042520  044572                                                          .WORD   T24ILA
                042522  015564                                                          .WORD   EXPREC
3402            042524                          180$:   CKLOOP
                042524  104406                                                          TRAP    C$CLP1
3403            042526                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                042526                                                                  L10065:
                042526  104403                                                          TRAP    C$ESUB
3404            042530  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
3405            042536  103402                          BLO     999$                            ;BR, IF LESS THAN 25
```

```
3406 042540  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
3407 042544                                999$:
3408
3409                                       ;*
3410                                       ;
3411                                       ;TEST 4, SUBTEST 12
3412                                       ;
3413                                       ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
3414                                       ;NONEXISTANT MEMORY CAUSES RECOVERABLE ERROR
3415                                       ;TERMINATION (TC=4), WITH THE NXM BIT SET IN THE TSSR, AND
3416                                       ;THAT THE TAPE IS ULTIMATELY POSITIONED PROPERLY.
3417                                       ;
3418
3419 042544                                       BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     042544                                                                                 T4.12:
     042544  104402                                                                           TRAP    C$BSUB
3420 042546  005737  003126                       TST     NXMFLG                  ;DO WE HAVE IT?
3421 042552  001002                             10$:    BNE     10$             ;BR, IF  ENOUGH
3422 042554  000137  043012                       JMP     80$                     ;SKIP THIS TEST IF NOT
3423 042560  004737  046664                       JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3424 042564  004737  046530                       JSR     PC,T24REST              ;SET COMMAND PACKET
3425 042570  004737  046622                       JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3426
3427                                       ;*****************************************************************
3428                                       ;
3429                                       ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3430                                       ;
3431                                       ;*****************************************************************
3432
3433 042574  004737  016064                       JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3434 042600  103407                               BCS     20$                     ;BR IF INIT WAS OK
3435 042602  005237  002212                       INC     FATFLG                  ;BUMP COUNT
3439 042606  010001                               MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3440 042610                                       ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     042610  104455                                                                         TRAP    C$ERDF
     042612  000732                                                                         .WORD   474
     042614  003650                                                                         .WORD   SFIERR
     042616  012124                                                                         .WORD   SFIMSG
3441 042620                                20$:
3442 042620  013737  002172  044060                MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3443 042626  012704  044040                       MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3444
3445                                       ;*****************************************************************
3446                                       ;
3447                                       ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3448                                       ;
3449                                       ;*****************************************************************
3450
3451 042632  004737  010752                       JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3452 042636  103407                               BCS     24$                     ;BR, IF COMMAND ISSUED OK
3453 042640  005237  002212                       INC     FATFLG                  ;BUMP COUNT
3457 042644  010001                               MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3458 042646                                       ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     042646  104456                                                                         TRAP    C$ERHRD
     042650  000733                                                                         .WORD   475
     042652  005054                                                                         .WORD   WRTMSG
     042654  012124                                                                         .WORD   SFIMSG
```

```
3459 042656                          24$:   CKLOOP                          ;LOOP IF SELECTED
     042656  104406                                                                TRAP    C$CLP1
3460 042660  012701  160000                  MOV     #160000,R1             ;NXM LOW ADDRESS START
3461 042664  012702  177776                  MOV     #177776,R2             ;LIMIT CHECK FOR NXM (HIGHEST)
3462 042670  004737  016466                  JSR     PC,XNXM                ;LOOK FOR NXM ADDRESS
3463 042674  103046                          BCC     80$                    ;BR, IF NON FOUND
3464 042676  010137  003130                  MOV     R1,NXMLO               ;SET ADDRESS OF FOR TEST
3465 042702  013737  003130  044172          MOV     NXMLO,T24RB            ;SET TO NXM MEMORY ADDRESS
3466 042710  005037  044174                  CLR     T24RB+2                ;SET TO 16 BITS ADDRESSING
3467
3468                                 ;*************************************************************************
3469                                 ;
3470                                 ;READ, ACK, CVC=1, COMMAND
3471                                 ;
3472                                 ;*************************************************************************
3473
3474 042714  012737  140001  044170  30$:   MOV     #140001,T24PK3         ;READ, ACK, CVC=1, COMMAND
3475 042722  012704  044170                  MOV     #T24PK3,R4             ;SET UP R4 WITH PACKET ADDRESS
3476 042726  012737  000400  044176          MOV     #256.,T24SZ            ;SET UP RECORD SIZE IN PACKET
3477 042734  010465  000000                  MOV     R4,TSDB(R5)            ;ISSUE COMMAND
3478 042740  004737  016340                  JSR     PC,WAITF               ;WAIT FOR SSR!BIT1!BIT2 TO SET
3479 042744  016501  000002                  MOV     TSSR(R5),R1            ;GET TSSR CONTENTS
3480 042750  012702  104210                  MOV     #SSR!SC!NXM!BIT3,R2            ;SET UP EXPECTED
3481 042754  020102                          CMP     R1,R2                  ;ARE THEY EQUAL
3482 042756  001414                          BEQ     75$                    ;BR, IF OK
3483 042760  005237  044174                  INC     T24RB+2                ;BUMP TO NEXT ADDRESSING RANGE
3484 042764  023727  044174  000004          CMP     T24RB+2,#4             ;CHECK FOR OVERFLOW
3485 042772  001350                          BNE     30$                    ;BR, IF STILL IN 16-18 BIT RANGE
3486 042774  005237  002212                  INC     FATFLG                 ;BUMP COUNT
3490 043000                                  ERRHRD  ERRNO,T24NXM,PKTSSR    ;TSSR INCORRECT AFTER READ DATA
     043000  104456                                                                TRAP    C$ERHRD
     043002  000734                                                                .WORD   476
     043004  044431                                                                .WORD   T24NXM
     043006  012136                                                                .WORD   PKTSSR
3491 043010                          75$:   CKLOOP                          ;LOOP IF SELECTED
     043010  104406                                                                TRAP    C$CLP1
3492 043012                          80$:
3493 043012                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     043012                                                                     L10066:
     043012  104403                                                                TRAP    C$ESUB
3494 043014  023727  002212  000017          CMP     FATFLG,#15.                    ;IS ERROR COUNT AT 25
3495 043022  103402                          BLO     999$                   ;BR, IF LESS THAN 25
3496 043024  004737  017272                  JSR     PC,CKDROP              ;TRY TO DROP THE UNIT
3497 043030                          999$:
3498
3499                                 ;*
3500                                 ;
3501                                 ;TEST 4, SUBTEST 13
3502                                 ;
3503                                 ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
3504                                 ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
3505                                 ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET
3506                                 ;
3507                                 ;
3508                                 ;
3509                                 ;
3510
```

```
3511 043030                              BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     043030                                                                       T4.13:
     043030  104402                                                                TRAP    C$BSUB
3512 043032  004737  046664              JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3513 043036  004737  046530              JSR     PC,T24REST              ;SET COMMAND PACKET
3514 043042  004737  046622              JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3515
3516                                     ;*****************************************************************
3517                                     ;
3518                                     ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3519                                     ;
3520                                     ;*****************************************************************
3521
3522 043046  004737  016064              JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3523 043052  103407                      BCS     20$                     ;BR IF INIT WAS OK
3524 043054  005237  002212              INC     FATFLG                  ;BUMP COUNT
3528 043060  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3529 043062                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     043062  104455                                                              TRAP    C$ERDF
     043064  000735                                                              .WORD   477
     043066  003650                                                              .WORD   SFIERR
     043070  012124                                                              .WORD   SFIMSG
3530 043072                          20$:
3531 043072  013737  002172  044060      MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3532 043100  012704  044040              MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3533
3534                                     ;*****************************************************************
3535                                     ;
3536                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3537                                     ;
3538                                     ;*****************************************************************
3539
3540 043104  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3541 043110  103407                      BCS     24$                     ;BR, IF COMMAND ISSUED OK
3542 043112  005237  002212              INC     FATFLG                  ;BUMP COUNT
3546 043116  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3547 043120                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     043120  104456                                                              TRAP    C$ERHRD
     043122  000736                                                              .WORD   478
     043124  005054                                                              .WORD   WRTMSG
     043126  012124                                                              .WORD   SFIMSG
3548 043130                          24$:    CKLOOP                          ;LOOP IF SELECTED
     043130  104406                                                              TRAP    C$CLP1
3549
3550                                     ;*****************************************************************
3551                                     ;
3552                                     ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3553                                     ;
3554                                     ;*****************************************************************
3555
3556 043132  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3557 043136  004737  016426              JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
3558 043142  103407                      BCS     30$                     ;BR, IF NO PROBLEM
3559 043144  010001                      MOV     R0,R1                   ;SAVE TSSR
3560 043146  005237  002212              INC     FATFLG                  ;BUMP COUNT
3564 043152                              ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
     043152  104456                                                              TRAP    C$ERHRD
```

```
                                                                                .WORD   479
                                                                                .WORD   T24RWN
                                                                                .WORD   PKTSSR
3565 043162                     30$:    CKLOOP                  ;LOOP IF SELECTED
     043162  104406                                                            TRAP    C$CLP1
3566 043164  012703  000400            MOV     #256.,R3                ;RECORD SIZE
3567 043170  013737  003114  044172    MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3568
3569                            ;*****************************************************************
3570                            ;
3571                            ;READ REVERSE DATA,ACK COMMAND
3572                            ;
3573                            ;*****************************************************************
3574
3575 043176  012737  100401  044170    MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3576 043204  012704  044170            MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3577 043210                     65$:
3578 043210  010337  044176            MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3579 043214  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3580 043220  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3581 043224  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3582 043230  012702  100206            MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
3583 043234  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
3584 043236  001406                    BEQ     75$                     ;BR, IF OK
3585 043240  005237  002212            INC     FATFLG                  ;BUMP COUNT
3589 043244                            ERRHRD  ERRNO,T24WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043244  104456                                                            TRAP    C$ERHRD
     043246  000740                                                            .WORD   480
     043250  044771                                                            .WORD   T24WDE
     043252  012136                                                            .WORD   PKTSSR
3590 043254                     75$:    CKLOOP                  ;LOOP IF SELECTED
     043254  104406                                                            TRAP    C$CLP1
3591
3592                            ;*****************************************************************
3593                            ;
3594                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
3595                            ;
3596                            ;*****************************************************************
3597
3598 043256  013701  044070            MOV     T24BFR+6,R1             ;GET MESSAGE BUFFER
3599 043262  010102                    MOV     R1,R2                   ;SET UP EXPECTED
3600 043264  052702  002000            BIS     #BIT10,R2               ;SET THE NEF BIT IN EXPECTED
3601 043270  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
3602 043272  001406                    BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
3603 043274  005237  002212            INC     FATFLG                  ;BUMP COUNT
3607 043300                            ERRHRD  ERRNO,T24NEF,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     043300  104456                                                            TRAP    C$ERHRD
     043302  000741                                                            .WORD   481
     043304  044220                                                            .WORD   T24NEF
     043306  015564                                                            .WORD   EXPREC
3608 043310                     180$:   CKLOOP
     043310  104406                                                            TRAP    C$CLP1
3609 043312                            ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     043312                                                                 L10067:
     043312  104403                                                            TRAP    C$ESUB
3610 043314  023727  002212  000017            CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3611 043322  103402                            BLO     999$                    ;BR, IF LESS THAN 25
```

```
3612 043324  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
3613 043330                              999$:
3614
3615                                     ;*
3616                                     ;
3617                                     ;TEST 4, SUBTEST 14
3618                                     ;
3619                                     ;VERIFIES THAT A READ REVERSE COMMAND ISSUED WHILE THE
3620                                     ;TAPE IS POSITIONED BEFORE THE FIRST RECORD ON TAPE
3621                                     ;(BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT.
3622                                     ;
3623                                     ;
3624                                     ;
3625                                     ;
3626
3627 043330                                   BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      043330                                                                                 T4.14:
      043330  104402                                                                           TRAP    C$BSUB
3628 043332  004737  046664                    JSR     PC,T24RT3               ;SET COMMAND PACKET UP CLEAR
3629 043336  004737  046530                    JSR     PC,T24REST              ;SET COMMAND PACKET
3630 043342  004737  046622                    JSR     PC,T24RT2               ;SET UP OTHER COMMAND PACKET
3631
3632                                     ;*****************************************************************
3633                                     ;
3634                                     ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3635                                     ;
3636                                     ;*****************************************************************
3637
3638 043346  004737  016064                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
3639 043352  103407                           BCS     20$                     ;BR IF INIT WAS OK
3640 043354  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3644 043360  010001                           MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
3645 043362                                   ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      043362  104455                                                                         TRAP    C$ERDF
      043364  000742                                                                         .WORD   482
      043366  003650                                                                         .WORD   SFIERR
      043370  012124                                                                         .WORD   SFIMSG
3646 043372                              20$:
3647 043372  013737  002172  044060              MOV     UNITN,T24DSW            ;SET UP DRIVE NUMBER
3648 043400  012704  044040                    MOV     #T24PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
3649
3650                                     ;*****************************************************************
3651                                     ;
3652                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
3653                                     ;
3654                                     ;*****************************************************************
3655
3656 043404  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
3657 043410  103407                           BCS     24$                     ;BR, IF COMMAND ISSUED OK
3658 043412  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3662 043416  010001                           MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
3663 043420                                   ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      043420  104456                                                                         TRAP    C$ERHRD
      043422  000743                                                                         .WORD   483
      043424  005054                                                                         .WORD   WRTMSG
      043426  012124                                                                         .WORD   SFIMSG
3664 043430                              24$:    CKLOOP                          ;LOOP IF SELECTED
```

```
        043430  104406                                                          TRAP    C$CLP1
3665
3666                                    ;*****************************************************************
3667                                    ;
3668                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
3669                                    ;
3670                                    ;*****************************************************************
3671
3672 043432  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
3673 043436  004737  016426                    JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
3674 043442  103407                            BCS     30$                     ;BR, IF NO PROBLEM
3675 043444  010001                            MOV     R0,R1                   ;SAVE TSSR
3676 043446  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3680 043452                                    ERRHRD  ERRNO,T24RWN,PKTSSR     ;REWIND NOT ACCEPTED
        043452  104456                                                                 TRAP    C$ERHRD
        043454  000744                                                                 .WORD   484
        043456  045326                                                                 .WORD   T24RWN
        043460  012136                                                                 .WORD   PKTSSR
3681 043462                            30$:    CKLOOP                          ;LOOP IF SELECTED
        043462  104406                                                                 TRAP    C$CLP1
3682 043464  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
3683 043470  013737  003114  044172            MOV     FREE,T24RB              ;STARTING WRITE BUFFER ADDRESS
3684
3685                                    ;*****************************************************************
3686                                    ;
3687                                    ;WRITE DATA,ACK,CVC=1 COMMAND
3688                                    ;
3689                                    ;*****************************************************************
3690
3691 043476  012737  140005  044170            MOV     #140005,T24PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
3692 043504  012704  044170                    MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3693 043510                            65$:
3694 043510  010337  044176                    MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3695 043514  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3696 043520  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3697 043524  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3698 043530  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
3699 043534  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
3700 043536  001406                            BEQ     75$                     ;BR, IF OK
3701 043540  005237  002212                    INC     FATFLG                  ;BUMP COUNT
3705 043544                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
        043544  104456                                                                 TRAP    C$ERHRD
        043546  000745                                                                 .WORD   485
        043550  005111                                                                 .WORD   WRTERR
        043552  012136                                                                 .WORD   PKTSSR
3706 043554                            75$:    CKLOOP                          ;LOOP IF SELECTED
        043554  104406                                                                 TRAP    C$CLP1
3707 043556  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
3708 043562  013737  003114  044172            MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3709
3710                                    ;*****************************************************************
3711                                    ;
3712                                    ;READ REVERSE DATA,ACK COMMAND
3713                                    ;
3714                                    ;*****************************************************************
3715
3716 043570  012737  100401  044170            MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
```

TEST 4: BASIC READ DATA (FORWARD AND REVERSE)

```
3717 043576  012704  044170          165$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3718 043602  010337  044176                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3719 043606  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3720 043612  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3721 043616  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3722 043622  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
3723 043626  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3724 043630  001406                          BEQ     170$                    ;BR. IF OK
3725 043632  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3729 043636                                  ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043636  104456                                                                  TRAP    C$ERHRD
     043640  000746                                                                  .WORD   486
     043642  046374                                                                  .WORD   T24TRL
     043644  012136                                                                  .WORD   PKTSSR
3730 043646                          170$:   CKLOOP                          ;LOOP IF SELECTED
     043646  104406                                                                  TRAP    C$CLP1
3731 043650  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
3732 043654  013737  003114  044172          MOV     FREE,T24RB              ;STARTING READ BUFFER ADDRESS
3733
3734                                 ;*****************************************************************
3735                                 ;
3736                                 ;READ REVERSE DATA,ACK COMMAND
3737                                 ;
3738                                 ;*****************************************************************
3739
3740 043662  012737  100401  044170          MOV     #100401,T24PK3          ;READ REVERSE DATA,ACK COMMAND
3741 043670  012704  044170          195$:   MOV     #T24PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
3742 043674  010337  044176                  MOV     R3,T24SZ                ;SET UP RECORD SIZE IN PACKET
3743 043700  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
3744 043704  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
3745 043710  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
3746 043714  012702  100204                  MOV     #SSR!SC!BIT2,R2                 ;SET UP EXPECTED
3747 043720  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3748 043722  001406                          BEQ     200$                    ;BR. IF OK
3749 043724  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3753 043730                                  ERRHRD  ERRNO,T24TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043730  104456                                                                  TRAP    C$ERHRD
     043732  000747                                                                  .WORD   487
     043734  046374                                                                  .WORD   T24TRL
     043736  012136                                                                  .WORD   PKTSSR
3754 043740                          200$:   CKLOOP                          ;LOOP IF SELECTED
     043740  104406                                                                  TRAP    C$CLP1
3755 043742  013701  044076                  MOV     T24BFR+14,R1            ;GET MESSAGE BUFFER (XST3)
3756 043746  010102                          MOV     R1,R2                   ;SET UP EXPECTED
3757 043750  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT IN EXPECTED
3758 043754  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
3759 043756  001406                          BEQ     210$                    ;BR. IF EQUAL (ALL IS WELL)
3760 043760  005237  002212                  INC     FATFLG                  ;BUMP COUNT
3764 043764                                  ERRHRD  ERRNO,T24LOR,EXPREC     ;THE RIB BIT WAS NOT SET IN XST0
     043764  104456                                                                  TRAP    C$ERHRD
     043766  000750                                                                  .WORD   488
     043770  044272                                                                  .WORD   T24LOR
     043772  015564                                                                  .WORD   EXPREC
3765 043774                          210$:   CKLOOP
     043774  104406                                                                  TRAP    C$CLP1
3766 043776                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     043776                                                                  L10070:
```

```
                043776  104403                                                          TRAP    C$ESUB
3767            044000  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
3768            044006  103402                          BLO     999$                    ;BR, IF LESS THAN 25
3769            044010  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
3770            044014                          999$:
3771                                            ;
3772                                            ;
3773                                            ;
3774            044014  004737  016546                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
3775            044020  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
3776            044022  000137  034516                  JMP     T24LOOP                 ;EXECUTE AGAIN
3777            044026                          163$:
3778            044026                                  EXIT    TST                     ;ALL DONE THIS TEST
                044026  104432                                                          TRAP    C$EXIT
                044030  002664                                                          .WORD   L10052 .
3779
3780                                            ;+
3781                                            ;LOCAL STORAGE FOR THIS TEST
3782                                            ;
3784            044032                                  .BLKB   10-<.-TSV2E7>
3786            044040                          T24PACKET:                              ;COMMAND PACKET FOR TEST
3787            044040  100204                          .WORD   100204                  ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
3788            044042  044050                          .WORD   T24DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
3789            044044  000000                          .WORD   0
3790            044046  000012                          .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
3791            044050                          T24DATA:                                ;CHARACTERISTICS DATA BLOCK
3792            044050  044062                          .WORD   T24BFR                  ;ADDRESS OF MESSAGE BUFFER
3793            044052  000000                          .WORD   0
3794            044054  000024                          .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
3795            044056  000000                          .WORD   0
3796            044060  000000                  T24DSW: .WORD   0                       ;DRIVE SELECTION BITS 2 0
3797            044062                          T24BFR: .BLKW   25.                     ;MESSAGE BUFFER
3798                                            ;
3799                                            ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
3800                                            ;
3802            044144                                  .BLKB   10-<.-TSV2E7>
3804            044150                          T24PK2:
3805            044150  100206                          .WORD   100206                  ;WRITE SUB SYS MEM COMMAND, IE AND ACK
3806            044152  044200                          .WORD   T24BF2                  ;ADDRESS OF SELECT BLOCK DATA
3807            044154  000000                          .WORD   0
3808            044156  000006                          .WORD   6.                      ;SIZE OF DATA PACKET
3809
3811            044160                                  .BLKB   10-<.-TSV2E7>
3813            044170                          T24PK3:
3814            044170  100205                          .WORD   100205                  ;READ COMMAND, IE AND ACK
3815            044172                          T24RB:
3816            044172  003114                  T24WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
3817            044174  000000                          .WORD   0
3818            044176  000000                  T24SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
3819                                                    .EVEN
3820                                            ;
3821                                            ;
3822                                            ;
3823            044200                          T24BF2:
3824            044200     010                  T24BS0: .BYTE   10                      ;BSEL0 AREA
3825            044201     200                  T24BS1: .BYTE   200                     ;BSEL1 AREA
3826            044202  000000                  T24S2:  .WORD   0                       ;SEL 2 AREA
```

```
3827 044204  000000                  T24S3:  .WORD   0                       ;DATA AREA
3828                                 ;
3829                                 ;
3830                                         .EVEN
3831                                 ;TAPE MOTION PACKET COMMAND VALUES
3832
3833 044206  100005                  T24RN:  .WORD   100005                  ;READ DATA (NEXT)
3834 044210  100405                  T24WDR: .WORD   100405                  ;READ DATA RETRY
3835 044212  102005                  T24CON: .WORD   102005                  ;WRITE CONTINOUS
3836 044214  177777                          .WORD   177777                  ;END OF DATA
3837 044216  000000                  T24DLY: .WORD   0                       ;DELAY STORAGE AREA
3838
3839
3840                                 ;*
3841                                 ;LOCAL TEXT MESSAGES FOR TEST
3842                                 ;-
3843
3844 044220     116     105     106  T24NEF: .ASCIZ  'NEF Not Set After NON-EXECUTABLE FUNCTION
3845 044272     122     111     102  T24LOR: .ASCIZ  'RIB Not Set After READ REVERSE Into BOT'
3846 044342     124     123     123  T24WDG: .ASCIZ  'TSSR Not Correct After Illegal Buffer Address Bits Set
3847 044431     124     123     123  T24NXM: .ASCIZ  'TSSR Not Correct After NXM Memory Address In Packet
3848 044515     124     123     123  T24WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
3849 044572     111     154     154  T24ILA: .ASCIZ  'Illegal Address Bits, Failed To Set ILA Bit In XST0
3850 044656     111     154     154  T24LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
3851 044737     122     105     101  T24SSR: .ASCIZ  'READ COMMAND Not Accepted'
3852 044771     124     123     123  T24WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
3853 045043     124     141     160  T24BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
3854 045110     104     141     164  T21DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape
3855 045176     122     105     101  T24EOT: .ASCIZ  'READ DATA OVER EOT GAVE NO TAPE STATUS ALERT
3856 045253     124     123     123  T24TM:  .ASCIZ  'TSSR Not Correct After READ COMMAND Reject
3857 045326     122     145     167  T24RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
3858 045375     122     101     115  T24RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram
3859 045450     124     123     123  T24AM3: .ASCIZ  'TSSR Init. Failed After READ COMMAND'
3860 045515     104     162     151  T240FL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
3861 045570     124     123     123  T24WDD: .ASCIZ  'TSSR Not Correct After READ DATA Command, SWB Bit Set
3862 045656     124     123     123  T24WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
3863 045727     103     126     103  T24VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer
3864 046002     124     123     102  T24BA:  .ASCIZ  'TSBA Not Correct After READ DATA Command'
3865 046053     127     122     111  T24WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)
3866 046142     122     145     141  T24LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0
3867 046224     122     145     141  T24LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0
3868 046306     122     145     163  T24PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read
3869 046374     122     145     141  T24TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert
3870 046462     102     141     163  TST24ID:        .ASCIZ  'Basic Read Data (Forward and Reverse)'
3871                                          .EVEN
3872                                 ;*
3873                                 ;
3874                                 ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
3875                                 ;WRITE SUBSYSTEM MEMORY COMMAND
3876                                 ;
3877                                 ;-
3878
3879 046530                          T24REST:
3880 046530                                  SAVREG                          ;SAVE THE REGISTERS
3881 046534  012701  044040                 MOV     #T24PACKET,R1           ;START OF THE PACKET
3882 046540  012721  100004                 MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
3883 046544  012721  044050                 MOV     #T24DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
```

```
3884 046550  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
3885 046552  012721  000012                  MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
3886 046556  012721  044062                  MOV     #T24BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
3887 046562  005021                          CLR     (R1)+
3888 046564  012721  000024                  MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
3889 046570  005021                          CLR     (R1)+
3890 046572  012711  000000                  MOV     #0,(R1)                 ;SELECT DRIVE ZERO
3891 046576  012702  000030                  MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
3892 046602  012762  177777  044062  64$:    MOV     #177777,T24BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
3893 046610  005742                          TST     -(R2)                   ;NEXT LOCATION
3894 046612  022702  000000                  CMP     #0,R2                   ;CKECK FOR END OF LOOP
3895 046616  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
3896 046620  000207                          RTS     PC                      ;RETURN
3897
3898
3899 046622                          T24RT2:
3900 046622                                  SAVREG                          ;SAVE THE REGISTERS
3901 046626  012701  044150                  MOV     #T24PK2,R1              ;START OF THE PACKET
3902 046632  012721  100206                  MOV     #100206,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, IE
3903 046636  012721  044200                  MOV     #T24BF2,(R1)+           ;ADDRESS OF DATA BLOCK
3904 046642  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
3905 046644  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
3906 046650  005021                          CLR     (R1)+
3907 046652  012701  044200                  MOV     #T24BF2,R1              ;POINT TO DATA SEL AREA
3908 046656  005021                          CLR     (R1)+
3909 046660  005011                          CLR     (R1)
3910 046662  000207                          RTS     PC                      ;RETURN
3911 046664                          T24RT3:
3912 046664                                  SAVREG                          ;SAVE THE REGISTERS
3913 046670  012701  044170                  MOV     #T24PK3,R1              ;START OF THE PACKET
3914 046674  012721  000000                  MOV     #0,(R1)+                ;CLEAR AREA OUT
3915 046700  012721  000000                  MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
3916 046704  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
3917 046706  012711  000000                  MOV     #0,(R1)                 ;SIZE OF DATA BLOCK IN BYTES
3918 046712  000207                          RTS     PC                      ;RETURN
3919 046714                                  ENDTST
     046714                                                          L10052:
     046714  104401                                                          TRAP    C$ETST
3920
3921                                 .SBTTL  TEST  5: SPACE RECORDS
3922                         ;+
3923                         ;
3924                         ;THIS TEST VERIFIES THAT THE SPACE RECORDS FORWARD AND SPACE
3925                         ;RECORDS REVERSE POSITION COMMANDS OPERATE PROPERLY WHEN SPACING
3926                         ;OVER NORMAL DATA RECORDS. OPERATION WHEN SPACING OVER TAPE MARKS
3927                         ;IS VERIFIED IN A SUBSEQUENT TEST. THE BASIC WRITE DATA TEST
3928                         ;SHOULD HAVE BEEN RUN SUCCESSFULLY FOR THIS TEST TO PRODUCE MEANINGFUL
3929                         ;RESULTS. THIS TEST CONSISTS OF A SERIES OF SUBTESTS. IN EACH
3930                         ;OF THE SUBTESTS, THE TAPE IS ENTIRELY WRITTEN WITH RECORDS
3931                         ;OF VARYING SIZES AND DATA CONTENT; THE FIRST 4 BYTES OF EACH
3932                         ;RECORD INDICATE THAT RECORD'S RELATIVE POSITION ON TAPE. AFTER
3933                         ;EACH SPACING OPERATION, THE TAPE POSITION IS VERIFIED BY READING
3934                         ;THE NEXT OR PREVIOUS RECORD AND COMPARING THE POSITION DATA WITH
3935                         ;THE EXPECTED RESULT.
3936                         ;
3937                         ;
3938                         ;THE TEST CONSISTS OF THE FOLLOWING 8 SUBTESTS
```

```
3939                                    ;
3940                                    ;
3941                                    ;
3942                                    ;
3943 046716                             BGNTST
     046716                                                                  T5::
3944 046716  012737  006446  002170     MOV     #EPRT2,FPRTSW          ;SECONDARY ERROR MESSAGE
3949 046724  004737  017364             JSR     PC,KTOFF               ;DON'T NEED LOTS OF MEMORY
3950 046730  012700  055440             MOV     #T5T25ID,R0            ;ASCII MESSAGE TO IDENTIFY TEST
3951 046734  004737  016600             JSR     PC,TSTSETUP            ;DO INITIAL TEST SETUP
3952 046740  012737  000005  002206     MOV     #5,LOOPCNT             ;PERFORM 5 ITERATIONS
3953                                    ;*
3954                                    ;
3955                                    ;TEST 5, SUBTEST 1
3956                                    ;
3957                                    ;
3958                                    ;VERIFIES THAT A SPACE RECORDS FORWARD COMMAND WITH
3959                                    ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
3960                                    ;THE VOLUME CHECK (VCK) FLAG IS SET.
3961                                    ;
3962                                    ;
3963                                    ;-
3964
3965 046746                             T25LOOP:
3966 046746                             BGNSUB                         ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     046746                                                                  T5.1:
     046746  104402                                                                TRAP    C$BSUB
3967 046750  004737  055456             JSR     PC,T25REST             ;SET COMMAND PACKET
3968 046754  005037  054270             CLR     T25CNT                 ;CLEAR THE RECORD COUNTER AREA
3969 046760  004737  055550             JSR     PC,T25RT2              ;SET UP OTHER COMMAND PACKET
3970 046764  004737  055612             JSR     PC,T25RT3              ;SET UP OTHER COMMAND PACKET
3971 046770  012737  176750  054272     MOV     #65000.,T25DLY         ;SET UP LOOP COUNTER
3972
3973                                    ;*************************************************************
3974                                    ;
3975                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
3976                                    ;
3977                                    ;*************************************************************
3978
3979 046776  004737  016064     5$:     JSR     PC,SOFINIT             ;DO INITIALIZE ON CONTROLLER
3980 047002  103427                     BCS     10$                    ;BR IF INIT WAS OK
3981 047004                             DELAY   250                    ;DELAY IF REQUIRED
     047004  012727  000250                                                         MOV     #250.,(PC)+
     047010  000000                                                                 .WORD   0
     047012  013727  002116                                                         MOV     L$DLY,(PC)+
     047016  000000                                                                 .WORD   0
     047020  005367  177772                                                         DEC      6(PC)
     047024  001375                                                                 BNE     .-4
     047026  005367  177756                                                         DEC     -22(PC)
     047032  001367                                                                 BNE     .-20
3982 047034  005337  054272             DEC     T25DLY                 ;DEC DELAY COUNTER
3983 047040  001356                     BNE     5$                             ;BR, IF LOOP IS REQUIRED
3984 047042  005237  002212             INC     FATFLG                 ;BUMP COUNT
3988 047046  016501  000002             MOV     TSSR(R5),R1            ;CONTENTS OF TSSR REGISTER
3989 047052                             ERRDF   ERRNO,SFIERR,SFIMSG    ;FATAL ERROR TSSR WAS NOT OK
     047052  104455                                                                TRAP    C$ERDF
     047054  000765                                                                .WORD   501
```

```
                047056  003650                                                                  .WORD   SFIERR
                047060  012124                                                                  .WORD   SFIMSG
   3990 047062                          10$:
   3991 047062  013737  002172  054130          MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
   3992 047070  012704  054110                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
   3993
   3994                                 ;*****************************************************************
   3995                                 ;
   3996                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
   3997                                 ;
   3998                                 ;*****************************************************************
   3 99
   4000 047074  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
   4001 047100  103407                          BCS     15$                     ;BR, IF COMMAND ISSUED OK
   4002 047102  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   4006 047106  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
   4007 047110                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                047110  104456                                                                  TRAP    C$ERHRD
                047112  000766                                                                  .WORD   502
                047114  005054                                                                  .WORD   WRTMSG
                047116  012124                                                                  .WORD   SFIMSG
   4008
   4009                                 ;*****************************************************************
   4010                                 ;
   4011                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
   4012                                 ;
   4013                                 ;*****************************************************************
   4014
   4015 047120                          15$:    CKLOOP
                047120  104406                                                                  TRAP    C$CLP1
   4016 047122  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
   4017 047126  103407                          BCS     30$                     ;BR, IF NO PROBLEM
   4018 047130  010001                          MOV     R0,R1                   ;SAVE TSSR
   4019 047132  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   4023 047136                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
                047136  104456                                                                  TRAP    C$ERHRD
                047140  000767                                                                  .WORD   503
                047142  055245                                                                  .WORD   T25RWN
                047144  012136                                                                  .WORD   PKTSSR
   4024 047146                          30$:    CKLOOP                          ;LOOP IF SELECTED
                047146  104406                                                                  TRAP    C$CLP1
   4025
   4026                                 ;*****************************************************************
   4027                                 ;
   4028                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
   4029                                 ;
   4030                                 ;*****************************************************************
   4031
   4032 047150  013701  054140                  MOV     T25BFR+6,R1             ;PICK UP XST0
   4033 047154  010102                          MOV     R1,R2                   ;SET UP EXPECTED
   4034 047156  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
   4035 047162  020102                          CMP     R1,R2                   ;DOES EXP = REC D
   4036 047164  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
   4037 047166  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   4041 047172                                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                047172  104456                                                                  TRAP    C$ERHRD
                047174  000770                                                                  .WORD   504
```

```
      047176  054435                                                          .WORD   T25BOT
      047200  015564                                                          .WORD   EXPREC
 4042 047202                          40$:    CKLOOP                         ;LOOP IF SELECTED
      047202  104406                                                          TRAP    C$CLP1
 4043 047204  012703  000400                  MOV     #256.,R3               ;RECORD SIZE
 4044 047210  013737  003114  054242        MOV     FREE,T25RB             ;STARTING WRITE BUFFER ADDRESS
 4045
 4046                                 ;*************************************************************
 4047                                 ;
 4048                                 ;WRITE DATA,ACK,CVC=1 COMMAND
 4049                                 ;
 4050                                 ;*************************************************************
 4051
 4052 047216  012737  140005  054240        MOV     #140005,T25PK3         ;WRITE DATA,ACK,CVC=1 COMMAND
 4053 047224  012704  054240                  MOV     #T25PK3,R4             ;SET UP R4 WITH PACKET ADDRESS
 4054 047230                          65$:
 4055 047230  010337  054246                  MOV     R3,T25SZ               ;SET UP RECORD SIZE IN PACKET
 4056 047234  013777  054270  133652        MOV     T25CNT,@FREE           ;LOAD UP RECORD COUNTER IN WRT BUFFER
 4057 047242  062737  000001  054270        ADD     #1,T25CNT              ;GET READY FOR NEXT RECORD
 4058 047250  010465  000000                  MOV     R4,TSDB(R5)            ;ISSUE COMMAND
 4059 047254  004737  016340                  JSR     PC,WAITF               ;WAIT FOR SSR TO SET
 4060 047260  016501  000002                  MOV     TSSR(R5),R1            ;GET TSSR CONTENTS
 4061 047264  012702  000200                  MOV     #SSR,R2                ;SET UP EXPECTED
 4062 047270  020102                          CMP     R1,R2                  ;ARE THEY EQUAL
 4063 047272  001411                          BEQ     75$                    ;BR, IF OK
 4064 047274  032701  000004                  BIT     #BIT2,R1               ;CHECK FOR TAPE STATUS ALERT
 4065 047300  001014                          BNE     120$                   ;BR, IF TSA IS SET (SUSPECT IS EOT)
 4066 047302  005237  002212                  INC     FATFLG                 ;BUMP COUN
 4070 047306                                  ERRHRD  ERRNO,WRTERR,PKTSSR    ;TSSR INCORRECT AFTER WRITE DATA
      047306  104456                                                          TRAP    C$ERHRD
      047310  000771                                                          .WORD   505
      047312  005111                                                          .WORD   WRTERR
      047314  012136                                                          .WORD   PKTSSR
 4071 047316                          75$:    CKLOOP                         ;LOOP IF SELECTED
      047316  104406                                                          TRAP    C$CLP1
 4072 047320  005203                          INC     R3                     ;BUMP RECORD SIZE
 4073 047322  022703  001000                  CMP     #512.,R3               ;END OF RECORD YET
 4074 047326  001340                          BNE     65$                    ;BR, IF MORE RECORDS TO WRITE
 4075 047330  000415                          BR      125$                   ;ENOUGH RECORDS
 4076 047332                          120$:
 4077
 4078                                 ;*************************************************************
 4079                                 ;
 4080                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 4081                                 ;
 4082                                 ;*************************************************************
 4083
 4084 047332  013701  054140                  MOV     T25BFR+6,R1            ;QUICK CHECK FOR EOT SET
 4085 047336  010102                          MOV     R1,R2                  ;SET UP EXPECTED
 4086 047340  052702  000001                  BIS     #BIT0,R2               ;SET THE EOT BIT XST0
 4087 047344  020102                          CMP     R1,R2                  ;IS THE EOT BIT SET IN XST0
 4088 047346  001406                          BEQ     125$                   ;BR, IF SET (GOOD)
 4089 047350  005237  002212                  INC     FATFLG                 ;BUMP COUNT
 4093 047354                                  ERRDF   ERRNO,T25NET,EXPREC    ;DEVICE FATAL NOT EOT FOUND ETC.
      047354  104455                                                          TRAP    C$ERDF
      047356  000772                                                          .WORD   506
      047360  054571                                                          .WORD   T25NET
```

```
      047362  015564                                                        .WORD   EXPREC
 4094 047364                          125$:
 4095
 4096                                 ;*****************************************************************
 4097                                 ;
 4098                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 4099                                 ;
 4100                                 ;*****************************************************************
 4101
 4102 047364  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 4103 047370  103407                         BCS     130$                    ;BR, IF NO PROBLEM
 4104 047372  010001                         MOV     R0,R1                   ;SAVE TSSR
 4105 047374  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 4109 047400                                 ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      047400  104456                                                        TRAP    C$ERHRD
      047402  000773                                                        .WORD   507
      047404  055245                                                        .WORD   T25RWN
      047406  012136                                                        .WORD   PKTSSR
 4110 047410                          130$:   CKLOOP                         ;LOOP IF SELECTED
      047410  104406                                                        TRAP    C$CLP1
 4111 047412  012737  000007  054130         MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
 4112 047420  012704  054110                 MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 4113
 4114                                 ;*****************************************************************
 4115                                 ;
 4116                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 4117                                 ;
 4118                                 ;*****************************************************************
 4119
 4120 047424  004737  010752                 JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 4121 047430  103407                         BCS     140$                    ;BR, IF COMMAND ISSUED OK
 4122 047432  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 4126 047436  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 4127 047440                                 ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      047440  104456                                                        TRAP    C$ERHRD
      047442  000774                                                        .WORD   508
      047444  005054                                                        .WORD   WRTMSG
      047446  012124                                                        .WORD   SFIMSG
 4128 047450                          140$:   CKLOOP                         ;SCOPE LOOP
      047450  104406                                                        TRAP    C$CLP1
 4129 047452  005737  002216                 TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES
 4130 047456  001044                         BNE     160$                    ;BR IF SWITCH IS ON
 4131
 4132 047460  112737  000200  054251         MOVB    #200,T25BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
 4133 047466  112737  000010  054250         MOVB    #10,T25BS0              ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
 4134 047474  012704  054220                 MOV     #T25PK2,R4              ;WRITE SUBSYS MEM PACKET
 4135 047500  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 4136 047504  004737  016426                 JSR     PC,CHKTSSR              ;WAIT FOR SSR
 4137 047510  103407                         BCS     150$                    ;BR, IF NO ERROR
 4138 047512  010001                         MOV     R0,R1                   ;ERROR, SAVE TSSR
 4139 047514  005237  002212                 INC     FATFLG                  ;BUMP COUNT
 4143 047520                                 ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
      047520  104456                                                        TRAP    C$ERHRD
      047522  000775                                                        .WORD   509
      047524  054274                                                        .WORD   T25SSR
      047526  012136                                                        .WORD   PKTSSR
 4144 047530                          150$:   CKLOOP                         ;LOOP IF SELECTED
```

```
                047530  104406                                                          TRAP    C$CLP1
4145            047532  012737  000007  054130          MOV     #7,T25DSW               ;SET UP DRIVE NUMBER
4146            047540  012704  054110                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4147
4148                                    ;*****************************************************************
4149                                    ;
4150                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4151                                    ;
4152                                    ;*****************************************************************
4153
4154            047544  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4155            047550  103407                          BCS     160$                    ;BR. IF COMMAND ISSUED OK
4156            047552  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4160            047556  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4161            047560                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                047560  104456                                                          TRAP    C$ERHRD
                047562  000776                                                          .WORD   510
                047564  005054                                                          .WORD   WRTMSG
                047566  012124                                                          .WORD   SFIMSG
4162            047570                  160$:   CKLOOP                                  ;SCOPE LOOP
                047570  104406                                                          TRAP    C$CLP1
4163            047572  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4164            047576  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4165            047602  001006                          BNE     170$                    ;BR. IF OFFLINE (GOOD)
4166            047604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4170            047610                                  ERRDF   ERRNO,T25OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                047610  104455                                                          TRAP    C$ERDF
                047612  000777                                                          .WORD   511
                047614  055314                                                          .WORD   T25OFL
                047616  012124                                                          .WORD   SFIMSG
4171            047620                  170$:   CKLOOP                                  ;LOOP IF SELECTED
                047620  104406                                                          TRAP    C$CLP1
4172
4173                                    ;*****************************************************************
4174                                    ;
4175                                    ;SPACE FORWARD COMMAND IN PLACE
4176                                    ;
4177                                    ;*****************************************************************
4178
4179            047622  012737  140010  054240  180$:   MOV     #140010,T25PK3          ;SPACE FORWARD COMMAND IN PLACE
4180            047630  012737  000001  054242          MOV     #1,T25R8                ;NUMBER OF RECORDS TO SPACE
4181            047636  012704  054240                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4182            047642  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4183            047646  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4184            047652  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4185            047656  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
4186            047662  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4187            047664  001406                          BEQ     190$                    ;BR. IF OK ESP. FUNCTION REJECT
4188            047666  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4192            047672                                  ERRHRD  ERRNO,T25TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
                047672  104456                                                          TRAP    C$ERHRD
                047674  001000                                                          .WORD   512
                047676  054502                                                          .WORD   T25TM
                047700  012136                                                          .WORD   PKTSSR
4193            047702                  190$:   CKLOOP                                  ;LOOP IF SELECTED
                047702  104406                                                          TRAP    C$CLP1
4194            047704                          ENDSUB                                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
```

```
                                                                                L10072:
                                                                                        TRAP    C$ES 8
4195 047706  023727  002212  000017          CMP     FATFLG,#15.                    ;IS ERROR COUNT AT 25
4196 047714  103402                          BLO     999$                           ;BR, IF LESS THAN 25
4197 047716  004737  017272                  JSR     PC,CKDROP                      ;TRY TO DROP THE UNIT
4198 047722                          999$:
4199
4200                                 ;*
4201                                 ;
4202                                 ;TEST 5, SUBTEST 2
4203                                 ;
4204                                 ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND WITH
4205                                 ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
4206                                 ;THE VOLUME CKECK (VCK) FLAG IS SET.
4207                                 ;
4208                                 ;
4209                                 ;
4210                                 ;
4211 047722                          BGNSUB                                 ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                        T5.2:
                                                                                        TRAP    C$BSUB
4212 047726  004737  055456                  JSR     PC,T25REST                     ;SET COMMAND PACKET
4213 047732  004737  055612                  JSR     PC,T25RT3                      ;SET UP OTHER COMMAND PACKET
4214 047736  004737  055550                  JSR     PC,T25RT2                      ;SET UP OTHER COMMAND PACKET

4216                                 ;*****************************************************************
4217                                 ;
4218                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
4219                                 ;
4220                                 ;*****************************************************************
4221
4222 047740  004737  016064                  JSR     PC,SOFINIT                     ;DO INITIALIZE ON CONTROLLER
4223 047744  103407                          BCS     10$                            ;BR IF INIT WAS OK
4224 047746  005237  002212                  INC     FATFLG                         ;BUMP COUNT
4228 047752  010001                          MOV     R0,R1                          ;CONTENTS OF TSSR REGISTER
4229 047754                                  ERRDF   ERRNO,SFIERR,SFIMSG            ;FATAL ERROR TSSR WAS NOT OK
                                                                                        TRAP    C$ERDF
                                                                                        .WORD   513
                                                                                        .WORD   SFIERR
                                                                                        .WORD   SFIMSG
4230 047764  012737  000007  054130  10$:    MOV     #7,T25DSW                      ;SET UP DRIVE NUMBER
4231
4232 047772  012704  054110                  MOV     #T25PACKET,R4                  ;SUBROUTINE NEEDS PACKET ADDRESS
4233
4234                                 ;*****************************************************************
4235                                 ;
4236                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4237                                 ;
4238                                 ;*****************************************************************
4239
4240 047776  004737  010752                  JSR     PC,WRTCHR                      ;ISSUE WRITE CHARACTERISTICS
4241 050002  103407                          BCS     15$                            ;BR, IF COMMAND ISSUED OK
4242 050004  005237  002212                  INC     FATFLG                         ;BUMP COUNT
4246 050010  010001                          MOV     R0,R1                          ;SAVE CONTENTS OF TSSR
4247 050012                                  ERRHRD  ERRNO,WRTMSC,SFIMSG            ;WRITE CHARACTERISTISC FAILED
                                                                                        TRAP    C$ERHRD
                                                                                        .WORD   514
```

```
      050016  005054                                                        .WORD   WRTMSG
      050020  012124                                                        .WORD   SFIMSG
 4248
 4249                           ;*****************************************************************
 4250                           ;
 4251                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 4252                           ;
 4253                           ;*****************************************************************
 4254
 4255 050022                   15$:    CKLOOP
      050022  104406                                                        TRAP    C$CLP1
 4256 050024  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 4257 050030  103407                    BCS     30$                     ;BR, IF NO PROBLEM
 4258 050032  010001                    MOV     R0,R1                   ;SAVE TSSR
 4259 050034  005237  002212            INC     FATFLG                  ;BUMP COUNT
 4263 050040                            ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      050040  104456                                                        TRAP    C$ERHRD
      050042  001003                                                        .WORD   515
      050044  055245                                                        .WORD   T25RWN
      050046  012136                                                        .WORD   PKTSSR
 4264 050050                   30$:    CKLOOP                          ;LOOP IF SELECTED
      050050  104406                                                        TRAP    C$CLP1
 4265 050052  005737  002216    140$:   TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
 4266 050056  001044                    BNE     160$                    ;BR IF SWITCH IS ON
 4267
 4268 050060  112737  000200  054251            MOVB    #200,T25BS1     ;WRITE MISCELLANEOUS CONT/READ STATUS
 4269 050066  112737  000010  054250            MOVB    #10,T25BS0      ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
 4270 050074  012704  054220                    MOV     #T25PK2,R4      ;WRITE SUBSYS MEM PACKET
 4271 050100  010465  000000                    MOV     R4,TSDB(R5)     ;ISSUE COMMAND
 4272 050104  004737  016426                    JSR     PC,CHKTSSR      ;WAIT FOR SSR
 4273 050110  103407                    BCS     150$                    ;BR, IF NO ERROR
 4274 050112  010001                    MOV     R0,R1                   ;ERROR, SAVE TSSR
 4275 050114  005237  002212            INC     FATFLG                  ;BUMP COUNT
 4279 050120                            ERRHRD  ERRNO,T25SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT, MISCELLANEOUS
      050120  104456                                                        TRAP    C$ERHRD
      050122  001004                                                        .WORD   516
      050124  054274                                                        .WORD   T25SSR
      050126  012136                                                        .WORD   PKTSSR
 4280 050130                   150$:   CKLOOP                          ;LOOP IF SELECTED
      050130  104406                                                        TRAP    C$CLP1
 4281 050132  012737  000007  054130            MOV     #7,T25DSW       ;SET UP DRIVE NUMBER
 4282 050140  012704  054110                    MOV     #T25PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
 4283
 4284                           ;*****************************************************************
 4285                           ;
 4286                           ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 4287                           ;
 4288                           ;*****************************************************************
 4289
 4290 050144  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 4291 050150  103407                    BCS     160$                    ;BR, IF COMMAND ISSUED OK
 4292 050152  005237  002212            INC     FATFLG                  ;BUMP COUNT
 4296 050156  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 4297 050160                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      050160  104456                                                        TRAP    C$ERHRD
      050162  001005                                                        .WORD   517
      050164  005054                                                        .WORD   WRTMSG
```

```
                050166  012124                                                          .WORD   SFIMSG
4298            050170                          1608:   CKLOOP                          ;SCOPE LOOP
                050170  104406                                                          TRAP    C$CLP1
4299            050172  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4300            050176  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
4301            050202  001006                          BNE     1708                    ;BR, IF OFFLINE (GOOD)
4302            050204  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4306            050210                                  ERRDF   ERRNO,T25OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                050210  104455                                                          TRAP    C$ERDF
                050212  001006                                                          .WORD   518
                050214  055314                                                          .WORD   T25OFL
                050216  012124                                                          .WORD   SFIMSG
4307            050220                          1708:   CKLOOP                          ;LOOP IF SELECTED
                050220  104406                                                          TRAP    C$CLP1
4308
4309                                            ;*****************************************************************
4310                                            ;
4311                                            ;SPACE REVERSE COMMAND IN PLACE
4312                                            ;
4313                                            ;*****************************************************************
4314
4315            050222  012737  100410  054240  1808:   MOV     #100410,T25PK3          ;SPACE REVERSE COMMAND IN PLACE
4316            050230  012737  000001  054242          MOV     #1,T25R8                ;NUMBER OF RECORDS TO SPACE
4317            050236  012704  054240                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4318            050242  010465  000000                  MOV     R4,TSD8(R5)             ;ISSUE COMMAND
4319            050246  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4320            050252  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4321            050256  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
4322            050262  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4323            050264  001406                          BEQ     1908                    ;BR, IF OK ESP. FUNCTION REJECT
4324            050266  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4328            050272                                  ERRHRD  ERRNO,T25TM,PKTSSR      ;TSSR INCORRECT AFTER TAPE MOTION CMD
                050272  104456                                                          TRAP    C$ERHRD
                050274  001007                                                          .WORD   519
                050276  054502                                                          .WORD   T25TM
                050300  012136                                                          .WORD   PKTSSR
4329            050302                          1908:   CKLOOP                          ;LOOP IF SELECTED
                050302  104406                                                          TRAP    C$CLP1
4330            050304                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                050304                                                                      L10073:
                050304  104403                                                          TRAP    C$ESUB
4331            050306  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4332            050314  103402                          BLO     9998                            ;BR, IF LESS THAN 25
4333            050316  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4334            050322                          9998:
4335
4336                                            ;*
4337                                            ;
4338                                            ;TEST 5, SUBTEST 3
4339                                            ;
4340                                            ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE
4341                                            ;RECORD OFF BOT AND CAUSES BOT STATUS TO BE CLEARED.
4342                                            ;
4343                                            ;
4344                                            ;
4345                                            ;
4346            050322                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
```

```
                                                                                T5.3:
      050322  104402                                                                TRAP    C$BSUB
4347  050324  004737  055456                JSR     PC,T25REST          ;SET COMMAND PACKET
4348  050330  004737  055550                JSR     PC,T25RT2           ;SET UP OTHER COMMAND PACKET
4349  050334  004737  055612                JSR     PC,T25RT3           ;SET UP OTHER COMMAND PACKET
4350
4351                                ;*****************************************************************
4352                                ;
4353                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4354                                ;
4355                                ;*****************************************************************
4356
4357  050340  004737  016064                JSR     PC,SOFINIT          ;DO INITIALIZE ON CONTROLLER
4358  050344  103407                        BCS     10$                 ;BR IF INIT WAS OK
4359  050346  005237  002212                INC     FATFLG              ;BUMP COUNT
4363  050352  010001                        MOV     R0,R1               ;CONTENTS OF TSSR REGISTER
4364  050354                                ERRDF   ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
      050354  104455                                                            TRAP    C$ERDF
      050356  001010                                                            .WORD   520
      050360  003650                                                            .WORD   SFIERR
      050362  012124                                                            .WORD   SFIMSG
4365  050364  013737  002172  054130  10$:   MOV     UNITN,T25DSW        ;SET UP DRIVE NUMBER
4366
4367  050372  012704  054110                MOV     #T25PACKET,R4       ;SUBROUTINE NEEDS PACKET ADDRESS
4368
4369                                ;*****************************************************************
4370                                ;
4371                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4372                                ;
4373                                ;*****************************************************************
4374
4375  050376  004737  010752                JSR     PC,WRTCHR           ;ISSUE WRITE CHARACTERISTICS
4376  050402  103407                        BCS     15$                 ;BR, IF COMMAND ISSUED OK
4377  050404  005237  002212                INC     FATFLG              ;BUMP COUNT
4381  050410  010001                        MOV     R0,R1               ;SAVE CONTENTS OF TSSR
4382  050412                                ERRHRD  ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTISC FAILED
      050412  104456                                                            TRAP    C$ERHRD
      050414  001011                                                            .WORD   521
      050416  005054                                                            .WORD   WRTMSG
      050420  012124                                                            .WORD   SFIMSG
4383
4384                                ;*****************************************************************
4385                                ;
4386                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4387                                ;
4388                                ;*****************************************************************
4389
4390  050422                        15$:    CKLOOP
      050422  104406                                                            TRAP    C$CLP1
4391  050424  004737  011104                JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
4392  050430  103407                        BCS     30$                 ;BR, IF NO PROBLEM
4393  050432  010001                        MOV     R0,R1               ;SAVE TSSR
4394  050434  005237  002212                INC     FATFLG              ;BUMP COUNT
4398  050440                                ERRHRD  ERRNO,T25RWN,PKTSSR ;REWIND NOT ACCEPTED
      050440  104456                                                            TRAP    C$ERHRD
      050442  001012                                                            .WORD   522
      050444  055245                                                            .WORD   T25RWN
```

```
                050446  012136                                                          .WORD   PKTSSR
4399            050450                  30$:    CKLOOP                  ;LOOP IF SELECTED
                050450  104406                                                          TRAP    C$CLP1
4400
4401                                    ;*******************************************************************
4402                                    ;
4403                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4404                                    ;
4405                                    ;*******************************************************************
4406
4407 050452    013701  054140                    MOV     T25BFR+6,R1             ;PICK UP XST0
4408 050456    010102                          MOV     R1,R2                   ;SET UP EXPECTED
4409 050460    052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4410 050464    020102                          CMP     R1,R2                   ;DOES EXP = REC'D
4411 050466    001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
4412 050470    005237  002212                  INC     FATFLG                  ;BUMP COUNT
4416 050474                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                050474  104456                                                          TRAP    C$ERHRD
                050476  001013                                                          .WORD   523
                050500  054435                                                          .WORD   T25BOT
                050502  015564                                                          .WORD   EXPREC
4417 050504                     40$:    CKLOOP                  ;LOOP IF SELECTED
                050504  104406                                                          TRAP    C$CLP1
4418 050506    012737  000001  054242            MOV     #000001,T25R8           ;NUMBER OF RECORDS TO SPACE OVER
4419
4420                                    ;*******************************************************************
4421                                    ;
4422                                    ;SPACE FORWARD,ACK,CVC=1 COMMAND
4423                                    ;
4424                                    ;*******************************************************************
4425
4426 050514    012737  140010  054240            MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4427 050522    012704  054240                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4428 050526                     65$:
4429 050526    010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4430 050532    004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4431 050536    016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4432 050542    012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4433 050546    020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4434 050550    001411                          BEQ     75$                     ;BR, IF OK
4435 050552    032701  000004                  BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4436 050556    001006                          BNE     75$                     ;BR, IF TSA IS SET (SUSPECT IS EOT)
4437 050560    005237  002212                  INC     FATFLG                  ;BUMP COUNT
4441 050564                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
                050564  104456                                                          TRAP    C$ERHRD
                050566  001014                                                          .WORD   524
                050570  054355                                                          .WORD   T25WDE
                050572  015564                                                          .WORD   EXPREC
4442 050574                     75$:    CKLOOP                  ;LOOP IF SELECTED
                050574  104406                                                          TRAP    C$CLP1
4443 050576                     120$:
4444
4445                                    ;*******************************************************************
4446                                    ;
4447                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4448                                    ;
4449                                    ;*******************************************************************
```

```
4450
4451 050576  013701  054140                MOV     T25BFR+6,R1             ;QUICK CHECK FOR BOT SET
4452 050602  010102                        MOV     R1,R2                   ;SET UP EXPECTED
4453 050604  042702  000002                BIC     #BIT1,R2                ;CLEAR THE BOT BIT (XSTO)
4454 050610  020102                        CMP     R1,R2                   ;IS THE EOT BIT SET IN XSTO
4455 050612  001406                        BEQ     125$                    ;BR, IF SET (GOOD)
4456 050614  005237  002212                INC     FATFLG                  ;BUMP COUNT
4460 050620                                ERRHRD  ERRNO,T25BNC,EXPREC     ;BOT NOT CLEARED AFTER SPACE FROM BOT
     050620  104456                                                                TRAP    C$ERHRD
     050622  001015                                                                .WORD   525
     050624  054730                                                                .WORD   T25BNC
     050626  015564                                                                .WORD   EXPREC
4461 050630                        125$:   CKLOOP                                  TRAP    C$CLP1
     050630  104406
4462 050632  004737  055612                JSR     PC,T25RT3               ;CLEAN UP PACKET
4463 050636  012737  000401  054246        MOV     #257.,T25SZ             ;SET THE CORRECT SIZE UP
4464
4465                               ;*****************************************************************
4466                               ;
4467                               ;READ DATA COMMAND IN PLACE
4468                               ;
4469                               ;*****************************************************************
4470
4471 050644  012737  140001  054240        MOV     #140001,T25PK3          ;READ DATA COMMAND IN PLACE
4472 050652  013737  003114  054242        MOV     FREE,T25RB              ;READ BUFFER ADDRESS TO PACKET
4473 050660  012704  054240                MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4474 050664  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4475 050670  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSP TO SET
4476 050674  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4477 050700  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4478 050704  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4479 050706  001406                        BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
4480 050710  005237  002212                INC     FATFLG                  ;BUMP COUNT
4484 050714                                ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA CMD
     050714  104456                                                                TRAP    C$ERHRD
     050716  001016                                                                .WORD   526
     050720  005204                                                                .WORD   RDERR
     050722  012136                                                                .WORD   PKTSSR
4485 050724                        190$:   CKLOOP                          ;LOOP IF SELECTED
     050724  104406                                                                TRAP    C$CLP1
4486 050726  017701  132162                MOV     @FREE,R1                ;GET FIRST WORD FROM BUFFER
4487 050732  012702  000001                MOV     #1,R2                   ;SET UP EXPECTED
4488 050736  020102                        CMP     R1,R2                   ;WAS RECORD NUMBERED 1
4489 050740  001406                        BEQ     200$                    ;BR, IF CORRECT RECORD
4490 050742  005237  002212                INC     FATFLG                  ;BUMP COUNT
4494 050746                                ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     050746  104456                                                                TRAP    C$ERHRD
     050750  001017                                                                .WORD   527
     050752  054645                                                                .WORD   T25WNG
     050754  015564                                                                .WORD   EXPREC
4495 050756                        200$:   CKLOOP                                  TRAP    C$CLP1
     050756  104406
4496 050760                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     050760                                                                     L10074:
     050760  104403                                                                TRAP    C$ESUB
4497 050762  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4498 050770  103402                        BLO     999$                            ;BR, IF LESS THAN 25
```

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4499 050772  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4500 050776                        999$:
4501
4502                                   ;*
4503                                   ;
4504                                   ;TEST 5, SUBTEST 4
4505                                   ;
4506                                   ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE BACK
4507                                   ;OVER THE FIRST RECORD ON TAPE.
4508                                   ;
4509                                   ;
4510                                   ;
4511
4512 050776                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     050776                                                                    T5.4:
     050776  104402                                                                TRAP    C$BSUB
4513 051000  004737  055456            JSR     PC,T25REST              ;SET COMMAND PACKET
4514 051004  004737  055550            JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4515 051010  004737  055612            JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4516
4517                                   ;*********************************************************************
4518                                   ;
4519                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4520                                   ;
4521                                   ;*********************************************************************
4522
4523 051014  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4524 051020  103407                    BCS     20$                     ;BR IF INIT WAS OK
4525 051022  005237  002212            INC     FATFLG                  ;BUMP COUNT
4529 051026  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
4530 051030                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     051030  104455                                                                TRAP    C$ERDF
     051032  001020                                                                .WORD   528
     051034  003650                                                                .WORD   SFIERR
     051036  012124                                                                .WORD   SFIMSG
4531 051040  013737  002172  054130  20$:    MOV     UNITN,T25DSW            ;SET UP DRIVE NUMBER
4532
4533 051046  012704  054110            MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4534
4535                                   ;*********************************************************************
4536                                   ;
4537                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4538                                   ;
4539                                   ;*********************************************************************
4540
4541 051052  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4542 051056  103407                    BCS     25$                     ;BR, IF COMMAND ISSUED OK
4543 051060  005237  002212            INC     FATFLG                  ;BUMP COUNT
4547 051064  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4548 051066                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     051066  104456                                                                TRAP    C$ERHRD
     051070  001021                                                                .WORD   529
     051072  005054                                                                .WORD   WRTMSG
     051074  012124                                                                .WORD   SFIMSG
4549 051076                    25$:    CKLOOP                          ;LOOP IF SELECTED
     051076  104406                                                                TRAP    C$CLP1
4550
```

```
4551                                    ;*****************************************************************
4552                                    ;
4553                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4554                                    ;
4555                                    ;*****************************************************************
4556
4557 051100  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4558 051104  103407                            BCS     30$                     ;BR, IF NO PROBLEM
4559 051106  010001                            MOV     R0,R1                   ;SAVE TSSR
4560 051110  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4564 051114                                    ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     051114  104456                                                            TRAP    C$ERHRD
     051116  001022                                                            .WORD   530
     051120  055245                                                            .WORD   T25RWN
     051122  012136                                                            .WORD   PKTSSR
4565 051124                            30$:    CKLOOP                          ;LOOP IF SELECTED
     051124  104406                                                            TRAP    C$CLP1
4566
4567                                    ;*****************************************************************
4568                                    ;
4569                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4570                                    ;
4571                                    ;*****************************************************************
4572
4573 051126  013701  054140                    MOV     T25BFR+6,R1             ;PICK UP XST0
4574 051132  010102                            MOV     R1,R2                   ;SET UP EXPECTED
4575 051134  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4576 051140  020102                            CMP     R1,R2                   ;DOES EXP = REC D
4577 051142  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
4578 051144  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4582 051150                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     051150  104456                                                            TRAP    C$ERHRD
     051152  001023                                                            .WORD   531
     051154  054435                                                            .WORD   T25BOT
     051156  015564                                                            .WORD   EXPREC
4583 051160                            40$:    CKLOOP                          ;LOOP IF SELECTED
     051160  104406                                                            TRAP    C$CLP1
4584
4585                                    ;*****************************************************************
4586                                    ;
4587                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
4588                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
4589                                    ;
4590                                    ;*****************************************************************
4591
4592 051162  012703  000001                    MOV     #000001,R3              ;NUMBER OF RECORDS TO SPACE FORWARD
4593 051166  004737  010556                    JSR     PC,SPACE                ;CALL SPACE COMMAND
4594 051172  103410                            BCS     50$                     ;CHECK FOR ERROR
4595 051174  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4596 051200  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4600 051204                                    ERRHRD  ERRNO,T25WDE,SFFMSG     ;SPACE FORWARD FAILED
     051204  104456                                                            TRAP    C$ERHRD
     051206  001024                                                            .WORD   532
     051210  054355                                                            .WORD   T25WDE
     051212  012172                                                            .WORD   SFFMSG
4601 051214                            50$:    CKLOOP                          ;LOOP IF SELECTED
     051214  104406                                                            TRAP    C$CLP1
```

```
4602 051216  012737  000001  054242          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4603
4604                                 ;*************************************************************************
4605                                 ;
4606                                 ;SPACE REVERSE,ACK,CVC=1 COMMAND
4607                                 ;
4608                                 ;*************************************************************************
4609
4610 051224  012737  140410  054240          MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
4611 051232  012704  054240                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4612 051236                          65$:
4613 051236  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4614 051242  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4615 051246  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4616 051252  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4617 051256  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4618 051260  001406                          BEQ     75$                     ;BR. IF OK
4619 051262  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4623 051266                                  ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     051266  104456                                                                  TRAP    C$ERHRD
     051270  001025                                                                  .WORD   533
     051272  054355                                                                  .WORD   T25WDE
     051274  012136                                                                  .WORD   PKTSSR
4624 051276                          75$:    CKLOOP                          ;LOOP IF SELECTED
     051276  104406                                                                  TRAP    C$CLP1
4625 051300                          120$:
4626 051300  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
4627 051304  013737  003114  054242          MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4628
4629                                 ;*************************************************************************
4630                                 ;
4631                                 ;READ DATA,ACK,CVC=1 COMMAND
4632                                 ;
4633                                 ;*************************************************************************
4634
4635 051312  012737  140001  054240          MOV     #140001,T25PK3          ;READ DATA,ACK,CVC=1 COMMAND
4636 051320  012704  054240          165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4637 051324  010337  054246                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4638 051330  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4639 051334  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4640 051340  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4641 051344  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4642 051350  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4643 051352  001406                          BEQ     170$                    ;BR. IF OK
4644 051354  005237  002212                  INC     FATFLG                  ;BUMP COUNT
4648 051360                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     051360  104456                                                                  TRAP    C$ERHRD
     051362  001026                                                                  .WORD   534
     051364  005204                                                                  .WORD   RDERR
     051366  012136                                                                  .WORD   PKTSSR
4649 051370                          170$:   CKLOOP                          ;LOOP IF SELECTED
     051370  104406                                                                  TRAP    C$CLP1
4650 051372  017701  131516                  MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4651 051376  012702  000000                  MOV     #0,R2                   ;SET UP EXPECTED
4652 051402  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED 1
4653 051404  001406                          BEQ     200$                    ;BR. IF CORRECT RECORD
4654 051406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
```

```
4658 051412                            ERRHRD  FRRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     051412  104456                                                                  TRAP    C$ERHRD
     051414  001027                                                                  .WORD   535
     051416  054645                                                                  .WORD   T25WNG
     051420  015564                                                                  .WORD   EXPREC
4659 051422                     200$:  CKLOOP
     051422  104406                                                                  TRAP    C$CLP1
4660 051424                            ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     051424                                                                      L10075:
     051424  104403                                                                  TRAP    C$ESUB
4661 051426  023727  002212  000017         CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
4662 051434  103402                         BLO     999$                            ;BR, IF LESS THAN 25
4663 051436  004737  017272                 JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4664 051442                     999$:
4665
4666                            ;+
4667                            ;
4668                            ;TEST 5, SUBTEST 5
4669                            ;
4670                            ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE A
4671                            ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
4672                            ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE,
4673                            ;WHICH EVER IS LESS.
4674                            ;
4675                            ;
4676                            ;
4677                            ;
4678
4679 051442                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     051442                                                                      T5.5:
     051442  104402                                                                  TRAP    C$BSUB
4680 051444  004737  055456                 JSR     PC,T25REST                      ;SET COMMAND PACKET
4681 051450  004737  055550                 JSR     PC,T25RT2                       ;SET UP OTHER COMMAND PACKET
4682 051454  004737  055612                 JSR     PC,T25RT3                       ;SET UP OTHER COMMAND PACKET
4683 051460  013737  054270  054266         MOV     T25CNT,T25CN2                   ;HOLD NUMBER OF RECORDS
4684 051466  162737  000002  054266         SUB     #2,T25CN2                       ;ACTUAL NUMBER OF RECORDS ON TAPE
4685 051474  013737  054270  054272         MOV     T25CNT,T25DLY                   ;SET UP REWIND DELAY COUNTER
4686
4687                            ;*****************************************************************
4688                            ;
4689                            ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4690                            ;
4691                            ;*****************************************************************
4692
4693 051502  004737  016064     10$:        JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
4694 051506  103427                         BCS     20$                             ;BR IF INIT WAS OK
4695 051510                                 DELAY   250                             ;WAIT ABOUT .25 SECONDS
     051510  012727  000250                                                              MOV     #250,(PC)+
     051514  000000                                                                      .WORD   0
     051516  013727  002116                                                              MOV     L$DLY,(PC)+
     051522  000000                                                                      .WORD   0
     051524  005367  177772                                                              DEC     -6(PC)
     051530  001375                                                                      BNE     .-4
     051532  005367  177756                                                              DEC     -22(PC)
     051536  001367                                                                      BNE     .-20
4696 051540  005337  054272                 DEC     T25DLY                          ;DEC COUNTER
4697 051544  001356                         BNE     10$                             ;BR, IF MORE LOOPS REQUIRED
```

```
4698 051546  016501  000002                MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
4699 051552  005237  002212                INC     FATFLG                  ;BUMP COUNT
4703 051556                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     051556  104455                                                                TRAP    C$ERDF
     051560  001030                                                                .WORD   536
     051562  003650                                                                .WORD   SFIERR
     051564  012124                                                                .WORD   SFIMSG
4704 051566                          20$:
4705 051566  013737  002172  054130            MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
4706 051574  012704  054110                    MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4707
4708                                 ;*****************************************************************
4709                                 ;
4710                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4711                                 ;
4712                                 ;*****************************************************************
4713
4714 051600  004737  010752                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4715 051604  103407                            BCS     25$                     ;BR. IF COMMAND ISSUED OK
4716 051606  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4720 051612  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4721 051614                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     051614  104456                                                                TRAP    C$ERHRD
     051616  001031                                                                .WORD   537
     051620  005054                                                                .WORD   WRTMSG
     051622  012124                                                                .WORD   SFIMSG
4722 051624                          25$:    CKLOOP                          ;LOOP IF SELECTED
     051624  104406                                                                TRAP    C$CLP1
4723
4724                                 ;*****************************************************************
4725                                 ;
4726                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4727                                 ;
4728                                 ;*****************************************************************
4729
4730 051626  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4731 051632  103407                            BCS     30$                     ;BR. IF NO PROBLEM
4732 051634  010001                            MOV     R0,R1                   ;SAVE TSSR
4733 051636  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4737 051642                                    ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     051642  104456                                                                TRAP    C$ERHRD
     051644  001032                                                                .WORD   538
     051646  055245                                                                .WORD   T25RWN
     051650  012136                                                                .WORD   PKTSSR
4738 051652                          30$:    CKLOOP                          ;LOOP IF SELECTED
     051652  104406                                                                TRAP    C$CLP1
4739 051654  013701  054266                    MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
4740 051660  012702  177776                    MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
4741 051664  020201                            CMP     R2,R1                   ;WHICH VALUE CAN WE USE
4742 051666  003002                            BGT     46$                     ;BR. IF # WRITTEN > 64K
4743 051670  010103                            MOV     R1,R3                   ;# WRITTEN CAN BE USED
4744 051672  000401                            BR      47$                     ;MOVE ON
4745 051674  010203                    46$:    MOV     R2,R3                   ;USE MAX NUMBER
4746 051676  162703  000001            47$:    SUB     #1,R3                   ;DON'T GO ALL THE WAY YET
4747 051702  010337  054242                    MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4748
4749                                 ;*****************************************************************
```

```
4750                                    ;
4751                                    ;SPACE FORWARD,ACK,CVC=1 COMMAND
4752                                    ;
4753                                    ;*****************************************************************
4754
4755 051706  012737  140010  054240            MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4756 051714  012704  054240                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4757 051720                              65$:
4758 051720  013737  054266  054272            MOV     T25CN2,T25DLY           ;NUMBER OF RECORDS USED AS DELAY COUNTER
4759 051726  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4760 051732  004737  016340            67$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4761 051736  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4762 051742  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
4763 051746  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
4764 051750  001425                            BEQ     75$                     ;BR, IF OK
4765 051752                                    DELAY   250                     ;DELAY .25 SECONDS
     051752  012727  000250                                                            MOV     #250,(PC)+
     051756  000000                                                                    .WORD   0
     051760  013727  002116                                                            MOV     L$DLY,(PC)+
     051764  000000                                                                    .WORD   0
     051766  005367  177772                                                            DEC      6(PC)
     051772  001375                                                                    BNE     .-4
     051774  005367  177756                                                            DEC      22(PC)
     052000  001367                                                                    BNE     .-20
4766 052002  005337  054272                    DEC     T25DLY                  ;BUMP DOWN COUNTER
4767 052006  001351                            BNE     67$                     ;BR, IF NOT AT END OF DELAY
4768 052010  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4772 052014                                    ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     052014  104456                                                                    TRAP    C$ERHRD
     052016  001033                                                                    .WORD   539
     052020  054355                                                                    .WORD   T25WDE
     052022  012136                                                                    .WORD   PKTSSR
4773 052024                              75$:    CKLOOP                          ;LOOP IF SELECTED
     052024  104406                                                                    TRAP    C$CLP1
4774 052026  012703  010000                    MOV     #4096.,R3               ;RECORD SIZE
4775 052032  013737  003114  054242            MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4776
4777                                    ;*****************************************************************
4778                                    ;
4779                                    ;READ DATA,ACK COMMAND
4780                                    ;
4781                                    ;*****************************************************************
4782
4783 052040  012737  100001  054240            MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4784 052046  012704  054240            165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4785 052052  010337  054246                    MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4786 052056  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4787 052062  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4788 052066  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4789 052072  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
4790 052076  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
4791 052100  001411                            BEQ     170$                    ;BR, IF OK
4792 052102  032701  000004                    BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4793 052106  001006                            BNE     170$                    ;IF SET ALL IS WELL
4794 052110  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4798 052114                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     052114  104456                                                                    TRAP    C$ERHRD
```

```
        052116  001034                                                          .WORD   540
        052120  005204                                                          .WORD   RDERR
        052122  012136                                                          .WORD   PKTSSR
  4799  052124                          170$:   CKLOOP                  ;LOOP IF SELECTED
        052124  104406                                                          TRAP    C$CLP1
  4800  052126  017701  130762                  MOV     @FREE,R1                ;GET FIRST WORD FROM BUFFER
  4801  052132  013702  054266                  MOV     T25CN2,R2               ;SET UP EXPECTED
  4802  052136  162702  000001                  SUB     #1,R2           ;SHOULD BE LAST RECORD
  4803  052142  020102                          CMP     R1,R2           ;WAS RECORD NUMBERED R3
  4804  052144  001406                          BEQ     200$            ;BR, IF CORRECT RECORD
  4805  052146  005237  002212                  INC     FATFLG          ;BUMP COUNT
  4809  052152                                  ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
        052152  104456                                                          TRAP    C$ERHRD
        052154  001035                                                          .WORD   541
        052156  054645                                                          .WORD   T25WNG
        052160  015564                                                          .WORD   EXPREC
  4810  052162                          200$:   CKLOOP
        052162  104406                                                          TRAP    C$CLP1
  4811  052164                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        052164                                                                  L10076:
        052164  104403                                                          TRAP    C$ESUB
  4812  052166  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
  4813  052174  103402                          BLO     999$            ;BR, IF LESS THAN 25
  4814  052176  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
  4815  052202                          999$:
  4816
  4817                                  ;*
  4818                                  ;
  4819                                  ;TEST 5, SUBTEST 6
  4820                                  ;
  4821                                  ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE A
  4822                                  ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
  4823                                  ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE
  4824                                  ;WHICH EVER IS LESS.
  4825                                  ;
  4826                                  ;
  4827                                  ;
  4828                                  ;
  4829  052202                                  BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
        052202                                                                  T5.6:
        052202  104402                                                          TRAP    C$BSUB
  4830  052204  004737  055456                  JSR     PC,T25REST              ;SET COMMAND PACKET
  4831  052210  013737  054270  054266          MOV     T25CNT,T25CN2           ;SET UP RECORD COUNTER
  4832  052216  004737  055550                  JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
  4833  052222  004737  055612                  JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
  4834  052226  013737  054270  054272          MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER
  4835
  4836                                  ;*****************************************************************
  4837                                  ;
  4838                                  ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
  4839                                  ;
  4840                                  ;*****************************************************************
  4841
  4842  052234  004737  016064          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
  4843  052240  103427                          BCS     20$             ;BR IF INIT WAS OK
  4844  052242                                  DELAY   250             ;WAIT ABOUT .25 SECONDS
        052242  012727  000250                                                  MOV     #250,(PC)+
```

```
        052246  000000                                                          .WORD   0
        052250  013727  002116                                                  MOV     L$DLY,(PC)+
        052254  000000                                                          .WORD   0
        052256  005367  177772                                                  DEC     6(PC)
        052262  001375                                                          BNE     .-4
        052264  005367  177756                                                  DEC     -22(PC)
        052270  001367                                                          BNE     .-20
4845    052272  005337  054272          DEC     T25DLY                  ;DEC COUNTER
4846    052276  001356                  BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
4847    052300  016501  000002          MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
4848    052304  005237  002212          INC     FATFLG                  ;BUMP COUNT
4852    052310                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        052310  104455                                                          TRAP    C$ERDF
        052312  001036                                                          .WORD   542
        052314  003650                                                          .WORD   SFIERR
        052316  012124                                                          .WORD   SFIMSG
4853    052320  013737  002172  054130  20$:    MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
4854
4855    052326  012704  054110          MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4856
4857                            ;*****************************************************************
4858                            ;
4859                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4860                            ;
4861                            ;*****************************************************************
4862
4863    052332  004737  010752          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
4864    052336  103407                  BCS     25$                     ;BR, IF COMMAND ISSUED OK
4865    052340  005237  002212          INC     FATFLG                  ;BUMP COUNT
4869    052344  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
4870    052346                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        052346  104456                                                          TRAP    C$ERHRD
        052350  001037                                                          .WORD   543
        052352  005054                                                          .WORD   WRTMSG
        052354  012124                                                          .WORD   SFIMSG
4871    052356                  25$.    CKLOOP                          ;LOOP IF SELECTED
        052356  104406                                                          TRAP    C$CLP1
4872
4873                            ;*****************************************************************
4874                            ;
4875                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4876                            ;
4877                            ;*****************************************************************
4878
4879    052360  004737  011104          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4880    052364  103407                  BCS     30$                     ;BR, IF NO PROBLEM
4881    052366  010001                  MOV     R0,R1                   ;SAVE TSSR
4882    052370  005237  002212          INC     FATFLG                  ;BUMP COUNT
4886    052374                          ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
        052374  104456                                                          TRAP    C$ERHRD
        052376  001040                                                          .WORD   544
        052400  055245                                                          .WORD   T25RWN
        052402  012136                                                          .WORD   PKTSSR
4887    052404                  30$:    CKLOOP                          ;LOOP IF SELECTED
        052404  104406                                                          TRAP    C$CLP1
4888
4889                            ;*****************************************************************
```

```
4890                                    ;
4891                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4892                                    ;
4893                                    ;*****************************************************************
4894
4895 052406  013701  054140                    MOV     T25BFR+6,R1             ;PICK UP XST0
4896 052412  010102                            MOV     R1,R2                   ;SET UP EXPECTED
4897 052414  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4898 052420  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
4899 052422  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
4900 052424  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4904 052430                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     052430  104456                                                            TRAP    C$ERHRD
     052432  001041                                                            .WORD   545
     052434  054435                                                            .WORD   T25BOT
     052436  015564                                                            .WORD   EXPREC
4905 052440                            40$:    CKLOOP                          ;LOOP IF SELECTED
     052440  104406                                                            TRAP    C$CLP1
4906 052442  013701  054266                    MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
4907 052446  012702  177776                    MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
4908 052452  020201                            CMP     R2,R1                   ;WHICH VALUE CAN WE USE
4909 052454  003002                            BGT     46$                     ;BR, IF # WRITTEN > 64K
4910 052456  010103                            MOV     R1,R3                   ;# WRITTEN CAN BE USED
4911 052460  000401                            BR      47$                     ;MOVE ON
4912 052462  010203                    46$:    MOV     R2,R3                   ;USE MAX NUMBER
4913 052464                            47$:
4914 052464  010337  054242                    MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4915
4916                                    ;*****************************************************************
4917                                    ;
4918                                    ;SPACE FORWARD,ACK,CVC=1 COMMAND
4919                                    ;
4920                                    ;*****************************************************************
4921
4922 052470  012737  140010  054240            MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4923 052476  012704  054240                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4924 052502  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4925 052506  013737  054266  054272            MOV     T25CN2,T25DLY           ;SET UP DELAY COUNTER
4926 052514  004737  016340            48$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4927 052520  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4928 052524  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
4929 052530  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
4930 052532  001425                            BEQ     50$                     ;BR, IF OK
4931 052534                                    DELAY   250                     ;WAIT .25 SECONDS
     052534  012727  000250                                                    MOV     #250.,(PC)+
     052540  000000                                                            .WORD   0
     052542  013727  002116                                                    MOV     L$DLY,(PC)+
     052546  000000                                                            .WORD   0
     052550  005367  177772                                                    DEC     -6(PC)
     052554  001375                                                            BNE     .-4
     052556  005367  177756                                                    DEC      22(PC)
     052562  001367                                                            BNE     . 20
4932 052564  005337  054272                    DEC     T25DLY                  ;DEC THE DELAY COUNTER
4933 052570  001351                            BNE     48$                     ;BR, IF COUNTER HASN'T EXPIRED
4934 052572  005237  002212                    INC     FATFLG                  ;BUMP COUNT
4938 052576                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     052576  104456                                                            TRAP    C$ERHRD
```

```
                                                                                .WORD   546
                                                                                .WORD   T25MDE
                                                                                .WORD   EXPREC
4939 052606                     50$:    CKLOOP                                  TRAP    C$CLP;
     052606 104406
4940 052610 013701 054266               MOV     T25CN2,R1       ;NUMBER OF RECORDS ON TAPE
4941 052614 012702 177776               MOV     #65534.,R2      ;MAX IT CAN SPACE OVER
4942 052620 020201                      CMP     R2,R1           ;WHICH VALUE CAN WE USE
4943 052622 003002                      BGT     55$             ;BR. IF # WRITTEN > 64K
4944 052624 010103                      MOV     R1,R3           ;# WRITTEN CAN BE USED
4945 052626 000401                      BR      60$             ;MOVE ON
4946 052630 010203              55$:    MOV     R2,R3           ;USE MAX NUMBER
4947 052632 162703 000001       60$:    SUB     #1,R3           ;DON'T GO ALL THE WAY YET
4948 052636 010337 054242               MOV     R3,T25RB        ;NUMBER OF RECORDS TO SPACE OVER
4949
4950                            ;*****************************************************************
4951                            ;
4952                            ;SPACE REVERSE,ACK,CVC+1 COMMAND
4953                            ;
4954                            ;*****************************************************************
4955
4956 052642 012737 140410 054240         MOV     #140410,T25PK3  ;SPACE REVERSE,ACK,CVC+1 COMMAND
4957 052650 012704 054240               MOV     #T25PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
4958 052654 010465 000000               MOV     R4,TSDB(R5)     ;ISSUE COMMAND
4959 052660 013737 054266 054272        MOV     T25CN2,T25CLY   ;SET UP COUNTER
4960 052666 004737 016340       70$:    JSR     PC,WAITF        ;WAIT FOR SSR TO SE?
4961 052672 016501 000002               MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
4962 052676 012702 000200               MOV     #SSR,R2         ;SET UP EXPECTED
4963 052702 020102                      CMP     R1,R2           ;ARE THEY EQUAL
4964 052704 001425                      BEQ     75$             ;BR. IF OK
4965 052706                             DELAY   250             ;WAIT ABOUT  25 SECONDS
     052706 012727 000250                                                       MOV     #250.,(PC)+
     052712 000000                                                              .WORD   0
     052714 013727 002116                                                       MOV     L$DLY,(PC)+
     052720 000000                                                              .WORD   0
     052722 005367 177772                                                       DEC      6(PC)
     052726 001375                                                              BNE     .-4
     052730 005367 177756                                                       DEC      22(PC)
     052734 001367                                                              BNE     .-20
4966 052736 005337 054272               DEC     T25DLY          ;BUMP COUNTER DOWN
4967 052742 001351                      BNE     70$             ;BR. IF COUNTER HASN'T EXPIRED
4968 052744 005237 002212               INC     FATFLG          ;BUMP COUNT
4972 052750                             ERRHRD  ERRNO,T25MDE,EXPREC ;TSSR INCORRECT AFTER READ DATA
     052750 104456                                                              TRAP    C$ERHRD
     052752 001043                                                              .WORD   547
     052754 054355                                                              .WORD   T25MDE
     052756 015564                                                              .WORD   EXPREC
4973 052760                     75$:    CKLOOP                  ;LOOP IF SELECTED
     052760 104406                                                              TRAP    C$CLP1
4974 052762 012703 010000               MOV     #4096.,R3       ;RECORD SIZE
4975 052766 013737 003114 054242        MOV     FREE,T25RB      ;STARTING READ BUFFER ADDRESS
4976
4977                            ;*****************************************************************
4978                            ;
4979                            ;READ DATA,ACK COMMAND
4980                            ;
4981                            ;*****************************************************************
```

```
4982
4983 052774  012737  100001  054240          MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4984 053002  012704  054240          165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4985 053006  012700  177777                  MOV     #177777,R0              ;SET ALL ONES INTO CORRECT REGISTER
4986 053012  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
4987 053016  010337  054246                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4988 053022  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4989 053026  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4990 053032  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4991 053036  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4992 053042  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4993 053044  001411                          BEQ     170$                    ;BR, IF OK
4994 053046  032701  000004                  BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4995 053052  001006                          BNE     170$                    ;BR, IF BIT SET
4996 053054  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5000 053060                                  ERRHRD  ERRNO,RDERR,EXPREC      ;TSSR INCORRECT AFTER READ DATA
     053060  104456                                                                  TRAP    C$ERHRD
     053062  001044                                                                  .WORD   548
     053064  005204                                                                  .WORD   RDERR
     053066  015564                                                                  .WORD   EXPREC
5001 053070                          170$:   CKLOOP                          ;LOOP IF SELECTED
     053070  104406                                                                  TRAP    C$CLP1
5002 053072  017701  130016                  MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
5003 053076  012702  000001                  MOV     #1,R2                   ;SET UP EXPECTED
5004 053102  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED R3
5005 053104  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
5006 053106  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5010 053112                                  ERRHRD  ERRNO,T25WRH,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     053112  104456                                                                  TRAP    C$ERHRD
     053114  001045                                                                  .WORD   549
     053116  055020                                                                  .WORD   T25WRH
     053120  015564                                                                  .WORD   EXPREC
5011 053122                          200$:   CKLOOP
     053122  104406                                                                  TRAP    C$CLP1
5012 053124                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     053124                                                                       L10077:
     053124  104403                                                                  TRAP    C$ESUB
5013 053126  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5014 053134  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
5015 053136  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5016 053142                          999$:
5017
5018                                 ;*
5019                                 ;
5020                                 ;TEST 5, SUBTEST 7
5021                                 ;
5022                                 ;VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE THE
5023                                 ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
5024                                 ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
5025                                 ;
5026                                 ;
5027                                 ;
5028                                 ;
5029 053142                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     053142                                                                       T5.7:
     053142  104402                                                                  TRAP    C$BSUB
5030 053144  004737  055456                  JSR     PC,T25REST              ;SET COMMAND PACKET
```

```
5031 053150  004737  055550                JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
5032 053154  004737  055612                JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
5033
5034                                ;*****************************************************************
5035                                ;
5036                                ;ISSUE CONTROLLER "SOFT" INITIALIZE   CARRY BIT CLEAR IF ERROR
5037                                ;
5038                                ;*****************************************************************
5039
5040 053160  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5041 053164  103407                        BCS     20$                     ;BR IF INIT WAS OK
5042 053166  005237  002212                INC     FATFLG                  ;BUMP COUNT
5046 053172  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5047 053174                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     053174  104455                                                                  TRAP    C$ERDF
     053176  001046                                                                  .WORD   550
     053200  003650                                                                  .WORD   SFIERR
     053202  012124                                                                  .WORD   SFIMSG
5048 053204  013737  002172  054130  20$:   MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
5049
5050 053212  012704  054110                MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5051
5052                                ;*****************************************************************
5053                                ;
5054                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5055                                ;
5056                                ;*****************************************************************
5057
5058 053216  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5059 053222  103407                        BCS     25$                     ;BR, IF COMMAND ISSUED OK
5060 053224  005237  002212                INC     FATFLG                  ;BUMP COUNT
5064 053230  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5065 053232                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     053232  104456                                                                  TRAP    C$ERHRD
     053234  001047                                                                  .WORD   551
     053236  005054                                                                  .WORD   WRTMSG
     053240  012124                                                                  .WORD   SFIMSG
5066 053242                        25$:    CKLOOP                          ;LOOP IF SELECTED
     053242  104406                                                                  TRAP    C$CLP1
5067
5068                                ;*****************************************************************
5069                                ;
5070                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5071                                ;
5072                                ;*****************************************************************
5073
5074 053244  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5075 053250  103407                        BCS     30$                     ;BR, IF NO PROBLEM
5076 053252  010001                        MOV     R0,R1                   ;SAVE TSSR
5077 053254  005237  002212                INC     FATFLG                  ;BUMP COUNT
5081 053260                                ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     053260  104456                                                                  TRAP    C$ERHRD
     053262  001050                                                                  .WORD   552
     053264  055245                                                                  .WORD   T25RWN
     053266  012136                                                                  .WORD   PKTSSR
5082 053270                        30$:    CKLOOP                          ;LOOP IF SELECTED
     053270  104406                                                                  TRAP    C$CLP1
```

```
5083
5084                                    ;*****************************************************************
5085                                    ;
5086                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5087                                    ;
5088                                    ;*****************************************************************
5089
5090 053272  013701  054140                    MOV     T25BFR+6,R1             ;PICK UP XST0
5091 053276  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5092 053300  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5093 053304  020102                            CMP     R1,R2                   ;DOES EXP = REC D
5094 053306  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5095 053310  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5099 053314                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     053314  104456                                                                    TRAP    C$ERHRD
     053316  001051                                                                    .WORD   553
     053320  054435                                                                    .WORD   T25BOT
     053322  015564                                                                    .WORD   EXPREC
5100 053324                            40$:    CKLOOP                          ;LOOP IF SELECTED
     053324  104406                                                                    TRAP    C$CLP1
5101 053326  012737  000001  054242            MOV     #1,T25RB                ;NUMBER OF RECORDS  0 SPACE OVER
5102
5103                                    ;*****************************************************************
5104                                    ;
5105                                    ;SPACE REVERSE,ACK COMMAND
5106                                    ;
5107                                    ;*****************************************************************
5108
5109 053334  012737  100410  054240            MOV     #100410,T25PK3          ;SPACE REVERSE,ACK COMMAND
5110 053342  012704  054240                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5111 053346                            65$:
5112 053346  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5113 053352  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5114 053356  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5115 053362  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
5116 053366  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5117 053370  001406                            BEQ     75$                     ;BR, IF OK
5118 053372  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5122 053376                                    ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     053376  104456                                                                    TRAP    C$ERHRD
     053400  001052                                                                    .WORD   554
     053402  054355                                                                    .WORD   T25WDE
     053404  012136                                                                    .WORD   PKTSSR
5123 053406                            75$:    CKLOOP                          ;LOOP IF SELECTED
     053406  104406                                                                    TRAP    C$CLP1
5124
5125                                    ;*****************************************************************
5126                                    ;
5127                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5128                                    ;
5129                                    ;*****************************************************************
5130
5131 053410  013701  054140                    MOV     T25BFR+6,R1             ;GET XST0 STATUS WORD
5132 053414  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5133 053416  052702  002000                    BIS     #BIT10,R2               ;SET THE NEF BIT
5134 053422  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5135 053424  001406                            BEQ     170$                    ;BR, IF EQUAL (GOOD)
```

```
5136 053426  005237  002212          INC     FATFLG                  ;BUMP COUNT
5140 053432                          ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
     053432  104456                                                          TRAP    C$ERHRD
     053434  001053                                                          .WORD   555
     053436  055103                                                          .WORD   T25NEF
     053440  015564                                                          .WORD   EXPREC
5141 053442                  170$:   CKLOOP
     053442  104406                                                          TRAP    C$CLP1
5142 053444                          ENDSUB
     053444                                                          L10100:
     053444  104403                                                          TRAP    C$ESUB
5143 053446  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5144 053454  103402                          BLO     999$                    ;BR, IF LESS THAN 25
5145 053456  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5146 053462                  999$:
5147
5148                         ;*
5149                         ;
5150                         ;TEST 5, SUBTEST 8
5151                         ;
5152                         ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT
5153                         ;CUASES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT
5154                         ;INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT
5155                         ;TERMINATION AND SETS THE REVERSE INTO BOT (RIB)
5156                         ;STATUS BIT
5157                         ;
5158                         ;
5159                         ;
5160                         ;
5161 053462                          BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     053462                                                          T5.8:
     053462  104402                                                          TRAP    C$BSUB
5162 053464  004737  055456          JSR     PC,T25REST              ;SET COMMAND PACKET
5163 053470  004737  055550          JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
5164 053474  004737  055612          JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
5165
5166                         ;*************************************************************
5167                         ;
5168                         ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5169                         ;
5170                         ;*************************************************************
5171
5172 053500  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5173 053504  103407                  BCS     20$                     ;BR IF INIT WAS OK
5174 053506  005237  002212          INC     FATFLG                  ;BUMP COUNT
5178 053512  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5179 053514                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     053514  104455                                                          TRAP    C$ERDF
     053516  001054                                                          .WORD   556
     053520  003650                                                          .WORD   SFIERR
     053522  012124                                                          .WORD   SFIMSG
5180 053524  013737  002172  054130  20$:    MOV     UNITN,T25DSW            ;SET UP UNIT NUMBER
5181
5182 053532  012704  054110          MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5183
5184                         ;*************************************************************
5185                         ;
```

```
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************
                                        
053536  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
053542  103407                          BCS     25$                     ;BR, IF COMMAND ISSUED OK
053544  005237  002212                  INC     FATFLG                  ;BUMP COUNT
053550  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
053552                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
053552  104456                                                                  TRAP    C$ERHRD
053554  001055                                                                  .WORD   557
053556  005054                                                                  .WORD   WRTMSG
053560  012124                                                                  .WORD   SFIMSG
053562                          25$:    CKLOOP                          ;LOOP IF SELECTED
053562  104406                                                                  TRAP    C$CLP1
                                        
                                        ;*************************************************************
                                        ;
                                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                        ;
                                        ;*************************************************************
                                        
053564  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
053570  103407                          BCS     30$                     ;BR, IF NO PROBLEM
053572  010001                          MOV     R0,R1                   ;SAVE TSSR
053574  005237  002212                  INC     FATFLG                  ;BUMP COUNT
053600                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
053600  104456                                                                  TRAP    C$ERHRD
053602  001056                                                                  .WORD   558
053604  055245                                                                  .WORD   T25RWN
053606  012136                                                                  .WORD   PKTSSR
053610                          30$:    CKLOOP                          ;LOOP IF SELECTED
053610  104406                                                                  TRAP    C$CLP1
                                        
                                        ;*************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                                        ;
                                        ;*************************************************************
                                        
053612  013701  054140                  MOV     T25BFR+6,R1             ;PICK UP XST0
053616  010102                          MOV     R1,R2                   ;SET UP EXPECTED
053620  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
053624  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
053626  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
053630  005237  002212                  INC     FATFLG                  ;BUMP COUNT
053634                                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
053634  104456                                                                  TRAP    C$ERHRD
053636  001057                                                                  .WORD   559
053640  054435                                                                  .WORD   T25BOT
053642  015564                                                                  .WORD   EXPREC
053644                          40$:    CKLOOP
053644  104406                                                                  TRAP    C$CLP1
053646  012737  000001  054242          MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
                                        
                                        ;*************************************************************
                                        ;
```

```
5237                                    ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5238                                    ;
5239                                    ;*****************************************************************
5240
5241 053654  012737  140210  054240            MOV     #140210,T25PK3          ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5242 053662  012704  054240                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5243 053666  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5244 053672  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5245 053676  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5246 053702  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
5247 053706  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5248 053710  001406                            BEQ     75$                     ;BR, IF OK
5249 053712  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5253 053716                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     053716  104456                                                            TRAP    C$ERHRD
     053720  001060                                                            .WORD   560
     053722  054355                                                            .WORD   T25WDE
     053724  015564                                                            .WORD   EXPREC
5254 053726                            75$:    CKLOOP                          ;LOOP IF SELECTED
     053726  104406                                                            TRAP    C$CLP1
5255 053730  012737  000020  054242            MOV     #20,T25RB               ;NUMBER OF RECORDS TO SPACE OVER
5256
5257                                    ;*****************************************************************
5258                                    ;
5259                                    ;SPACE REVERSE,IE,ACK COMMAND
5260                                    ;
5261                                    ;*****************************************************************
5262
5263 053736  012737  100610  054240            MOV     #100610,T25PK3          ;SPACE REVERSE,IE,ACK COMMAND
5264 053744  012704  054240                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5265 053750  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5266 053754  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5267 053760  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5268 053764  012702  100204                    MOV     #SSR!BIT2!SC,R2         ;SET UP EXPECTED
5269 053770  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5270 053772  001406                            BEQ     175$                    ;BR, IF OK
5271 053774  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5275 054000                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     054000  104456                                                            TRAP    C$ERHRD
     054002  001061                                                            .WORD   561
     054004  054355                                                            .WORD   T25WDE
     054006  015564                                                            .WORD   EXPREC
5276 054010                            175$:   CKLOOP                          ;LOOP IF SELECTED
     054010  104406                                                            TRAP    C$CLP1
5277 054012  013701  054146                    MOV     T25BFR+14,R1            ;GET XST3 STATUS WORD
5278 054016  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5279 054020  052702  000001                    BIS     #BIT0,R2                ;SET THE RIB BIT
5280 054024  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5281 054026  001406                            BEQ     180$                    ;BR, IF EQUAL (GOOD)
5282 054030  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5286 054034                                    ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
     054034  104456                                                            TRAP    C$ERHRD
     054036  001062                                                            .WORD   562
     054040  055103                                                            .WORD   T25NEF
     054042  015564                                                            .WORD   EXPREC
5287 054044                            180$:   CKLOOP
     054044  104406                                                            TRAP    C$CLP1
```

```
5288 054046                                  ENDSUB                          ;>>>>>>>>>> END SUBTEST <<<<<<<<<<
     054046                                                                          L10101:
     054046  104403                                                                      TRAP    C$ESUB
5289 054050  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
5290 054056  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
5291 054060  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5292 054064                              999$:
5293                                     ;
5294                                     ;
5295                                     ;
5296 054064  004737  016546                          JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
5297 054070  103002                                  BCC     193$                    ;BR, IF NO LOOP REQUIRED
5298 054072  000137  046746                          JMP     T25LOOP                 ;EXECUTE AGAIN
5299 054076                              193$:
5300 054076                                  EXIT    TST                             ;ALL DONE THIS TEST
     054076  104432                                                                      TRAP    C$EXIT
     054100  001542                                                                      .WORD   L10071
5301
5302                                     ;*
5303                                     ;LOCAL STORAGE FOR THIS TEST
5304                                     ;
5306 054102                                  .BLKB   10 <. TSV267>
5308 054110                              T25PACKET:                              ;COMMAND PACKET FOR TEST
5309 054110  100004                          .WORD   100004                      ;WRITE CHARACTERISTICS COMMAND, WITH  ACK
5310 054112  054120                          .WORD   T25DATA                     ;ADDRESS OF CHARACTERISTICS BLOCK
5311 054114  000000                          .WORD   0
5312 054116  000010                          .WORD   8.                          ;STARTING VALUE OF BLOCK SIZE
5313 054120                              T25DATA:                                ;CHARACTERISTICS DATA BLOCK
5314 054120  054132                          .WORD   T25BFR                      ;ADDRESS OF MESSAGE BUFFER
5315 054122  000000                          .WORD   0
5316 054124  000012                          .WORD   10.                         ;LENGTH OF MESSAGE BUFFER
5317 054126  000000                          .WORD   0
5318 054130  000000                      T25DSW: .WORD   0                       ;SELECT DRIVE ZERO
5319 054132                              T25BFR: .BLKW   25.                     ;MESSAGE BUFFER
5320                                     ;
5321                                     ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
5322                                     ;
5324 054214                                  .BLKB   10 <.-TSV267>
5326 054220                              T25PK2:
5327 054220  100006                          .WORD   100006                      ;WRITE SUB SYS MEM COMMAND,  AND ACK
5328 054222  054250                          .WORD   T25BF2                      ;ADDRESS OF SELECT BLOCK DATA
5329 054224  000000                          .WORD   0
5330 054226  000006                          .WORD   6.                          ;SIZE OF DATA PACKET
5331
5333 054230                                  .BLKB   10-<. TSV267>
5335 054240                              T25PK3:
5336 054240  100005                          .WORD   100005                      ;READ COMMAND, AND ACK
5337 054242                              T25RB:
5338 054242  003114                      T25WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
5339 054244  000000                          .WORD   0
5340 054246  000000                      T25SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
5341                                         .EVEN
5342                                     ;
5343                                     ;
5344                                     ;
5345 054250                              T25BF2:
5346 054250     010                      T25BS0: .BYTE   10                      ;BSEL0 AREA
```

```
5347 054251     200                     T25BS1: .BYTE   200                     ;BSEL 1 AREA
5348 054252  000000                     T25S2:  .WORD   0                       ;SEL 2 AREA
5349 054254  000000                     T25S3:  .WORD   0                       ;DATA AREA
5350                                    ;
5351                                    ;
5352                                            .EVEN
5353                                    ;TAPE MOTION PACKET COMMAND VALUES
5354
5355 054256  100005                     T25RN:  .WORD   100005                  ;READ DATA (NEXT)
5356 054260  100405                     T25WDR: .WORD   100405                  ;READ DATA RETRY
5357 054262  102005                     T25CON: .WORD   102005                  ;WRITE CONTINOUS
5358 054264  177777                             .WORD   177777                  ;END OF DATA
5359
5360 054266  000000                     T25CN2: .WORD   0                       ;COUNTER FOR RECORDS
5361 054270  000000                     T25CNT: .WORD   0                       ;COUNTER FOR RECORDS
5362 054272  000000                     T25DLY: .WORD   0                       ;COUNTER FOR RECORDS
5363
5364                                    ;+
5365                                    ;LOCAL TEXT MESSAGES FOR TEST
5366                                    ;
5367
5368 054274     127     122     111     T25SSR: .ASCIZ  'WRITE SUBSYSTEM Miscellaneous Read Status Failed
5369 054355     124     123     123     T25WDE: .ASCIZ  'TSSR Not Correct After POSITION (SPACE) Command
5370 054435     124     141     160     T25BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
5371 054502     124     123     123     T25TM:  .ASCIZ  'TSSR Not Correct After POSITION (Space Command) Reject
5372 054571     127     162     151     T25NET: .ASCIZ  'Write Tape, Status Alert, But No EOT Sensed'
5373 054645     123     160     141     T25WNG: .ASCIZ  'Space Forward Failed To Position On Correct Record'
5374 054730     123     160     141     T25BNC: .ASCIZ  'Space Forward, From BOT, Failed To Clear BOT Indicat'on
5375 055020     123     160     141     T25WNH: .ASCIZ  'Space Reverse Failed To Position On Correct Record
5376 055103     123     160     141     T25NEF: .ASCIZ  'Space Reverse, At BOT, Failed To Set NEF (XST0)
5377 055163     123     160     141     T25RIB: .ASCIZ  'Space Reverse, Into BOT, Failed To Set RIB (XST3)
5378 055245     122     145     167     T25RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted
5379 055314     104     162     151     T25DFL: .ASCIZ  'Drive 7 Select Failed To Set "DFL" In TSSR
5380 055367     124     123     123     T25WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command
5381 055440     123     160     141     TST25ID:        .ASCIZ  'Space Records'
5382                                            .EVEN
5383                                    ;+
5384                                    ;
5385                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START UP (DEFAULT) VALUES
5386                                    ;WRITE SUBSYSTEM MEMORY COMMAND
5387                                    ;
5388                                    ;-
5389
5390 055456                             T25REST:
5391 055456                                     SAVREG                          ;SAVE THE REGISTERS
5392 055462  012701  054110                     MOV     @T25PACKET,R1           ;START OF THE PACKET
5393 055466  012721  100004                     MOV     @100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
5394 055472  012721  054120                     MOV     @T25DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
5395 055476  005021                             CLR     (R1)+                   ;EXTENDED ADDRESS
5396 055500  012721  000012                     MOV     @10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
5397 055504  012721  054132                     MOV     @T25BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
5398 055510  005021                             CLR     (R1)+
5399 055512  012721  000024                     MOV     @20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
5400 055516  005021                             CLR     (R1)+
5401 055520  012711  000000                     MOV     @0,(R1)                 ;SELECT DRIVE ZERO
5402 055524  012702  000030                     MOV     @24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
5403 055530  012762  177777  054132  64$:      MOV     @177777,T25BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
```

```
5404 055536  005742                    TST     (R2)            ;MEAN LOCATION
5405 055540  022702  000000            CMP     #0,R2           ;IS R2 AT ZERO YET
5406 055544  001371                    BNE     64$             ;KEEP GOING UNTIL DONE
5407 055546  000207                    RTS     PC              ;RETURN
5408
5409 055550                    T25RT2:
5410 055550                            SAVREG                  ;SAVE THE REGISTERS
5411 055554  012701  054220            MOV     #T25PK2,R1      ;START OF THE PACKET
5412 055560  012721  100006            MOV     #100006,(R1)+   ;WRITE SUBSYSTEM MEM. WITH ACK.
5413 055564  012721  054250            MOV     #T25BF2,(R1)+   ;ADDRESS OF DATA BLOCK
5414 055570  005021                    CLR     (R1)+           ;EXTENDED ADDRESS
5415 055572  012721  000006            MOV     #6.,(R1)+       ;SIZE OF DATA BLOCK IN BYTES
5416 055576  005021                    CLR     (R1)+
5417 055600  012701  054250            MOV     #T25BF2,R1      ;POINT TO DATA SEL AREA
5418 055604  005021                    CLR     (R1)+
5419 055606  005011                    CLR     (R1)
5420 055610  000207                    RTS     PC              ;RETURN
5421 055612                    T25RT3:
5422 055612                            SAVREG                  ;SAVE THE REGISTERS
5423 055616  012701  054240            MOV     #T25PK3,R1      ;START OF THE PACKET
5424 055622  012721  000000            MOV     #0,(R1)+        ;WRITE SUBSYSTEM MEM. WITH ACK.
5425 055626  012721  000000            MOV     #0,(R1)+        ;ADDRESS OF DATA BLOCK
5426 055632  005021                    CLR     (R1)+           ;EXTENDED ADDRESS
5427 055634  012721  000000            MOV     #0,(R1)+        ;SIZE OF DATA BLOCK IN BYTES
5428 055640  000207                    RTS     PC              ;RETURN
5429 055642                            ENDTST
     055642                                                                    L10071:
     055642  104401                                                                TRAP    C$ETST
5430
5431                                   .SBTTL  TEST  6: REREADS
5432                                   ;+
5433                                   ;
5434                                   ;THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT
5435                                   ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
5436                                   ;DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
5437                                   ;SPACE IS AVAILIABLE), AND BYTE-SWAP (SWP) AND OPPOSITE (OPP)
5438                                   ;CONRTOL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON
5439                                   ;EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD
5440                                   ;LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES,
5441                                   ;AND DATA BUFFERS IN NONEXISTENT MEMORY.
5442                                   ;
5443                                   ;
5444                                   ;THE TEST CONSISTS OF THE FOLLOWING 15 SUBTESTS
5445                                   ;
5446                                   ;
5447                                   ;
5448                                   ;
5449 055644                                    BGNTST
     055644                                                                    T6::
5450 055644  012737  006446  002170            MOV     #EPRT2,EPRTSW   ;SECONDARY ERROR MESSAGE
5451 055652  004737  017364                    JSR     PC,KTOFF        ;DON'T NEED KT11
5456 055656  012700  075027                    MOV     #TST26ID,R0     ;ASCII MESSAGE TO IDENTIFY TEST
5457 055662  004737  016600                    JSR     PC,TSTSETUP     ;DO INITIAL TEST SETUP
5458 055666  012737  000005  002206            MOV     #5,LOOPCNT      ;PERFORM 5 ITERATIONS
5459 055674  004737  021322                    JSR     PC,MEMCK        ;CHECK FOR MEMORY
5460 055700  005037  003126                    CLR     NXMFLG          ;SET FLAG
5461 055704  005037  072276                    CLR     T26CNT          ;CLEAR TAPE RECORD COUNTER
```

```
                                        ;*
                                        ;
                                        ;TEST 6, SUBTEST 1
                                        ;
                                        ;
                                        ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
                                        ;AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST
                                        ;REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
                                        ;RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
                                        ;IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
                                        ;TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
                                        ;PREVIOUS COMMAND ISSUED. RESULTS (STATUS, DATA,
                                        ;ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
                                        ;PREVIOUS COMMAND IS SET TO THE LENGTH OF THE EXPECTED
                                        ;RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                                        ;
                                        ;
                                        ;

                                        T26LOOP:

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T6.1:
                                                                                                        TRAP    C$BSUB
                                                JSR     PC,T26REST              ;SET COMMAND PACKET
                                                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
                                                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
                                                MOV     #65000.,T26DLY                  ;SET UP DELAY COUNTER

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

                                        10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                                BCS     20$                     ;BR IF INIT WAS OK
                                                DELAY   250                     ;DELAY FOR A REWIND TO FINISH
                                                                                                MOV     #250.,(PC)+
                                                                                                .WORD   0
                                                                                                MOV     L$DLY,(PC)+
                                                                                                .WORD   0
                                                                                                DEC     -6(PC)
                                                                                                BNE     .-4
                                                                                                DEC     -22(PC)
                                                                                                BNE     .-20
                                                DEC     T26DLY                  ;DEC COUNTER
                                                BNE     10$                     ;BR, IF DELAY NOT READY
                                                INC     FATFLG                  ;BUMP COUNT
                                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                                                TRAP    C$ERDF
                                                                                                .WORD   601
                                                                                                .WORD   SFIERR
                                                                                                .WORD   SFIMSG
                                        20$:
                                                MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
```

```
5508 056024  012704  072120                 MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5509
5510                                ;*****************************************************************
5511                                ;
5512                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5513                                ;
5514                                ;*****************************************************************
5515
5516 056030  004737  010752                 JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5517 056034  103407                         BCS     26$                     ;BR, IF COMMAND ISSUED OK
5518 056036  005237  002212                 INC     FATFLG                  ;BUMP COUNT
5522 056042  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5523 056044                                 ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     056044  104456                                                                 TRAP    C$ERHRD
     056046  001132                                                                 .WORD   602
     056050  005054                                                                 .WORD   WRTMSG
     056052  012124                                                                 .WORD   SFIMSG
5524 056054                         26$:    CKLOOP                          ;LOOP IF SELECTED
     056054  104406                                                                 TRAP    C$CLP1
5525
5526                                ;*****************************************************************
5527                                ;
5528                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5529                                ;
5530                                ;*****************************************************************
5531
5532 056056  004737  011104                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5533 056062  103413                         BCS     30$                     ;BR, IF NO PROBLEM
5534 056064  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR
5535 056070  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5536 056074  010004                         MOV     R0,R4                   ;PACKET ADDRESS SET UP
5537 056076  005237  002212                 INC     FATFLG                  ;BUMP COUNT
5541 056102                                 ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     056102  104456                                                                 TRAP    C$ERHRD
     056104  001133                                                                 .WORD   603
     056106  073604                                                                 .WORD   T26RWN
     056110  012136                                                                 .WORD   PKTSSR
5542 056112                         30$:    CKLOOP                          ;LOOP IF SELECTED
     056112  104406                                                                 TRAP    C$CLP1
5543
5544                                ;*****************************************************************
5545                                ;
5546                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5547                                ;
5548                                ;*****************************************************************
5549
5550 056114  013701  072150                 MOV     T26BFR+6,R1             ;PICK UP XST0
5551 056120  010102                         MOV     R1,R2                   ;SET UP EXPECTED
5552 056122  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5553 056126  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
5554 056130  001406                         BEQ     40$                     ;BR, IF EQUAL (OK)
5555 056132  005237  002212                 INC     FATFLG                  ;BUMP COUNT
5559 056136                                 ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     056136  104456                                                                 TRAP    C$ERHRD
     056140  001134                                                                 .WORD   604
     056142  073315                                                                 .WORD   T26BOT
     056144  015564                                                                 .WORD   EXPREC
```

```
5560 056146                          40$:    CKLOOP                          ;LOOP IF SELECTED
     056146  104406                                                                  TRAP    C$CLP1
5561 056150  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
5562 056154  013737  003114  072252          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
5563
5564                                 ;*****************************************************************
5565                                 ;
5566                                 ;WRITE DATA,ACK,CVC=1 COMMAND
5567                                 ;
5568                                 ;*****************************************************************
5569
5570 056162  012737  140005  072250          MOV     #140005,T26PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
5571 056170  012704  072250                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5572 056174                          65$:
5573 056174  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5574 056176  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
5575 056202  010337  072256                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5576 056206  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5577 056212  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5578 056216  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5579 056222  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5580 056226  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5581 056230  001406                          BEQ     75$                     ;BR, IF OK
5582 056232  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5586 056236                                  ERRHRD  ERRNO,WRTERR,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA
     056236  104456                                                                  TRAP    C$ERHRD
     056240  001135                                                                  .WORD   605
     056242  005111                                                                  .WORD   WRTERR
     056244  015564                                                                  .WORD   EXPREC
5587 056246                          75$:    CKLOOP                          ;LOOP IF SELECTED
     056246  104406                                                                  TRAP    C$CLP1
5588 056250  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
5589 056252  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
5590 056256  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
5591 056260                          80$:    CKLOOP                          ;LOOP IF SELECTED
     056260  104406                                                                  TRAP    C$CLP1
5592 056262                          120$:
5593
5594                                 ;*****************************************************************
5595                                 ;
5596                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5597                                 ;
5598                                 ;*****************************************************************
5599
5600 056262  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5601 056266  103413                          BCS     130$                    ;BR, IF NO PROBLEM
5602 056270  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
5603 056274  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5604 056300  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
5605 056302  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5609 056306                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     056306  104456                                                                  TRAP    C$ERHRD
     056310  001136                                                                  .WORD   606
     056312  073604                                                                  .WORD   T26RWN
     056314  012136                                                                  .WORD   PKTSSR
5610 056316                          130$:   CKLOOP                          ;LOOP IF SELECTED
     056316  104406                                                                  TRAP    C$CLP1
```

```
5611
5612                                    ;*****************************************************************
5613                                    ;
5614                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5615                                    ;
5616                                    ;*****************************************************************
5617
5618 056320  013701  072150                    MOV     T26BFR+6,R1             ;PICK UP XST0
5619 056324  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5620 056326  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5621 056332  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5622 056334  001406                            BEQ     140$                    ;BR. IF EQUAL (OK)
5623 056336  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5627 056342                                    ERRHRD  ERRNO,T26BOT,PKTSSR     ;TAPE NOT AT BOT AFTER REWIND
     056342  104456                                                            TRAP    C$ERHRD
     056344  001137                                                            .WORD   607
     056346  073315                                                            .WORD   T26BOT
     056350  012136                                                            .WORD   PKTSSR
5628 056352                            140$:   CKLOOP                          ;LOOP IF SELECTED
     056352  104406                                                            TRAP    C$CLP1
5629 056354  012737  000400  072302            MOV     #256.,T26RSZ            ;SET RECORD SIZE
5630
5631                                    ;*****************************************************************
5632                                    ;
5633                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5634                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
5635                                    ;
5636                                    ;*****************************************************************
5637
5638 056362  012703  000001            145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
5639 056366  004737  010556                    JSR     PC,SPACE                ;CALL SPACE ROUTINE
5640 056372  103412                            BCS     150$                    ;BR. IF NO PROBLEM WITH SPACE COMMAND
5641 056374  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
5642 056400  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5643 056404  005237  002212                    INC     FATFLG                  ;BUMP COUNT
5647 056410                                    ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     056410  104456                                                            TRAP    C$ERHRD
     056412  001140                                                            .WORD   608
     056414  072717                                                            .WORD   T26SC
     056416  015564                                                            .WORD   EXPREC
5648 056420                            150$:   CKLOOP
     056420  104406                                                            TRAP    C$CLP1
5649 056422  013703  072302                    MOV     T26RSZ,R3               ;RECORD SIZE
5650 056426  013737  003114  072252            MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5651
5652                                    ;*****************************************************************
5653                                    ;
5654                                    ;REREREAD DATA,CVC=1,ACK COMMAND
5655                                    ;
5656                                    ;*****************************************************************
5657
5658 056434  012737  141001  072250            MOV     #141001,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
5659 056442  012704  072250            165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5660 056446  010337  072256                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5661 056452  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5662 056456  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5663 056462  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
5664 056466  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
5665 056472  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5666 056474  001406                        BEQ     170$                    ;BR, IF OK
5667 056476  005237  002212                INC     FATFLG                  ;BUMP COUNT
5671 056502                                ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     056502  104456                                                               TRAP    C$ERHRD
     056504  001141                                                               .WORD   609
     056506  074140                                                               .WORD   T26WDC
     056510  012136                                                               .WORD   PKTSSR
5672 056512                         170$:  CKLOOP                          ;LOOP IF SELECTED
     056512  104406                                                               TRAP    C$CLP1
5673 056514  013702  003114                MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5674 056520  010304                        MOV     R3,R4                   ;CURRENT RECORD SIZE
5675 056522  162704  000400                SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5676 056526  060204                 173$:  ADD     R2,R4                   ;SET UP POINTER
5677 056530  021403                        CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5678 056532  001410                        BEQ     180$                    ;BR, IF ALL IS WELL
5679 056534  011401                        MOV     (R4),R1                 ;RECD DATA
5680 056536  010302                        MOV     R3,R2                   ;EXPECTED DATA
5681 056540  005237  002212                INC     FATFLG                  ;BUMP COUNT
5685 056544                                ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     056544  104456                                                               TRAP    C$ERHRD
     056546  001142                                                               .WORD   610
     056550  073362                                                               .WORD   T26DTA
     056552  015564                                                               .WORD   EXPREC
5686 056554                         180$:  CKLOOP                          ;LOOP IF SELECTED
     056554  104406                                                               TRAP    C$CLP1
5687 056556  005724                        TST     (R4)+                   ;BUMP TO NEXT LOCATION
5688 056560  160204                        SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
5689 056562  020403                        CMP     R4,R3                   ;END OF RECORD YET
5690 056564  001360                        BNE     173$                    ;BR, IF NOT AT END OF RECORD
5691 056566  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
5692 056570  010337  072302                MOV     R3,T26RSZ               ;RESET RECORD SIZE
5693 056574  022703  000412                CMP     #266.,R3                ;END OF RECORD YET
5694 056600  001270                        BNE     145$                    ;BR, IF MORE RECORDS TO READ
5695 056602                         190$:  CKLOOP                          ;LOOP IF SELECTED
     056602  104406                                                               TRAP    C$CLP1
5696 056604                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     056604                                                                     L10103:
     056604  104403                                                               TRAP    C$ESUB
5697 056606  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
5698 056614  103402                            BLO     999$                            ;BR, IF LESS THAN 25
5699 056616  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5700 056622                         999$:
5701
5702                                ;+
5703                                ;
5704                                ;TEST 6, SUBTEST 2
5705                                ;
5706                                ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
5707                                ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
5708                                ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
5709                                ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
5710                                ;SWAPPED BYTES.
5711                                ;
5712                                ;
5713                                ;
```

```
5714                                    ;
5715 056622                             BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     056622                                                                     T6.2:
     056622  104402                                                               TRAP    C$BSUB
5716 056624  004737  075040             JSR     PC,T26REST              ;SET COMMAND PACKET
5717 056630  004737  075132             JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
5718 056634  004737  075174             JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
5719
5720                                    ;*************************************************************
5721                                    ;
5722                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5723                                    ;
5724                                    ;*************************************************************
5725
5726 056640  004737  016064             JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
5727 056644  103407                     BCS     20$                     ;BR IF INIT WAS OK
5728 056646  005237  002212             INC     FATFLG                  ;BUMP COUNT
5732 056652  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
5733 056654                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     056654  104455                                                               TRAP    C$ERDF
     056656  001143                                                               .WORD   611
     056660  003650                                                               .WORD   SFIERR
     056662  012124                                                               .WORD   SFIMSG
5734 056664  013737  002172  072140  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
5735
5736 056672  012704  072120             MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5737
5738                                    ;*************************************************************
5739                                    ;
5740                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5741                                    ;
5742                                    ;*************************************************************
5743
5744 056676  004737  010752             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5745 056702  103407                     BCS     26$                     ;BR, IF COMMAND ISSUED OK
5746 056704  005237  002212             INC     FATFLG                  ;BUMP COUNT
5750 056710  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5751 056712                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     056712  104456                                                               TRAP    C$ERHRD
     056714  001144                                                               .WORD   612
     056716  005054                                                               .WORD   WRTMSG
     056720  012124                                                               .WORD   SFIMSG
5752 056722                             26$:    CKLOOP                  ;LOOP IF SELECTED
     056722  104406                                                               TRAP    C$CLP1
5753
5754                                    ;*************************************************************
5755                                    ;
5756                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5757                                    ;
5758                                    ;*************************************************************
5759
5760 056724  004737  011104             JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5761 056730  103413                     BCS     30$                     ;BR, IF NO PROBLEM
5762 056732  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR
5763 056736  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5764 056742  010004                     MOV     R0,R4                   ;PACKET ADDRESS SET UP
5765 056744  005237  002212             INC     FATFLG                  ;BUMP COUNT
```

```
5769 056750                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     056750  104456                                                          TRAP    C$ERHRD
     056752  001145                                                          .WORD   613
     056754  073604                                                          .WORD   T26RWN
     056756  012136                                                          .WORD   PKTSSR
5770 056760                    30$:  CKLOOP                          ;LOOP IF SELECTED
     056760  104406                                                          TRAP    C$CLP1
5771
5772                           ;*************************************************************
5773                           ;
5774                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5775                           ;
5776                           ;*************************************************************
5777
5778 056762  013701  072150          MOV     T26BFR+6,R1             ;PICK UP XST0
5779 056766  010102                  MOV     R1,R2                   ;SET UP EXPECTED
5780 056770  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5781 056774  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
5782 056776  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
5783 057000  005237  002212          INC     FATFLG                  ;BUMP COUNT
5787 057004                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     057004  104456                                                          TRAP    C$ERHRD
     057006  001146                                                          .WORD   614
     057010  073315                                                          .WORD   T26BOT
     057012  015564                                                          .WORD   EXPREC
5788 057014                    40$:  CKLOOP                          ;LOOP IF SELECTED
     057014  104406                                                          TRAP    C$CLP1
5789 057016  012703  000400          MOV     #256.,R3                ;RECORD SIZE
5790 057022  013737  003114  072252  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
5791
5792                           ;*************************************************************
5793                           ;
5794                           ;WRITE DATA,ACK,SWB COMMAND
5795                           ;
5796                           ;*************************************************************
5797
5798 057030  012737  110005  072250          MOV     #110005,T26PK3          ;WRITE DATA,ACK,SWB COMMAND
5799 057036  012704  072250                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5800 057042                    65$:
5801 057042  010300                  MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5802 057044  004737  017512          JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
5803 057050  010337  072256          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5804 057054  010465  000000          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5805 057060  004737  016340          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5806 057064  016501  000002          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5807 057070  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
5808 057074  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
5809 057076  001406                  BEQ     75$                     ;BR, IF OK
5810 057100  005237  002212          INC     FATFLG                  ;BUMP COUNT
5814 057104                          ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     057104  104456                                                          TRAP    C$ERHRD
     057106  001147                                                          .WORD   615
     057110  005111                                                          .WORD   WRTERR
     057112  012136                                                          .WORD   PKTSSR
5815 057114                    75$:  CKLOOP                          ;LOOP IF SELECTED
     057114  104406                                                          TRAP    C$CLP1
5816 057116  005723                  TST     (R3)+                   ;BUMP RECORD SIZE
```

```
5817 057120  022703  000414                CMP     #268.,R3                ;END OF RECORD YET
5818 057124  001346                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
5819 057126                        80$:    CKLOOP                          ;LOOP IF SELECTED
     057126  104406                                                                TRAP    C$CLP1
5820 057130                        120$:
5821
5822                               ;*****************************************************************
5823                               ;
5824                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5825                               ;
5826                               ;*****************************************************************
5827
5828 057130  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5829 057134  103413                        BCS     130$                    ;BR, IF NO PROBLEM
5830 057136  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
5831 057142  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5832 057146  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
5833 057150  005237  002212                INC     FATFLG                  ;BUMP COUNT
5837 057154                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     057154  104456                                                                TRAP    C$ERHRD
     057156  001150                                                                .WORD   616
     057160  073604                                                                .WORD   T26RWN
     057162  012136                                                                .WORD   PKTSSR
5838 057164                        130$:   CKLOOP                          ;LOOP IF SELECTED
     057164  104406                                                                TRAP    C$CLP1
5839
5840                               ;*****************************************************************
5841                               ;
5842                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5843                               ;
5844                               ;*****************************************************************
5845
5846 057166  013701  072150                MOV     T26BFR+6,R1             ;PICK UP XST0
5847 057172  010102                        MOV     R1,R2                   ;SET UP EXPECTED
5848 057174  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5849 057200  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
5850 057202  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
5851 057204  005237  002212                INC     FATFLG                  ;BUMP COUNT
5855 057210                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     057210  104456                                                                TRAP    C$ERHRD
     057212  001151                                                                .WORD   617
     057214  073315                                                                .WORD   T26BOT
     057216  015564                                                                .WORD   EXPREC
5856 057220                        140$:   CKLOOP                          ;LOOP IF SELECTED
     057220  104406                                                                TRAP    C$CLP1
5857 057222  012737  000400  072302        MOV     #256.,T26RSZ            ;SET UP RECORD SIZE
5858
5859                               ;*****************************************************************
5860                               ;
5861                               ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5862                               ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
5863                               ;
5864                               ;*****************************************************************
5865
5866 057230  012703  000001        145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
5867 057234  004737  010556                JSR     PC,SPACE                ;CALL SPACE ROUTINE
5868 057240  103412                        BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
```

TEST 6: REREADS

```
5869 057242  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
5870 057246  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5871 057252  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5875 057256                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     057256  104456                                                          TRAP    C$ERHRD
     057260  001152                                                          .WORD   618
     057262  072717                                                          .WORD   T26SC
     057264  015564                                                          .WORD   EXPREC
5876 057266                          150$:   CKLOOP                          TRAP    C$CLP1
     057266  104406
5877 057270  013703  072302                  MOV     T26RSZ,R3               ;RECORD SIZE
5878 057274  013737  003114  072252          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5879
5880                                 ;*****************************************************************
5881                                 ;
5882                                 ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5883                                 ;
5884                                 ;*****************************************************************
5885
5886 057302  012737  151001  072250          MOV     #151001,T26PK3          ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5887 057310  012704  072250          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5888 057314  010337  072256                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5889 057320  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5890 057324  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5891 057330  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5892 057334  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5893 057340  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5894 057342  001406                          BEQ     170$                    ;BR, IF OK
5895 057344  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5899 057350                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     057350  104456                                                          TRAP    C$ERHRD
     057352  001153                                                          .WORD   619
     057354  074140                                                          .WORD   T26WDC
     057356  012136                                                          .WORD   PKTSSR
5900 057360                          170$:   CKLOOP                          ;LOOP IF SELECTED
     057360  104406                                                          TRAP    C$CLP1
5901 057362  013702  003114                  MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5902 057366  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
5903 057370  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5904 057374  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
5905 057376  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5906 057400  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
5907 057402  011401                          MOV     (R4),,R1                ;RECD DATA
5908 057404  010302                          MOV     R3,R2                   ;EXPECTED DATA
5909 057406  005237  002212                  INC     FATFLG                  ;BUMP COUNT
5913 057412                                  ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     057412  104456                                                          TRAP    C$ERHRD
     057414  001154                                                          .WORD   620
     057416  073362                                                          .WORD   T26DTA
     057420  015564                                                          .WORD   EXPREC
5914 057422                          180$:   CKLOOP                          ;LOOP IF SELECTED
     057422  104406                                                          TRAP    C$CLP1
5915 057424  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
5916 057426  160204                          SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
5917 057430  020403                          CMP     R4,R3                   ;END OF RECORD YET
5918 057432  001360                          BNE     173$                    ;BR, IF NOT AT END OF RECORD
5919 057434  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
```

```
 5920 057436  010337  072302                  MOV     R3,T26RSZ               ;STORE RECORD SIZE
 5921 057442  022703  000412                  CMP     #266.,R3                ;END OF RECORD YET
 5922 057446  001270                          BNE     145$                    ;BR, IF MORE RECORDS TO READ
 5923 057450                          190$:   CKLOOP                          ;LOOP IF SELECTED
      057450  104406                                                                  TRAP    C$CLP1
 5924 057452                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      057452                                                                        L10104:
      057452  104403                                                                  TRAP    C$ESUB
 5925 057454  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
 5926 057462  103402                          BLO     999$                            ;BR, IF LESS THAN 25
 5927 057464  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 5928 057470                          999$:
 5929
 5930                                 ;*
 5931                                 ;
 5932                                 ;TEST 6, SUBTEST 3
 5933                                 ;
 5934                                 ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
 5935                                 ;(READ REVERSE, SPACE FORWARD) AND SUB=0 OPERATES
 5936                                 ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
 5937                                 ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
 5938                                 ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
 5939                                 ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
 5940                                 ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
 5941                                 ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
 5942                                 ;
 5943                                 ;1.     THE REREAD PREVIOUS COMMAND WITH OPP=1 IS ISSUED
 5944                                 ;       AND THE RESULTS CHECKED
 5945                                 ;
 5946                                 ;2.     A READ FORWARD COMMAND IS THEN ISSUED AND THE
 5947                                 ;       DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
 5948                                 ;       POSITIONED PROPERLY AFTER THE REREAD PREVIOUS
 5949                                 ;       COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
 5950                                 ;       POSITIONED AT THE START OF THE TEST RECORD). THE
 5951                                 ;       READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
 5952                                 ;       PROPERLY AT THE START OF THE NEXT TEST RECORD.
 5953                                 ;
 5954                                 ;THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET
 5955                                 ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
 5956                                 ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
 5957                                 ;
 5958                                 ;
 5959                                 ;
 5960                                 ;
 5961                                 ;-
 5962
 5963 057470                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      057470                                                                        T6.3:
      057470  104402                                                                  TRAP    C$BSUB
 5964 057472  004737  075040                  JSR     PC,T26REST              ;SET COMMAND PACKET
 5965 057476  005037  072276                  CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
 5966 057502  004737  075132                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
 5967 057506  004737  075174                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
 5968
 5969                                 ;*****************************************************************
 5970                                 ;
 5971                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
```

```
                                        ;
                                        ;*************************************************************
                                        ;
057512  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
057516  103407                          BCS     20$                     ;BR IF INIT WAS OK
057520  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057524  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
057526                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
057526  104455                                                                  TRAP    C$ERDF
057530  001155                                                                  .WORD   621
057532  003655                                                                  .WORD   SFIERR
057534  012124                                                                  .WORD   SFIMSG
057536  013737  002172  072140  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
                                        ;
057544  012704  072120                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                        ;
                                        ;*************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************
                                        ;
057550  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
057554  103407                          BCS     26$                     ;BR. IF COMMAND ISSUED OK
057556  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057562  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
057564                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
057564  104456                                                                  TRAP    C$ERHRD
057566  001156                                                                  .WORD   622
057570  005054                                                                  .WORD   WRTMSG
057572  012124                                                                  .WORD   SFIMSG
C57574                          26$:    CKLOOP                          ;LOOP IF SELECTED
057574  104406                                                                  TRAP    C$CLP1
                                        ;
                                        ;*************************************************************
                                        ;
                                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                        ;
                                        ;*************************************************************
                                        ;
057576  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
057602  103413                          BCS     30$                     ;BR. IF NO PROBLEM
057604  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
057610  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
057614  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
057616  005237  002212                  INC     FATFLG                  ;BUMP COUNT
057622                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
057622  104456                                                                  TRAP    C$ERHRD
057624  001157                                                                  .WORD   623
057626  073604                                                                  .WORD   T26RWN
057630  012136                                                                  .WORD   PKTSSR
057632                          30$:    CKLOOP                          ;LOOP IF SELECTED
057632  104406                                                                  TRAP    C$CLP1
                                        ;
                                        ;*************************************************************
                                        ;
                                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
```

```
6024                                    ;
6025                                    ;*****************************************************************
6026
6027 057634  013701  072150                MOV     T26BFR+6,R1             ;PICK UP XSTO
6028 057640  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6029 057642  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6030 057646  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
6031 057650  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
6032 057652  005237  002212                INC     FATFLG                  ;BUMP COUNT
6036 057656                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     057656  104456                                                            TRAP    C$ERHRD
     057660  001160                                                            .WORD   624
     057662  073315                                                            .WORD   T26BOT
     057664  015564                                                            .WORD   EXPREC
6037 057666                            40$:    CKLOOP                  ;LOOP IF SELECTED
     057666  104406                                                            TRAP    C$CLP1
6038 057670  012703  000400                MOV     #256.,R3                ;RECORD SIZE
6039 057674  013737  003114  072252        MOV     FREE,T26R8              ;STARTING WRITE BUFFER ADDRESS
6040
6041                                    ;*****************************************************************
6042                                    ;
6043                                    ;WRITE DATA,CVC=1,ACK COMMAND
6044                                    ;
6045                                    ;*****************************************************************
6046
6047 057702  012737  140005  072250        MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6048 057710  012704  072250                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6049 057714                            65$:
6050 057714  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6051 057716  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6052 057722  010337  072256                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6053 057726  013777  072276  123160        MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
6054 057734  062737  000001  072276        ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
6055 057742  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6056 057746  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6057 057752  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6058 057756  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
6059 057762  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6060 057764  001406                        BEQ     75$                     ;BR, IF OK
6061 057766  005237  002212                INC     FATFLG                  ;BUMP COUNT
6065 057772                                ERRHRD  FRRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     057772  104456                                                            TRAP    C$ERHRD
     057774  001161                                                            .WORD   625
     057776  005111                                                            .WORD   WRTERR
     060000  012136                                                            .WORD   PKTSSR
6066 060002                            75$:    CKLOOP                  ;LOOP IF SELECTED
     060002  104406                                                            TRAP    C$CLP1
6067 060004  005723                        TST     (R3)+                   ;BUMP THE RECORD SIZE
6068 060006  022703  000414                CMP     #268.,R3                ;MAXIMUM SIZE YET
6069 060012  001401                        BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
6070 060014  000737                        BR      65$                     ;WRITE MORE RECORDS
6071 060016                            120$:
6072 060016  005037  072276                CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
6073
6074                                    ;*****************************************************************
6075                                    ;
6076                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
```

```
6077                                    ;
6078                                    ;*****************************************************************
6079
6080 060022  004737  011104             JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6081 060026  103413                     BCS     130$                    ;BR, IF NO PROBLEM
6082 060030  016501  000002             MOV     TSSR(R5),R1             ;GET TSSR
6083 060034  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6084 060040  010004                     MOV     R0,R4                   ;PACKET ADDRESS SET UP
6085 060042  005237  002212             INC     FATFLG                  ;BUMP COUNT
6089 060046                             ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     060046  104456                                                             TRAP    C$ERHRD
     060050  001162                                                             .WORD   626
     060052  073604                                                             .WORD   T26RWN
     060054  012136                                                             .WORD   PKTSSR
6090 060056                     130$:   CKLOOP                          ;LOOP IF SELECTED
     060056  104406                                                             TRAP    C$CLP1
6091
6092                                    ;*****************************************************************
6093                                    ;
6094                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6095                                    ;
6096                                    ;*****************************************************************
6097
6098 060060  013701  072150             MOV     T26BFR+6,R1             ;PICK UP XST0
6099 060064  010102                     MOV     R1,R2                   ;SET UP EXPECTED
6100 060066  052702  000002             BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6101 060072  020102                     CMP     R1,R2                   ;DOES EXP = REC D
6102 060074  001406                     BEQ     140$                    ;BR, IF EQUAL (OK)
6103 060076  005237  002212             INC     FATFLG                  ;BUMP COUNT
6107 060102                             ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     060102  104456                                                             TRAP    C$ERHRD
     060104  001163                                                             .WORD   627
     060106  073315                                                             .WORD   T26BOT
     060110  015564                                                             .WORD   EXPREC
6108 060112                     140$:   CKLOOP                          ;LOOP IF SELECTED
     060112  104406                                                             TRAP    C$CLP1
6109
6110                                    ;*****************************************************************
6111                                    ;
6112                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
6113                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
6114                                    ;
6115                                    ;*****************************************************************
6116
6117 060114  012703  000001             MOV     #1,R3                   ;SPACE 1 RECORD FORWARD
6118 060120  004737  010556             JSR     PC,SPACE                ;SPACE CALL
6119 060124  012703  000400             MOV     #256.,R3                ;RECORD SIZE
6120 060130  013737  003114  072252     150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6121
6122                                    ;*****************************************************************
6123                                    ;
6124                                    ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6125                                    ;
6126                                    ;*****************************************************************
6127
6128 060136  012737  161001  072250     MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6129 060144  012704  072250             165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

```
6130 060150  010337  072256              MOV     R3,T26SZ            ;SET UP RECORD SIZE IN PACKET
6131 060154  010465  000000              MOV     R4,TSDB(R5)         ;ISSUE COMMAND
6132 060160  004737  01634C              JSR     PC,WAITF            ;WAIT FOR SSR TO SET
6133 060164  016501  000002              MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
6134 060170  012702  000200              MOV     #SSR,R2             ;SET UP EXPECTED
6135 060174  020102                      CMP     R1,R2               ;ARE THEY EQUAL
6136 060176  001406                      BEQ     170$                ;BR, IF OK
6137 060200  005237  002212              INC     FATFLG              ;BUMP COUNT
6141 060204                              ERRHRD  ERRNO,T26RRG,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
     060204  104456                                                      TRAP    C$ERHRD
     060206  001164                                                      .WORD   628
     060210  072622                                                      .WORD   T26RRG
     060212  012136                                                      .WORD   PKTSSR
6142 060214                      170$:   CKLOOP                      ;LOOP IF SELECTED
     060214  104406                                                      TRAP    C$CLP:
6143 060216  005723                      TST     (R3)+               ;BUMP RECORD SIZE
6144 060220  062737  000001  072276      ADD     #1,T26CNT           ;BUMP TAPE RECORD COUNTER
6145
6146                             ;*****************************************************************
6147                             ;
6148                             ;READ DATA, CVC=1, ACK COMMAND
6149                             ;
6150                             ;*****************************************************************
6151
6152 060226  012737  140001  072250      MOV     #140001,T26PK3      ;READ DATA, CVC=1, ACK COMMAND
6153 060234  010337  072256              MOV     R3,T26SZ            ;SET SIZE INTO PACKET
6154 060240  010465  000000              MOV     R4,TSDB(R5)         ;ISSUE READ DATA COMMAND
6155 060244  004737  016340              JSR     PC,WAITF            ;WAIT FOR SSR
6156 060250  016501  000002              MOV     TSSR(R5),R1         ;PICK UP THE TSSR
6157 060254  012702  000200              MOV     #SSR,R2             ;SET UP EXPECTED
6158 060260  020102                      CMP     R1,R2               ;IS THE TSSR OK
6159 060262  001406                      BEQ     195$                ;BR, IF TSSR OK (GOOD)
6160 060264  005237  002212              INC     FATFLG              ;BUMP COUNT
6164 060270                              ERRHRD  ERRNO,RDERR,PKTSSR  ;READ DATA COMMAND FAILED
     060270  104456                                                      TRAP    C$ERHRD
     060272  001165                                                      .WORD   629
     060274  005204                                                      .WORD   RDERR
     060276  012136                                                      .WORD   PKTSSR
6165 060300                      195$:   CKLOOP                      ;LOOP IF SELECTED
     060300  104406                                                      TRAP    C$CLP:
6166 060302  017701  122606              MOV     @FREE,R1            ;FIRST WORD FROM READ BUFFER
6167 060306  013702  072276              MOV     T26CNT,R2           ;SET UP EXPECTED
6168 060312  020102                      CMP     R1,R2               ;IS TAPE POSITION CORRECT
6169 060314  001406                      BEQ     197$                ;KEEP GOING POSITION OK
6170 060316  005237  002212              INC     FATFLG              ;BUMP COUNT
6174 060322                              ERRHRD  ERRNO,T26WNG,EXPREC ;TAPE POSITION INCORRECT
     060322  104456                                                      TRAP    C$ERHRD
     060324  001166                                                      .WORD   630
     060326  072306                                                      .WORD   T26WNG
     060330  015564                                                      .WORD   EXPREC
6175 060332                      197$:   CKLOOP
     060332  104406                                                      TRAP    C$CLP:
6176 060334  022703  000412              CMP     #266.,R3            ;AT MAX SIZE YET
6177 060340  001401                      BEQ     200$                ;BR, IF AT END OF THE SUBTEST
6178 060342  000672                      BR      150$                ;KEEP GOING MORE RECORDS
6179 060344                      200$:
6180 060344                              ENDSUB                      ;>>>>  >>>>>> END SUBTEST >>>>>>>>>>>>
```

```
      060344                                                                  L10105:
      060344  104403                                                                  TRAP    C$ESUB
 6181 060346  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 6182 060354  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 6183 060356  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 6184 060362                          999$:
 6185
 6186                                 ;*
 6187                                 ;
 6188                                 ;TEST 6, SUBTEST 4
 6189                                 ;
 6190                                 ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
 6191                                 ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
 6192                                 ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
 6193                                 ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
 6194                                 ;SWAPPED BYTES.
 6195                                 ;
 6196                                 ;
 6197                                 ;
 6198                                 ;
 6199                                 ;
 6200
 6201 060362                                 BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      060362                                                                          T6.4:
      060362  104402                                                                  TRAP    C$BSUB
 6202 060364  004737  075040                  JSR     PC,T26REST              ;SET COMMAND PACKET
 6203 060370  005037  072276                  CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
 6204 060374  004737  075132                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
 6205 060400  004737  075174                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
 6206
 6207                                 ;*****************************************************************
 6208                                 ;
 6209                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 6210                                 ;
 6211                                 ;*****************************************************************
 6212
 6213 060404  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 6214 060410  103407                          BCS     20$                     ;BR IF INIT WAS OK
 6215 060412  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 6219 060416  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 6220 060420                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      060420  104455                                                                  TRAP    C$ERDF
      060422  001167                                                                  .WORD   631
      060424  003650                                                                  .WORD   SFIERR
      060426  012124                                                                  .WORD   SFIMSG
 6221 060430  013737  002172  072140  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
 6222
 6223 060436  012704  072120                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 6224
 6225                                 ;*****************************************************************
 6226                                 ;
 6227                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 6228                                 ;
 6229                                 ;*****************************************************************
 6230
 6231 060442  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 6232 060446  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
```

```
6233 060450  005237  002212                INC     FATFLG                  ;BUMP COUNT
6237 060454  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6238 060456                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     060456  104456                                                        TRAP    C$ERHRD
     060460  001170                                                        .WORD   632
     060462  005054                                                        .WORD   WRTMSG
     060464  012124                                                        .WORD   SFIMSG
6239 060466                        26$:    CKLOOP                          ;LOOP IF SELECTED
     060466  104406                                                        TRAP    C$CLP1
6240
6241                               ;*****************************************************************
6242                               ;
6243                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6244                               ;
6245                               ;*****************************************************************
6246
6247 060470  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6248 060474  103413                        BCS     30$                     ;BR. IF NO PROBLEM
6249 060476  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
6250 060502  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6251 060506  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
6252 060510  005237  002212                INC     FATFLG                  ;BUMP COUNT
6256 060514                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     060514  104456                                                        TRAP    C$ERHRD
     060516  001171                                                        .WORD   633
     060520  073604                                                        .WORD   T26RWN
     060522  012136                                                        .WORD   PKTSSR
6257 060524                        30$:    CKLOOP                          ;LOOP IF SELECTED
     060524  104406                                                        TRAP    C$CLP1
6258
6259                               ;*****************************************************************
6260                               ;
6261                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6262                               ;
6263                               ;*****************************************************************
6264
6265 060526  013701  072150                MOV     T26BFR+6,R1             ;PICK UP XST0
6266 060532  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6267 060534  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6268 060540  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
6269 060542  001406                        BEQ     40$                     ;BR. IF EQUAL (OK)
6270 060544  005237  002212                INC     FATFLG                  ;BUMP COUNT
6274 060550                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     060550  104456                                                        TRAP    C$ERHRD
     060552  001172                                                        .WORD   634
     060554  073315                                                        .WORD   T26BOT
     060556  015564                                                        .WORD   EXPREC
6275 060560                        40$:    CKLOOP                          ;LOOP IF SELECTED
     060560  104406                                                        TRAP    C$CLP1
6276 060562  012703  000400                MOV     #256.,R3                ;RECORD SIZE
6277 060566  013737  003114  072252        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6278
6279                               ;*****************************************************************
6280                               ;
6281                               ;WRITE DATA,CVC=1,ACK COMMAND
6282                               ;
6283                               ;*****************************************************************
```

```
6284
6285 060574  012737  140005  072250          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6286 060602  012704  072250                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6287 060606                          65$:
6288 060606  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6289 060610  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6290 060614  010337  072256                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6291 060620  013777  072276  122266          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
6292 060626  062737  000001  072276          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
6293 060634  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6294 060640  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6295 060644  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6296 060650  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
6297 060654  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6298 060656  001406                          BEQ     75$                     ;BR, IF OK
6299 060660  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6303 060664                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     060664  104456                                                                  TRAP    C$ERHRD
     060666  001173                                                                  .WORD   635
     060670  005111                                                                  .WORD   WRTERR
     060672  012136                                                                  .WORD   PKTSSR
6304 060674                          75$:    CKLOOP                          ;LOOP IF SELECTED
     060674  104406                                                                  TRAP    C$CLP1
6305 060676  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
6306 060700  022703  000412                  CMP     #266.,R3                ;MAXIMUM SIZE YET
6307 060704  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
6308 060706  000737                          BR      65$                     ;WRITE MORE RECORDS
6309 060710                          120$:
6310 060710  005037  072276                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
6311
6312                                         ;*****************************************************************
6313                                         ;
6314                                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6315                                         ;
6316                                         ;*****************************************************************
6317
6318 060714  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6319 060720  103413                          BCS     130$                    ;BR, IF NO PROBLEM
6320 060722  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
6321 060726  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6322 060732  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6323 060734  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6327 060740                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     060740  104456                                                                  TRAP    C$ERHRD
     060742  001174                                                                  .WORD   636
     060744  073604                                                                  .WORD   T26RWN
     060746  012136                                                                  .WORD   PKTSSR
6328 060750                          130$:   CKLOOP                          ;LOOP IF SELECTED
     060750  104406                                                                  TRAP    C$CLP1
6329
6330                                         ;*****************************************************************
6331                                         ;
6332                                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6333                                         ;
6334                                         ;*****************************************************************
6335
6336 060752  013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
```

TEST 6: REREADS

```
6337 060756 010102                      MOV     R1,R2                   ;SET UP EXPECTED
6338 060760 052702 000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6339 060764 020102                      CMP     R1,R2                   ;DOES EXP = REC'D
6340 060766 001405                      BEQ     140$                    ;BR, IF EQUAL (OK)
6341 060770 005237 002212               INC     FATFLG                  ;BUMP COUNT
6345 060774                             ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     060774 104456                                                              TRAP    C$ERHRD
     060776 001175                                                              .WORD   637
     061000 073315                                                              .WORD   T26BOT
     061002 015564                                                              .WORD   EXPREC
6346 061004                     140$:   CKLOOP                          ;LOOP IF SELECTED
     061004 104406                                                              TRAP    C$CLP1
6347
6348                            ;*************************************************************
6349                            ;
6350                            ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
6351                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
6352                            ;
6353                            ;*************************************************************
6354
6355 061006 012703 000001               MOV     #1,R3                   ;SET UP SPACE FORWARD 1
6356 061012 004737 010556               JSR     PC,SPACE                ;ISSUE SPACE COMMAND
6357 061016 012703 000400               MOV     #256.,R3                ;RECORD SIZE
6358 061022 013737 003114 072252 150$:  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6359
6360                            ;*************************************************************
6361                            ;
6362                            ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6363                            ;
6364                            ;*************************************************************
6365
6366 061030 012737 171001 072250         MOV     #171001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6367 061036 012704 072250       165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6368 061042 010337 072256               MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6369 061046 010465 000000               MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6370 061052 004737 016340               JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6371 061056 016501 000002               MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6372 061062 012702 000200               MOV     #SSR,R2                 ;SET UP EXPECTED
6373 061066 020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6374 061070 001406                      BEQ     170$                    ;BR, IF OK
6375 061072 005237 002212               INC     FATFLG                  ;BUMP COUNT
6379 061076                             ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     061076 104456                                                              TRAP    C$ERHRD
     061100 001176                                                              .WORD   638
     061102 072525                                                              .WORD   T26RRF
     061104 012136                                                              .WORD   PKTSSR
6380 061106                     170$:   CKLOOP                          ;LOOP IF SELECTED
     061106 104406                                                              TRAP    C$CLP1
6381 061110 017701 122000               MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
6382 061114 013702 072276               MOV     T26CNT,R2               ;SET UP EXPECTED
6383 061120 000302                      SWAB    R2                      ;SWAP BYTES IN EXPECTED
6384 061122 020102                      CMP     R1,R2                   ;IS TAPE POSITION CORRECT
6385 061124 001406                      BEQ     190$                    ;KEEP GOING POSITION OK
6386 061126 005237 002212               INC     FATFLG                  ;BUMP COUNT
6390 061132                             ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     061132 104456                                                              TRAP    C$ERHRD
     061134 001177                                                              .WORD   639
```

```
        061136  072306                                                                  .WORD   T26WNG
        061140  015564                                                                  .WORD   EXPREC
   6391 061142                          190$:   CKLOOP
        061142  104406                                                                  TRAP    C$CLP1
   6392 061144  005723                          TST     (R3)+                   ;NEXT RECORD SIZE
   6393 061146  062737  000001  072276         ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
   6394
   6395                                 ;*****************************************************************
   6396                                 ;
   6397                                 ;READ DATA, CVC=1, ACK COMMAND
   6398                                 ;
   6399                                 ;*****************************************************************
   6400
   6401 061154  012737  140001  072250         MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
   6402 061162  010337  072256                 MOV     R3,T26SZ                ;SET SIZE INTO PACKET
   6403 061166  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
   6404 061172  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR
   6405 061176  016501  000002                 MOV     TSSR(R5),R1             ;PICK UP THE TSSR
   6406 061202  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
   6407 061206  020102                         CMP     R1,R2                   ;IS THE TSSR OK
   6408 061210  001406                         BEQ     215$                    ;BR, IF TSSR OK (GOOD)
   6409 061212  005237  002212                 INC     FATFLG                  ;BUMP COUNT
   6413 061216                                 ERRHRD  ERRNO,T26RDF,PKTSSR     ;READ DATA COMMAND FAILED
        061216  104456                                                                  TRAP    C$ERHRD
        061220  001200                                                                  .WORD   640
        061222  072456                                                                  .WORD   T26RDF
        061224  012136                                                                  .WORD   PKTSSR
   6414 061226                          215$:   CKLOOP                          ;LOOP IF SELECTED
        061226  104406                                                                  TRAP    C$CLP1
   6415 061230  017701  121660                 MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
   6416 061234  013702  072276                 MOV     T26CNT,R2               ;SET UP EXPECTED
   6417 061240  020102                         CMP     R1,R2                   ;IS TAPE POSITION CORRECT
   6418 061242  001406                         BEQ     217$                    ;KEEP GOING POSITION OK
   6419 061244  005237  002212                 INC     FATFLG                  ;BUMP COUNT
   6423 061250                                 ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
        061250  104456                                                                  TRAP    C$ERHRD
        061252  001201                                                                  .WORD   641
        061254  072306                                                                  .WORD   T26WNG
        061256  015564                                                                  .WORD   EXPREC
   6424 061260                          217$:   CKLOOP
        061260  104406                                                                  TRAP    C$CLP1
   6425 061262  022703  000410                 CMP     #264.,R3                ;AT MAX SIZE YET
   6426 061266  001401                         BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
   6427 061270  000654                         BR      150$                    ;KEEP GOING MORE RECORDS
   6428 061272                          220$:
   6429 061272                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        061272                                                                                  L10106:
        061272  104403                                                                  TRAP    C$ESUB
   6430 061274  023727  002212  000017         CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
   6431 061302  103402                         BLO     999$                            ;BR, IF LESS THAN 25
   6432 061304  004737  017272                 JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
   6433 061310                          999$:
   6434
   6435                                 ;*
   6436                                 ;
   6437                                 ;TEST 6, SUBTEST 5
   6438                                 ;
```

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

                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T6.5:
                                                                                        TRAP    C$BSUB
                                JSR     PC,T26REST              ;SET COMMAND PACKET
                                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
                                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

                                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                BCS     20$                     ;BR IF INIT WAS OK
                                INC     FATFLG                  ;BUMP COUNT
                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                                TRAP    C$ERDF
                                                                                .WORD   642
                                                                                .WORD   SFIERR
                                                                                .WORD   SFIMSG
                        20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER

                                MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

                                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
                                INC     FATFLG                  ;BUMP COUNT
                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                                                                                TRAP    C$ERHRD
                                                                                .WORD   643
                                                                                .WORD   WRTMSG
                                                                                .WORD   SFIMSG
                        26$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1

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

```
6491                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6492                                    ;
6493                                    ;*************************************************************************
6494
6495 061412  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6496 061416  103413                            BCS     30$                     ;BR, IF NO PROBLEM
6497 061420  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
6498 061424  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6499 061430  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
6500 061432  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6504 061436                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     061436  104456                                                                    TRAP    C$ERHRD
     061440  001204                                                                    .WORD   644
     061442  073604                                                                    .WORD   T26RWN
     061444  012136                                                                    .WORD   PKTSSR
6505 061446                            30$:    CKLOOP                          ;LOOP IF SELECTED
     061446  104406                                                                    TRAP    C$CLP1
6506
6507                                    ;*************************************************************************
6508                                    ;
6509                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6510                                    ;
6511                                    ;*************************************************************************
6512
6513 061450  013701  072150                    MOV     T26BFR+6,R1             ;PICK UP XSTO
6514 061454  010102                            MOV     R1,R2                   ;SET UP EXPECTED
6515 061456  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6516 061462  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
6517 061464  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
6518 061466  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6522 061472                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     061472  104456                                                                    TRAP    C$ERHRD
     061474  001205                                                                    .WORD   645
     061476  073315                                                                    .WORD   T26BOT
     061500  015564                                                                    .WORD   EXPREC
6523 061502                            40$:    CKLOOP                          ;LOOP IF SELECTED
     061502  104406                                                                    TRAP    C$CLP1
6524 061504  012703  001000                    MOV     #512.,R3                ;RECORD SIZE
6525 061510  013737  003114  072252            MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6526
6527                                    ;*************************************************************************
6528                                    ;
6529                                    ;WRITE DATA,CVC=1,ACK COMMAND
6530                                    ;
6531                                    ;*************************************************************************
6532
6533 061516  012737  140005  072250            MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6534 061524  012704  072250                    MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6535 061530                            65$:
6536 061530  010337  072256                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6537 061534  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6538 061540  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6539 061544  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6540 061550  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6541 061554  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6542 061556  001406                            BEQ     75$                     ;BR, IF OK
6543 061560  005237  002212                    INC     FATFLG                  ;BUMP COUNT
```

H2


```
6547 061564                            ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     061564  104456                                                            TRAP    C$ERHRD
     061566  001206                                                            .WORD   646
     061570  005111                                                            .WORD   WRTERR
     061572  012136                                                            .WORD   PKTSSR
6548 061574                         75$:    CKLOOP                          ;LOOP IF SELECTED
     061574  104406                                                            TRAP    C$CLP1
6549 061576  005303                        DEC     R3                      ;SET RECORD SIZE TO 511.
6550 061600  013737  003114  072252        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6551
6552                                ;*****************************************************************
6553                                ;
6554                                ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6555                                ;
6556                                ;*****************************************************************
6557
6558 061606  012737  161001  072250        MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6559 061614  012704  072250        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6560 061620  010337  072256                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6561 061624  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6562 061630  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6563 061634  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6564 061640  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6565 061644  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6566 061646  001406                        BEQ     170$                    ;BR, IF OK
6567 061650  005237  002212                INC     FATFLG                  ;BUMP COUNT
6571 061654                                ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     061654  104456                                                            TRAP    C$ERHRD
     061656  001207                                                            .WORD   647
     061660  074662                                                            .WORD   T26TRL
     061662  012136                                                            .WORD   PKTSSR
6572 061664                         170$:   CKLOOP                          ;LOOP IF SELECTED
     061664  104406                                                            TRAP    C$CLP1
6573
6574                                ;*****************************************************************
6575                                ;
6576                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6577                                ;
6578                                ;*****************************************************************
6579
6580 061666  013701  072150                MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6581 061672  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6582 061674  052702  010000                BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
6583 061700  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6584 061702  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6585 061704  005237  002212                INC     FATFLG                  ;BUMP COUNT
6589 061710                                ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     061710  104456                                                            TRAP    C$ERHRD
     061712  001210                                                            .WORD   648
     061714  074430                                                            .WORD   T26LON
     061716  015564                                                            .WORD   EXPREC
6590 061720                         180$:   CKLOOP                          ;LOOP IF SELECTED
     061720  104406                                                            TRAP    C$CLP1
6591 061722  012703  000777                MOV     #511.,R3                ;SET RECORD SIZE
6592 061726  013737  003114  072252        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6593
6594                                ;*****************************************************************
```

```
6595                                    ;
6596                                    ;REREAD DATA,CVC=1,ACK COMMAND
6597                                    ;
6598                                    ;*****************************************************************
6599
6600 061734  012737  141001  072250          MOV     #141001,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
6601 061742  012704  072250          365$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6602 061746  010337  072256                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6603 061752  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6604 061756  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6605 061762  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6606 061766  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6607 061772  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6608 061774  001406                          BEQ     370$                    ;BR, IF OK
6609 061776  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6613 062002                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     062002  104456                                                                  TRAP    C$ERHRD
     062004  001211                                                                  .WORD   649
     062006  074662                                                                  .WORD   T26TRL
     062010  012136                                                                  .WORD   PKTSSR
6614 062012                          370$:   CKLOOP                          ;LOOP IF SELECTED
     062012  104406                                                                  TRAP    C$CLP1
6615
6616                                    ;*****************************************************************
6617                                    ;
6618                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6619                                    ;
6620                                    ;*****************************************************************
6621
6622 062014  013701  072150                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6623 062020  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6624 062022  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
6625 062026  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6626 062030  001406                          BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
6627 062032  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6631 062036                                  ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     062036  104456                                                                  TRAP    C$ERHRD
     062040  001212                                                                  .WORD   650
     062042  074430                                                                  .WORD   T26LON
     062044  015564                                                                  .WORD   EXPREC
6632 062046                          380$:   CKLOOP
     062046  104406                                                                  TRAP    C$CLP1
6633 062050                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     062050                                                                       L10107:
     062050  104403                                                                  TRAP    C$ESUB
6634 062052  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
6635 062060  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
6636 062062  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
6637 062066                          999$:
6638
6639                                    ;*
6640                                    ;
6641                                    ;TEST 6, SUBTEST 6
6642                                    ;
6643                                    ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
6644                                    ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
6645                                    ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
```

```
                                ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
                                ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
                                ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
                                ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
                                ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
                                ;STATES OF OPP (0 AND 1).
                                ;
                                ;
                                ;
                                ;
6656 062066                             BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     062066                                                                             T6.6:
     062066  104402                                                                         TRAP    C$BSUB
6657 062070  004737  075040             JSR     PC,T26REST              ;SET COMMAND PACKET
6658 062074  004737  075132             JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
6659 062100  004737  075174             JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
6660
6661                            ;*************************************************************
6662                            ;
6663                            ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6664                            ;
6665                            ;*************************************************************
6666
6667 062104  004737  016064             JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
6668 062110  103407                     BCS     20$                     ;BR IF INIT WAS OK
6669 062112  005237  002212             INC     FATFLG                  ;BUMP COUNT
6673 062116  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
6674 062120                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     062120  104455                                                                         TRAP    C$ERDF
     062122  001213                                                                         .WORD   651
     062124  003650                                                                         .WORD   SFIERR
     062126  012124                                                                         .WORD   SFIMSG
6675 062130  013737  002172  072140 20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
6676
6677 062136  012704  072120             MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
6678
6679                            ;*************************************************************
6680                            ;
6681                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6682                            ;
6683                            ;*************************************************************
6684
6685 062142  004737  010752             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
6686 062146  103407                     BCS     26$                     ;BR, IF COMMAND ISSUED OK
6687 062150  005237  002212             INC     FATFLG                  ;BUMP COUNT
6691 062154  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6692 062156                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     062156  104456                                                                         TRAP    C$ERHRD
     062160  001214                                                                         .WORD   652
     062162  005054                                                                         .WORD   WRTMSG
     062164  012124                                                                         .WORD   SFIMSG
6693 062166                     26$:    CKLOOP                          ;LOOP IF SELECTED
     062166  104406                                                                         TRAP    C$CLP1
6694
6695                            ;*************************************************************
6696                            ;
6697                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
```

```
6698                                    ;
6699                                    ;*************************************************************
6700
6701 062170  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6702 062174  103413                            BCS     30$                     ;BR, IF NO PROBLEM
6703 062176  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
6704 062202  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6705 062206  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
6706 062210  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6710 062214                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     062214  104456                                                                    TRAP    C$ERHRD
     062216  001215                                                                    .WORD   653
     062220  073604                                                                    .WORD   T26RWN
     062222  012136                                                                    .WORD   PKTSSR
6711 062224                            30$:    CKLOOP                          ;LOOP IF SELECTED
     062224  104406                                                                    TRAP    C$CLP1
6712
6713                                    ;*************************************************************
6714                                    ;
6715                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6716                                    ;
6717                                    ;*************************************************************
6718
6719 062226  013701  072150                    MOV     T26FR+6,R1              ;PICK UP XST0
6720 062232  010102                            MOV     R1,R2                   ;SET UP EXPECTED
6721 062234  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6722 062240  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
6723 062242  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
6724 062244  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6728 062250                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     062250  104456                                                                    TRAP    C$ERHRD
     062252  001216                                                                    .WORD   654
     062254  073315                                                                    .WORD   T26BOT
     062256  015564                                                                    .WORD   EXPREC
6729 062260                            40$:    CKLOOP                          ;LOOP IF SELECTED
     062260  104406                                                                    TRAP    C$CLP1
6730 062262  012703  000400                    MOV     #256.,R3                ;RECORD SIZE
6731 062266  013737  003114  072252            MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6732
6733                                    ;*************************************************************
6734                                    ;
6735                                    ;WRITE DATA,CVC=1,ACK COMMAND
6736                                    ;
6737                                    ;*************************************************************
6738
6739 062274  012737  140005  072250            MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6740 062302  012704  072250                    MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6741 062306                            65$:
6742 062306  010337  072256                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6743 062312  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6744 062316  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6745 062322  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6746 062326  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
6747 062332  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
6748 062334  001406                            BEQ     75$                     ;BR, IF OK
6749 062336  005237  002212                    INC     FATFLG                  ;BUMP COUNT
6753 062342                                    ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
```

```
                062342  104456                                                          TRAP    C$ERHRD
                062344  001217                                                          .WORD   655
                062346  005111                                                          .WORD   WRTERR
                062350  012136                                                          .WORD   PKTSSR
  6754          062352                          75$:    CKLOOP                        ;LOOP IF SELECTED
                062352  104406                                                          TRAP    C$CLP1
  6755          062354  012703  001000                  MOV     #512.,R3              ;RECORD SIZE
  6756          062360  013737  003114  072252          MOV     FREE,T26RB            ;STARTING READ BUFFER ADDRESS
  6757
  6758                                  ;*************************************************************
  6759                                  ;
  6760                                  ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
  6761                                  ;
  6762                                  ;*************************************************************
  6763
  6764          062366  012737  161001  072250          MOV     #161001,T26PK3        ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
  6765          062374  012704  072250          165$:   MOV     #T26PK3,R4            ;SET UP R4 WITH PACKET ADDRESS
  6766          062400  010337  072256                  MOV     R3,T26SZ              ;SET UP RECORD SIZE IN PACKET
  6767          062404  010465  000000                  MOV     R4,TSDB(R5)           ;ISSUE COMMAND
  6768          062410  004737  016340                  JSR     PC,WAITF              ;WAIT FOR SSR TO SET
  6769          062414  016501  000002                  MOV     TSSR(R5),R1           ;GET TSSR CONTENTS
  6770          062420  012702  100204                  MOV     #SSR!SC!BIT2,R2       ;SET UP EXPECTED
  6771          062424  020102                          CMP     R1,R2                 ;ARE THEY EQUAL
  6772          062426  001406                          BEQ     170$                  ;BR. IF OK
  6773          062430  005237  002212                  INC     FATFLG                ;BUMP COUNT
  6777          062434                                  ERRHRD  ERRNO,T26TRL,PKTSSR   ;TSSR INCORRECT AFTER READ DATA
                062434  104456                                                          TRAP    C$ERHRD
                062436  001220                                                          .WORD   656
                062440  074662                                                          .WORD   T26TRL
                062442  012136                                                          .WORD   PKTSSR
  6778          062444                          170$:   CKLOOP                        ;LOOP IF SELECTED
                062444  104406                                                          TRAP    C$CLP1
  6779
  6780                                  ;*************************************************************
  6781                                  ;
  6782                                  ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
  6783                                  ;
  6784                                  ;*************************************************************
  6785
  6786          062446  013701  072150                  MOV     T26BFR+6,R1           ;GET MESSAGE BUFFER
  6787          062452  010102                          MOV     R1,R2                 ;SET UP EXPECTED
  6788          062454  052702  040000                  BIS     #BIT14,R2             ;SET THE RLS BIT IN EXPECTED
  6789          062460  020102                          CMP     R1,R2                 ;ARE THEY EQUAL
  6790          062462  001406                          BEQ     180$                  ;BR. IF EQUAL (ALL IS WELL)
  6791          062464  005237  002212                  INC     FATFLG                ;BUMP COUNT
  6795          062470                                  ERRHRD  ERRNO,T26LOP,EXPREC   ;THE RLL BIT WAS NOT SET IN XST0
                062470  104456                                                          TRAP    C$ERHRD
                062472  001221                                                          .WORD   657
                062474  074512                                                          .WORD   T26LOP
                062476  015564                                                          .WORD   EXPREC
  6796          062500                          180$:   CKLOOP
                062500  104406                                                          TRAP    C$CLP1
  6797          062502  013701  072146                  MOV     T26BFR+4,R1           ;PICK UP RESIDUAL BYTE COUNTER
  6798          062506  012702  000400                  MOV     #256.,R2              ;THIS SHOULD BE THE DIFFERENCE
  6799          062512  020102                          CMP     R1,R2                 ;IS THE DIFFERENCE CORRECT
  6800          062514  001406                          BEQ     190$                  ;BR. IF CORRECT
  6801          062516  005237  002212                  INC     FATFLG                ;BUMP COUNT
```

M2


```
6805 062522                                ERRHRD  ERRNO,T26PBP,EXPREC     ;ABPCR NO* CORRE**
     062522  104456                                                        TRAP    C$ERHRD
     062524  001222                                                        WORD    658
     062526  074574                                                        WORD    T26PBP
     062530  015564                                                        WORD    EXPREC
6806 062532                          1908  CKLOOP                          ;LOOP IF SELECTED
     062532  104406                                                        TRAP    C$CLP1
6807 062534  012703  001000                MOV     #512.,R3                ;RECORD SIZE
6808 062540  013737  003114  072252        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6809
6810                                 ;*****************************************************************
6811                                 ;
6812                                 ;REREAD PREVIOUS,ACK,CYC=1,OPP=0
6813                                 ;
6814                                 ;*****************************************************************
6815
6816 062546  012737  141001  072250        MOV     #141001,T26PW3          ;REREAD PREVIOUS,ACK,CYC=1,OPP=0
6817 062554  012704  072250                MOV     #T26PW3,R4              ;SET UP R4 WITH PACKET ADDRESS
6818 062560  010337  072256                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKE*
6819 062564  010465  000000                MOV     R4,TSDB(R5              ;ISSUE COMMAND
6820 062570  004737  016340                JSR     PC,WAIT*                ;WAIT FOR SSR TO SE*
6821 062574  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6822 062600  012702  100204                MOV     #SSR*SC*BI*2,R2         ;SE* UP EXPECTED
6823 062604  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6824 062606  001406                        BEQ     2*08                    ;BR. IF OK
6825 062610  005237  002212                INC     FA*FLG                  ;BUMP COUN*
6829 062614                                ERRHRD  ERRNO,*26*RL,PR*SSR     ;*SSR INCORREC* AF*ER READ DATA
     062614  104456                                                        TRAP    C$ERHRD
     062616  001229                                                        WORD    659
     062620  074662                                                        WORD    T26TRL
     062622  012136                                                        WORD    PR*SSR
6830 062624                          2*08  CKLOOP                          ;LOOP IF SELECTED
     062624  104406                                                        TRAP    C$CLP1
6831
6832                                 ;*****************************************************************
6833                                 ;
6834                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO  XS*0
6835                                 ;
6836                                 ;*****************************************************************
6837*
6838 062626  013701  072150                MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6839 062632  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6840 062634  052702  040000                BIS     #BIT14,R2               ;SET THE RLS BI* IN EXPEC*ED
6841 062640  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6842 062642  001406                        BEQ     2808                    ;BR. IF EQUAL (ALL IS WELL*
5843 062644  005237  002212                INC     FATFLG                  ;BUMP COUN*
684* 06265C                                ERRHRD  ERRNO,*26LOP,EXPREC     ;THE RLS BI* WAS NO* SET IN XSTO
     062650  104456                                                        TRAP    C$ERHRD
     062652  001224                                                        WORD    660
     062654  074512                                                        WORD    T26LOP
     062656  015564                                                        WORD    EXPREC
6848 062660                          2808  CKLOOP                          ;LOOP IF SELECTED
     062660  104406                                                        TRAP    C$CLP1
6849 062662  013701  072146                MOV     *26BFR+4,R1             ;PICK UP RESIDUAL B*TE COUN*ER
6850 062666  012702  000400                MOV     #256.,R2                ;*HIS SHOULD BE *HE DIFFERENCE
6851 062672  020102                        CMP     R1,R2                   ;IS *HE DIFFERENCE CORREC*
6852 062674  001405                        BEQ     <9C8                    ;BR. IF CORREC*
```

```
6856 062700                          ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     062700  104456                                                                 TRAP    C$ERHRD
     062702  001224                                                                 .WORD   660
     062704  074574                                                                 .WORD   T26PBP
     062706  015564                                                                 .WORD   EXPREC
6857 062710                    2908$:  CKLOOP                          ;LOOP IF SELECTED
     062710  104406                                                                 TRAP    C$CLP1
6858 062712                            ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     062712                                                                   L10110:
     062712  104403                                                                 TRAP    C$ESUB
6859 062714  023727  002212  000017            CMP     FATFLG,#15                ;IS ERROR COUNT AT 25
6860 062722  103402                            BLO     9998$                     ;BR. IF LESS THAN 25
6861 062724  004737  017272                    JSR     PC,CKDROP                 ;TRY TO DROP THE UNIT
6862 062730                    9998$:
6863
6864                           ;+
6865                           ;
6866                           ;TEST 6, SUBTEST 7
6867                           ;
6868                           ;
6869                           ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0
6870                           ;AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST
6871                           ;REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
6872                           ;RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
6873                           ;IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
6874                           ;TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
6875                           ;NEXT COMMAND ISSUED. RESULTS (STATUS, DATA,
6876                           ;ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
6877                           ;NEXT COMMAND IS SET TO THE LENGTH OF THE EXPECTED
6878                           ;RECORD. SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.
6879                           ;
6880                           ;
6881                           ;
6882
6883
6884 062730                            BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     062730                                                                     T6.7:
     062730  104402                                                                 TRAP    C$BSUB
6885 062732  004737  075040            JSR     PC,T26REST                ;SET COMMAND PACKET
6886 062736  004737  075132            JSR     PC,T26RT2                 ;SET UP OTHER COMMAND PACKET
6887 062742  004737  075174            JSR     PC,T26RT3                 ;SET UP OTHER COMMAND PACKET
6888
6889                           ;*****************************************************************
6890                           ;
6891                           ,ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6892                           ;
6893                           ;*****************************************************************
6894
6895 062746  004737  016064            JSR     PC,SOFINIT                ;DO INITIALIZE ON CONTROLLER
6896 062752  103407                    BCS     20$                       ;BR IF INIT WAS OK
6897 062754  005237  002212            INC     FATFLG                    ;BUMP COUNT
6901 062760  010001                    MOV     R0,R1                     ;CONTENTS OF TSSR REGISTER
6902 062762                            ERRDF   ERRNO,SFIERR,SFIMSG       ;FATAL ERROR TSSR WAS NOT OK
     062762  104455                                                                 TRAP    C$ERDF
     062764  001225                                                                 .WORD   661
     062766  003650                                                                 .WORD   SFIERR
     062770  012124                                                                 .WORD   SFIMSG
```

```
6903 062772  013737  002172  072140  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
6904
6905 063000  012704  072120                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
6906
6907                                 ;*****************************************************************
6908                                 ;
6909                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6910                                 ;
6911                                 ;*****************************************************************
6912
6913 063004  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
6914 063010  103407                          BCS     26$                     ;BR. IF COMMAND ISSUED OK
6915 063012  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6919 063016  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
6920 063020                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     063020  104456                                                          TRAP    C$ERHRD
     063022  001226                                                          .WORD   662
     063024  005054                                                          .WORD   WRTMSG
     063026  012124                                                          .WORD   SFIMSG
6921 063030                          26$:    CKLOOP                          ;LOOP IF SELECTED
     063030  104406                                                          TRAP    C$CLP1
6922
6923                                 ;*****************************************************************
6924                                 ;
6925                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6926                                 ;
6327                                 ;*****************************************************************
6928
6929 063032  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6930 063036  103413                          BCS     30$                     ;BR. IF NO PROBLEM
6931 063040  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
6932 063044  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6933 063050  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6934 063052  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6938 063056                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     063056  104456                                                          TRAP    C$ERHRD
     063060  001227                                                          .WORD   663
     063062  073604                                                          .WORD   T26RWN
     063064  012136                                                          .WORD   PKTSSR
6939 063066                          30$:    CKLOOP                          ;LOOP IF SELECTED
     063066  104406                                                          TRAP    C$CLP1
6940
6941                                 ;*****************************************************************
6942                                 ;
6943                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6944                                 ;
6945                                 ;*****************************************************************
6946
6947 063070  013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
6948 063074  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6949 063076  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6950 063102  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6951 063104  001406                          BEQ     40$                     ;BR. IF EQUAL (OK)
6952 063106  005237  002212                  INC     FATFLG                  ;BUMP COUNT
6956 063112                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063112  104456                                                          TRAP    C$ERHRD
     063114  001230                                                          .WORD   664
```

```
        063116  073315                                                          .WORD   T26BOT
        063120  015564                                                          .WORD   EXPREC
  6957  063122                        40$:    CKLOOP                          ;LOOP IF SELECTED
        063122  104406                                                          TRAP    C$CLP1
  6958  063124  012703  000400              MOV     #256.,R3                  ;RECORD SIZE
  6959  063130  013737  003114  072252      MOV     FREE,T26RB                ;STARTING WRITE BUFFER ADDRESS
  6960
  6961                                    ;*****************************************************************
  6962                                    ;
  6963                                    ;WRITE DATA,CVC=1,ACK COMMAND
  6964                                    ;
  6965                                    ;*****************************************************************
  6966
  6967  063136  012737  140005  072250      MOV     #140005,T26PK3            ;WRITE DATA,CVC=1,ACK COMMAND
  6968  063144  012704  072250              MOV     #T26PK3,R4                ;SET UP R4 WITH PACKET ADDRESS
  6969  063150                        65$:
  6970  063150  010300                      MOV     R3,R0                     ;SET PATTERN IN CORRECT REGISTER
  6971  063152  004737  017512              JSR     PC,FILLMEM                ;FILL MEMORY WITH RECORD SIZE
  6972  063156  010337  072256              MOV     R3,T26SZ                  ;SET UP RECORD SIZE IN PACKET
  6973  063162  010465  000000              MOV     R4,TSDB(R5)               ;ISSUE COMMAND
  6974  063166  004737  016340              JSR     PC,WAITF                  ;WAIT FOR SSR TO SET
  6975  063172  016501  000002              MOV     TSSR(R5),R1               ;GET TSSR CONTENTS
  6976  063176  012702  000200              MOV     #SSR,R2                   ;SET UP EXPECTED
  6977  063202  020102                      CMP     R1,R2                     ;ARE THEY EQUAL
  6978  063204  001406                      BEQ     75$                       ;BR. IF OK
  6979  063206  005237  002212              INC     FATFLG                    ;BUMP COUNT
  6983  063212                              ERRHRD  ERRNO,WRTERR,PKTSSR       ;TSSR INCORRECT AFTER WRITE DATA
        063212  104456                                                          TRAP    C$ERHRD
        063214  001231                                                          .WORD   665
        063216  005111                                                          .WORD   WRTERR
        063220  012136                                                          .WORD   PKTSSR
  6984  063222                        75$:    CKLOOP                          ;LOOP IF SELECTED
        063222  104406                                                          TRAP    C$CLP1
  6985  063224  005723                      TST     (R3)+                     ;BUMP RECORD SIZE
  6986  063226  022703  000414              CMP     #268.,R3                  ;END OF RECORD YET
  6987  063232  001346                      BNE     65$                       ;BR. IF MORE RECORDS TO WRITE
  6988  063234                        80$:    CKLOOP                          ;LOOP IF SELECTED
        063234  104406                                                          TRAP    C$CLP1
  6989  063236                        120$:
  6990
  6991                                    ;*****************************************************************
  6992                                    ;
  6993                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  6994                                    ;
  6995                                    ;*****************************************************************
  6996
  6997  063236  004737  011104              JSR     PC,REWIND                 ;CALL TAPE REWIND COMMAND
  6998  063242  103413                      BCS     130$                      ;BR. IF NO PROBLEM
  6999  063244  016501  000002              MOV     TSSR(R5),R1               ;GET TSSR
  7000  063250  012702  000200              MOV     #SSR,R2                   ;SET UP EXPECTED TSSR
  7001  063254  010004                      MOV     R0,R4                     ;PACKET ADDRESS SET UP
  7002  063256  005237  002212              INC     FATFLG                    ;BUMP COUNT
  7006  063262                              ERRHRD  ERRNO,T26RWN,PKTSSR       ;REWIND NOT ACCEPTED
        063262  104456                                                          TRAP    C$ERHRD
        063264  001232                                                          .WORD   666
        063266  073604                                                          .WORD   T26RWN
        063270  012136                                                          .WORD   PKTSSR
```

```
7007 063272                          130$:   CKLOOP                          ;LOOP IF SELECTED
     063272  10440C                                                                  TRAP    C$CLP1
7008
7009                                 ;*****************************************************************
7010                                 ;
7011                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7012                                 ;
7013                                 ;*****************************************************************
7014
7015 063274  013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
7016 063300  010102                          MOV     R1,R2                   ;SET UP EXPECTED
7017 063302  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7018 063306  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
7019 063310  001406                          BEQ     140$                    ;BR, IF EQUAL (OK)
7020 063312  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7024 063316                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063316  104456                                                                 TRAP    C$ERHRD
     063320  001233                                                                 .WORD   667
     063322  073315                                                                 .WORD   T26BOT
     063324  015564                                                                 .WORD   EXPREC
7025 063326                          140$:   CKLOOP                          ;LOOP IF SELECTED
     063326  104406                                                                 TRAP    C$CLP1
7026 063330  012737  000400  072302          MOV     #256.,T26RSZ            ;STORE START RECORD SIZE
7027 063336  000420                          BR      150$                    ;SKIP THE SAPCE THIS TIME
7028
7029                                 ;*****************************************************************
7030                                 ;
7031                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7032                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7033                                 ;
7034                                 ;*****************************************************************
7035
7036 063340  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
7037 063344  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
7038 063350  103413                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
7039 063352  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7040 063356  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7041 063362  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7042 063364  005237  002212                  INC     FATFLG                  ;BUMP COUNT
7046 063370                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     063370  104456                                                                 TRAP    C$ERHRD
     063372  001234                                                                 .WORD   668
     063374  072717                                                                 .WORD   T26SC
     063376  015564                                                                 .WORD   EXPREC
7047 063400                          150$:   CKLOOP
     063400  104406                                                                 TRAP    C$CLP1
7048 063402  013703  072302                  MOV     T26RSZ,R3               ;RECORD SIZE
7049 063406  013737  003114  072252          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7050
7051                                 ;*****************************************************************
7052                                 ;
7053                                 ;REREREAD DATA,CVC=1,ACK COMMAND
7054                                 ;
7055                                 ;*****************************************************************
7056
7057 063414  012737  141401  072250          MOV     #141401,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
7058 063422  012704  072250          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

TEST 6: REREADS

```
7059 063426  010337  072256                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7060 063432  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7061 063436  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7062 063442  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7063 063446  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
7064 063452  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
7065 063454  001406                        BEQ     170$                    ;BR, IF OK
7066 063456  005237  002212                INC     FATFLG                  ;BUMP COUNT
7070 063462                                ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     063462  104456                                                                TRAP    C$ERHRD
     063464  001235                                                                .WORD   669
     063466  074140                                                                .WORD   T26WDC
     063470  012136                                                                .WORD   PKTSSR
7071 063472                        170$:   CKLOOP                          ;LOOP IF SELECTED
     063472  104406                                                                TRAP    C$CLP1
7072 063474  013702  003114                MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
7073 063500  010304                        MOV     R3,R4                   ;CURRENT RECORD SIZE
7074 063502  162704  000400                SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
7075 063506  060204                173$:   ADD     R2,R4                   ;SET UP POINTER
7076 063510  021403                        CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
7077 063512  001410                        BEQ     180$                    ;BR, IF ALL IS WELL
7078 063514  011401                        MOV     (R4),R1                 ;RECD DATA
7079 063516  010302                        MOV     R3,R2                   ;EXPECTED DATA
7080 063520  005237  002212                INC     FATFLG                  ;BUMP COUNT
7084 063524                                ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     063524  104456                                                                TRAP    C$ERHRD
     063526  001236                                                                .WORD   670
     063530  073362                                                                .WORD   T26DTA
     063532  015564                                                                .WORD   EXPREC
7085 063534                        180$:   CKLOOP                          ;LOOP IF SELECTED
     063534  104406                                                                TRAP    C$CLP1
7086 063536  005724                        TST     (R4)+                   ;BUMP TO NEXT LOCATION
7087 063540  160204                        SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
7088 063542  020403                        CMP     R4,R3                   ;END OF RECORD YET
7089 063544  001360                        BNE     173$                    ;BR, IF NOT AT END OF RECORD
7090 063546  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
7091 063550  010337  072302                MOV     R3,T26RSZ               ;STORE PRESENT RECORD SIZE
7092 063554  022703  000410                CMP     #264.,R3                ;END OF RECORD YET
7093 063560  001267                        BNE     145$                    ;BR, IF MORE RECORDS TO READ
7094 063562                        190$:   CKLOOP                          ;LOOP IF SELECTED
     063562  104406                                                                TRAP    C$CLP1
7095 063564                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST <<<<<<<<<<<
     063564                                                                     L10111:
     063564  104403                                                                TRAP    C$ESUB
7096 063566  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
7097 063574  103402                        BLO     999$                            ;BR, IF LESS THAN 25
7098 063576  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7099 063602                        999$:
7100
7101                                       ;+
7102                                       ;
7103                                       ;TEST 6, SUBTEST 8
7104                                       ;
7105                                       ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0
7106                                       ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
7107                                       ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
7108                                       ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
```

```
7109                                    ;SWAPPED BYTES.
7110                                    ;
7111                                    ;
7112                                    ;
7113                                    ;
7114 063602                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     063602                                                                             T6.8:
     063602  104402                                                                       TRAP    C$BSUB
7115 063604  004737  075040                     JSR     PC,T26REST              ;SET COMMAND PACKET
7116 063610  004737  075132                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7117 063614  004737  075174                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7118
7119                                    ;*****************************************************************
7120                                    ;
7121                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7122                                    ;
7123                                    ;*****************************************************************
7124
7125 063620  004737  016064                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7126 063624  103407                             BCS     20$                     ;BR IF INIT WAS OK
7127 063626  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7131 063632  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7132 063634                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     063634  104455                                                                     TRAP    C$ERDF
     063636  001237                                                                     .WORD   671
     063640  003650                                                                     .WORD   SFIERR
     063642  012124                                                                     .WORD   SFIMSG
7133 063644  013737  002172  072140  20$:       MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
7134
7135 063652  012704  072120                     MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7136
7137                                    ;*****************************************************************
7138                                    ;
7139                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7140                                    ;
7141                                    ;*****************************************************************
7142
7143 063656  004737  010752                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7144 063662  103407                             BCS     26$                     ;BR, IF COMMAND ISSUED OK
7145 063664  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7149 063670  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7150 063672                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     063672  104456                                                                     TRAP    C$ERHRD
     063674  001240                                                                     .WORD   672
     063676  005054                                                                     .WORD   WRTMSG
     063700  012124                                                                     .WORD   SFIMSG
7151 063702                             26$:    CKLOOP                          ;LOOP IF SELECTED
     063702  104406                                                                     TRAP    C$CLP1
7152
7153                                    ;*****************************************************************
7154                                    ;
7155                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7156                                    ;
7157                                    ;*****************************************************************
7158
7159 063704  004737  011104                     JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7160 063710  103413                             BCS     30$                     ;BR, IF NO PROBLEM
```

```
7161 063712  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
7162 063716  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7163 063722  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
7164 063724  005237  002212                INC     FATFLG                  ;BUMP COUNT
7168 063730                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     063730  104456                                                               TRAP    C$ERHRD
     063732  001241                                                               .WORD   673
     063734  073604                                                               .WORD   T26RWN
     063736  012136                                                               .WORD   PKTSSR
7169 063740                          30$:  CKLOOP                          ;LOOP IF SELECTED
     063740  104406                                                               TRAP    C$CLP1
7170
7171                                 ;*****************************************************************
7172                                 ;
7173                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7174                                 ;
7175                                 ;*****************************************************************
7176
7177 063742  013701  072150                MOV     T26BFR+6,R1             ;PICK UP XST0
7178 063746  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7179 063750  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7180 063754  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7181 063756  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
7182 063760  005237  002212                INC     FATFLG                  ;BUMP COUNT
7186 063764                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     063764  104456                                                               TRAP    C$ERHRD
     063766  001242                                                               .WORD   674
     063770  073315                                                               .WORD   T26BOT
     063772  015564                                                               .WORD   EXPREC
7187 063774                          40$:  CKLOOP                          ;LOOP IF SELECTED
     063774  104406                                                               TRAP    C$CLP1
7188 063776  012703  000400                MOV     #256.,R3                ;RECORD SIZE
7189 064002  013737  003114  072252        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7190
7191                                 ;*****************************************************************
7192                                 ;
7193                                 ;WRITE DATA,CVC=1,ACK,SWB COMMAND
7194                                 ;
7195                                 ;*****************************************************************
7196
7197 064010  012737  150005  072250        MOV     #150005,T26PK3          ;WRITE DATA,CVC=1,ACK,SWB COMMAND
7198 064016  012704  072250                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7199 064022                          65$:
7200 064022  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
7201 064024  004737  017512                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
7202 064030  010337  072256                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7203 064034  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7204 064040  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7205 064044  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7206 064050  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
7207 064054  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
7208 064056  001406                        BEQ     75$                     ;BR, IF OK
7209 064060  005237  002212                INC     FATFLG                  ;BUMP COUNT
7213 064064                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     064064  104456                                                               TRAP    C$ERHRD
     064066  001243                                                               .WORD   675
     064070  005111                                                               .WORD   WRTERR
```

```
     064072  012136                                                                  .WORD   PKTSSR
7214 064074                  75$:    CKLOOP                  ;LOOP IF SELECTED
     064074  104406                                                                  TRAP    C$CLP1
7215 064076  005723                  TST     (R3)+           ;BUMP RECORD SIZE
7216 064100  022703  000414          CMP     #268.,R3        ;END OF RECORD YET
7217 064104  001346                  BNE     65$             ;BR, IF MORE RECORDS TO WRITE
7218 064106                  80$:    CKLOOP                  ;LOOP IF SELECTED
     064106  104406                                                                  TRAP    C$CLP1
7219 064110                  120$:
7220
7221                         ;*************************************************************
7222                         ;
7223                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7224                         ;
7225                         ;*************************************************************
7226
7227 064110  004737  011104          JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
7228 064114  103413                  BCS     130$            ;BR, IF NO PROBLEM
7229 064116  016501  000002          MOV     TSSR(R5),R1     ;GET TSSR
7230 064122  012702  000200          MOV     #SSR,R2         ;SET UP EXPECTED TSSR
7231 064126  010004                  MOV     R0,R4           ;PACKET ADDRESS SET UP
7232 064130  005237  002212          INC     FATFLG          ;BUMP COUNT
7236 064134                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     064134  104456                                                                  TRAP    C$ERHRD
     064136  001244                                                                  .WORD   676
     064140  073604                                                                  .WORD   T26RWN
     064142  012136                                                                  .WORD   PKTSSR
7237 064144                  130$:   CKLOOP                  ;LOOP IF SELECTED
     064144  104406                                                                  TRAP    C$CLP1
7238
7239                         ;*************************************************************
7240                         ;
7241                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7242                         ;
7243                         ;*************************************************************
7244
7245 064146  013701  072150          MOV     T26BFR+6,R1     ;PICK UP XST0
7246 064152  010102                  MOV     R1,R2           ;SET UP EXPECTED
7247 064154  052702  000002          BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
7248 064160  020102                  CMP     R1,R2           ;DOES EXP = REC'D
7249 064162  001406                  BEQ     140$            ;BR, IF EQUAL (OK)
7250 064164  005237  002212          INC     FATFLG          ;BUMP COUNT
7254 064170                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     064170  104456                                                                  TRAP    C$ERHRD
     064172  001245                                                                  .WORD   677
     064174  073315                                                                  .WORD   T26BOT
     064176  015564                                                                  .WORD   EXPREC
7255 064200                  140$:   CKLOOP                  ;LOOP IF SELECTED
     064200  104406                                                                  TRAP    C$CLP1
7256 064202  012737  000400  072302          MOV     #256.,T26RSZ    ;START RECORD SIZE
7257 064210  000420                  BR      150$            ;SKIP SAPCE THIS TIME
7258
7259                         ;*************************************************************
7260                         ;
7261                         ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7262                         ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7263                         ;
```

```
7264                                    ;*****************************************************************
7265
7266 064212  012703  000001            145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
7267 064216  004737  010556                    JSR     PC,SPACE                ;CALL SPACE ROUTINE
7268 064222  103413                            BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
7269 064224  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
7270 064230  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7271 064234  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
7272 064236  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7276 064242                                    ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     064242  104456                                                                    TRAP    C$ERHRD
     064244  001246                                                                    .WORD   678
     064246  072717                                                                    .WORD   T26SC
     064250  015564                                                                    .WORD   EXPREC
7277 064252                            150$:   CKLOOP
     064252  104406                                                                    TRAP    C$CLP1
7278 064254  013703  072302                    MOV     T26RSZ,R3               ;RECORD SIZE
7279 064260  013737  003114  072252            MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7280
7281                                    ;*****************************************************************
7282                                    ;
7283                                    ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7284                                    ;
7285                                    ;*****************************************************************
7286
7287 064266  012737  151401  072250            MOV     #151401,T26PK3          ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7288 064274  012704  072250            165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7289 064300  010337  072256                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7290 064304  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7291 064310  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7292 064314  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7293 064320  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
7294 064324  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
7295 064326  001406                            BEQ     170$                    ;BR, IF OK
7296 064330  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7300 064334                                    ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     064334  104456                                                                    TRAP    C$ERHRD
     064336  001247                                                                    .WORD   679
     064340  074140                                                                    .WORD   T26WDC
     064342  012136                                                                    .WORD   PKTSSR
7301 064344                            170$:   CKLOOP                          ;LOOP IF SELECTED
     064344  104406                                                                    TRAP    C$CLP1
7302 064346  013702  003114                    MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
7303 064352  010304                            MOV     R3,R4                   ;CURRENT RECORD SIZE
7304 064354  162704  000400                    SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
7305 064360  060204                    173$:   ADD     R2,R4                   ;SET UP POINTER
7306 064362  021403                            CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
7307 064364  001410                            BEQ     180$                    ;BR, IF ALL IS WELL
7308 064366  011401                            MOV     (R4),R1                 ;RECD DATA
7309 064370  010302                            MOV     R3,R2                   ;EXPECTED DATA
7310 064372  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7314 064376                                    ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     064376  104456                                                                    TRAP    C$ERHRD
     064400  001250                                                                    .WORD   680
     064402  073362                                                                    .WORD   T26DTA
     064404  015564                                                                    .WORD   EXPREC
7315 064406                            180$:   CKLOOP                          ;LOOP IF SELECTED
```

```
                                                                                    TRAP    C$CLP1
7316 064410  005724                        'ST     (R4)+           ;BUMP TO NEXT LOCATION
7317 064412  160204                        SUB     R2,R4           ;CORRECT RECORDS SIZE VALUE
7318 064414  020403                        CMP     R4,R3           ;END OF RECORD YET
7319 064416  001360                        BNE     173$            ;BR, IF NOT AT END OF RECORD
7320 064420  005723                        TST     (R3)+           ;BUMP RECORD SIZE
7321 064422  010337  072302                MOV     R3,T26RSZ       ;STORE RECORD SIZE
7322 064426  022703  000410                CMP     #264.,R3        ;END OF RECORD YET
7323 064432  001267                        BNE     145$            ;BR, IF MORE RECORDS TO WRITE
7324 064434                        190$:   CKLOOP                  ;LOOP IF SELECTED
     064434  104406                                                    TRAP    C$CLP1
7325 064436                        ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     064436                                                                 L10112:
     064436  104403                                                    TRAP    C$ESUB
7326 064440  023727  002212  000017        CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
7327 064446  103402                        BLO     999$                    ;BR, IF LESS THAN 25
7328 064450  004737  017272                JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
7329 064454                        999$:
7330
7331                                       ;+
7332                                       ;
7333                                       ;TEST 6, SUBTEST 9
7334                                       ;
7335                                       ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1
7336                                       ;(READ FORWARD, SPACE REVERSE) AND SWB=0 OPERATES
7337                                       ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
7338                                       ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
7339                                       ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
7340                                       ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
7341                                       ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
7342                                       ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
7343                                       ;
7344                                       ;1.     THE REREAD NEXT COMMAND WITH OPP=1 IS ISSUED
7345                                       ;       AND THE RESULTS CHECKED
7346                                       ;
7347                                       ;2.     A READ FORWARD COMMAND IS THEN ISSUED AND THE
7348                                       ;       DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
7349                                       ;       POSITIONED PROPERLY AFTER THE REREAD NEXT
7350                                       ;       COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
7351                                       ;       POSITIONED AT THE START OF THE TEST RECORD). THE
7352                                       ;       READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
7353                                       ;       PROPERLY AT THE START OF THE NEXT TEST RECORD.
7354                                       ;
7355                                       ;THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET
7356                                       ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
7357                                       ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
7358                                       ;
7359                                       ;
7360                                       ;
7361                                       ;
7362                                       ;-
7363
7364 064454                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     064454                                                                 T6.9:
     064454  104402                                                    TRAP    C$BSUB
7365 064456  004737  075040                JSR     PC,T26REST      ;SET COMMAND PACKET
7366 064462  005037  072276                CLR     T26CNT          ;CLEAR TAPE RECORD COUNTER
```

```
7367 064466  004737  075132                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7368 064472  004737  075174                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7369
7370                                       ;*************************************************************
7371                                       ;
7372                                       ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7373                                       ;
7374                                       ;*************************************************************
7375
7376 064476  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7377 064502  103407                        BCS     20$                     ;BR IF INIT WAS OK
7378 064504  005237  002212                INC     FATFLG                  ;BUMP COUNT
7382 064510  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7383 064512                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     064512  104455                                                             TRAP    C$ERDF
     064514  000251                                                             .WORD   681
     064516  003650                                                             .WORD   SFIERR
     064520  012124                                                             .WORD   SFIMSG
7384 064522  013737  002172  072140  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
7385
7386 064530  012704  072120                MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7387
7388                                       ;*************************************************************
7389                                       ;
7390                                       ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7391                                       ;
7392                                       ;*************************************************************
7393
7394 064534  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7395 064540  103407                        BCS     26$                     ;BR. IF COMMAND ISSUED OK
7396 064542  005237  002212                INC     FATFLG                  ;BUMP COUNT
7400 064546  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7401 064550                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     064550  104456                                                             TRAP    C$ERHRD
     064552  001252                                                             .WORD   682
     064554  005054                                                             .WORD   WRTMSG
     064556  012124                                                             .WORD   SFIMSG
7402 064560                        26$:    CKLOOP                          ;LOOP IF SELECTED
     064560  104406                                                             TRAP    C$CLP1
7403
7404                                       ;*************************************************************
7405                                       ;
7406                                       ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7407                                       ;
7408                                       ;*************************************************************
7409
7410 064562  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7411 064566  103413                        BCS     30$                     ;BR. IF NO PROBLEM
7412 064570  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
7413 064574  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7414 064600  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
7415 064602  005237  002212                INC     FATFLG                  ;BUMP COUNT
7419 064606                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     064606  104456                                                             TRAP    C$ERHRD
     064610  001253                                                             .WORD   683
     064612  073604                                                             .WORD   T26RWN
     064614  012136                                                             .WORD   PKTSSR
```

```
7420 064616                          30$:    CKLOOP                          ;LOOP IF SELECTED
     064616  104406                                                                  TRAP    C$CLP1
7421
7422                                 ;*****************************************************************
7423                                 ;
7424                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7425                                 ;
7426                                 ;*****************************************************************
7427
7428 064620  013701  072150                 MOV     T26FR+6,R1              ;PICK UP XST0
7429 064624  010102                         MOV     R1,R2                   ;SET UP EXPECTED
7430 064626  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7431 064632  020102                         CMP     R1,R2                   ;DOES EXP = REC D
7432 064634  001406                         BEQ     40$                     ;BR, IF EQUAL (OK)
7433 064636  005237  002212                 INC     FATFLG                  ;BUMP COUNT
7437 064642                                 ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     064642  104456                                                                  TRAP    C$ERHRD
     064644  001254                                                                  .WORD   684
     064646  073315                                                                  .WORD   T26BOT
     064650  015564                                                                  .WORD   EXPREC
7438 064652                          40$:    CKLOOP                          ;LOOP IF SELECTED
     064652  104406                                                                  TRAP    C$CLP1
7439 064654  012703  000400                 MOV     #256.,R3                ;RECORD SIZE
7440 064660  013737  003114  072252         MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7441
7442                                 ;*****************************************************************
7443                                 ;
7444                                 ;WRITE DATA,CVC=1,ACK COMMAND
7445                                 ;
7446                                 ;*****************************************************************
7447
7448 064666  012737  140005  072250         MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
7449 064674  012704  072250                 MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7450 064700                          65$:
7451 064700  010337  072256                 MOV     R3,T26S7                ;SET UP RECORD SIZE IN PACKET
7452 064704  013777  072276  116202         MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
7453 064712  062737  000001  072276         ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
7454 064720  010465  000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7455 064724  004737  016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7456 064730  016501  000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7457 064734  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
7458 064740  020102                         CMP     R1,R2                   ;ARE THEY EQUAL
7459 064742  001406                         BEQ     75$                     ;BR, IF OK
7460 064744  005237  002212                 INC     FATFLG                  ;BUMP COUNT
7464 064750                                 ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     064750  104456                                                                  TRAP    C$ERHRD
     064752  001255                                                                  .WORD   685
     064754  005111                                                                  .WORD   WRTERR
     064756  012136                                                                  .WORD   PKTSSR
7465 064760                          75$:    CKLOOP                          ;LOOP IF SELECTED
     064760  104406                                                                  TRAP    C$CLP1
7466 064762  005723                         TST     (R3)+                   ;BUMP THE RECORD SIZE
7467 064764  022703  000414                 CMP     #268.,R3                ;MAXIMUM SIZE YET
7468 064770  001401                         BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
7469 064772  000742                         BR      65$                     ;WRITE MORE RECORDS
7470 064774                          120$:
7471 064774  005037  072276                 CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
```

```
7472
7473                                    ;*****************************************************************
7474                                    ;
7475                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7476                                    ;
7477                                    ;*****************************************************************
7478
7479 065000  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7480 065004  103411                            BCS     1308                    ;BR. IF NO PROBLEM
7481 065006  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
7482 065012  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
7483 065014  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7487 065020                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     065020  104456                                                                    TRAP    C$ERHRD
     065022  001256                                                                    .WORD   686
     065024  073604                                                                    .WORD   T26RWN
     065026  012136                                                                     WORD   PKTSSR
7488 065030                            1308:   CKLOOP                          ;LOOP IF SELECTED
     065030  104406                                                                    TRAP    C$CLP1
7489
7490                                    ;*****************************************************************
7491                                    ;
7492                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7493                                    ;
7494                                    ;*****************************************************************
7495
7496 065032  013701  072150                    MOV     T26BFR+6,R1             ;PICK UP XSTO
7497 065036  010102                            MOV     R1,R2                   ;SET UP EXPECTED
7498 065040  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7499 065044  020102                            CMP     R1,R2                   ;DOES EXP = REC D
7500 065046  001406                            BEQ     1358                    ;BR. IF EQUAL (O
7501 065050  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7505 065054                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     065054  104456                                                                    TRAP    C$ERHRD
     065056  001257                                                                    .WORD   687
     065060  073315                                                                     WORD   T26BOT
     065062  015564                                                                     WORD   EXPREC
7506 065064                            1358    CKLOOP                                  ;LOOP IF SELECTED
     065064  104406                                                                    TRAP    C$CLP1
7507 065066  012737  000400  072302                MOV     #256.,T26RSZ            ;STARTING RECORD SIZE
7508 065074  000420                            BR      1408                    ;SKIP OVER THE SAPCE THIS TIME
7509
7510                                    ;*****************************************************************
7511                                    ;
7512                                    ;ISSUE SPACE RECORDS COMMAND   VALUE IN R3 SETS NUMBER OF RECORDS
7513                                    ;BIT 15 SETS DIRECTION   0-FORWARD    1-REVERSE
7514                                    ;
7515                                    ;*****************************************************************
7516
7517 065076  012703  000001            1328    MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD
7518 065102  004737  010556                    JSR     PC,SPACE                ;CALL SPACE ROUTINE
7519 065106  103413                            BCS     1408                    ;BR. IF NO TROUBLE
7520 065110  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR
7521 065114  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7522 065120  010004                            MOV     R0,R4                   ;PACKET ADDRESS SET UP
7523 065122  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7527 065126                                    ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
```

```
                                                                                    TRAP    C$ERHRD
                                                                                    .WORD   688
                                                                                    .WORD   T26SC
                                                                                    .WORD   PKTSSR
7528 065136                        140$:   CKLOOP                   ;LOOP IF SELECTED
     065136  104406                                                                TRAP    C$CLP1
7529 065140  013703  072302               MOV     T26RSZ,R3        ;RECORD SIZE
7530 065144  013737  003114  072252  150$:  MOV     FREE,T26RB       ;STARTING READ BUFFER ADDRESS
7531
7532                               ;*****************************************************************
7533                               ;
7534                               ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7535                               ;
7536                               ;*****************************************************************
7537
7538 065152  012737  161401  072250         MOV     #161401,T26PK3   ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7539 065160  012704  072250         165$:   MOV     #T26PK3,R4       ;SET UP R4 WITH PACKET ADDRESS
7540 065164  010337  072256               MOV     R3,T26SZ         ;SET UP RECORD SIZE IN PACKET
7541 065170  010465  000000               MOV     R4,TSDB(R5)      ;ISSUE COMMAND
7542 065174  004737  016340               JSR     PC,WAITF         ;WAIT FOR SSR TO SET
7543 065200  016501  000002               MOV     TSSR(R5),R1      ;GET TSSR CONTENTS
7544 065204  012702  000200               MOV     #SSR,R2          ;SET UP EXPECTED
7545 065210  020102                       CMP     R1,R2            ;ARE THEY EQUAL
7546 065212  001406                       BEQ     170$             ;BR, IF OK
7547 065214  005237  002212               INC     FATFLG           ;BUMP COUNT
7551 065220                               ERRHRD  ERRNO,T26RRF,PKTSSR  ;TSSR INCORRECT AFTER REREAD DATA
     065220  104456                                                                TRAP    C$ERHRD
     065222  001261                                                                .WORD   689
     065224  072525                                                                .WORD   T26RRF
     065226  012136                                                                .WORD   PKTSSR
7552 065230                        170$:   CKLOOP                   ;LOOP IF SELECTED
     065230  104406                                                                TRAP    C$CLP1
7553 065232  017701  115656               MOV     @FREE,R1                 ;FIRST WORD FROM READ BUFFER
7554 065236  013702  072276               MOV     T26CNT,R2        ;SET UP EXPECTED
7555 065242  020102                       CMP     R1,R2            ;IS TAPE POSITION CORRECT
7556 065244  001406                       BEQ     190$             ;KEEP GOING POSITION OK
7557 065246  005237  002212               INC     FATFLG           ;BUMP COUNT
7561 065252                               ERRHRD  ERRNO,T26WNG,EXPREC  ;TAPE POSITION INCORRECT
     065252  104456                                                                TRAP    C$ERHRD
     065254  001262                                                                .WORD   690
     065256  072306                                                                .WORD   T26WNG
     065260  015564                                                                .WORD   EXPREC
7562 065262                        190$:   CKLOOP
     065262  104406                                                                TRAP    C$CLP1
7563 065264  062737  000001  072276         ADD     #1,T26CNT        ;BUMP TAPE RECORD COUNTER
7564 065272  005723                       TST     (R3)+            ;NEXT RECORD SIZE
7565 065274  010337  072302               MOV     R3,T26RSZ        ;STORE RECORD SIZE
7566 065300  022703  000412               CMP     #266.,R3         ;AT MAX SIZE YET
7567 065304  001402                       BEQ     200$             ;BR, IF AT END OF THE SUBTEST
7568 065306  000137  065076               JMP     132$             ;KEEP GOING MORE RECORDS
7569 065312                        200$:
7570 065312                               ENDSUB                   ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     065312                                                                     L10113:
     065312  104403                                                                TRAP    C$ESUB
7571 065314  023727  002212  000017         CMP     FATFLG,#15.              ;IS ERROR COUNT AT 25
7572 065322  103402                       BLO     999$             ;BR, IF LESS THAN 25
7573 065324  004737  017272               JSR     PC,CKDROP        ;TRY TO DROP THE UNIT
```

```
7574 065330                        9998:
7575
7576                               ;*
7577                               ;
7578                               ;TEST 6, SUBTEST 10
7579                               ;
7580                               ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1
7581                               ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
7582                               ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
7583                               ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
7584                               ;SWAPPED BYTES.
7585                               ;
7586                               ;
7587                               ;
7588                               ;
7589                               ;
7590
7591 065330                            BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      065330                                                                T6.10:
      065330  104402                                                                TRAP    C$BSUB
7592 065332  004737  075040            JSR     PC,T26REST              ;SET COMMAND PACKET
7593 065336  005037  072276            CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
7594 065342  004737  075132            JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7595 065346  004737  075174            JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7596
7597                               ;*****************************************************************
7598                               ;
7599                               ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7600                               ;
7601                               ;*****************************************************************
7602
7603 065352  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7604 065356  103407                    BCS     20$                     ;BR IF INIT WAS OK
7605 065360  005237  002212            INC     FATFLG                  ;BUMP COUNT
7609 065364  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7610 065366                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      065366  104455                                                                TRAP    C$ERDF
      065370  001263                                                                .WORD   691
      065372  003650                                                                .WORD   SFIERR
      065374  012124                                                                .WORD   SFIMSG
7611 065376  013737  002172  072140  20$:   MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
7612
7613 065404  012704  072120            MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7614
7615                               ;*****************************************************************
7616                               ;
7617                               ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7618                               ;
7619                               ;*****************************************************************
7620
7621 065410  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7622 065414  103407                    BCS     26$                     ;BR, IF COMMAND ISSUED OK
7623 065416  005237  002212            INC     FATFLG                  ;BUMP COUNT
7627 065422  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7628 065424                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      065424  104456                                                                TRAP    C$ERHRD
      065426  001264                                                                .WORD   692
```

```
                065430  005054                                                          .WORD   WRTMSG
                065432  012124                                                          .WORD   SFIMSG
7629            065434                  26$:    CKLOOP                  ;LOOP IF SELECTED
                065434  104406                                                          TRAP    C$CLP1
7630
7631                                    ;*******************************************************************
7632                                    ;
7633                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7634                                    ;
7635                                    ;*******************************************************************
7636
7637 065436    004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7638 065442    016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
7639 065446    012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7640 065452    103407                          BCS     30$                     ;BR, IF NO PROBLEM
7641 065454    010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
7642 065456    005237  002212                  INC     FATFLG                  ;BUMP COUNT
7646 065462                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                065462  104456                                                          TRAP    C$ERHRD
                065464  001265                                                          .WORD   693
                065466  073604                                                          .WORD   T26RWN
                065470  012136                                                          .WORD   PKTSSR
7647 065472                     30$:    CKLOOP                  ;LOOP IF SELECTED
                065472  104406                                                          TRAP    C$CLP1
7648
7649                                    ;*******************************************************************
7650                                    ;
7651                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7652                                    ;
7653                                    ;*******************************************************************
7654
7655 065474    013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
7656 065500    010102                          MOV     R1,R2                   ;SET UP EXPECTED
7657 065502    052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7658 065506    020102                          CMP     R1,R2                   ;DOES EXP = REC'D
7659 065510    001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
7660 065512    005237  002212                  INC     FATFLG                  ;BUMP COUNT
7664 065516                                    ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                065516  104456                                                          TRAP    C$ERHRD
                065520  001266                                                          .WORD   694
                065522  073315                                                          .WORD   T26BOT
                065524  015564                                                          .WORD   EXPREC
7665 065526                     40$:    CKLOOP                  ;LOOP IF SELECTED
                065526  104406                                                          TRAP    C$CLP1
7666 065530    012703  000400                  MOV     #256.,R3                ;RECORD SIZE
7667 065534    013737  003114  072252          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7668
7669                                    ;*******************************************************************
7670                                    ;
7671                                    ;WRITE DATA,CVC=1,ACK COMMAND
7672                                    ;
7673                                    ;*******************************************************************
7674
7675 065542    012737  140005  072250          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
7676 065550    012704  072250                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7677 065554                     65$:
7678 065554    010337  072256                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
```

```
7679 065560 013777 072276 115326        MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
7680 065566 062737 000001 072276        ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
7681 065574 010465 000000               MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7682 065600 004737 016340               JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7683 065604 016501 000002               MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7684 065610 012702 000200               MOV     #SSR,R2                 ;SET UP EXPECTED
7685 065614 020102                      CMP     R1,R2                   ;ARE THEY EQUAL
7686 065616 001406                      BEQ     75$                     ;BR, IF OK
7687 065620 005237 002212               INC     FATFLG                  ;BUMP COUNT
7691 065624                             ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     065624 104456                                                                  TRAP    C$ERHRD
     065626 001267                                                                  .WORD   695
     065630 005111                                                                  .WORD   WRTERR
     065632 012136                                                                  .WORD   PKTSSR
7692 065634                     75$:    CKLOOP                          ;LOOP IF SELECTED
     065634 104406                                                                  TRAP    C$CLP1
7693 065636 005723                      TST     (R3)+                   ;BUMP THE RECORD SIZE
7694 065640 022703 000414               CMP     #268.,R3                ;MAXIMUM SIZE YET
7695 065644 001401                      BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
7696 065646 000742                      BR      65$                     ;WRITE MORE RECORDS
7697 065650                     120$:
7698 065650 005C37 072276               CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
7699
7700                            ;*****************************************************************
7701                            ;
7702                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7703                            ;
7704                            ;*****************************************************************
7705
7706 065654 004737 011104               JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7707 065660 103411                      BCS     130$                    ;BR, IF NO PROBLEM
7708 065662 016501 000002               MOV     TSSR(R5),R1             ;GET TSSR
7709 065666 010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
7710 065670 005237 002212               INC     FATFLG                  ;BUMP COUNT
7714 065674                             ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     065674 104456                                                                  TRAP    C$ERHRD
     065676 001270                                                                  .WORD   696
     065700 073604                                                                  .WORD   T26RWN
     065702 012136                                                                  .WORD   PKTSSR
7715 065704                     130$:   CKLOOP                          ;LOOP IF SELECTED
     065704 104406                                                                  TRAP    C$CLP1
7716
7717                            ;*****************************************************************
7718                            ;
7719                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7720                            ;
7721                            ;*****************************************************************
7722
7723 065706 013701 072150               MOV     T26BFR+6,R1             ;PICK UP XST0
7724 065712 010102                      MOV     R1,R2                   ;SET UP EXPECTED
7725 065714 052702 000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7726 065720 020102                      CMP     R1,R2                   ;DOES EXP = REC'D
7727 065722 001406                      BEQ     135$                    ;BR, IF EQUAL (OK)
7728 065724 005237 002212               INC     FATFLG                  ;BUMP COUNT
7732 065730                             ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     065730 104456                                                                  TRAP    C$ERHRD
     065732 001271                                                                  .WORD   697
```

```
                                                                                .WORD   T26BOT
                                                                                .WORD   EXPREC
7733 065740                             135$:   CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1
7734 065742  012705  000400  072302             MOV     #256.,T26RSZ            ;START RECORD SIZE
7735 065750  000420                             BR      140$                    ;SKIP OVER SPACE
7736
7737                                    ;*****************************************************************
7738                                    ;
7739                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7740                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7741                                    ;
7742                                    ;*****************************************************************
7743
7744 065752  012703  000001             136$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
7745 065756  004737  010556                     JSR     PC,SPACE                ;CALL SPACE ROUTINE
7746 065762  103413                             BCS     140$                    ;BR, IF NO TROUBLE
7747 065764  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR
7748 065770  012702  000200                     MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7749 065774  010004                             MOV     R0,R4                   ;PACKET ADDRESS SET UP
7750 065776  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7754 066002                                     ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
                                                                                TRAP    C$ERHRD
                                                                                .WORD   698
                                                                                .WORD   T26SC
                                                                                .WORD   PKTSSR
7755 066012                             140$.   CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1
7756 066014  013703  072302                     MOV     T26RSZ,R3               ;RECORD SIZE
7757 066020  013737  003114  072252     150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7758
7759                                    ;*****************************************************************
7760                                    ;
7761                                    ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7762                                    ;
7763                                    ;*****************************************************************
7764
7765 066026  012737  161401  072250             MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7766 066034  012704  072250             165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7767 066040  010337  072256                     MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7768 066044  010465  000000                     MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7769 066050  004737  016340                     JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7770 066054  016501  000002                     MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7771 066060  012702  000200                     MOV     #SSR,R2                 ;SET UP EXPECTED
7772 066064  020102                             CMP     R1,R2                   ;ARE THEY EQUAL
7773 066066  001406                             BEQ     170$                    ;BR, IF OK
7774 066070  005237  002212                     INC     FATFLG                  ;BUMP COUNT
7778 066074                                     ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
                                                                                TRAP    C$ERHRD
                                                                                .WORD   699
                                                                                .WORD   T26RRF
                                                                                .WORD   PKTSSR
7779 066104                             170$:   CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1
7780 066106  017701  115002                     MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
7781 066112  013702  072276                     MOV     T26CNT,R2               ;SET UP EXPECTED
7782 066116  020102                             CMP     R1,R2                   ;IS TAPE POSITION CORRECT
```

```
7783 066120  001406                        BEQ     190$                    ;KEEP GOING POSITION OK
7784 066122  005237  002212                INC     FATFLG                  ;BUMP COUNT
7788 066126                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     066126  104456                                                                TRAP    C$ERHRD
     066130  001274                                                                .WORD   700
     066132  072306                                                                .WORD   T26WNG
     066134  015564                                                                .WORD   EXPREC
7789 066136                         190$:  CKLOOP                                  TRAP    C$CLP1
     066136  104406
7790 066140  062737  000001  072276        ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
7791 066146  005723                        TST     (R3)+                   ;NEXT RECORD SIZE
7792 066150  010337  072302                MOV     R3,T26RSZ               ;STORE RECORD SIZE
7793 066154  022703  000412                CMP     #266.,R3                ;AT MAX SIZE YET
7794 066160  001402                        BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
7795 066162  000137  065752                JMP     136$                    ;KEEP GOING MORE RECORDS
7796 066166                         220$:
7797 066166                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     066166                                                                     L10114:
     066166  104403                                                                TRAP    C$ESUB
7798 066170  023727  002212  000017        CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
7799 066176  103402                        BLO     999$                            ;BR, IF LESS THAN 25
7800 066200  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
7801 066204                         999$:
7802
7803                                       ;*
7804                                       ;
7805                                       ;TEST 6, SUBTEST 11
7806                                       ;
7807                                       ;VERIFIES THAT A REREAD NEXT COMMAND READING A
7808                                       ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
7809                                       ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
7810                                       ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
7811                                       ;STATES OF OPP (0 AND 1).
7812                                       ;
7813                                       ;
7814                                       ;
7815                                       ;
7816
7817
7818 066204                                BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     066204                                                                     T6.11:
     066204  104402                                                                TRAP    C$BSUB
7819 066206  004737  075040                JSR     PC,T26REST              ;SET COMMAND PACKET
7820 066212  004737  075132                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7821 066216  004737  075174                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7822
7823                                       ;*************************************************************************
7824                                       ;
7825                                       ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7826                                       ;
7827                                       ;*************************************************************************
7828
7829 066222  004737  016064                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7830 066226  103407                        BCS     20$                     ;BR IF INIT WAS OK
7831 066230  005237  002212                INC     FATFLG                  ;BUMP COUNT
7835 066234  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7836 066236                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
```

TEST 6: REREADS

```
                066236  104455                                                          TRAP    C$ERDF
                066240  001275                                                          .WORD   701
                066242  003650                                                          .WORD   SFIERR
                066244  012124                                                          .WORD   SFIMSG
 7837 066246    013737  002172  072140  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
 7838
 7839 066254    012704  072120                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 7840
 7841                            ;*****************************************************************
 7842                            ;
 7843                            ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 7844                            ;
 7845                            ;*****************************************************************
 7846
 7847 066260    004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 7848 066264    103407                          BCS     26$                     ;BR. IF COMMAND ISSUED OK
 7849 066266    005237  002212                  INC     FATFLG                  ;BUMP COUNT
 7853 066272    010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 7854 066274                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                066274  104456                                                          TRAP    C$ERHRD
                066276  001276                                                          .WORD   702
                066300  005054                                                          .WORD   WRTMSG
                066302  012124                                                          .WORD   SFIMSG
 7855 066304                            26$:    CKLOOP                          ;LOOP IF SELECTED
                066304  104406                                                          TRAP    C$CLP1
 7856
 7857                            ;*****************************************************************
 7858                            ;
 7859                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 7860                            ;
 7861                            ;*****************************************************************
 7862
 7863 066306    004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 7864 066312    016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
 7865 066316    012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 7866 066322    103407                          BCS     30$                     ;BR. IF NO PROBLEM
 7867 066324    010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
 7868 066326    005237  002212                  INC     FATFLG                  ;BUMP COUNT
 7872 066332                                    ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                066332  104456                                                          TRAP    C$ERHRD
                066334  001277                                                          .WORD   703
                066336  073604                                                          .WORD   T26RWN
                066340  012136                                                          .WORD   PKTSSR
 7873 066342                            30$:    CKLOOP                          ;LOOP IF SELECTED
                066342  104406                                                          TRAP    C$CLP1
 7874
 7875                            ;*****************************************************************
 7876                            ;
 7877                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 7878                            ;
 7879                            ;*****************************************************************
 7880
 7881 066344    013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
 7882 066350    010102                          MOV     R1,R2                   ;SET UP EXPECTED
 7883 066352    052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 7884 066356    020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 7885 066360    001406                          BEQ     40$                     ;BR. IF EQUAL (OK)
```

```
7886 066362  005237  002212              INC     FATFLG                  ;BUMP COUNT
7890 066366                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     066366  104456                                                      TRAP    C$ERHRD
     066370  001300                                                      .WORD   704
     066372  073315                                                      .WORD   T26BOT
     066374  015564                                                      .WORD   EXPREC
7891 066376                      40$:    CKLOOP                          ;LOOP IF SELECTED
     066376  104406                                                      TRAP    C$CLP1
7892 066400  012703  001000              MOV     #512.,R3                ;RECORD SIZE
7893 066404  013737  003114  072252      MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7894
7895                             ;*****************************************************************
7896                             ;
7897                             ;WRITE DATA,CVC=1,ACK COMMAND
7898                             ;
7899                             ;*****************************************************************
7900
7901 066412  012737  140005  072250      MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
7902 066420  012704  072250              MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7903 066424                      65$:
7904 066424  010337  072256              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7905 066430  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7906 066434  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7907 066440  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7908 066444  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
7909 066450  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
7910 066452  001406                      BEQ     75$                     ;BR, IF OK
7911 066454  005237  002212              INC     FATFLG                  ;BUMP COUNT
7915 066460                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     066460  104456                                                      TRAP    C$ERHRD
     066462  001301                                                      .WORD   705
     066464  005111                                                      .WORD   WRTERR
     066466  012136                                                      .WORD   PKTSSR
7916 066470                      75$:    CKLOOP                          ;LOOP IF SELECTED
     066470  104406                                                      TRAP    C$CLP1
7917
7918                             ;*****************************************************************
7919                             ;
7920                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7921                             ;
7922                             ;*****************************************************************
7923
7924 066472  004737  011104              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7925 066476  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
7926 066502  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7927 066506  103407                      BCS     130$                    ;BR, IF NO PROBLEM
7928 066510  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
7929 066512  005237  002212              INC     FATFLG                  ;BUMP COUNT
7933 066516                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     066516  104456                                                      TRAP    C$ERHRD
     066520  001302                                                      .WORD   706
     066522  073604                                                      .WORD   T26RWN
     066524  012136                                                      .WORD   PKTSSR
7934 066526                      130$:   CKLOOP                          ;LOOP IF SELECTED
     066526  104406                                                      TRAP    C$CLP1
7935
7936                             ;*****************************************************************
```

```
7937                                    ;
7938                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7939                                    ;
7940                                    ;*****************************************************************
7941
7942 066530  013701  072150                    MOV     T26BFR+6,R1             ;PICK UP XSTO
7943 066534  010102                            MOV     R1,R2                   ;SET UP EXPECTED
7944 066536  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7945 066542  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
7946 066544  001406                            BEQ     140$                    ;BR. IF EQUAL (OK)
7947 066546  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7951 066552                                    ERRHRD  ERRNO,T26BOT,EXPREC      TAPE NOT AT BOT AFTER REWIND
     066552  104456                                                            TRAP    C$ERHRD
     066554  001303                                                            .WORD   707
     066556  073315                                                            .WORD   T26BOT
     066560  015564                                                            .WORD   EXPREC
7952 066562                            140$:   CKLOOP                          ;LOOP IF SELECTED
     066562  104406                                                            TRAP    C$CLP1
7953 066564  005303                            DEC     R3                      ;SET RECORD SIZE TO 511.
7954 066566  013737  003114  072252            MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7955
7956                                    ;*****************************************************************
7957                                    ;
7958                                    ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
7959                                    ;
7960                                    ;*****************************************************************
7961
7962 066574  012737  161401  072250            MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
7963 066602  012704  072250            165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7964 066606  010337  072256                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7965 066612  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7966 066616  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7967 066622  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7968 066626  012702  100204                    MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
7969 066632  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
7970 066634  001406                            BEQ     170$                    ;BR. IF OK
7971 066636  005237  002212                    INC     FATFLG                  ;BUMP COUNT
7975 066642                                    ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     066642  104456                                                            TRAP    C$ERHRD
     066644  001304                                                            .WORD   708
     066646  074662                                                            .WORD   T26TRL
     066650  012136                                                            .WORD   PKTSSR
7976 066652                            170$:   CKLOOP                          ;LOOP IF SELECTED
     066652  104406                                                            TRAP    C$CLP1
7977
7978                                    ;*****************************************************************
7979                                    ;
7980                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7981                                    ;
7982                                    ;*****************************************************************
7983
7984 066654  013701  072150                    MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
7985 066660  010102                            MOV     R1,R2                   ;SET UP EXPECTED
7986 066662  052702  010000                    BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
7987 066666  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
7988 066670  001406                            BEQ     180$                    ;BR. IF EQUAL (ALL IS WELL)
7989 066672  005237  002212                    INC     FATFLG                  ;BUMP COUNT
```

```
7993 066676                                ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     066676  104456                                                                TRAP    C$ERHRD
     066700  001305                                                                .WORD   709
     066702  074430                                                                .WORD   T26LON
     066704  015564                                                                .WORD   EXPREC
7994 066706                         180$:  CKLOOP
     066706  104406                                                                TRAP    C$CLP1
7995 066710  012703  000777               MOV     #511.,R3                ;SET UP SIZE OF RECORD
7996 066714  013737  003114  072252       MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7997
7998                                ;*************************************************************************
7999                                ;
8000                                ;REREAD DATA,CVC=1,ACK COMMAND
8001                                ;
8002                                ;*************************************************************************
8003
8004 066722  012737  141401  072250       MOV     #141401,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
8005 066730  012704  072250         365$:  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8006 066734  010337  072256               MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8007 066740  010465  000000               MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8008 066744  004737  016340               JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8009 066750  016501  000002               MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8010 066754  012702  100204               MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8011 066760  020102                       CMP     R1,R2                   ;ARE THEY EQUAL
8012 066762  001406                       BEQ     370$                    ;BR, IF OK
8013 066764  005237  002212               INC     FATFLG                  ;BUMP COUNT
8017 066770                               ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     066770  104456                                                                TRAP    C$ERHRD
     066772  001306                                                                .WORD   710
     066774  074662                                                                .WORD   T26TRL
     066776  012136                                                                .WORD   PKTSSR
8018 067000                         370$:  CKLOOP                          ;LOOP IF SELECTED
     067000  104406                                                                TRAP    C$CLP1
8019
8020                                ;*************************************************************************
8021                                ;
8022                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8023                                ;
8024                                ;*************************************************************************
8025
8026 067002  013701  072150               MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8027 067006  010102                       MOV     R1,R2                   ;SET UP EXPECTED
8028 067010  052702  010000               BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
8029 067014  020102                       CMP     R1,R2                   ;ARE THEY EQUAL
8030 067016  001406                       BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
8031 067020  005237  002212               INC     FATFLG                  ;BUMP COUNT
8035 067024                               ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XSTO
     067024  104456                                                                TRAP    C$ERHRD
     067026  001307                                                                .WORD   711
     067030  074430                                                                .WORD   T26LON
     067032  015564                                                                .WORD   EXPREC
8036 067034                         380$:  CKLOOP
     067034  104406                                                                TRAP    C$CLP1
8037 067036                               ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     067036                                                                   L10115:
     067036  104403                                                                TRAP    C$ESUB
8038 067040  023727  002212  000017       CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
```

```
8039 067046  103402                    BLO     999$                    ;BR, IF LESS THAN 25
8040 067050  004737  017272            JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
8041 067054                    999$:
8042
8043                                   ;*
8044                                   ;
8045                                   ;TEST 6, SUBTEST 12
8046                                   ;
8047                                   ;VERIFIES THAT A REREAD NEXT COMMAND READING A
8048                                   ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
8049                                   ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
8050                                   ;SHORT (RLS) BIT SET.  T IS VERIFIED THAT THE
8051                                   ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
8052                                   ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
8053                                   ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
8054                                   ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
8055                                   ;STATES OF OPP (0 AND 1).
8056                                   ;
8057                                   ;
8058                                   ;
8059                                   ;-
8060 067054                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     067054                                                                    T6.12:
     067054  104402                                                                    TRAP    C$BSUB
8061 067056  004737  075040            JSR     PC,T26REST              ;SET COMMAND PACKET
8062 067062  004737  075132            JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8063 067066  004737  075174            JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8064
8065                                   ;*****************************************************************
8066                                   ;
8067                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8068                                   ;
8069                                   ;*****************************************************************
8070
8071 067072  004737  016064            JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8072 067076  103407                    BCS     20$                     ;BR IF INIT WAS OK
8073 067100  005237  002212            INC     FATFLG                  ;BUMP COUNT
8077 067104  010001                    MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8078 067106                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     067106  104455                                                                    TRAP    C$ERDF
     067110  001310                                                                    .WORD   712
     067112  003650                                                                    .WORD   SFIERR
     067114  012124                                                                    .WORD   SFIMSG
8079 067116  013737  002172  072140  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
8080
8081 067124  012704  072120            MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8082
8083                                   ;*****************************************************************
8084                                   ;
8085                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8086                                   ;
8087                                   ;*****************************************************************
8088
8089 067130  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8090 067134  103407                    BCS     26$                     ;BR, IF COMMAND ISSUED OK
8091 067136  005237  002212            INC     FATFLG                  ;BUMP COUNT
8095 067142  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
```

```
8096 067144                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     067144  104456                                                          TRAP    C$ERHRD
     067146  001311                                                          .WORD   713
     067150  005054                                                          .WORD   WRTMSG
     067152  012124                                                          .WORD   SFIMSG
8097 067154                     26$:    CKLOOP                          ;LOOP IF SELECTED
     067154  104406                                                          TRAP    C$CLP1
8098
8099                            ;*****************************************************************
8100                            ;
8101                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8102                            ;
8103                            ;*****************************************************************
8104
8105 067156  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8106 067162  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
8107 067166  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8108 067172  103407                    BCS     30$                     ;BR. IF NO PROBLEM
8109 067174  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
8110 067176  005237  002212            INC     FATFLG                  ;BUMP COUNT
8114 067202                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     067202  104456                                                          TRAP    C$ERHRD
     067204  001312                                                          .WORD   714
     067206  073604                                                          .WORD   T26RWN
     067210  012136                                                          .WORD   PKTSSR
8115 067212                     30$:    CKLOOP                          ;LOOP IF SELECTED
     067212  104406                                                          TRAP    C$CLP1
8116
8117                            ;*****************************************************************
8118                            ;
8119                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8120                            ;
8121                            ;*****************************************************************
8122
8123 067214  013701  072150            MOV     T26BFR+6,R1             ;PICK UP XST0
8124 067220  010102                    MOV     R1,R2                   ;SET UP EXPECTED
8125 067222  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8126 067226  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
8127 067230  001406                    BEQ     40$                     ;BR. IF EQUAL (OK)
8128 067232  005237  002212            INC     FATFLG                  ;BUMP COUNT
8132 067236                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     067236  104456                                                          TRAP    C$ERHRD
     067240  001313                                                          .WORD   715
     067242  073315                                                          .WORD   T26BOT
     067244  015564                                                          .WORD   EXPREC
8133 067246                     40$:    CKLOOP                          ;LOOP IF SELECTED
     067246  104406                                                          TRAP    C$CLP1
8134 067250  012703  000400            MOV     #256.,R3                ;RECORD SIZE
8135 067254  013737  003114  072252    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8136
8137                            ;*****************************************************************
8138                            ;
8139                            ;WRITE DATA,CVC=1,ACK COMMAND
8140                            ;
8141                            ;*****************************************************************
8142
8143 067262  012737  140005  072250    MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
```

```
8144 067270  012704  072250                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8145 067274                          65$:
8146 067274  010337  072256                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8147 067300  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8148 067304  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8149 067310  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8150 067314  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
8151 067320  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
8152 067322  001406                        BEQ     75$                     ;BR. IF OK
8153 067324  005237  002212                INC     FATFLG                  ;BUMP COUNT
8157 067330                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     067330  104456                                                                TRAP    C$ERHRD
     067332  001314                                                                .WORD   716
     067334  005111                                                                .WORD   WRTERR
     067336  012136                                                                .WORD   PKTSSR
8158 067340                          75$:  CKLOOP                          ;LOOP IF SELECTED
     067340  104406                                                                TRAP    C$CLP1
8159 067342                          120$:
8160
8161                                 ;*****************************************************************
8162                                 ;
8163                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8164                                 ;
8165                                 ;*****************************************************************
8166
8167 067342  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8168 067346  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR
8169 067352  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8170 067356  103407                        BCS     130$                    ;BR. IF NO PROBLEM
8171 067360  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
8172 067362  005237  002212                INC     FATFLG                  ;BUMP COUNT
8176 067366                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     067366  104456                                                                TRAP    C$ERHRD
     067370  001315                                                                .WORD   717
     067372  073604                                                                .WORD   T26RWN
     067374  012136                                                                .WORD   PKTSSR
8177 067376                          130$: CKLOOP                          ;LOOP IF SELECTED
     067376  104406                                                                TRAP    C$CLP1
8178
8179                                 ;*****************************************************************
8180                                 ;
8181                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8182                                 ;
8183                                 ;*****************************************************************
8184
8185 067400  013701  072150                MOV     T26BFR+6,R1             ;PICK UP XST0
8186 067404  010102                        MOV     R1,R2                   ;SET UP EXPECTED
8187 067406  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8188 067412  020102                        CMP     R1,R2                   ;DOES EXP = REC D
8189 067414  001406                        BEQ     135$                    ;BR. IF EQUAL (OK)
8190 067416  005237  002212                INC     FATFLG                  ;BUMP COUNT
8194 067422                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     067422  104456                                                                TRAP    C$ERHRD
     067424  001316                                                                .WORD   718
     067426  073315                                                                .WORD   T26BOT
     067430  015564                                                                .WORD   EXPREC
8195 067432                          135$: CKLOOP                          ;LOOP IF SELECTED
```

```
                 067432  104406                                                          TRAP    C$CLP1
8196             067434  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
8197             067440  013737  003114  072252          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRE
8198
8199                                             ;*****************************************************************
8200                                             ;
8201                                             ;REPEAD NEXT,ACK,CVC=1,OPP=1
8202                                             ;
8203                                             ;*****************************************************************
8204
8205             067446  012737  161401  072250          MOV     #161401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=1
8206             067454  012704  072250          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8207             067460  010337  072256                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8208             067464  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8209             067470  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8210             067474  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8211             067500  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8212             067504  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8213             067506  001406                          BEQ     170$                    ;BR, IF OK
8214             067510  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8218             067514                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
                 067514  104456                                                          TRAP    C$ERHRD
                 067516  001317                                                          .WORD   719
                 067520  074662                                                          .WORD   T26TRL
                 067522  012136                                                          .WORD   PKTSSR
8219             067524                          170$:   CKLOOP                          ;LOOP IF SELECTED
                 067524  104406                                                          TRAP    C$CLP1
8220
8221                                             ;*****************************************************************
8222                                             ;
8223                                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8224                                             ;
8225                                             ;*****************************************************************
8226
8227             067526  013701  072150                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8228             067532  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8229             067534  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8230             067540  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8231             067542  001406                          BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
8232             067544  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8236             067550                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
                 067550  104456                                                          TRAP    C$ERHRD
                 067552  001320                                                          .WORD   720
                 067554  074512                                                          .WORD   T26LOP
                 067556  015564                                                          .WORD   EXPREC
8237             067560                          180$:   CKLOOP
                 067560  104406                                                          TRAP    C$CLP1
8238             067562  013701  072146                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8239             067566  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8240             067572  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8241             067574  001405                          BEQ     190$                    ;BR, IF CORRECT
8245             067600                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
                 067600  104456                                                          TRAP    C$ERHRD
                 067602  001320                                                          .WORD   720
                 067604  074574                                                          .WORD   T26PBP
                 067606  015564                                                          .WORD   EXPREC
8246             067610                          190$:   CKLOOP                          ;LOOP IF SELECTED
```

```
      067610  104406                                                          TRAP    C$CLP1
8247  067612  012703  001000                  MOV     #512.,R3                ;RECORD SIZE
8248  067616  013737  003114  072252          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
8249
8250                                          ;*************************************************************
8251                                          ;
8252                                          ;REREAD NEXT,ACK,CVC=1,OPP=0
8253                                          ;
8254                                          ;*************************************************************
8255
8256  067624  012737  141401  072250          MOV     #141401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=0
8257  067632  012704  072250                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8258  067636  010337  072256                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8259  067642  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8260  067646  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8261  067652  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8262  067656  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8263  067662  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8264  067664  001406                          BEQ     270$                    ;BR, IF OK
8265  067666  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8269  067672                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      067672  104456                                                          TRAP    C$ERHRD
      067674  001321                                                          .WORD   721
      067676  074662                                                          .WORD   T26TRL
      067700  012136                                                          .WORD   PKTSSR
8270  067702                          270$:   CKLOOP                          ;LOOP IF SELECTED
      067702  104406                                                          TRAP    C$CLP1
8271
8272                                          ;*************************************************************
8273                                          ;
8274                                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8275                                          ;
8276                                          ;*************************************************************
8277
8278  067704  013701  072150                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8279  067710  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8280  067712  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8281  067716  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8282  067720  001406                          BEQ     280$                    ;BR, IF EQUAL (ALL IS WELL)
8283  067722  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8287  067726                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      067726  104456                                                          TRAP    C$ERHRD
      067730  001322                                                          .WORD   722
      067732  074512                                                          .WORD   T26LOP
      067734  015564                                                          .WORD   EXPREC
8288  067736                          280$:   CKLOOP
      067736  104406                                                          TRAP    C$CLP1
8289  067740  013701  072146                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8290  067744  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8291  067750  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8292  067752  001405                          BEQ     290$                    ;BR, IF CORRECT
8296  067756                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
      067756  104456                                                          TRAP    C$ERHRD
      067760  001322                                                          .WORD   722
      067762  074574                                                          .WORD   T26PBP
      067764  015564                                                          .WORD   EXPREC
8297  067766                          290$:   CKLOOP                          ;LOOP IF SELECTED
```

```
      067766  104406                                                                  TRAP    C$CLP1
 8298 067770                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      067770                                                                    L10116:
      067770  104403                                                                  TRAP    C$ESUB
 8299 067772  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
 8300 070000  103402                          BLO     999$                    ;BR, IF LESS THAN 25
 8301 070002  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 8302 070006                          999$:
 8303
 8304                                 ;*
 8305                                 ;
 8306                                 ;TEST 6, SUBTEST 13
 8307                                 ;
 8308                                 ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
 8309                                 ;NONEXISTENT MEMORY CAUSES RECOVERABLE ERROR
 8310                                 ;TERMINATION (TC=4 OR 5) WITH NXM=1 AND THAT THE TAPE
 8311                                 ;IS ULTIMATELY POSITIONED PROPERLY. ALL COMBINATIONS
 8312                                 ;OF REREAD PREVIOUS/NEXT AND OPP=0/1 ARE TESTED.
 8313                                 ;-
 8314
 8315 070006                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      070006                                                                    T6.13:
      070006  104402                                                                  TRAP    C$BSUB
 8316 070010  005737  003126                  TST     NXMFLG                  ;DO WE HAVE IT?
 8317 070014  001002                          BNE     10$                     ;BR, IF  ENOUGH
 8318 070016  000137  071020                  JMP     200$                    ;SKIP THIS TEST IF NOT
 8319 070022  004737  075040          10$:    JSR     PC,T26REST              ;SET COMMAND PACKET
 8320 070026  005037  072276                  CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
 8321 070032  004737  075132                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
 8322 070036  004737  075174                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
 8323
 8324                                 ;*****************************************************************
 8325                                 ;
 8326                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 8327                                 ;
 8328                                 ;*****************************************************************
 8329
 8330 070042  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 8331 070046  103407                          BCS     20$                     ;BR IF INIT WAS OK
 8332 070050  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 8336 070054  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 8337 070056                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      070056  104455                                                                  TRAP    C$ERDF
      070060  001323                                                                  .WORD   723
      070062  003650                                                                  .WORD   SFIERR
      070064  012124                                                                  .WORD   SFIMSG
 8338 070066  013737  002172  072140  20$:     MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
 8339
 8340 070074  012704  072120                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 8341
 8342                                 ;*****************************************************************
 8343                                 ;
 8344                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 8345                                 ;
 8346                                 ;*****************************************************************
 8347
 8348 070100  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
```

```
8349 070104  103407                    BCS     26$                     ;BR, IF COMMAND ISSUED OK
8350 070106  005237  002212            INC     FATFLG                  ;BUMP COUNT
8354 070112  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8355 070114                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     070114  104456                                                            TRAP    C$ERHRD
     070116  001324                                                            .WORD   724
     070120  005054                                                            .WORD   WRTMSG
     070122  012124                                                            .WORD   SFIMSG
8356 070124                    26$:    CKLOOP                          ;LOOP IF SELECTED
     070124  104406                                                            TRAP    C$CLP1
8357
8358                           ;*****************************************************************
8359                           ;
8360                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8361                           ;
8362                           ;*****************************************************************
8363
8364 070126  004737  021232            JSR     PC,INVERT               ;INVERT THE EXTENDED FEATURES SWITCH
8365 070132  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8366 070136  103411                    BCS     30$                     ;BR, IF NO PROBLEM
8367 070140  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
8368 070144  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
8369 070146  005237  002212            INC     FATFLG                  ;BUMP COUNT
8373 070152                            ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     070152  104456                                                            TRAP    C$ERHRD
     070154  001325                                                            .WORD   725
     070156  073604                                                            .WORD   T26RWN
     070160  012136                                                            .WORD   PKTSSR
8374 070162                    30$:    CKLOOP                          ;LOOP IF SELECTED
     070162  104406                                                            TRAP    C$CLP1
8375
8376                           ;*****************************************************************
8377                           ;
8378                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8379                           ;
8380                           ;*****************************************************************
8381
8382 070164  013701  072150            MOV     T26BFR+6,R1             ;PICK UP XST0
8383 070170  010102                    MOV     R1,R2                   ;SET UP EXPECTED
8384 070172  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8385 070176  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
8386 070200  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
8387 070202  005237  002212            INC     FATFLG                  ;BUMP COUNT
8391 070206                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     070206  104456                                                            TRAP    C$ERHRD
     070210  001326                                                            .WORD   726
     070212  073315                                                            .WORD   T26BOT
     070214  015564                                                            .WORD   EXPREC
8392 070216                    40$:    CKLOOP                          ;LOOP IF SELECTED
     070216  104406                                                            TRAP    C$CLP1
8393 070220  013737  003114  072252    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8394
8395                           ;*****************************************************************
8396                           ;
8397                           ;WRITE DATA,CVC=1,ACK COMMAND
8398                           ;
8399                           ;*****************************************************************
```

```
8400
8401 070226  012737  140005  072250          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
8402 070234  012704  072250                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8403 070240  012737  000400  072256  65$:     MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8404 070246  013777  072276  112640          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
8405 070254  062737  000001  072276          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
8406 070262  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8407 070266  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8408 070272  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8409 070276  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
8410 070302  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8411 070304  001406                          BEQ     75$                     ;BR, IF OK
8412 070306  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8416 070312                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     070312  104456                                                                  TRAP    C$ERHRD
     070314  001327                                                                  .WORD   727
     070316  005111                                                                  .WORD   WRTERR
     070320  012136                                                                  .WORD   PKTSSR
8417 070322                          75$:    CKLOOP                          ;LOOP IF SELECTED
     070322  104406                                                                  TRAP    C$CLP1
8418 070324  022737  000013  072276          CMP     #11.,T26CNT             ;CHECK NUMBER OF RECORDS WRITTEN
8419 070332  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
8420 070334  000741                          BR      65$                     ;WRITE MORE RECORDS
8421 070336                          120$:
8422 070336  005037  003132                  CLR     NXMHI                           ;SET TO 16 BIT ADDRESS
8423 070342                          125$:
8424 070342  005037  072276                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
8425
8426                                 ;*****************************************************************
8427                                 ;
8428                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8429                                 ;
8430                                 ;*****************************************************************
8431
8432 070346  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8433 070352  103411                          BCS     130$                    ;BR, IF NO PROBLEM
8434 070354  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
8435 070360  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
8436 070362  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8440 070366                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     070366  104456                                                                  TRAP    C$ERHRD
     070370  001330                                                                  .WORD   728
     070372  073604                                                                  .WORD   T26RWN
     070374  012136                                                                  .WORD   PKTSSR
8441 070376                          130$:   CKLOOP                          ;LOOP IF SELECTED
     070376  104406                                                                  TRAP    C$CLP1
8442
8443                                 ;*****************************************************************
8444                                 ;
8445                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8446                                 ;
8447                                 ;*****************************************************************
8448
8449 070400  013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
8450 070404  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8451 070406  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8452 070412  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
```

```
8453 070414  001406                          BEQ     140$                    ;BR, IF EQUAL (OK)
8454 070416  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8458 070422                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     070422  104456                                                                  TRAP    C$ERHRD
     070424  001331                                                                  .WORD   729
     070426  073315                                                                  .WORD   T26BOT
     070430  015564                                                                  .WORD   EXPREC
8459 070432                          140$:   CKLOOP                          ;LOOP IF SELECTED
     070432  104406                                                                  TRAP    C$CLP1
8460 070434  012703  072266                  MOV     #T26RN,R3               ;COMMAND BUFFER ADDRESS
8461 070440  013737  003130  072252  150$:   MOV     NXMLO,T26RB             ;STARTING READ BUFFER ADDRESS
8462 070446  013737  003132  072254          MOV     NXMHI,T26RB+2           ;SET UP HIGH ORDER ADDRESS BITS
8463
8464                                 ;*****************************************************************
8465                                 ;
8466                                 ;REREAD DATA,IE,ACK, OPP COMMAND
8467                                 ;
8468                                 ;*****************************************************************
8469
8470 070454  011337  072250                  MOV     (R3),T26PK3             ;REREAD DATA,IE,ACK, OPP COMMAND
8471 070460  012704  072250          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8472 070464  012737  000400  072256          MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8473 070472  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8474 070476  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8475 070502  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8476 070506  012702  104210                  MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
8477 070512  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8478 070514  001422                          BEQ     170$                    ;BR, IF OK
8479 070516  031327  001000                  BIT     (R3),#BIT9              ;CHECK FOR A READ COMMAND
8480 070522  001403                          BEQ     168$                    ;BR, IF IT WAS A READ COMMAND
8481 070524  030127  000002                  BIT     R1,#BIT1                ;WAS BIT1 SET
8482 070530  001014                          BNE     170$                    ;BR, IF REREAD AND BIT1 SET
8483 070532                          168$:
8484 070532  005237  003132                  INC     NXMHI                   ;BUMP TO NEXT ADDRESS RANGE
8485 070536  023727  003132  000004          CMP     NXMHI,#4                ;CHECK FOR OVERFLOW
8486 070544  001276                          BNE     125$                    ;BR, IF MORE BITS TO GO
8487 070546  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8491 070552                                  ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     070552  104456                                                                  TRAP    C$ERHRD
     070554  001332                                                                  .WORD   730
     070556  072525                                                                  .WORD   T26RRF
     070560  012136                                                                  .WORD   PKTSSR
8492 070562                          170$:   CKLOOP                          ;LOOP IF SELECTED
     070562  104406                                                                  TRAP    C$CLP1
8493
8494                                 ;*****************************************************************
8495                                 ;
8496                                 ;READ DATA, ACK,CVC-1 COMMAND
8497                                 ;
8498                                 ;*****************************************************************
8499
8500 070564  012737  140001  072250          MOV     #140001,T26PK3          ;READ DATA, ACK,CVC-1 COMMAND
8501 070572  012737  000400  072256          MOV     #256.,T26SZ             ;SET SIZE INTO PACKET
8502 070600  005037  072254                  CLR     T26RB+2                 ;CLEAR OUT HIGH ADDRESS BITS
8503 070604  013737  003114  072252          MOV     FREE,T26RB              ;GIVE READ A GOOD BUFFER
8504 070612  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
8505 070616  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR
```

```
8506 070622  016501  000002                  MOV     TSSR(R5),R1             ;PICK UP THE TSSR
8507 070626  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
8508 070632  020102                          CMP     R1,R2                   ;IS THE TSSR OK
8509 070634  001406                          BEQ     180$                    ;BR, IF TSSR OK (GOOD)
8510 070636  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8514 070642                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
     070642  104456                                                          TRAP    C$ERHRD
     070644  001333                                                          .WORD   731
     070646  005204                                                          .WORD   RDERR
     070650  012136                                                          .WORD   PKTSSR
8515 070652                          180$:   CKLOOP                          ;LOOP IF SELECTED
     070652  104406                                                          TRAP    C$CLP1
8516 070654  017701  112234                  MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
8517 070660  012702  000001                  MOV     #1,R2                   ;SET UP EXPECTED
8518 070664  020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
8519 070666  001406                          BEQ     190$                    ;KEEP GOING POSITION OK
8520 070670  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8524 070674                                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     070674  104456                                                          TRAP    C$ERHRD
     070676  001334                                                          .WORD   732
     070700  072306                                                          .WORD   T26WNG
     070702  015564                                                          .WORD   EXPREC
8525 070704                          190$:   CKLOOP
     070704  104406                                                          TRAP    C$CLP1
8526
8527                                 ;*************************************************************************
8528                                 ;
8529                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8530                                 ;
8531                                 ;*************************************************************************
8532
8533 070706  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8534 070712  103411                          BCS     194$                    ;BR, IF NO PROBLEM
8535 070714  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
8536 070720  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
8537 070722  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8541 070726                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     070726  104456                                                          TRAP    C$ERHRD
     070730  001335                                                          .WORD   733
     070732  073604                                                          .WORD   T26RWN
     070734  012136                                                          .WORD   PKTSSR
8542 070736                          194$:   CKLOOP                          ;LOOP IF SELECTED
     070736  104406                                                          TRAP    C$CLP1
8543
8544                                 ;*************************************************************************
8545                                 ;
8546                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8547                                 ;
8548                                 ;*************************************************************************
8549
8550 070740  013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
8551 070744  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8552 070746  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8553 070752  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
8554 070754  001406                          BEQ     196$                    ;BR, IF EQUAL (OK)
8555 070756  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8559 070762                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
```

```
                070762  104456                                                          TRAP    C$ERHRD
                070764  001336                                                          .WORD   734
                070766  073315                                                          .WORD   T26BOT
                070770  015564                                                          .WORD   EXPREC
8560            070772                          196$:   CKLOOP                  ;LOOP IF SELECTED
                070772  104406                                                          TRAP    C$CLP1
8561            070774  010302                          MOV     R3,R2                   ;SAVE R3 FOR A MOMENT
8562
8563                                            ;*******************************************************************
8564                                            ;
8565                                            ;ISSUE SPACE RECORDS COMMAND   VALUE IN R3 SETS NUMBER OF RECORDS
8566                                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
8567                                            ;
8568                                            ;*******************************************************************
8569
8570            070776  012703  000001                  MOV     #1,R3                   ;SPACE ONE RECORD
8571            071002  004737  010556                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
8572            071006  010203                          MOV     R2,R3                   ;RESTORE R3
8573            071010  005723                          TST     (R3)+                   ;BUMP COUNTER
8574            071012  021327  177777                  CMP     (R3),#177777            ;END OF COMMAND BUFFER YET
8575            071016  001210                          BNE     150$                    ;MORE COMMANDS KEEP GOING
8576            071020                          200$:
8577            071020                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                071020                                                                      L10117:
                071020  104403                                                                  TRAP    C$ESUB
8578            071022  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
8579            071030  103402                          BLO     999$                    ;BR. IF LESS THAN 25
8580            071032  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
8581            071036                          999$:
8582
8583                                            ;*
8584                                            ;
8585                                            ;TEST 6, SUBTEST 14
8586                                            ;
8587                                            ;VERIFIES THAT REREAD PREVIOUS WITH OPP=0 (SPACE
8588                                            ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
8589                                            ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
8590                                            ;POSITIONED AT BOT CAUSE FUNCTION REJECT TERMINATION
8591                                            ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
8592                                            ;
8593                                            ;
8594                                            ;
8595                                            ;-
8596            071036                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                071036                                                                      T6.14:
                071036  104402                                                                  TRAP    C$BSUB
8597            071040  005003                          CLR     R3                      ;CLEAR TEST COUNTER
8598            071042  004737  075040                  JSR     PC,T26REST              ;SET COMMAND PACKET
8599            071046  004737  075132                  JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8600            071052  004737  075174                  JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8601
8602                                            ;*******************************************************************
8603                                            ;
8604                                            ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8605                                            ;
8606                                            ;*******************************************************************
8607
```

```
8608 071056  004737  016064              JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8609 071062  103407                      BCS     20$                     ;BR IF INIT WAS OK
8610 071064  005237  002212              INC     FATFLG                  ;BUMP COUNT
8614 071070  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8615 071072                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     071072  104455                                                      TRAP    C$ERDF
     071074  001337                                                      .WORD   735
     071076  003650                                                      .WORD   SFIERR
     071100  012124                                                      .WORD   SFIMSG
8616 071102  013737  002172  072140  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
8617
8618 071110  012704  072120              MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8619
8620                                     ;*************************************************************
8621                                     ;
8622                                     ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8623                                     ;
8624                                     ;*************************************************************
8625
8626 071114  004737  010752              JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8627 071120  103407                      BCS     25$                     ;BR, IF COMMAND ISSUED OK
8628 071122  005237  002212              INC     FATFLG                  ;BUMP COUNT
8632 071126  010001                      MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8633 071130                              ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     071130  104456                                                      TRAP    C$ERHRD
     071132  001340                                                      .WORD   736
     071134  005054                                                      .WORD   WRTMSG
     071136  012124                                                      .WORD   SFIMSG
8634 071140                      25$:    CKLOOP                          ;LOOP IF SELECTED
     071140  104406                                                      TRAP    C$CLP1
8635
8636                                     ;*************************************************************
8637                                     ;
8638                                     ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8639                                     ;
8640                                     ;*************************************************************
8641
8642 071142  004737  011104      26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8643 071146  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR
8644 071152  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8645 071156  103407                      BCS     30$                     ;BR, IF NO PROBLEM
8646 071160  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
8647 071162  005237  002212              INC     FATFLG                  ;BUMP COUNT
8651 071166                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     071166  104456                                                      TRAP    C$ERHRD
     071170  001341                                                      .WORD   737
     071172  073604                                                      .WORD   T26RWN
     071174  012136                                                      .WORD   PKTSSR
8652 071176                      30$:    CKLOOP                          ;LOOP IF SELECTED
     071176  104406                                                      TRAP    C$CLP1
8653
8654                                     ;*************************************************************
8655                                     ;
8656                                     ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8657                                     ;
8658                                     ;*************************************************************
8659
```

```
8660 071200  013701  072150            MOV     T26BFR+6,R1             ;PICK UP XSTO
8661 071204  010102                    MOV     R1,R2                   ;SET UP EXPECTED
8662 071206  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8663 071212  020102                    CMP     R1,R2                   ;DOES EXP = REC D
8664 071214  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
8665 071216  005237  002212            INC     FATFLG                  ;BUMP COUNT
8669 071222                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     071222  104456                                                            TRAP    C$ERHRD
     071224  001342                                                            .WORD   738
     071226  073315                                                            .WORD   T26BOT
     071230  015564                                                            .WORD   EXPREC
8670 071232                    40$:    CKLOOP                          ;LOOP IF SELECTED
     071232  104406                                                            TRAP    C$CLP1
8671 071234  012737  000400  072256        MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8672 071242  013737  003114  072252        MOV     FREE,T26RB              ;ADDRESS OF READ BUFFER
8673 071250  005703                        TST     R3                      ;CHECK NUMBER OF TIMES THROUGH HERE
8674 071252  001404                        BEQ     50$                     ;BR, IF FIRST TIME THROUGH HERE
8675
8676                           ;*****************************************************************
8677                           ;
8678                           ;REREAD,CVC=1,ACK COMMAND
8679                           ;
8680                           ;*****************************************************************
8681
8682 071254  012737  161001  072250        MOV     #161001,T26PK3          ;REREAD,CVC=1,ACK COMMAND
8683 071262  000403                        BR      55$                     ;SKIP NEXT COMMAND
8684
8685                           ;*****************************************************************
8686                           ;
8687                           ;REREAD,ACK COMMAND
8688                           ;
8689                           ;*****************************************************************
8690
8691 071264  012737  141001  072250  50$:   MOV     #141001,T26PK3          ;REREAD,ACK COMMAND
8692 071272                    55$:
8693 071272  012704  072250            MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8694 071276                    65$:
8695 071276  010465  000000            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8696 071302  004737  016340            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8697 071306  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8698 071312  012702  100206            MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
8699 071316  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
8700 071320  001406                    BEQ     75$                     ;BR, IF OK
8701 071322  005237  002212            INC     FATFLG                  ;BUMP COUNT
8705 071326                            ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     071326  104456                                                            TRAP    C$ERHRD
     071330  001343                                                            .WORD   739
     071332  073243                                                            .WORD   T26WDE
     071334  012136                                                            .WORD   PKTSSR
8706 071336                    75$:    CKLOOP                          ;LOOP IF SELECTED
     071336  104406                                                            TRAP    C$CLP1
8707
8708                           ;*****************************************************************
8709                           ;
8710                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8711                           ;
8712                           ;*****************************************************************
```

```
8713
8714 071340  013701  072150          MOV     T26BFR+6,R1             ;GET XSTO STATUS WORD
8715 071344  010102                  MOV     R1,R2                   ;SET UP EXPECTED
8716 071346  052702  002000          BIS     #BIT10,R2               ;SET THE NEF BIT
8717 071352  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
8718 071354  001406                  BEQ     170$                    ;BR, IF EQUAL (GOOD)
8719 071356  005237  002212          INC     FATFLG                  ;BUMP COUNT
8723 071362                          ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
     071362  104456                                                          TRAP    C$ERHRD
     071364  001344                                                          .WORD   740
     071366  072374                                                          .WORD   T26NEF
     071370  015564                                                          .WORD   EXPREC
8724 071372                  170$:   CKLOOP
     071372  104406                                                          TRAP    C$CLP1
8725 071374  005103                  COM     R3                      ;RESET THE SWITCH
8726 071376  001261                  BNE     26$                     ;BR, IF FIRST TIME THROUGH HERE
8727 071400                          ENDSUB
     071400                                                                 L10120:
     071400  104403                                                          TRAP    C$ESUB
8728 071402  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
8729 071410  103402                          BLO     999$                            ;BR, IF LESS THAN 25
8730 071412  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
8731 071416                  999$:
8732
8733                         ;*
8734                         ;
8735                         ;TEST 6, SUBTEST 15
8736                         ;
8737                         ;VERIFIES THAT REREAD PREVIOUS WITH OPP=1 (SPACE
8738                         ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
8739                         ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
8740                         ;POSITIONED JUST BEFORE THE FIRST RECORD ON TAPE (BUT
8741                         ;NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION WITH
8742                         ;THE REVERSE INTO BOT (RIB) STATUS BIT SET.
8743                         ;
8744                         ;
8745                         ;
8746                         ;
8747 071416                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     071416                                                                 T6.15:
     071416  104402                                                          TRAP    C$BSUB
8748 071420  005037  072300          CLR     T26CNU                  ;CLEAR OUT COUNTER
8749 071424  004737  075040          JSR     PC,T26REST              ;SET COMMAND PACKET
8750 071430  004737  075132          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8751 071434  004737  075174          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8752
8753                         ;*****************************************************************
8754                         ;
8755                         ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8756                         ;
8757                         ;*****************************************************************
8758
8759 071440  004737  016064          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8760 071444  103407                  BCS     20$                     ;BR IF INIT WAS OK
8761 071446  005237  002212          INC     FATFLG                  ;BUMP COUNT
8765 071452  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8766 071454                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
```

```
        071454  104455                                                          TRAP    C$ERDF
        071456  001345                                                          .WORD   741
        071460  003650                                                          .WORD   SFIERR
        071462  012124                                                          .WORD   SFIMSG
 8767   071464  013737  002172  072140  20$:    MOV     UNITN,T26DSW            ;SET UP UNIT NUMBER
 8768
 8769   071472  012704  072120                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 8770
 8771                                  ;*****************************************************************
 8772                                  ;
 8773                                  ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 8774                                  ;
 8775                                  ;*****************************************************************
 8776
 8777   071476  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 8778   071502  103407                          BCS     25$                     ;BR, IF COMMAND ISSUED OK
 8779   071504  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 8783   071510  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 8784   071512                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        071512  104456                                                          TRAP    C$ERHRD
        071514  001346                                                          .WORD   742
        071516  005054                                                          .WORD   WRTMSG
        071520  012124                                                          .WORD   SFIMSG
 8785   071522                          25$:    CKLOOP                          ;LOOP IF SELECTED
        071522  104406                                                          TRAP    C$CLP1
 8786
 8787                                  ;*****************************************************************
 8788                                  ;
 8789                                  ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 8790                                  ;
 8791                                  ;*****************************************************************
 8792
 8793   071524  004737  011104          26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 8794   071530  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
 8795   071534  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 8796   071540  103407                          BCS     30$                     ;BR, IF NO PROBLEM
 8797   071542  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
 8798   071544  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 8802   071550                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
        071550  104456                                                          TRAP    C$ERHRD
        071552  001347                                                          .WORD   743
        071554  073604                                                          .WORD   T26RWN
        071556  012136                                                          .WORD   PKTSSR
 8803   071560                          30$:    CKLOOP                          ;LOOP IF SELECTED
        071560  104406                                                          TRAP    C$CLP1
 8804
 8805                                  ;*****************************************************************
 8806                                  ;
 8807                                  ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8808                                  ;
 8809                                  ;*****************************************************************
 8810
 8811   071562  013701  072150                  MOV     T26BFR+6,R1             ;PICK UP XST0
 8812   071566  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 8813   071570  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 8814   071574  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
 8815   071576  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
```

```
8816 071600  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8820 071604                                  ERRHRD  ERRNO,T26BOT EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     071604  104456                                                          TRAP    C$ERHRD
     071606  001350                                                          .WORD   744
     071610  073315                                                          .WORD   T26BOT
     071612  015564                                                          .WORD   EXPREC
8821 071614                          40$:    CKLOOP
     071614  104406                                                          TRAP    C$CLP:
8822
8823                                 ;*****************************************************************
8824                                 ;
8825                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
8826                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
8827                                 ;
8828                                 ;*****************************************************************
8829
8830 071616  012703  000001                  MOV     #000001,R3              ;SET UP SPACE FORWARD 1 RECORD
8831 071622  004737  010556                  JSR     PC,SPACE                ;ISSUE SPACE COMMAND
8832 071626  103411                          BCS     75$                     ;BR, IF OK
8833 071630  016501  000002                  MOV     TSSR(R5),R1             ;GET STATUS DATA
8834 071634  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
8835 071636  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8839 071642                                  ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     071642  104456                                                          TRAP    C$ERHRD
     071644  001351                                                          .WORD   745
     071646  073243                                                          .WORD   T26WDE
     071650  012136                                                          .WORD   PKTSSR
8840 071652                          75$.    CKLOOP                          ;LOOP IF SELECTED
     071652  104406                                                          TRAP    C$CLP1
8841
8842                                 ;*****************************. *********************************
8843                                 ;
8844                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
8845                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
8846                                 ;
8847                                 ;*****************************************************************
8848
8849 071654  012703  100001                  MOV     #100001,R3              ;SET SPACE REVERSE 1 RECORD
8850 071660  004737  010556                  JSR     PC,SPACE                ;ISSUE COMMAND
8851 071664  103411                          BCS     175$                    ;GO ON IF ALL IS WELL
8852 071666  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8853 071672  010004                          MOV     R0,R4                   ;SET UP EXPECTED (PACKET CONTENTS)
8854 071674  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8858 071700                                  ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     071700  104456                                                          TRAP    C$ERHRD
     071702  001352                                                          .WORD   746
     071704  073243                                                          .WORD   T26WDE
     071706  012136                                                          .WORD   PKTSSR
8859 071710                          175$.   CKLOOP                          ;LOOP IF SELECTED
     071710  104406                                                          TRAP    C$CLP1
8860 071712  013737  003114  072252          MOV     FREE,T26RB              ;ADDRESS OF BUFFER
8861 071720  005737  072300                  TST     T26CNU                  ;CHECK FOR TIMES THROUGH HERE
8862 071724  001404                          BEQ     176$                    ;BR, IF FIRST TIME THROUGH
8863
8864                                 ;*****************************************************************
8865                                 ;
8866                                 ;RFREAD (PREVIOUS),IE,ACK,OPP=1 CMD
```

```
8866                                    ;
8868                                    ;*****************************************************************
8869
8870 071726  012737  161001  072250          MOV     #161001,T26PK3          ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD
8871 071734  000403                          BR      178$                    ;SKIP NEXT COMMAND
8872
8873                                    ;*****************************************************************
8874                                    ;
8875                                    ;REREAD ,ACK,OPP=1 COMMAND
8876                                    ;
8877                                    ;*****************************************************************
8878
8879 071736  012737  141001  072250  176$:  MOV     #141001,T26PK3          ;REREAD ,ACK,OPP=1 COMMAND
8880 071744                            178$:
8881 071744  012704  072250                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8882 071750  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8883 071754  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8884 071760  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8885 071764  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8886 071770  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8887 071772  001406                          BEQ     180$                    ;BR, IF OK
8888 071774  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8892 072000                                  ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     072000  104456                                                                  TRAP    C$ERHRD
     072002  001353                                                                  .WORD   747
     072004  073243                                                                  .WORD   T26WDE
     072006  012136                                                                  .WORD   PKTSSR
8893 072010                            180$:  CKLOOP                          ;LOOP IF SELECTED
     072010  104406                                                                  TRAP    C$CLP1
8894 072012  013701  072156                  MOV     T26FR+14,R1             ;GET XST3 STATUS WORD
8895 072016  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8896 072020  052702  000001                  BIS     #BIT0,R2                ;SET THE NEF BIT
8897 072024  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8898 072026  001406                          BEQ     190$                    ;BR, IF EQUAL (GOOD)
8899 072030  005237  002212                  INC     FATFLG                  ;BUMP COUNT
8903 072034                                  ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
     072034  104456                                                                  TRAP    C$ERHRD
     072036  001354                                                                  .WORD   748
     072040  072374                                                                  .WORD   T26NEF
     072042  015564                                                                  .WORD   EXPREC
8904 072044                            190$:  CKLOOP
     072044  104406                                                                  TRAP    C$CLP1
8905 072046  005137  072300                  COM     T26CNU                  ;SET SWITCH THE OTHER WAY
8906 072052  001224                          BNE     26$                     ;BR, IF FIRST TIME THROUGH
8907 072054                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     072054                                                                       L10121:
     072054  104403                                                                  TRAP    C$ESUB
8908 072056  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
8909 072064  103402                          BLO     999$                            ;BR, IF LESS THAN 25
8910 072066  004737  017272                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
8911 072072                            999$:
8912                                    ;
8913                                    ;
8914                                    ;
8915 072072  004737  016546                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
8916 072076  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
8917 072100  000137  055710                  JMP     T26LOOP                 ;EXECUTE AGAIN
```

```
8918 072104                             1638:
8919 072104                                     EXIT    TST                     ;ALL DONE THIS TEST
     072104  104432                                                                     TRAP    C$EXIT
     072106  003116                                                                     .WORD   L10102 .
8920
8921                                    ;*
8922                                    ;LOCAL STORAGE FOR THIS TEST
8923                                    ;-
8925 072110                                     .BLKB   10-<.-TSV2&7>
8927 072120                             T26PACKET:                              ;COMMAND PACKET FOR TEST
8928 072120  014004                             .WORD   14004                   ;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
8929 072122  072130                             .WORD   T26DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
8930 072124  000000                             .WORD   0
8931 072126  000012                             .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
8932 072130                             T26DATA:                                ;CHARACTERISTICS DATA BLOCK
8933 072130  072142                             .WORD   T26BFR                  ;ADDRESS OF MESSAGE BUFFER
8934 072132  000000                             .WORD   0
8935 072134  000024                             .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
8936 072136  000000                             .WORD   0
8937 072140  000000                     T26DSW: .WORD   0                       ;SELECT DRIVE 0
8938 072142                             T26BFR: .BLKW   25.                     ;MESSAGE BUFFER
8939                                    ;
8940                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
8941                                    ;
8943 072224                                     .BLKB   10-<.-TSV2&7>
8945 072230                             T26PK2:
8946 072230  100006                             .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, AND ACK
8947 072232  072260                             .WORD   T26BF2                  ;ADDRESS OF SELECT BLOCK DATA
8948 072234  000000                             .WORD   0
8949 072236  000006                             .WORD   6.                      ;SIZE OF DATA PACKET
8950
8952 072240                                     .BLKB   10-<.-TSV2&7>
8954 072250                             T26PK3:
8955 072250  140005                             .WORD   140005                  ;REREAD COMMAND, CVC=1 AND ACK
8956 072252                             T26RB:
8957 072252  003114                     T26WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
8958 072254  000000                             .WORD   0
8959 072256  000000                     T26SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
8960                                            .EVEN
8961                                    ;
8962                                    ;
8963                                    ;
8964 072260                             T26BF2:
8965 072260     010                     T26BS0: .BYTE   10                      ;BSEL0 AREA
8966 072261     200                     T26BS1: .BYTE   200                     ;BSEL1 AREA
8967 072262  000000                     T26S2:  .WORD   0                       ;SEL 2 AREA
8968 072264  000000                     T26S3:  .WORD   0                       ;DATA AREA
8969                                    ;
8970                                    ;
8971                                            .EVEN
8972                                    ;TAPE MOTION PACKET COMMAND VALUES
8973
8974 072266  140001                     T26RN:  .WORD   140001                  ;READ DATA
8975 072270  141401                             .WORD   141401                  ;REREAD NEXT OPP=0
8976 072272  161401                             .WORD   161401                  ;REREAD NEXT OPP=1
8977 072274  177777                             .WORD   177777                  ;END OF DATA
8978
```

```
8979                                    ;
8980 072276  000000                     T26CNT: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA
8981 072300  000000                     T26CNU: .WORD   0               ;TAPE RECORD COUNTER STORAGE AREA
8982
8983 072302  000000                     T26RSZ: .WORD   0               ;RECORD STORAGE SIZE  AREA
8984
8985 072304  000000                     T26DLY: .WORD   0               ;DELAY COUNTER AREA
8986
8987
8988                                    ;+
8989                                    ;LOCAL TEXT MESSAGES FOR TEST
8990                                    ;-
8991
8992
8993 072306      124     141     160    T26WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)
8994 072374      122     105     122    T26NEF: .ASCIZ  'REREAD PREVIOUS, At BOT, Failed To Set NEF (XSTO)'
8995 072456      124     123     123    T26RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
8996 072525      122     105     122    T26RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
8997 072622      122     105     122    T26RRG: .ASCIZ  'REREAD Previous (Read Reverse, Space Forward) Command Failed'
8998 072717      120     117     123    T26SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
8999 073001      122     111     102    T26LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
9000 073051      124     123     123    T26WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
9001 073126      111     154     154    T26LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
9002 073207      122     105     122    T26SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
9003 073243      124     123     123    T26WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
9004 073315      124     141     160    T26BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
9005 073362      104     141     164    T26DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape
9006 073450      122     105     122    T26EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
9007 073527      124     123     123    T26TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
9008 073604      122     145     167    T26RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
9009 073753      122     101     115    T26RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram
9010 074025      124     123     123    T26AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
9011 073775      104     162     151    T26OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
9012 074050      124     123     123    T26WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set
9013 074140      124     123     123    T26WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
9014 074213      103     126     103    T26VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
9015 074266      124     123     102    T26BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
9016 074341      127     122     111    T26WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)
9017 074430      122     145     141    T26LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
9018 074512      122     145     141    T26LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
9019 074574      122     145     163    T26PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
9020 074662      122     145     141    T26TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert
9021 074750      104     141     164    T26NEQ: .ASCIZ  'Data REREAD From Tape Not Correct, After SWB=1
9022 075027      122     145     162    TST26ID:        .ASCIZ  'Rereads'
9023                                            .EVEN
9024                                    ;+
9025                                    ;
9026                                    ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
9027                                    ;WRITE SUBSYSTEM MEMORY COMMAND
9028                                    ;
9029                                    ;-
9030
9031 075040                             T26REST:
9032 075040                                     SAVREG                          ;SAVE THE REGISTERS
9033 075044  012701  072120                     MOV     #T26PACKET,R1           ;START OF THE PACKET
9034 075050  012721  140004                     MOV     #140004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, CVC=1
9035 075054  012721  072130                     MOV     #T26DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
```

```
9036 075060 005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
9037 075062 012721 000012                   MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
9038 075066 012721 072142                   MOV     #T26BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
9039 075072 005021                          CLR     (R1)+
9040 075074 012721 000024                   MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
9041 075100 005021                          CLR     (R1)+
9042 075102 012711 000000                   MOV     #0,(R1)                 ;SELECT DRIVE ZERO (0)
9043 075106 012702 000030                   MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
9044 075112 012762 177777 072142  64$:      MOV     #177777,T26BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
9045 075120 005742                          TST     -(R2)                   ;NEXT LOCATION
9046 075122 020227 000000                   CMP     R2,#0                   ;CHECK FOR END OF LOOP
9047 075126 001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
9048 075130 000207                          RTS     PC                      ;RETURN
9049
9050
9051 075132                         T26RT2:
9052 075132                                 SAVREG                          ;SAVE THE REGISTERS
9053 075136 012701 072230                   MOV     #T26PK2,R1              ;START OF THE PACKET
9054 075142 012721 140006                   MOV     #140006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,CVC=1,
9055 075146 012721 072260                   MOV     #T26BF2,(R1)+           ;ADDRESS OF DATA BLOCK
9056 075152 005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
9057 075154 012721 000006                   MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
9058 075160 005021                          CLR     (R1)+
9059 075162 012701 072260                   MOV     #T26BF2,R1              ;POINT TO DATA SEL AREA
9060 075166 005021                          CLR     (R1)+
9061 075170 005011                          CLR     (R1)
9062 075172 000207                          RTS     PC                      ;RETURN
9063 075174                         T26RT3:
9064 075174                                 SAVREG                          ;SAVE THE REGISTERS
9065 075200 012701 072250                   MOV     #T26PK3,R1              ;START OF THE PACKET
9066 075204 012721 000000                   MOV     #0,(R1)+                ;WRITE SUBSYSTEM MEM. WITH ACK,
9067 075210 012721 000000                   MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
9068 075214 005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
9069 075216 012711 000000                   MOV     #0,(R1)         ;SIZE OF DATA BLOCK IN BYTES
9070 075222 000207                          RTS     PC                      ;RETURN
9071 075224                                 ENDTST
     075224                                                                 L10102:
     075224 104401                                                              TRAP    C$ETST
9072
9073                                        .SBTTL  TEST  7: WRITE DATA RETRY
9074                                ;+
9075                                ;
9076                                ;THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY
9077                                ;COMMAND (SPACE REVERSE, ERASE, WRITE DATA)
9078                                ;
9079                                ;
9080                                ;THE TEST CONSISTS OF THE FOLLOWING 5 SUBTESTS
9081                                ;
9082                                ;
9083                                ;
9084                                ;-
9085 075226                                 BGNTST
     075226                                                                 T7::
9086 075226 012737 006446 002170            MOV     @#EPRT2,EPRTSW          ;SECONDARY ERROR MESSAGE
9087 075234 005037 003124                   CLR     KTENABLE                ;TURN OFF KT11
9088 075240 004737 017364                   JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
9093 075244 012700 105063                   MOV     #TST27ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
```

```
9094 075250  004737  016600                JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
9095 075254  012737  000005  002206        MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
9096 075262  005037  102126                CLR     T27CNT                  ;CLEAR TAPE RECORD COUNTER
9097                                ;+
9098                                ;
9099                                ;TEST 7, SUBTEST 1
9100                                ;
9101                                ;
9102                                ;VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE
9103                                ;THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT
9104                                ;TERMINATION, WITH THE NON-EXECUTABLE FUNCTION (NEF)
9105                                ;ERROR BIT SET.
9106                                ;
9107                                ;
9108                                ;-
9109
9110 075266                        T27LOOP:
9111 075266                        BGNSUB                                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     075266                                                                                T7.1:
     075266  104402                                                                        TRAP    C$BSUB
9112 075270  004737  105104                JSR     PC,T27REST              ;SET COMMAND PACKET
9113 075274  004737  105176                JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
9114 075300  004737  105240                JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
9115 075304  012737  176750  102132        MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
9116 075312  005037  102126                CLR     T27CNT                  ;CLEAR COUNTER
9117
9118                                ;*****************************************************************
9119                                ;
9120                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9121                                ;
9122                                ;*****************************************************************
9123
9124 075316  004737  016064        10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9125 075322  103426                BCS     20$                             ;BR IF INIT WAS OK
9126 075324                        DELAY   250                             ;DELAY ABOUT .25 SEC
     075324  012727  000250                                                            MOV     #250.,(PC)+
     075330  000000                                                                    .WORD   0
     075332  013727  002116                                                            MOV     L$DLY,(PC)+
     075336  000000                                                                    .WORD   0
     075340  005367  177772                                                            DEC     -6(PC)
     075344  001375                                                                    BNE     .-4
     075346  005367  177756                                                            DEC     -22(PC)
     075352  001367                                                                    BNE     .-20
9127 075354  005337  102132                DEC     T27DLY                  ;BUMP COUNTER
9128 075360  001356                BNE     10$                             ;BR, IF COUNTER NOT DONE
9129 075362  005237  002212                INC     FATFLG                  ;BUMP COUNT
9133 075366  010001                MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
9134 075370                        ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
     075370  104455                                                                    TRAP    C$ERDF
     075372  001275                                                                    .WORD   701
     075374  003650                                                                    .WORD   SFIERR
     075376  012124                                                                    .WORD   SFIMSG
9135 075400  013737  002172  101770  20$:    MOV     UNITN,T27DSW            ;SET UP DRIVE NUMBER
9136 075406  012704  101750                MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
9137
9138                                ;*****************************************************************
9139                                ;
```

```
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*****************************************************************
                                ;
075412  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
075416  103407                        BCS     25$                     ;BR, IF COMMAND ISSUED OK
075420  005237  002212                INC     FATFLG                  ;BUMP COUNT
075424  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
075426                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
075426  104456                                                                TRAP    C$ERHRD
075430  001276                                                                .WORD   702
075432  005054                                                                .WORD   WRTMSG
075434  012124                                                                .WORD   SFIMSG
075436                          25$:  CKLOOP                          ;LOOP IF SELECTED
075436  104406                                                                TRAP    C$CLP1
                                ;
                                ;*****************************************************************
                                ;
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                ;
                                ;*****************************************************************
075440  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
075444  103407                        BCS     30$                     ;BR, IF NO PROBLEM
075446  010004                        MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
075450  005237  002212                INC     FATFLG                  ;BUMP COUNT
075454                                ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
075454  104456                                                                TRAP    C$ERHRD
075456  001277                                                                .WORD   703
075460  103305                                                                .WORD   T27RWN
075462  012136                                                                .WORD   PKTSSR
075464                          30$:  CKLOOP                          ;LOOP IF SELECTED
075464  104406                                                                TRAP    C$CLP1
                                ;
                                ;*****************************************************************
                                ;
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                                ;
                                ;*****************************************************************
075466  013701  102000                MOV     T27BFR+6,R1             ;PICK UP XST0
075472  010102                        MOV     R1,R2                   ;SET UP EXPECTED
075474  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
075500  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
075502  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
075504  005237  002212                INC     FATFLG                  ;BUMP COUNT
075510                                ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
075510  104456                                                                TRAP    C$ERHRD
075512  001300                                                                .WORD   704
075514  103001                                                                .WORD   T27BOT
075516  015564                                                                .WORD   EXPREC
075520                          40$:  CKLOOP                          ;LOOP IF SELECTED
075520  104406                                                                TRAP    C$CLP1
075522  012737  000400  102106        MOV     #256.,T27SZ             ;SET UP RECORD SIZE
075530  013737  003114  102102        MOV     FREE,T27WB              ;ADDRESS OF WRITE BUFFER
                                ;
                                ;*****************************************************************
```

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

075536  012737  141005  102100            MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
075544  012704  102100                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
075550  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
075554  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
075560  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
075564  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
075570  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
075572  001406                          BEQ     75$                     ;BR, IF OK
075574  005237  002212                  INC     FATFLG                  ;BUMP COUNT
075600                                  ERRHRD  ERRNO,T27WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
075600  104456                                                                  TRAP    C$ERHRD
075602  001301                                                                  .WORD   705
075604  102712                                                                  .WORD   T27WDE
075606  012136                                                                  .WORD   PKTSSR
075610                          75$:    CKLOOP                          ;LOOP IF SELECTED
075610  104406                                                                  TRAP    C$CLP1

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

075612  013701  102000                    MOV     T27BFR+6,R1             ;GET XSTO STATUS WORD
075616  010102                          MOV     R1,R2                   ;SET UP EXPECTED
075620  052702  002000                    BIS     #BIT10,R2               ;SET THE NEF BIT
075624  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
075626  001406                          BEQ     170$                    ;BR, IF EQUAL (GOOD)
075630  005237  002212                  INC     FATFLG                  ;BUMP COUNT
075634                                  ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
075634  104456                                                                  TRAP    C$ERHRD
075636  001302                                                                  .WORD   706
075640  104451                                                                  .WORD   T27NEF
075642  015564                                                                  .WORD   EXPREC
075644                          170$:   CKLOOP
075644  104406                                                                  TRAP    C$CLP1
075646                                  ENDSUB
075646                                                                  L10123:
075646  104403                                                                  TRAP    C$ESUB
075650  023727  002212  000017                CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
075656  103402                          BLO     999$                    ;BR, IF LESS THAN 25
075660  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
075664                          999$:

                                        ;+
                                        ;
                                        ;TEST 7, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT WRITE DATA RETRY COMMAND ISSUED WHILE
                                        ;THE TAPE IS POSITIONED BEFORE THE FIRST RECORD ON
                                        ;TAPE (BUT NOT AT BOT) RESULTS IN TAPE STATUS ALERT
                                        ;TERMINATION, WITH THE REVERSE INTO BOT (RIB) STATUS
```

```
                                        ;ERROR BIT SET.
                                        ;
                                        ;
                                        ;
                                        ;
075664                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
075664                                                                                  T7.2:
075664  104402                                                                          TRAP    C$BSUB
075666  004737  105104                        JSR     PC,T27REST                      ;SET COMMAND PACKET
075672  004737  105176                        JSR     PC,T27RT2                       ;SET UP OTHER COMMAND PACKET
075676  004737  105240                        JSR     PC,T27RT3                       ;SET UP OTHER COMMAND PACKET

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

075702  004737  016064                        JSR     PC,SOFINIT                      ;DO INITIALIZE ON CONTROLLER
075706  103407                                BCS     20$                             ;BR IF INIT WAS OK
075710  005237  002212                        INC     FATFLG                          ;BUMP COUNT
075714  010001                                MOV     R0,R1                           ;CONTENTS OF TSSR REGISTER
075716                                        ERRDF   ERRNO,SFIERR,SFIMSG             ;FATAL ERROR TSSR WAS NOT OK
075716  104455                                                                          TRAP    C$ERDF
075720  001303                                                                          .WORD   707
075722  003650                                                                          .WORD   SFIERR
075724  012124                                                                          .WORD   SFIMSG
075726  013737  002172  101770        20$:    MOV     UNITN,T27DSW                    ;SET UP DRIVE NUMBER
075734  012704  101750                        MOV     #T27PACKET,R4                   ;SUBROUTINE NEEDS PACKET ADDRESS

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

075740  004737  010752                        JSR     PC,WRTCHR                       ;ISSUE WRITE CHARACTERISTICS
075744  103407                                BCS     25$                             ;BR, IF COMMAND ISSUED OK
075746  005237  002212                        INC     FATFLG                          ;BUMP COUNT
075752  010001                                MOV     R0,R1                           ;SAVE CONTENTS OF TSSR
075754                                        ERRHRD  ERRNO,WRTMSG,SFIMSG             ;WRITE CHARACTERISTISC FAILED
075754  104456                                                                          TRAP    C$ERHRD
075756  001304                                                                          .WORD   708
075760  005054                                                                          .WORD   WRTMSG
075762  012124                                                                          .WORD   SFIMSG
075764                          25$:          CKLOOP                          ;LOOP IF SELECTED
075764  104406                                                                          TRAP    C$CLP1

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

075766  004737  011104                        JSR     PC,REWIND                       ;CALL TAPE REWIND COMMAND
075772   03411                                BCS     26$                             ;BR, IF NO PROBLEM
075774  010004                                MOV     R0,R4                           ;SET UP REWIND PACKET ADDRESS
```

```
9294 075776  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9295 076002  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9299 076006                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     076006  104456                                                          TRAP    C$ERHRD
     076010  001305                                                          .WORD   709
     076012  103305                                                          .WORD   T27RWN
     076014  012136                                                          .WORD   PKTSSR
9300 076016                          26$:    CKLOOP                          ;LOOP IF SELECTED
     076016  104406                                                          TRAP    C$CLP1
9301 076020  012703  000400                  MOV     #256.,R3                        ;STARTING RECORD SIZE
9302 076024  013737  003114  102102          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
9303
9304                                 ;*****************************************************************
9305                                 ;
9306                                 ;WRITE DATA,CVC=1,ACK COMMAND
9307                                 ;
9308                                 ;*****************************************************************
9309
9310 076032  012737  140005  102100          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
9311 076040  012704  102100                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9312 076044  010337  102106                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9313 076050  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9314 076054  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9315 076060  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9316 076064  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
9317 076070  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
9318 076072  001406                          BEQ     28$                     ;BR. IF OK
9319 076074  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9323 076100                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     076100  104456                                                          TRAP    C$ERHRD
     076102  001306                                                          .WORD   710
     076104  005111                                                          .WORD   WRTERR
     076106  012136                                                          .WORD   PKTSSR
9324 076110                          28$:    CKLOOP                          ;LOOP IF SELECTED
     076110  104406                                                          TRAP    C$CLP1
9325
9326                                 ;*****************************************************************
9327                                 ;
9328                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9329                                 ;
9330                                 ;*****************************************************************
9331
9332 076112  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9333 076116  103411                          BCS     30$                     ;BR. IF NO PROBLEM
9334 076120  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9335 076124  010004                          MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9336 076126  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9340 076132                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     076132  104456                                                          TRAP    C$ERHRD
     076134  001307                                                          .WORD   711
     076136  103305                                                          .WORD   T27RWN
     076140  012136                                                          .WORD   PKTSSR
9341 076142                          30$:    CKLOOP                          ;LOOP IF SELECTED
     076142  104406                                                          TRAP    C$CLP1
9342
9343                                 ;*****************************************************************
9344                                 ;
```

```
9345                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9346                                    ;
9347                                    ;*****************************************************************
9348
9349 076144  013701  102000                    MOV     T27BFR+6,R1             ;PICK UP XSTO
9350 076150  010102                            MOV     R1,R2                   ;SET UP EXPECTED
9351 076152  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9352 076156  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
9353 076160  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
9354 076162  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9358 076166                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     076166  104456                                                                    TRAP    C$ERHRD
     076170  001310                                                                    .WORD   712
     076172  103001                                                                    .WORD   T27BOT
     076174  015564                                                                    .WORD   EXPREC
9359 076176                            40$:    CKLOOP                          ;LOOP IF SELECTED
     076176  104406                                                                    TRAP    C$CLP1
9360
9361                                    ;*****************************************************************
9362                                    ;
9363                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
9364                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
9365                                    ;
9366                                    ;*****************************************************************
9367
9368 076200  012703  000001                    MOV     #1,R3                   ;PARAMETER SPACE FORWARD 1 RECORD
9369 076204  004737  010556                    JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
9370 076210  103413                            BCS     50$                     ;BR, IF NO ERRORS
9371 076212  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9372 076216  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9373 076222  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9374 076224  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9378 076230                                    ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
     076230  104456                                                                    TRAP    C$ERHRD
     076232  001311                                                                    .WORD   713
     076234  104547                                                                    .WORD   T27SCF
     076236  012136                                                                    .WORD   PKTSSR
9379 076240                            50$:    CKLOOP                          ;LOOP IF SELECTED
     076240  104406                                                                    TRAP    C$CLP1
9380
9381                                    ;*****************************************************************
9382                                    ;
9383                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
9384                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
9385                                    ;
9386                                    ;*****************************************************************
9387
9388 076242  012703  100001                    MOV     #100001,R3              ;PARAMETER SPACE REVERSE 1 RECORD
9389 076246  004737  010556                    JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
9390 076252  103413                            BCS     60$                     ;BR, IF NO ERRORS
9391 076254  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9392 076260  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9393 076264  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9394 076266  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9398 076272                                    ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
     076272  104456                                                                    TRAP    C$ERHRD
     076274  001312                                                                    .WORD   714
```

```
                076276  104547                                                          .WORD   T27SCF
                076300  012136                                                          .WORD   PKTSSR
   9399         076302                          60$:    CKLOOP                          ;LOOP IF SELECTED
                076302  104406                                                          TRAP    C$CLP1
   9400         076304  013737  003114  102102          MOV     FREE,T27RB              ;ADDRESS OF BUFFER
   9401
   9402                                           ;*****************************************************************
   9403                                           ;
   9404                                           ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
   9405                                           ;
   9406                                           ;*****************************************************************
   9407
   9408         076312  012737  141005  102100          MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
   9409         076320  012737  000400  102106          MOV     #256.,T27SZ             ;SET UP THE SIZE OF RECORD
   9410         076326  012704  102100                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
   9411         076332  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
   9412         076336  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
   9413         076342  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
   9414         076346  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED TAPE STATUS ALERT
   9415         076352  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
   9416         076354  001406                          BEQ     180$                    ;BR, IF OK
   9417         076356  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   9421         076362                                  ERRHRD  ERRNO,T27TSA,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
                076362  104456                                                                  TRAP    C$ERHRD
                076364  001313                                                                  .WORD   715
                076366  104624                                                                  .WORD   T27TSA
                076370  012136                                                                  .WORD   PKTSSR
   9422         076372                          180$:   CKLOOP                          ;LOOP IF SELECTED
                076372  104406                                                          TRAP    C$CLP1
   9423         076374  013701  102006                  MOV     T27BFR+14,R1            ;GET XST3 STATUS WORD
   9424         076400  010102                          MOV     R1,R2                   ;SET UP EXPECTED
   9425         076402  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT
   9426         076406  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
   9427         076410  001406                          BEQ     190$                    ;BR, IF EQUAL (GOOD)
   9428         076412  005237  002212                  INC     FATFLG                  ;BUMP COUNT
   9432         076416                                  ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
                076416  104456                                                                  TRAP    C$ERHRD
                076420  001314                                                                  .WORD   716
                076422  104451                                                                  .WORD   T27NEF
                076424  015564                                                                  .WORD   EXPREC
   9433         076426                          190$:   CKLOOP
                076426  104406                                                                  TRAP    C$CLP1
   9434         076430                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                076430                                                                                  L10124:
                076430  104403                                                                  TRAP    C$ESUB
   9435         076432  023727  002212  000017                  CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
   9436         076440  103402                                  BLO     999$                    ;BR, IF LESS THAN 25
   9437         076442  004737  017272                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
   9438         076446                          999$:
   9439
   9440                                           ;*
   9441                                           ;
   9442                                           ;TEST 7, SUBTEST 3
   9443                                           ;
   9444                                           ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=0
   9445                                           ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
   9446                                           ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
```

```
9447                                    ;BYTE COUNTS AND DATA PATTERNS ARE USED.
9448                                    ;
9449                                    ;
9450                                    ;
9451                                    ;
9452 076446                             BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      076446                                                                  T7.3:
      076446  104402                                                            TRAP    C$BSUB
9453 076450  004737  105104             JSR     PC,T27REST              ;SET COMMAND PACKET
9454 076454  004737  105176             JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
9455 076460  004737  105240             JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
9456
9457                                    ;*********************************************************************
9458                                    ;
9459                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9460                                    ;
9461                                    ;*********************************************************************
9462
9463 076464  004737  016064             JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9464 076470  103407                     BCS     20$                     ;BR IF INIT WAS OK
9465 076472  005237  002212             INC     FATFLG                  ;BUMP COUNT
9469 076476  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
9470 076500                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      076500  104455                                                            TRAP    C$ERDF
      076502  001315                                                            .WORD   717
      076504  003650                                                            .WORD   SFIERR
      076506  012124                                                            .WORD   SFIMSG
9471 076510  013737  002172  101770 20$:    MOV     UNITN,T27DSW            ;SET UP UNIT NUMBER IN PACKET
9472 076516  012704  101750             MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
9473
9474                                    ;*********************************************************************
9475                                    ;
9476                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
9477                                    ;
9478                                    ;*********************************************************************
9479
9480 076522  004737  010752             JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
9481 076526  103407                     BCS     23$                     ;BR, IF COMMAND ISSUED OK
9482 076530  005237  002212             INC     FATFLG                  ;BUMP COUNT
9486 076534  010001                     MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
9487 076536                             ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      076536  104456                                                            TRAP    C$ERHRD
      076540  001316                                                            .WORD   718
      076542  005054                                                            .WORD   WRTMSG
      076544  012124                                                            .WORD   SFIMSG
9488 076546                     23$:    CKLOOP                          ;LOOP IF SELECTED
      076546  104406                                                            TRAP    C$CLP1
9489
9490                                    ;*********************************************************************
9491                                    ;
9492                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9493                                    ;
9494                                    ;*********************************************************************
9495
9496 076550  004737  011104             JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9497 076554  103407                     BCS     30$                     ;BR, IF NO PROBLEM
9498 076556  010004                     MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
```

```
9499 076560  005237  002212              INC     FATFLG                  ;BUMP COUNT
9503 076564                              ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     076564  104456                                                      TRAP    C$ERHRD
     076566  001317                                                      .WORD   719
     076570  103305                                                      .WORD   T27RWN
     076572  012136                                                      .WORD   PKTSSR
9504 076574                      30$:    CKLOOP                          ;LOOP IF SELECTED
     076574  104406                                                      TRAP    C$CLP1
9505
9506                             ;*****************************************************************
9507                             ;
9508                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9509                             ;
9510                             ;*****************************************************************
9511
9512 076576  013701  102000              MOV     T27BFR+6,R1             ;PICK UP XST0
9513 076602  010102                      MOV     R1,R2                   ;SET UP EXPECTED
9514 076604  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9515 076610  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
9516 076612  001406                      BEQ     40$                     ;BR, IF EQUAL (OK)
9517 076614  005237  002212              INC     FATFLG                  ;BUMP COUNT
9521 076620                              ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     076620  104456                                                      TRAP    C$ERHRD
     076622  001320                                                      .WORD   720
     076624  103001                                                      .WORD   T27BOT
     076626  015564                                                      .WORD   EXPREC
9522 076630                      40$:    CKLOOP                          ;LOOP IF SELECTED
     076630  104406                                                      TRAP    C$CLP1
9523 076632  012703  000024              MOV     #20.,R3                 ;STARTING RECORD SIZE
9524 076636  013737  003114  102102      MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
9525
9526                             ;*****************************************************************
9527                             ;
9528                             ;WRITE DATA,CVC=1,ACK COMMAND
9529                             ;
9530                             ;*****************************************************************
9531
9532 076644  012737  140005  102100  65$:     MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
9533 076652  012704  102100              MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9534 076656  010300                      MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
9535 076660  004737  017512              JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
9536 076664  010337  102106              MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9537 076670  010465  000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9538 076674  004737  016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9539 076700  016501  000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9540 076704  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
9541 076710  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
9542 076712  001406                      BEQ     80$                     ;BR, IF OK
9543 076714  005237  002212              INC     FATFLG                  ;BUMP COUNT
9547 076720                              ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     076720  104456                                                      TRAP    C$ERHRD
     076722  001321                                                      .WORD   721
     076724  005111                                                      .WORD   WRTERR
     076726  012136                                                      .WORD   PKTSSR
9548 076730                      80$:    CKLOOP                          ;LOOP IF SELECTED
     076730  104406                                                      TRAP    C$CLP1
9549
```

```
9550                                    ;*****************************************************************
9551                                    ;
9552                                    ;WRITE DATA RETRY,CVC=1,ACK COMMAND
9553                                    ;
9554                                    ;*****************************************************************
9555
9556 076732  012737  141005  102100            MOV     #141005,T27PK3          ;WRITE DATA RETRY,CVC=1,ACK COMMAND
9557 076740  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9558 076744  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9559 076750  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9560 076754  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9561 076760  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9562 076762  001406                            BEQ     90$                     ;BR, IF OK
9563 076764  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9567 076770                                    ERRHRD  ERRNO,T27WRF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA RETRY
     076770  104456                                                                    TRAP    C$ERHRD
     076772  001322                                                                    .WORD   722
     076774  104706                                                                    .WORD   T27WRF
     076776  012136                                                                    .WORD   PKTSSR
9568 077000                            90$:    CKLOOP                          ;LOOP IF SELECTED
     077000  104406                                                                    TRAP    C$CLP1
9569 077002  005723                            TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
9570 077004  020327  000050                    CMP     R3,#40.                 ;AT 40 SIZE YET
9571 077010  001315                            BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
9572
9573                                    ;*****************************************************************
9574                                    ;
9575                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9576                                    ;
9577                                    ;*****************************************************************
9578
9579 077012  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9580 077016  103407                            BCS     230$                    ;BR, IF NO PROBLEM
9581 077020  010001                            MOV     R0,R1                   ;SAVE TSSR
9582 077022  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9586 077026                                    ERRHRD  ERRNO,T27RWN,EXPREC     ;REWIND NOT ACCEPTED
     077026  104456                                                                    TRAP    C$ERHRD
     077030  001323                                                                    .WORD   723
     077032  103305                                                                    .WORD   T27RWN
     077034  015564                                                                    .WORD   EXPREC
9587 077036                            230$:   CKLOOP                          ;LOOP IF SELECTED
     077036  104406                                                                    TRAP    C$CLP1
9588
9589                                    ;*****************************************************************
9590                                    ;
9591                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9592                                    ;
9593                                    ;*****************************************************************
9594
9595 077040  013701  102000                    MOV     T27BFR+6,R1             ;PICK UP XST0
9596 077044  010102                            MOV     R1,R2                   ;SET UP EXPECTED
9597 077046  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9598 077052  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
9599 077054  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
9600 077056  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9604 077062                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     077062  104456                                                                    TRAP    C$ERHRD
```

```
                077064  001324                                                          .WORD   724
                077066  103001                                                          .WORD   T27BOT
                077070  015564                                                          .WORD   EXPREC
   9605 077072                          240$:   CKLOOP                  ;LOOP IF SELECTED
                077072  104406                                                          TRAP    C$CLP1
   9606 077074  012703  000024                  MOV     #20.,R3         ;STARTING RECORD SIZE
   9607 077100  013737  003114  102102          MOV     FREE,T27RB      ;STARTING READ BUFFER ADDRESS
   9608
   9609                                 ;*****************************************************************
   9610                                 ;
   9611                                 ;READ DATA,ACK COMMAND
   9612                                 ;
   9613                                 ;*****************************************************************
   9614
   9615 077106  012737  100001  102100  265$:   MOV     #100001,T27PK3  ;READ DATA,ACK COMMAND
   9616 077114  012704  102100                  MOV     #T27PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
   9617 077120  010337  102106                  MOV     R3,T27SZ        ;SET UP RECORD SIZE IN PACKET
   9618 077124  010465  000000                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
   9619 077130  004737  016340                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
   9620 077134  016501  000002                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
   9621 077140  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
   9622 077144  020102                          CMP     R1,R2           ;ARE THEY EQUAL
   9623 077146  001406                          BEQ     280$            ;BR. IF OK
   9624 077150  005237  002212                  INC     FATFLG          ;BUMP COUNT
   9628 077154                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
                077154  104456                                                          TRAP    C$ERHRD
                077156  001325                                                          .WORD   725
                077160  005204                                                          .WORD   RDERR
                077162  012136                                                          .WORD   PKTSSR
   9629 077164                          280$:   CKLOOP                  ;LOOP IF SELECTED
                077164  104406                                                          TRAP    C$CLP1
   9630 077166  013702  003114                  MOV     FREE,R2         ;GET BUFFER ADDRESS
   9631 077172  010304                          MOV     R3,R4           ;GET RECORD SIZE
   9632 077174  162704  000024                  SUB     #20.,R4         ;POINT BACK TO 1ST RECORD
   9633 077200  060204                  285$:   ADD     R2,R4           ;POINT TO 1ST LOC IN BUFFER
   9634 077202  021403                          CMP     (R4),R3         ;DATA WRITTEN = READ
   9635 077204  001410                          BEQ     290$            ;BR. IF DATA OK (GOOD)
   9636 077206  011401                          MOV     (R4),R1         ;PICK UP BAD DATA
   9637 077210  010302                          MOV     R3,R2           ;SET UP EXPECTED
   9638 077212  005237  002212                  INC     FATFLG          ;BUMP COUNT
   9642 077216                                  ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
                077216  104456                                                          TRAP    C$ERHRD
                077220  001326                                                          .WORD   726
                077222  104766                                                          .WORD   T27DTA
                077224  015564                                                          .WORD   EXPREC
   9643 077226                          290$:   CKLOOP                  ;LOOP IF SELECTED
                077226  104406                                                          TRAP    C$CLP1
   9644 077230  005724                          TST     (R4)+           ;BUMP TO NEXT ADDRESS
   9645 077232  160204                          SUB     R2,R4           ;BACK TO RECORD SIZE
   9646 077234  020403                          CMP     R4,R3           ;AT END OF RECORD YET
   9647 077236  001360                          BNE     285$            ;BR. IF MORE DATA TO CHECK
   9648 077240  005723                          TST     (R3)+           ;BUMP RECORD SIZE
   9649 077242  020327  000050                  CMP     R3,#40.         ;DONE YET
   9650 077246  001317                          BNE     265$            ;BR. IF NOT DONE YET (MORE READS)
   9651 077250                          300$:   CKLOOP                  ;LOOP IF SELECTED
                077250  104406                                                          TRAP    C$CLP1
   9652 077252                          330$:
```

```
9653 077252                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>
     077252                                                                L10125:
     077252  104403                                                              TRAP    C$ESUB
9654 077254  023727  002212  000017          CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
9655 077262  103402                          BLO     999$                    ;BR, IF LESS THAN 25
9656 077264  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
9657 077270                          999$:
9658
9659                                 ;*
9660                                 ;
9661                                 ;TEST 7, SUBTEST 4
9662                                 ;
9663                                 ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=1
9664                                 ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
9665                                 ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
9666                                 ;BYTE COUNTS AND DATA PATTERNS ARE USED.
9667                                 ;
9668                                 ;
9669                                 ;
9670                                 ;
9671 077270                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>
     077270                                                                T7.4:
     077270  104402                                                              TRAP    C$BSUB
9672 077272  004737  105104                  JSR     PC,T27REST              ;SET COMMAND PACKET
9673 077276  004737  105176                  JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
9674 077302  004737  105240                  JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
9675 077306  012737  176750  102.32          MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
9676
9677                                 ;*****************************************************************
9678                                 ;
9679                                 ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9680                                 ;
9681                                 ;*****************************************************************
9682
9683 077314  004737  016064          10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9684 077320  103426                          BCS     20$                     ;BR IF INIT WAS OK
9685 077322                                  DELAY   250                     ;DELAY ABOUT .25 SEC
     077322  012727  000250                                                          MOV     #250.,(PC)+
     077326  000000                                                                  .WORD   0
     077330  013727  002116                                                          MOV     L$DLY,(PC)+
     077334  000000                                                                  .WORD   0
     077336  005367  177772                                                          DEC     -6(PC)
     077342  001375                                                                  BNE     .-4
     077344  005367  177756                                                          DEC     -22(PC)
     077350  001367                                                                  BNE     .-20
9686 077352  005337  102132                  DEC     T27DLY                  ;BUMP COUNTER
9687 077356  001356                          BNE     10$                     ;BR, IF COUNTER NOT DONE
9688 077360  005237  002212                  INC     FATFLG                  ;BUMP COUNT
9692 077364  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
9693 077366                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     077366  104455                                                                  TRAP    C$ERDF
     077370  001327                                                                  .WORD   727
     077372  003650                                                                  .WORD   SFIERR
     077374  012124                                                                  .WORD   SFIMSG
9694 077376  013737  002172  101770  20$:    MOV     UNITN,T27DSW            ;SET UP UNIT (DRIVE) NUMBER
9695 077404  012704  101750                  MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
9696
```

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

077410  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
077414  103407                    BCS     23$                     ;BR, IF COMMAND ISSUED OK
077416  005237  002212            INC     FATFLG                  ;BUMP COUNT
077422  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
077424                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
077424  104456                                                            TRAP    C$ERHRD
077426  001330                                                            .WORD   728
077430  005054                                                            .WORD   WRTMSG
077432  012124                                                            .WORD   SFIMSG
077434                          23$:    CKLOOP                  ;LOOP IF SELECTED
077434  104406                                                            TRAP    C$CLP1

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

077436  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
077442  103411                    BCS     30$                     ;BR, IF NO PROBLEM
077444  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
077450  010004                    MOV     R0,R4                   ;GET PACKET ADDRESS
077452  005237  002212            INC     FATFLG                  ;BUMP COUNT
077456                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
077456  104456                                                            TRAP    C$ERHRD
077460  001331                                                            .WORD   729
077462  103305                                                            .WORD   T27RWN
077464  012136                                                            .WORD   PKTSSR
077466                          30$:    CKLOOP                  ;LOOP IF SELECTED
077466  104406                                                            TRAP    C$CLP1

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

077470  013701  102000            MOV     T27BFR+6,R1             ;PICK UP XST0
077474  010102                    MOV     R1,R2                   ;SET UP EXPECTED
077476  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
077502  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
077504  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
077506  005237  002212            INC     FATFLG                  ;BUMP COUNT
077512                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
077512  104456                                                            TRAP    C$ERHRD
077514  001332                                                            .WORD   730
077516  103001                                                            .WORD   T27BOT
077520  015564                                                            .WORD   EXPREC
077522                          40$:    CKLOOP                  ;LOOP IF SELECTED
077522  104406                                                            TRAP    C$CLP1
077524  012703  000024            MOV     #20.,R3                 ;STARTING RECORD SIZE
```

```
 9748 077530  013737  003114  102102          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 9749
 9750                                 ;*****************************************************************
 9751                                 ;
 9752                                 ;WRITE DATA,CVC=1,ACK COMMAND
 9753                                 ;
 9754                                 ;*****************************************************************
 9755
 9756 077536  012737  140005  102100  65$:     MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 9757 077544  012704  102100                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9758 077550  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 9759 077552  004737  017512                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 9760 077556  010337  102106                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9761 077562  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9762 077566  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9763 077572  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9764 077576  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9765 077602  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9766 077604  001406                          BEQ     80$                     ;BR, IF OK
 9767 077606  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9771 077612                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      077612  104456                                                                  TRAP    C$ERHRD
      077614  001333                                                                  .WORD   731
      077616  005111                                                                  .WORD   WRTERR
      077620  012136                                                                  .WORD   PKTSSR
 9772 077622                          80$:     CKLOOP                          ;LOOP IF SELECTED
      077622  104406                                                                  TRAP    C$CLP1
 9773
 9774                                 ;*****************************************************************
 9775                                 ;
 9776                                 ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 9777                                 ;
 9778                                 ;*****************************************************************
 9779
 9780 077624  012737  111005  102100          MOV     #111005,T27PK3          ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 9781 077632  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9782 077636  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9783 077642  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9784 077646  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9785 077652  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9786 077654  001406                          BEQ     90$                     ;BR, IF OK
 9787 077656  005237  002212                  INC     FATFLG                  ;BUMP COUNT
 9791 077662                                  ERRHRD  ERRNO,T27WRF,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA RETRY
      077662  104456                                                                  TRAP    C$ERHRD
      077664  001334                                                                  .WORD   732
      077666  104706                                                                  .WORD   T27WRF
      077670  015564                                                                  .WORD   EXPREC
 9792 077672                          90$:     CKLOOP                          ;LOOP IF SELECTED
      077672  104406                                                                  TRAP    C$CLP1
 9793 077674  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
 9794 077676  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
 9795 077702  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 9796
 9797                                 ;*****************************************************************
 9798                                 ;
 9799                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9800                                 ;
```

```
9801                                    ;*****************************************************************
9802
9803 077704  004737  011104                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9804 077710  103411                            BCS     230$                    ;BR, IF NO PROBLEM
9805 077712  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9806 077716  010004                            MOV     R0,R4                   ;GET PACKET ADDRESS
9807 077720  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9811 077724                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     077724  104456                                                                    TRAP    C$ERHRD
     077726  001335                                                                    .WORD   733
     077730  103305                                                                    .WORD   T27RWN
     077732  012136                                                                    .WORD   PKTSSR
9812 077734                            230$:   CKLOOP                          ;LOOP IF SELECTED
     077734  104406                                                                    TRAP    C$CLP1
9813
9814                                    ;*****************************************************************
9815                                    ;
9816                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9817                                    ;
9818                                    ;*****************************************************************
9819
9820 077736  013701  102000                    MOV     T27BFR+6,R1             ;PICK UP XST0
9821 077742  010102                            MOV     R1,R2                   ;SET UP EXPECTED
9822 077744  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9823 077750  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
9824 077752  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
9825 077754  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9829 077760                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     077760  104456                                                                    TRAP    C$ERHRD
     077762  001336                                                                    .WORD   734
     077764  103001                                                                    .WORD   T27BOT
     077766  015564                                                                    .WORD   EXPREC
9830 077770                            240$:   CKLOOP                          ;LOOP IF SELECTED
     077770  104406                                                                    TRAP    C$CLP1
9831 077772  012703  000024                    MOV     #20.,R3                 ;STARTING RECORD SIZE
9832 077776  013737  003114  102102            MOV     FREE,T27RB              ;STARTING READ BUFFER ADDRESS
9833
9834                                    ;*****************************************************************
9835                                    ;
9836                                    ;READ DATA,ACK COMMAND
9837                                    ;
9838                                    ;*****************************************************************
9839
9840 100004  012737  100001  102100    265$:   MOV     #100001,T27PK3          ;READ DATA,ACK COMMAND
9841 100012  012704  102100                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9842 100016  010337  102106                    MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9843 100022  010465  000000                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9844 100026  004737  016340                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9845 100032  016501  000002                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9846 100036  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9847 100042  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9848 100044  001406                            BEQ     280$                    ;BR, IF OK
9849 100046  005237  002212                    INC     FATFLG                  ;BUMP COUNT
9853 100052                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     100052  104456                                                                    TRAP    C$ERHRD
     100054  001337                                                                    .WORD   735
     100056  005204                                                                    .WORD   RDERR
```

```
                                                                                    .WORD   PKTSSR
9854 100062                             280$:   CKLOOP                          ;LOOP IF SELECTED
     100062  104406                                                                TRAP    C$CLP1
9855 100064  013702  003114                    MOV     FREE,R2                  ;GET BUFFER ADDRESS
9856 100070  010304                            MOV     R3,R4                    ;GET RECORD SIZE
9857 100072  162704  000024                    SUB     #20.,R4                  ;POINT BACK TO 1ST RECORD
9858 100076  060204                     285$:  ADD     R2,R4                    ;POINT TO 1ST LOC IN BUFFER
9859 100100  000303                            SWAB    R3                       ;SWAP BYTES SWB-1 ETC.
9860 100102  021403                            CMP     (R4),R3                  ;DATA WRITTEN = READ
9861 100104  001410                            BEQ     290$                     ;BR, IF DATA OK (GOOD)
9862 100106  011401                            MOV     (R4),R1                  ;PICK UP BAD DATA
9863 100110  010302                            MOV     R3,R2                    ;SET UP EXPECTED
9864 100112  005237  002212                    INC     FATFLG                   ;BUMP COUNT
9868 100116                                    ERRHRD  ERRNO,T27DTA,EXPREC      ;DATA IN BUFFER NOT CORRECT
     100116  104456                                                                TRAP    C$ERHRD
     100120  001340                                                                .WORD   736
     100122  104766                                                                .WORD   T27DTA
     100124  015564                                                                .WORD   EXPREC
9869 100126                             290$:   CKLOOP                          ;LOOP IF SELECTED
     100126  104406                                                                TRAP    C$CLP1
9870 100130  005724                            TST     (R4)+                    ;BUMP TO NEXT ADDRESS
9871 100132  160204                            SUB     R2,R4                    ;BACK TO RECORD SIZE
9872 100134  000303                            SWAB    R3                       ;PUT R3 BACK INTO SHAPE
9873 100136  020403                            CMP     R4,R3                    ;AT END OF RECORD YET
9874 100140  001356                            BNE     285$                     ;BR, IF MORE DATA TO CHECK
9875 100142  005723                            TST     (R3)+                    ;BUMP RECORD SIZE
9876 100144  020327  000046                    CMP     R3,#38.                  ;DONE YET
9877 100150  001315                            BNE     265$                     ;BR, IF NOT DONE YET (MORE READS)
9878 100152                             300$:   CKLOOP                          ;LOOP IF SELECTED
     100152  104406                                                                TRAP    C$CLP1
9879 100154                                    ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     100154                                                                     L10126:
     100154  104403                                                                TRAP    C$ESUB
9880 100156  023727  002212  000017            CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
9881 100164  103402                            BLO     999$                            ;BR, IF LESS THAN 25
9882 100166  004737  017272                    JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
9883 100172                             999$:
9884
9885                                    ;+
9886                                    ;
9887                                    ;TEST 7, SUBTEST 5
9888                                    ;
9889                                    ;VERIFIES THAT A WRITE DATA RETRY COMMAND IS
9890                                    ;PERFORMING THE "ERASE" PART OF THE OPERATION BY
9891                                    ;PERFORMING THE FOLLOWING SERIES OF STEPS.
9892                                    ;
9893                                    ;1.     THE TAPE IS REWOUND AND A SERIES OF RECORDS ARE
9894                                    ;       WRITTEN WITH THE NORMAL WRITE DATA COMMAND. THIS
9895                                    ;       SHOULD RESULT IN RECORDS SEPARATED BY THE
9896                                    ;       STANDARD INTERRECORD GAP.
9897                                    ;
9898                                    ;2.     A PROGRAM TIMING VALUE IS CALIBRATED BY REWINDING
9899                                    ;       THE TAPE AND THEN COUNTING THE NUMBER OF CYCLES
9900                                    ;       THROUGH A PROGRAMMED LOOP REQUIRED TO SPACE OVER
9901                                    ;       THE SERIES OF RECORDS WRITTEN IN PREVIOUS
9902                                    ;       STEP
9903                                    ;
```

```
9904                                    ;3.     THE TAPE IS AGAIN REWOUND AND THE SAME SERIES OF
9905                                    ;       RECORDS WRITTEN AGAIN, THIS TIME USING THE WRITE
9906                                    ;       DATA RETRY COMMAND. THIS SHOULD RESULT IN
9907                                    ;       RECORDS SEPARATED BY A LONG INTERRECORD GAP.
9908                                    ;
9909                                    ;4.     THE TAPE IS AGAIN REWOUND, THE SPACING COMMAND
9910                                    ;       ISSUED, AND THE NUMBER OF TIMMING LOOP CYCLES
9911                                    ;       COUNTED TO COMPLETE THE OPERATION.
9912                                    ;
9913                                    ;5.     THE TWO LOOP COUNTS ARE COMPARED, CHECKING TO SEE
9914                                    ;       THAT THEY DIFFER BY A SIGNIFICANT AMOUNT.
9915                                    ;
9916                                    ;
9917                                    ;
9918                                    ;
9919                                    ;
9920                                    ;-
9921 100172                            BGNSUB                  ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     100172                                                                         T7.5:
     100172  104402                                                                   TRAP    C$BSUB
9922 100174  005037  002214            CLR     INTRECV         ;INTERRUPT INDICATOR
9923 100200  005037  102126            CLR     T27CNT          ;TIMER FOR WRITE DATA SPACING
9924 100204  005037  102130            CLR     T27CNU          ;TIMER FOR WRITE DATA RETRY SPACING
9925 100210  004737  105104            JSR     PC,T27REST      ;SET COMMAND PACKET
9926 100214  004737  105176            JSR     PC,T27RT2       ;SET UP OTHER COMMAND PACKET
9927 100220  004737  105240            JSR     PC,T27RT3       ;SET UP OTHER COMMAND PACKET
9928 100224  012737  176750  102132    MOV     #65000.,T27DLY  ;SET UP DELAY COUNTER
9929
9930                                    ;*************************************************************************
9931                                    ;
9932                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9933                                    ;
9934                                    ;*************************************************************************
9935
9936 100232  004737  016064    10$:    JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
9937 100236  103426                    BCS     20$             ;BR IF INIT WAS OK
9938 100240                            DELAY   250             ;DELAY ABOUT .25 SEC
     100240  012727  000250                                                 MOV     #250,(PC)+
     100244  000000                                                        .WORD   0
     100246  013727  002116                                                 MOV     L$DLY,(PC)+
     100252  000000                                                        .WORD   0
     100254  005367  177772                                                 DEC     -6(PC)
     100260  001375                                                         BNE     .-4
     100262  005367  177756                                                 DEC     -22(PC)
     100266  001367                                                         BNE     .-20
9939 100270  005337  102132            DEC     T27DLY          ;BUMP COUNTER
9940 100274  001356                    BNE     10$             ;BR, IF COUNTER NOT DONE
9941 100276  005237  002212            INC     FATFLG          ;BUMP COUNT
9945 100302  010001                    MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
9946 100304                            ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     100304  104455                                                             TRAP    C$ERDF
     100306  001341                                                             .WORD   737
     100310  003650                                                             .WORD   SFIERR
     100312  012124                                                             .WORD   SFIMSG
9947 100314  013737  002172  101770  20$:    MOV     UNITN,T27DSW    ;SET UP UNIT NUMBER
9948
9949 100322  012704  101750            MOV     #T27PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
```

```
 9950
 9951                           ;*****************************************************************
 9952                           ;
 9953                           ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 9954                           ;
 9955                           ;*****************************************************************
 9956
 9957 100326  004737  010752            JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 9958 100332  103407                    BCS     23$                     ;BR, IF COMMAND ISSUED OK
 9959 100334  005237  002212            INC     FATFLG                  ;BUMP COUNT
 9963 100340  010001                    MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 9964 100342                            ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      100342  104456                                                            TRAP    C$ERHRD
      100344  001342                                                            .WORD   738
      100346  005054                                                            .WORD   WRTMSG
      100350  012124                                                            .WORD   SFIMSG
 9965 100352                    23$:    CKLOOP                          ;LOOP IF SELECTED
      100352  104406                                                            TRAP    C$CLP1
 9966
 9967                           ;*****************************************************************
 9968                           ;
 9969                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9970                           ;
 9971                           ;*****************************************************************
 9972
 9973 100354  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9974 100360  103411                    BCS     30$                     ;BR, IF NO PROBLEM
 9975 100362  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9976 100366  010004                    MOV     R0,R4                   ;GET PACKET ADDRESS
 9977 100370  005237  002212            INC     FATFLG                  ;BUMP COUNT
 9981 100374                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100374  104456                                                            TPAP    C$ERHRD
      100376  001343                                                            .WORD   739
      100400  103305                                                            .WORD   T27RWN
      100402  012136                                                            .WORD   PKTSSR
 9982 100404                    30$:    CKLOOP                          ;LOOP IF SELECTED
      100404  104406                                                            TRAP    C$CLP1
 9983
 9984                           ;*****************************************************************
 9985                           ;
 9986                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9987                           ;
 9988                           ;*****************************************************************
 9989
 9990 100406  013701  102000            MOV     T27BFR+6,R1             ;PICK UP XST0
 9991 100412  010102                    MOV     R1,R2                   ;SET UP EXPECTED
 9992 100414  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9993 100420  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
 9994 100422  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
 9995 100424  005237  002212            INC     FATFLG                  ;BUMP COUNT
 9999 100430                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100430  104456                                                            TRAP    C$ERHRD
      100432  001344                                                            .WORD   740
      100434  103001                                                            .WORD   T27BOT
      100436  015564                                                            .WORD   EXPREC
10000 100440                    40$:    CKLOOP                          ;LOOP IF SELECTED
      100440  104406                                                            TRAP    C$CLP1
```

```
10001 100442  012703  000144                MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
10002 100446  013737  003114  102102        MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10003
10004                               ;*****************************************************************
10005                               ;
10006                               ;WRITE DATA,ACK,CVC=1 COMMAND
10007                               ;
10008                               ;*****************************************************************
10009
10010 100454  012737  140005  102100  65$:   MOV     #140005,T27PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
10011 100462  012704  102100                MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10012 100466  012737  000024  102106        MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10013 100474  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10014 100500  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10015 100504  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10016 100510  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
10017 100514  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10018 100516  001406                        BEQ     70$                     ;BR, IF OK
10019 100520  005237  002212                INC     FATFLG                  ;BUMP COUNT
10023 100524                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      100524  104456                                                               TRAP    C$ERHRD
      100526  001345                                                               .WORD   741
      100530  005111                                                               .WORD   WRTERR
      100532  012136                                                               .WORD   PKTSSR
10024 100534                        70$:    CKLOOP                          ;LOOP IF SELECTED
      100534  104406                                                               TRAP    C$CLP1
10025 100536  005303                        DEC     R3                      ;DEC RECORD COUNTER
10026 100540  001345                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
10027
10028                               ;*****************************************************************
10029                               ;
10030                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10031                               ;
10032                               ;*****************************************************************
10033
10034 100542  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10035 100546  103411                        BCS     130$                    ;BR, IF NO PROBLEM
10036 100550  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10037 100554  010004                        MOV     R0,R4                   ;GET PACKET ADDRESS
10038 100556  005237  002212                INC     FATFLG                  ;BUMP COUNT
10042 100562                                ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100562  104456                                                               TRAP    C$ERHRD
      100564  001346                                                               .WORD   742
      100566  103305                                                               .WORD   T27RWN
      100570  012136                                                               .WORD   PKTSSR
10043 100572                        130$:   CKLOOP                          ;LOOP IF SELECTED
      100572  104406                                                               TRAP    C$CLP1
10044
10045                               ;*****************************************************************
10046                               ;
10047                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10048                               ;
10049                               ;*****************************************************************
10050
10051 100574  013701  102000                MOV     T27BFR+6,R1             ;PICK UP XST0
10052 100600  010102                        MOV     R1,R2                   ;SET UP EXPECTED
10053 100602  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
```

```
10054 100606  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10055 100610  001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
10056 100612  005237  002212            INC     FATFLG                  ;BUMP COUNT
10060 100616                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      100616  104456                                                            TRAP    C$ERHRD
      100620  001347                                                            .WORD   743
      100622  103001                                                            .WORD   T27BOT
      100624  015564                                                            .WORD   EXPREC
10061 100626                    140$:   CKLOOP                          ;LOOP IF SELECTED
      100626  104406                                                            TRAP    C$CLP1
10062 100630  012704  102100            MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10063 100634  012737  000010  102102    MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10064
10065                           ;*****************************************************************
10066                           ;
10067                           ;ACK,CVC=1,SPACE FORWARD COMMAND
10068                           ;
10069                           ;*****************************************************************
10070
10071 100642  012737  140010  102100    MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10072 100650  010465  000000    150$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10073 100654  005237  102126    152$:   INC     T27CNT                  ;BUMP TIMER
10074 100660                            DELAY   1                       ;DELAY ABOUT 100US
      100660  012727  000001                                                    MOV     #1,(PC)+
      100664  000000                                                            .WORD   0
      100666  013727  002116                                                    MOV     L$DLY,(PC)+
      100672  000000                                                            .WORD   0
      100674  005367  177772                                                    DEC     -6(PC)
      100700  001375                                                            BNE     .-4
      100702  005367  177756                                                    DEC     -22(PC)
      100706  001367                                                            BNE     .-20
10075 100710  016501  000002            MOV     TSSR(R5),R1             ;GET TSSR
10076 100714  032701  000200            BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10077 100720  001755                    BEQ     152$                    ;KEEP COUNTING UNTIL SET
10078 100722  016501  000002            MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10079 100726  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
10080 100732  020201                    CMP     R2,R1                   ;WAS EVERYTHING OK
10081 100734  001406                    BEQ     160$                    ;BR, IF ALL IS WELL
10082 100736  005237  002212            INC     FATFLG                  ;BUMP COUNT
10086 100742                            ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN T WORK OUT
      100742  104456                                                            TRAP    C$ERHRD
      100744  001350                                                            .WORD   744
      100746  104547                                                            .WORD   T27SCF
      100750  012136                                                            .WORD   PKTSSR
10087 100752                    160$:   CKLOOP                          ;LOOP IF SELECTED
      100752  104406                                                            TRAP    C$CLP1
10088
10089                           ;*****************************************************************
10090                           ;
10091                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10092                           ;
10093                           ;*****************************************************************
10094
10095 100754  004737  011104            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10096 100760  004737  016426            JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
10097 100764  103407                    BCS     170$                    ;BR, IF NO PROBLEM
10098 100766  010001                    MOV     R0,R1                   ;SAVE TSSR
```

```
10099 100770  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10103 100774                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      100774  104456                                                          TRAP    C$ERHRD
      100776  001351                                                          .WORD   745
      101000  103305                                                          .WORD   T27RWN
      101002  012136                                                          .WORD   PKTSSR
10104 101004                          170$:   CKLOOP                          ;LOOP IF SELECTED
      101004  104406                                                          TRAP    C$CLP1
10105
10106                                 ;*****************************************************************
10107                                 ;
10108                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10109                                 ;
10110                                 ;*****************************************************************
10111
10112 101006  013701  102000                  MOV     T27BFR+6,R1             ;PICK UP XST0
10113 101012  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10114 101014  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10115 101020  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
10116 101022  001406                          BEQ     175$                    ;BR, IF EQUAL (OK)
10117 101024  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10121 101030                                  ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      101030  104456                                                          TRAP    C$ERHRD
      101032  001352                                                          .WORD   746
      101034  103001                                                          .WORD   T27BOT
      101036  015564                                                          .WORD   EXPREC
10122 101040                          175$:   CKLOOP                          ;LOOP IF SELECTED
      101040  104406                                                          TRAP    C$CLP1
10123 101042  012703  000144                  MOV     #100.,R3                ;STARTING RECORD SIZE
10124 101046  013737  003114  102102  177$:   MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10125
10126                                 ;*****************************************************************
10127                                 ;
10128                                 ;WRITE DATA,CVC=1,ACK COMMAND
10129                                 ;
10130                                 ;*****************************************************************
10131
10132 101054  012737  140005  102100          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10133 101062  012704  102100                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10134 101066  012737  000024  102106          MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10135 101074  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10136 101100  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10137 101104  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10138 101110  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10139 101114  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10140 101116  001406                          BEQ     180$                    ;BR, IF OK
10141 101120  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10145 101124                                  ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      101124  104456                                                          TRAP    C$ERHRD
      101126  001353                                                          .WORD   747
      101130  005111                                                          .WORD   WRTERR
      101132  012136                                                          .WORD   PKTSSR
10146 101134                          180$:   CXLOOP                          ;LOOP IF SELECTED
      101134  104406                                                          TRAP    C$CLP1
10147 101136  005303                          DEC     R3                      ;COUNT NUMBER OF RECORDS
10148 101140  001342                          BNE     177$                    ;BR, IF MORE RECORDS TO WRITE
10149
```

```
10150                                   ;*****************************************************************
10151                                   ;
10152                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10153                                   ;
10154                                   ;*****************************************************************
10155
10156 101142  004737  011104                   JSR     PC,REWIND               ;ISSUE REWIND
10157 101146  103411                           BCS     182$                    ;BR, IF ALL IS WELL
10158 101150  010004                           MOV     R0,R4                   ;GET PACKET ADDRESS
10159 101152  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10160 101156  005237  002212                   INC     FATFLG                  ;BUMP COUNT
10164 101162                                   ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND FAILED
      101162  104456                                                           TRAP    C$ERHRD
      101164  001354                                                           .WORD   748
      101166  103305                                                           .WORD   T27RWN
      101170  012136                                                           .WORD   PKTSSR
10165 101172                            182$:   CKLOOP                          ;SELECT LOOP MAYBE
      101172  104406                                                           TRAP    C$CLP1
10166
10167                                   ;*****************************************************************
10168                                   ;
10169                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
10170                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
10171                                   ;
10172                                   ;*****************************************************************
10173
10174 101174  012703  000001                   MOV     #1.,R3                  ;SPACE 1 RECORD FORWARD
10175 101200  004737  010556                   JSR     PC,SPACE                ;ISSUE SPACE COMMAND
10176 101204  103411                           BCS     185$                    ;BR, IF COMMAND OK
10177 101206  010004                           MOV     R0,R4                   ;GET PACKET ADDRESS
10178 101210  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR STATUS
10179 101214  005237  002212                   INC     FATFLG                  ;BUMP COUNT
10183 101220                                   ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD COMMAND FAILED
      101220  104456                                                           TRAP    C$ERHRD
      101222  001355                                                           .WORD   749
      101224  104547                                                           .WORD   T27SCF
      101226  012136                                                           .WORD   PKTSSR
10184 101230                            185$:   CKLOOP                          ;LOOP IF SELECTED
      101230  104406                                                           TRAP    C$CLP1
10185 101232  012703  000144                   MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
10186 101236  013737  003114  102102           MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10187
10188                                   ;*****************************************************************
10189                                   ;
10190                                   ;WRITE DATA RETRY,ACK COMMAND
10191                                   ;
10192                                   ;*****************************************************************
10193
10194 101244  012737  101005  102100   190$:   MOV     #101005,T27PK3          ;WRITE DATA RETRY,ACK COMMAND
10195 101252  012704  102100                   MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10196 101256  012737  000024  102106           MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10197 101264  010465  000000                   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10198 101270  004737  016340                   JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10199 101274  016501  000002                   MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10200 101300  012702  000200                   MOV     #SSR,R2                 ;SET UP EXPECTED
10201 101304  020102                           CMP     R1,R2                   ;ARE THEY EQUAL
10202 101306  001406                           BEQ     200$                    ;BR, IF OK
```

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10203 101310  005237  002212                INC     FATFLG                  ;BUMP COUNT
10207 101314                                ERRHRD  ERRNO,T27WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      101314  104456                                                        TRAP    C$ERHRD
      101316  001356                                                        .WORD   750
      101320  103641                                                        .WORD   T27WDC
      101322  012136                                                        .WORD   PKTSSR
10208 101324                        200$:   CKLOOP                          ;LOOP IF SELECTED
      101324  104406                                                        TRAP    C$CLP1
10209 101326  013737  003114  102102        MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10210
10211                               ;*****************************************************************
10212                               ;
10213                               ;WRITE DATA,CVC=1,ACK COMMAND
10214                               ;
10215                               ;*****************************************************************
10216
10217 101334  012737  140005  102100        MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10218 101342  012704  102100                MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10219 101346  012737  000024  102106        MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10220 101354  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10221 101360  004737  016340                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10222 101364  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10223 101370  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
10224 101374  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10225 101376  001406                        BEQ     210$                    ;BR, IF OK
10226 101400  005237  002212                INC     FATFLG                  ;BUMP COUNT
10230 101404                                ERRHRD  ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      101404  104456                                                        TRAP    C$ERHRD
      101406  001357                                                        .WORD   751
      101410  005111                                                        .WORD   WRTERR
      101412  012136                                                        .WORD   PKTSSR
10231 101414                        210$:   CKLOOP                          ;LOOP IF SELECTED
      101414  104406                                                        TRAP    C$CLP1
10232 101416  005303                        DEC     R3                      ;BUMP DOWN RECORD COUNTER
10233 101420  001311                        BNE     190$                    ;BR, IF MORE RECORDS TO WRITE RETRY
10234
10235                               ;*****************************************************************
10236                               ;
10237                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10238                               ;
10239                               ;*****************************************************************
10240
10241 101422  004737  011104                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10242 101426  103411                        BCS     230$                    ;BR, IF NO PROBLEM
10243 101430  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10244 101434  010004                        MOV     R0,R4                   ;GET PACKET ADDRESS
10245 101436  005237  002212                INC     FATFLG                  ;BUMP COUNT
10249 101442                                ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      101442  104456                                                        TRAP    C$ERHRD
      101444  001360                                                        .WORD   752
      101446  103305                                                        .WORD   T27RWN
      101450  012136                                                        .WORD   PKTSSR
10250 101452                        230$:   CKLOOP                          ;LOOP IF SELECTED
      101452  104406                                                        TRAP    C$CLP1
10251
10252                               ;*****************************************************************
10253                               ;
```

```
10254                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
10255                                   ;
10256                                   ;*****************************************************************
10257
10258 101454  013701  102000                  MOV     T27BFR+6,R1             ;PICK UP XSTO
10259 101460  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10260 101462  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10261 101466  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
10262 101470  001406                          BEQ     240$                    ;BR. IF EQUAL (OK)
10263 101472  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10267 101476                                  ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      101476  104456                                                          TRAP    C$ERHRD
      101500  001361                                                          .WORD   753
      101502  103001                                                          .WORD   T27BOT
      101504  015564                                                          .WORD   EXPREC
10268 101506                          240$:   CKLOOP                          ;LOOP IF SELECTED
      101506  104406                                                          TRAP    C$CLP1
10269 101510  012704  102100                  MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10270 101514  012737  000010  102102          MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10271
10272                                   ;*****************************************************************
10273                                   ;
10274                                   ;ACK,CVC=1,SPACE FORWARD COMMAND
10275                                   ;
10276                                   ;*****************************************************************
10277
10278 101522  012737  140010  102100          MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10279 101530  010465  000000          250$    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10280 101534  005237  102130          252$:   INC     T27CNU                  ;BUMP TIMER
10281 101540                                  DELAY   1                       ;DELAY ABOUT 100US
      101540  012727  000001                                                  MOV     #1,(PC)+
      101544  000000                                                          .WORD   0
      101546  013727  002116                                                  MOV     L$DLY,(PC)+
      101552  000000                                                          .WORD   0
      101554  005367  177772                                                  DEC     -6(PC)
      101560  001375                                                          BNE     .-4
      101562  005367  177756                                                  DEC     -22(PC)
      101566  001367                                                          BNE     .-20
10282 101570  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
10283 101574  032701  000200                  BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10284 101600  001755                          BEQ     252$                    ;KEEP COUNTING UNTIL SET
10285 101602  016501  000002                  MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10286 101606  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10287 101612  020201                          CMP     R2,R1                   ;WAS EVERYTHING OK
10288 101614  001406                          BEQ     260$                    ;BR. IF ALL IS WELL
10289 101616  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10293 101622                                  ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      101622  104456                                                          TRAP    C$ERHRD
      101624  001362                                                          .WORD   754
      101626  104547                                                          .WORD   T27SCF
      101630  012136                                                          .WORD   PKTSSR
10294 101632                          260$:   CKLOOP                          ;LOOP IF SELECTED
      101632  104406                                                          TRAP    C$CLP1
10295 101634  013701  102126                  MOV     T27CNT,R1               ;TIME FOR WRITE SPACING
10296 101640  013702  102130                  MOV     T27CNU,R2               ;TIME FOR WRITE RETRY SPACING
10297 101644  160102                          SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10298 101646  160102                          SUB     R1,R2                   ;GET'EM PRETTY CLOSE
```

```
10299 101650 160102                    SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10300 101652 042702 000077             BIC     #77,R2                  ;CLEAR LOW 6 BITS
10301 101656 042701 000777             BIC     #000777,R1              ;SETTING UP CONSTANTS
10302 101662 020102                    CMP     R1,R2                   ;CHECK FOR DIFFERENCE
10303 101664 002006                    BGE     300$                    ;BR, IF GOOD 0000 CHECK 0000
10304 101666 005237 002212             INC     FATFLG                  ;BUMP COUNT
10308 101672                           ERRHRD  ERRNO,T27TIM,EXPREC     ;TIME WAS NOT DIFFERENT ENOUGH
      101672 104456                                                            TRAP    C$ERHRD
      101674 001363                                                            .WORD   755
      101676 103074                                                            .WORD   T27TIM
      101700 015564                                                            .WORD   EXPREC
10309 101702                     300$: CKLOOP                          ;LOOP IF SELECTED
      101702 104406                                                            TRAP    C$CLP1
10310 101704                           ENDSUB                          ;<<<<<<<<<<<<< END SUBTEST >>>>>>>>>>>>
      101704                                                                 L10127:
      101704 104403                                                            TRAP    C$ESUB
10311 101706 023727 002212 000017      CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
10312 101714 103402                    BLO     999$                            ;BR, IF LESS THAN 25
10313 101716 004737 017272             JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
10314 101722                     999$:
10315                            ;
10316                            ;
10317                            ;
10318 101722 004737 016546             JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
10319 101726 103002                    BCC     163$                    ;BR, IF NO LOOP REQUIRED
10320 101730 000137 075266             JMP     T27LOOP                 ;EXECUTE AGAIN
10321 101734                     163$:
10322 101734                           EXIT    TST                     ;ALL DONE THIS TEST
      101734 104432                                                            TRAP    C$EXIT
      101736 003324                                                            .WORD   L10122-.
10323
10324                            ;*
10325                            ;LOCAL STORAGE FOR THIS TEST
10326                            ;-
10328 101740                             .BLKB   10-<.-TSV267>
10330 101750                     T27PACKET:                             ;COMMAND PACKET FOR TEST
10331 101750 100004                      .WORD   100004                 ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
10332 101752 101760                      .WORD   T27DATA                ;ADDRESS OF CHARACTERISTICS BLOCK
10333 101754 000000                      .WORD   0
10334 101756 000012                      .WORD   10.                    ;STARTING VALUE OF BLOCK SIZE
10335 101760                     T27DATA:                               ;CHARACTERISTICS DATA BLOCK
10336 101760 101772                      .WORD   T27BFR                 ;ADDRESS OF MESSAGE BUFFER
10337 101762 000000                      .WORD   0
10338 101764 000024                      .WORD   20.                    ;LENGTH OF MESSAGE BUFFER
10339 101766 000000                      .WORD   0
10340 101770 000000              T27DSW: .WORD   0                       ;SELECT DRIVE 0
10341 101772                     T27BFR: .BLKW   25.                     ;MESSAGE BUFFER
10342                            ;
10343                            ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
10344                            ;
10346 102054                             .BLKB   10-<.-TSV267>
10348 102060                     T27PK2:
10349 102060 100006                      .WORD   100006                 ;WRITE SUB SYS MEM COMMAND,  AND ACK
10350 102062 102110                      .WORD   T27BF2                 ;ADDRESS OF SELECT BLOCK DATA
10351 102064 000000                      .WORD   0
10352 102066 000006                      .WORD   6.                     ;SIZE OF DATA PACKET
10353
```

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10355 102070                            .BLKB   10 <. TSV267>
10357 102100                    T27PK3:
10358 102100  100005                    .WORD   100005          ;REREAD COMMAND, AND ACK
10359 102102                    T27RB:
10360 102102  003114            T27WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
10361 102104  000000                    .WORD   0
10362 102106  000000            T27SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
10363                                   .EVEN
10364                           ;
10365                           ;
10366                           ;
10367 102110                    T27BF2:
10368 102110     010            T27BS0: .BYTE   10              ;BSEL0 AREA
10369 102111     200            T27BS1: .BYTE   200             ;BSEL1 AREA
10370 102112  000000            T27S2:  .WORD   0               ;SEL 2 AREA
10371 102114  000000            T27S3:  .WORD   0               ;DATA AREA
10372                           ;
10373                           ;
10374                                   .EVEN
10375                           ;TAPE MOTION PACKET COMMAND VALUES
10376
10377 102116  100205            T27RN:  .WORD   100205          ;REREAD DATA (NEXT)
10378 102120  100605            T27WDR: .WORD   100605          ;REREAD DATA RETRY
10379 102122  102205            T27CON: .WORD   102205          ;WRITE CONTINOUS
10380 102124  177777                    .WORD   177777          ;END OF DATA
10381
10382                           ;
10384 102126  000000            T27CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10384 102130  000000            T27CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10385 102132  000000            T27DLY: .WORD   0               ;DELAY COUNTER
10386
10387
10388                           ;*
10389                           ;LOCAL TEXT MESSAGES FOR TEST
10390                           ;-
10391
10392
10393 102134     124     141     160    T27WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP-1)
10394 102222     124     123     123    T27RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
10395 102271     122     105     122    T27RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
10396 102366     120     117     123    T27SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
10397 102450     122     111     102    T27LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
10398 102520     124     123     123    T27WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
10399 102575     111     154     154    T27LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
10400 102656     122     105     122    T27SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
10401 102712     124     123     123    T27WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command,At BOT'
10402 103001     124     141     160    T27BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XSTO)
10403 103074     127     122     111    T27TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
10404 103151     122     105     122    T27EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
10405 103230     124     123     123    T27TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
10406 103305     122     145     167    T27RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
10407 103354     122     101     115    T27RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
10408 103427     124     123     123    T27AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
10409 103476     104     162     151    T27OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
10410 103551     124     123     123    T27WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
10411 103641     124     123     123    T27WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
10412 103714     103     126     103    T27VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
```

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10413 103767     124     123     102  T27BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
10414 104042     127     122     111  T27WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
10415 104131     122     145     141  T27LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
10416 104213     122     145     141  T27LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
10417 104275     122     145     163  T27PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
10418 104363     122     145     141  T27TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert
10419 104451     127     122     111  T27NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3
10420 104547     124     123     123  T27SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
10421 104624     124     123     123  T27TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
10422 104706     124     123     123  T27WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command
10423 104766     104     141     164  T27DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written
10424 105063     127     162     151  TST27ID:        .ASCIZ  'Write Data Retry'
10425                                          .EVEN
10426                                  ;*
10427                                  ;
10428                                  ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
10429                                  ;WRITE SUBSYSTEM MEMORY COMMAND
10430                                  ;
10431                                  ;-
10432
10433 105104                          T27REST:
10434 105104                                  SAVREG                          ;SAVE THE REGISTERS
10435 105110  012701  101750                  MOV     #T27PACKET,R1           ;START OF THE PACKET
10436 105114  012721  100004                  MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
10437 105120  012721  101760                  MOV     #T27DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
10438 105124  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
10439 105126  012721  000012                  MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
10440 105132  012721  101772                  MOV     #T27BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
10441 105136  005021                          CLR     (R1)+
10442 105140  012721  000024                  MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
10443 105144  005021                          CLR     (R1)+
10444 105146  012711  000000                  MOV     #0,(R1)                 ;SELECT DRIVE ZERO
10445 105152  012702  000030                  MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
10446 105156  012762  177777  101772  64$:    MOV     #177777,T27BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
10447 105164  005742                          TST     -(R2)                   ;NEXT LOCATION
10448 105166  022702  000000                  CMP     #0,R2                   ;AT END OF LOOP YET
10449 105172  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
10450 105174  000207                          RTS     PC                      ;RETURN
10451
10452
10453 105176                          T27RT2:
10454 105176                                  SAVREG                          ;SAVE THE REGISTERS
10455 105202  012701  102060                  MOV     #T27PK2,R1              ;START OF THE PACKET
10456 105206  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
10457 105212  012721  102110                  MOV     #T27BF2,(R1)+           ;ADDRESS OF DATA BLOCK
10458 105216  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
10459 105220  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
10460 105224  005021                          CLR     (R1)+
10461 105226  012701  102110                  MOV     #T27BF2,R1              ;POINT TO DATA SEL AREA
10462 105232  005021                          CLR     (R1)+
10463 105234  005011                          CLR     (R1)
10464 105236  000207                          RTS     PC                      ;RETURN
10465 105240                          T27RT3:
10466 105240                                  SAVREG                          ;SAVE REGISTERS
10467 105244  012701  102100                  MOV     #T27PK3,R1              ;SET UP POINTER ADDRESS
10468 105250  005021                          CLR     (R1)+                   ;COMMAND SPACE
10469 105252  005021                          CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
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10470 105254  005021                      CLR     (R1)+                   ;EXTENDED ADDRESS
10471 105256  005011                      CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
10472 105260  000207                      RTS     PC                      ;RETURN
10473 105262                              ENDTST
      105262                                                                      L10122:
      105262  104401                                                                TRAP    C$ETST
10474
10475                                     .SBTTL  TEST  8: WRITE/READ TAPE MARK
10476                                 ;+
10477                                 ;
10478                                 ;THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES
10479                                 ;PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE
10480                                 ;BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE
10481                                 ;TAPE MARK. IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST
10482                                 ;SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED
10483                                 ;THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT
10484                                 ;FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.
10485                                 ;
10486                                 ;
10487                                 ;THE TEST CONSISTS OF THE FOLLOWING 3 SUBTESTS
10488                                 ;
10489                                 ;
10490                                 ;
10491                                 ;
10492 105264                              BGNTST
      105264                                                                      T8::
10493 105264  012737  006446  002170        MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
10494 105272  005037  003124              CLR     KTENABLE                ;TURN KT11 OFF
10495 105276  004737  017364              JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
10500 105302  012700  112521              MOV     #TST28ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
10501 105306  004737  016600              JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
10502 105312  012737  000005  002206        MOV     #5,LOOPCNT              ;PERFORM 5 ITERATIONS
10503                                 ;+
10504                                 ;
10505                                 ;TEST 8, SUBTEST 1
10506                                 ;
10507                                 ;
10508                                 ;VERIFIES THAT A FORMAT COMMAND (WITH ANY LEGAL MODE
10509                                 ;CODE) WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS
10510                                 ;REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL
10511                                 ;VALID MODE CODES ARE CHECKED.
10512                                 ;
10513                                 ;
10514                                 ;-
10515
10516 105320                          T28LOOP:
10517 105320                              BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      105320                                                                      T8.1:
      105320  104402                                                                TRAP    C$BSUB
10518 105322  004737  112546              JSR     PC,T28REST              ;SET COMMAND PACKET
10519 105326  004737  112640              JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10520 105332  004737  112702              JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10521 105336  004737  016064              JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10522 105342  103407                      BCS     20$                     ;BR IF INIT WAS OK
10523 105344  005237  002212              INC     FATFLG                  ;BUMP COUNT
10527 105350  010001                      MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10528 105352                              ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
```

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                105352  104455                                                          TRAP    C$ERDF
                105354  001441                                                          .WORD   801
                105356  003650                                                          .WORD   SFIERR
                105360  012124                                                          .WORD   SFIMSG
 10529          105362  012737  000007  110500  20$:    MOV     #7,T28DSW       ;SET UP DRIVE NUMBER
 10530          105370  012704  110460          20$:    MOV     #T28PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
 10531          105374  004737  010752          20$:    JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
 10532          105400  103407          20$:    BCS     24$             ;BR, IF COMMAND ISSUED OK
 10533          105402  005237  002212          20$:    INC     FATFLG          ;BUMP COUNT
 10537          105406  010001          20$:    MOV     R0,R1           ;SAVE CONTENTS OF TSSR
 10538          105410          20$:    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                105410  104456                                                          TRAP    C$ERHRD
                105412  001442                                                          .WORD   802
                105414  005054                                                          .WORD   WRTMSG
                105416  012124                                                          .WORD   SFIMSG
 10539          105420          24$:    CKLOOP
                105420  104406                                                          TRAP    C$CLP1
 10540          105422  005737  002216          20$:    TST     EXTFEA          ;CHECK FOR EXTENDED FEATURES SW SWITCH
 10541          105426  001044          20$:    BNE     50$             ;BR IF SWITCH IS ON
 10542
 10543          105430  112737  000200  110621  20$:    MOVB    #200,T28BS1     ;WRITE MISCELLANEOUS CONT/READ STATUS
 10544          105436  112737  000010  110620  20$:    MOVB    #10,T28BS0      ;FUNCTION SELECTION BIT (TURN ON EXTFEA HW SWITCH)
 10545          105444  012704  110570          20$:    MOV     #T28PK2,R4      ;WRITE SUBSYS MEM PACKET
 10546          105450  010465  000000          20$:    MOV     R4,TSDB(R5)     ;ISSUE COMMAND
 10547          105454  004737  016426          20$:    JSR     PC,CHKTSSR      ;WAIT FOR SSR
 10548          105460  103407          20$:    BCS     30$             ;BR, IF NO ERROR
 10549          105462  010001          20$:    MOV     R0,R1           ;ERROR, SAVE TSSR
 10550          105464  005237  002212          20$:    INC     FATFLG          ;BUMP COUNT
 10554          105470          20$:    ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
                105470  104456                                                          TRAP    C$ERHRD
                105472  001443                                                          .WORD   803
                105474  111315                                                          .WORD   T28SSR
                105476  012136                                                          .WORD   PKTSSR
 10555          105500          30$:    CKLOOP                          ;LOOP IF SELECTED
                105500  104406                                                          TRAP    C$CLP1
 10556          105502  012704  110460          30$:    MOV     #T28PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
 10557          105506  012737  000007  110500  30$:    MOV     #7,T28DSW       ;SELECT DRIVE 7
 10558          105514  004737  010752          30$:    JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
 10559          105520  103407          30$:    BCS     50$             ;BR, IF COMMAND ISSUED OK
 10560          105522  005237  002212          30$:    INC     FATFLG          ;BUMP COUNT
 10564          105526  010001          30$:    MOV     R0,R1           ;SAVE CONTENTS OF TSSR
 10565          105530          30$:    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                105530  104456                                                          TRAP    C$ERHRD
                105532  001444                                                          .WORD   804
                105534  005054                                                          .WORD   WRTMSG
                105536  012124                                                          .WORD   SFIMSG
 10566          105540          50$:    CKLOOP                          ;SCOPE LOOP
                105540  104406                                                          TRAP    C$CLP1
 10567          105542  016501  000002          50$:    MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
 10568          105546  032701  000100          50$:    BIT     #OFL,R1         ;CHECK FOR THE OFFLINE BIT SET
 10569          105552  001006          50$:    BNE     60$             ;BR, IF OFFLINE (GOOD)
 10570          105554  005237  002212          50$:    INC     FATFLG          ;BUMP COUNT
 10574          105560          50$:    ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
                105560  104455                                                          TRAP    C$ERDF
                105562  001445                                                          .WORD   805
                105564  111650                                                          .WORD   T28OFL
                105566  012124                                                          .WORD   SFIMSG
```

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TEST  8: WRITE/READ TAPE MARK

10575 105570                          60$:    CKLOOP                          ;LOOP IF SELECTED
      105570  104406                                                                  TRAP    C$CLP1
10576 105572  012703  110636                  MOV     #T28RN,R3               ;POINTER FOR COMMANDS
10577 105576  011337  110610          65$:    MOV     (R3),T28PK3             ;TAPE READ COMMAND IN PLACE
10578 105602  012704  110610                  MOV     #T28PK3,R4              ;R4 = POINTER TO PACKET
10579 105606  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10580 105612  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10581 105616  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10582 105622  012702  100306                  MOV     #SSR!SC!OFL!BIT1!BIT2,R2        ;SET UP EXPECTED
10583 105626  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10584 105630  001406                          BEQ     80$                     ;BR, IF OK ESP. FUNCTION REJECT
10585 105632  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10589 105636                                  ERRHRD  ERRNO,T28TM,PKTSSR      ;TSSR INCORRECT AFTER FORMAT CMD
      105636  104456                                                                  TRAP    C$ERHRD
      105640  001446                                                                  .WORD   806
      105642  111524                                                                  .WORD   T28TM
      105644  012136                                                                  .WORD   PKTSSR
10590 105646                          80$:    CKLOOP                          ;LOOP IF SELECTED
      105646  104406                                                                  TRAP    C$CLP1
10591 105650  005723                          TST     (R3)+           ;POINT TO NEXT COMMAND
10592 105652  022713  177777                  CMP     #177777,(R3)            ;END OF THE COMMANDS YET
10593 105656  001401                          BEQ     90$                     ;BR, IF DONE
10594 105660  000746                          BR      65$                     ;MORE COMMAND(S) TO GO
10595 105662                          90$:
10596 105662                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      105662                                                                        L10131:
      105662  104403                                                                  TRAP    C$ESUB
10597 105664  023727  002212  000017          CMP     FATFLG,#15.                     ;IS ERROR COUNT AT 25
10598 105672  103402                          BLO     999$                    ;BR, IF LESS THAN 25
10599 105674  004737  017272                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
10600 105700                          999$:
10601
10602                                         ;+
10603                                         ;
10604                                         ;TEST 8, SUBTEST 2
10605                                         ;
10606                                         ;VERIFIES THAT A FORMAT COMMAND WITH AN ILLEGAL MODE
10607                                         ;CODE CAUSES FUNCTION REJECT TERMINATION WITH THE
10608                                         ;ILLEGAL COMMAND (ILC) ERROR BIT SET. ALL ILLEGAL
10609                                         ;MODE CODES ARE CHECKED.
10610                                         ;
10611                                         ;
10612                                         ;
10613                                         ;-
10614 105700                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      105700                                                                        T8.2:
      105700  104402                                                                  TRAP    C$BSUB
10615 105702  004737  112546                  JSR     PC,T28REST              ;SET COMMAND PACKET
10616 105706  004737  112640                  JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10617 105712  004737  112702                  JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10618 105716  004737  016064                  JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10619 105722  103407                          BCS     20$                     ;BR IF INIT WAS OK
10620 105724  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10624 105730  010001                          MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10625 105732                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      105732  104455                                                                  TRAP    C$ERDF
      105734  001447                                                                  .WORD   807
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                105736  003650                                                          .WORD   SFIERR
                105740  012124                                                          .WORD   SFIMSG
10626           105742  013737  002172  110500  20$:    MOV     UNITN,T28DSW           ;SET UP DRIVE NUMBER
10627           105750  012704  110460                   MOV     #T28PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
10628           105754  004737  010752                   JSR     PC,WRTCHR              ;ISSUE WRITE CHARACTERISTICS
10629           105760  103407                           BCS     24$                    ;BR, IF COMMAND ISSUED OK
10630           105762  005237  002212                   INC     FATFLG                 ;BUMP COUNT
10634           105766  010001                           MOV     R0,R1                  ;SAVE CONTENTS OF TSSR
10635           105770                                   ERRHRD  ERRNO,WRTMSG,SF1MSG    ;WRITE CHARACTERISTISC FAILED
                105770  104456                                                          TRAP    C$ERHRD
                105772  001450                                                          .WORD   808
                105774  005054                                                          .WORD   WRTMSG
                105776  012124                                                          .WORD   SFIMSG
10636           106000                   24$:    CKLOOP                                 ;LOOP IF SELECTED
                106000  104406                                                          TRAP    C$CLP1
10637           106002  012703  110626                   MOV     #T28IMV,R3             ;SET POINTER FOR COMMANDS
10638           106006  011337  110610           30$:    MOV     (R3),T28PK3            ;SET UP NEXT COMMAND
10639           106012  013737  003114  110612           MOV     FREE,T28RB             ;STARTING WRITE BUFFER ADDRESS
10640           106020  012704  110610                   MOV     #T28PK3,R4             ;SET UP R4 WITH PACKET ADDRESS
10641           106024  012737  000400  110616           MOV     #256.,T28SZ            ;SET UP RECORD SIZE IN PACKET
10642           106032  010465  000000                   MOV     R4,TSDB(R5)            ;ISSUE COMMAND
10643           106036  004737  016340                   JSR     PC,WAITF               ;WAIT FOR SSR!BIT1!BIT2 TO SET
10644           106042  016501  000002                   MOV     TSSR(R5),R1            ;GET TSSR CONTENTS
10645           106046  012702  100206                   MOV     #SSR!SC!BIT1!BIT2,R2   ;SET UP EXPECTED
10646           106052  020102                           CMP     R1,R2                  ;ARE THEY EQUAL
10647           106054  001406                           BEQ     75$                    ;BR, IF OK
10648           106056  005237  002212                   INC     FATFLG                 ;BUMP COUNT
10652           106062                                   ERRHRD  ERRNO,T28WDF,PKTSSR    ;TSSR INCORRECT AFTER READ DATA
                106062  104456                                                          TRAP    C$ERHRD
                106064  001451                                                          .WORD   809
                106066  111157                                                          .WORD   T28WDF
                106070  012136                                                          .WORD   PKTSSR
10653           106072                   75$:    CKLOOP                                 ;LOOP IF SELECTED
                106072  104406                                                          TRAP    C$CLP1
10654           106074  013701  110510                   MOV     T28BFR+6,R1            ;GET MESSAGE BUFFER
10655           106100  010102                           MOV     R1,R2                  ;SET UP EXPECTED
10656           106102  052702  001000                   BIS     #BIT9,R2               ;SET THE ILC BIT IN EXPECTED
10657           106106  020102                           CMP     R1,R2                  ;ARE THEY EQUAL
10658           106110  001406                           BEQ     180$                   ;BR, IF EQUAL (ALL IS WELL)
10659           106112  005237  002212                   INC     FATFLG                 ;BUMP COUNT
10663           106116                                   ERRHRD  ERRNO,T28LOQ,EXPREC    ;THE ILC BIT WAS NOT SET IN XSTO
                106116  104456                                                          TRAP    C$ERHRD
                106120  001452                                                          .WORD   810
                106122  111234                                                          .WORD   T28LOQ
                106124  015564                                                          .WORD   EXPREC
10664           106126                   180$:   CKLOOP
                106126  104406                                                          TRAP    C$CLP1
10665           106130  005723                           TST     (R3)+          ;BUMP TO NEXT ADDRESS (COMMAND)
10666           106132  021327  177777                   CMP     (R3),#177777           ;CHECK FOR END OF COMMAND BUFFER
10667           106136  001323                           BNE     30$                    ;BR, IF MORE COMMANDS TO TRY
10668           106140                   190$:   CKLOOP                                 ;LOOP IF SELECTED
                106140  104406                                                          TRAP    C$CLP1
10669           106142                                   ENDSUB                         ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
                106142                                                                          L10132:
                106142  104403                                                          TRAP    C$ESUB
10670           106144  023727  002212  000017           CMP     FATFLG,#15.                    ;IS ERROR COUNT AT 25
10671           106152  103402                           BLO     999$                           ;BR, IF LESS THAN 25
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10672 106154  004737  017272                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
10673 106160                          999$:
10674
10675                                 ;*
10676                                 ;
10677                                 ;TEST 8, SUBTEST 3
10678                                 ;
10679                                 ;VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE
10680                                 ;PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED
10681                                 ;TO DETECT THE WRITTEN TAPE MARKS TERMINATE WITH TAPE
10682                                 ;STATUS ALERT WITH THE TAPE MARK DETECTED (TMK) STATUS
10683                                 ;BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED.
10684                                 ;
10685                                 ;1.     THE CONTROLLER IS INITIALIZED AND TAPE REWOUND.
10686                                 ;       THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
10687                                 ;
10688                                 ;2.     A WRITE TAPE MARK COMMAND WITH CVC=1 IS ISSUED
10689                                 ;       AND PROPER TERMINATION AND STATUS IS VERIFIED
10690                                 ;       (I.E. VCK=0 AND TMK=1).
10691                                 ;
10692                                 ;3.     SEVERAL MORE WRITE TAPE MARK COMMANDS, THESE WITH
10693                                 ;       CVC=0 ARE ISSUED AND PROPER TERMINATION (NORMAL)
10694                                 ;       AND STATUS (TMK) VERIFIED.
10695                                 ;
10696                                 ;4.     A READ REVERSE COMMAND IS ISSUED AND PROPER
10697                                 ;       TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK)
10698                                 ;       VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS
10699                                 ;       TRANSFERRED INTO MEMORY.
10700                                 ;
10701                                 ;5.     A SPACE RECORDS REVERSE COMMAND IS ISSUED AND
10702                                 ;       PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS
10703                                 ;       (TMK) VERIFIED.
10704                                 ;
10705                                 ;6.     THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS
10706                                 ;       ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT)
10707                                 ;       AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED
10708                                 ;       THAT NO DATA IS TRANSFERRED INTO MEMORY.
10709                                 ;
10710                                 ;7.     A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A
10711                                 ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10712                                 ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
10713                                 ;       OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL
10714                                 ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
10715                                 ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
10716                                 ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
10717                                 ;       TO BE PREMATURELY TERMINATED. THIS SHOULD LEAVE
10718                                 ;       THE POSITION JUST BEFORE THE FIRST RECORD ON
10719                                 ;       TAPE.
10720                                 ;
10721                                 ;8.     TAPE POSITION IS VERIFIED BY ISSUING ANOTHER
10722                                 ;       SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT
10723                                 ;       TAPE STATUS ALERT TERMINATION OCCURS, WITH THE
10724                                 ;       REVERSE INTO BOT (RIB) STATUS ERROR BIT SET.
10725                                 ;
10726                                 ;9.     A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A
10727                                 ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10728                                 ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
```

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                                        ;       OCCURED, TMK=1, AND THAT RBPCR (RESIDUAL
                                        ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
                                        ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
                                        ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
                                        ;       TO BE PREMATURELY TERMINATED.
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;
                                        ;
10741 106160                            BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      106160                                                                    T8.3:
      106160  104402                                                              TRAP    C$BSUB
10742 106162  004737  112546           JSR     PC,T28REST              ;SET COMMAND PACKET
10743 106166  004737  112640           JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10744 106172  004737  112702           JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10745 106176  012737  023420  110652   MOV     #10000.,T28DLY          ;SET UP DELAY ROUTINE
10746 106204  004737  016064   10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
10747 106210  103426                   BCS     20$                     ;BR IF INIT WAS OK
10748 106212                           DELAY   250                     ;DELAY ABOUT .25 SECONDS
      106212  012727  000250                                                      MOV     #250.,(PC)+
      106216  000000                                                              .WORD   0
      106220  013727  002116                                                      MOV     L$DLY,(PC)+
      106224  000000                                                              .WORD   0
      106226  005367  177772                                                      DEC     -6(PC)
      106232  001375                                                              BNE     .-4
      106234  005367  177756                                                      DEC     -22(PC)
      106240  001367                                                              BNE     .-20
10749 106242  005337  110652           DEC     T28DLY                  ;BUMP DELAY ROUTINE DOWN
10750 106246  001356                   BNE     10$                     ;BR, IF MORE DELAY TIME LEFT
10751 106250  005237  002212           INC     FATFLG                  ;BUMP COUNT
10755 106254  010001                   MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10756 106256                           ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      106256  104455                                                              TRAP    C$ERDF
      106260  001453                                                              .WORD   811
      106262  003650                                                              .WORD   SFIERR
      106264  012124                                                              .WORD   SFIMSG
10757 106266  013737  002172  110500  20$:    MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
10758 106274  012704  110460           MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10759 106300  004737  010752           JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10760 106304  103407                   BCS     23$                     ;BR, IF COMMAND ISSUED OK
10761 106306  005237  002212           INC     FATFLG                  ;BUMP COUNT
10765 106312  010001                   MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10766 106314                           ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      106314  104456                                                              TRAP    C$ERHRD
      106316  001454                                                              .WORD   812
      106320  005054                                                              .WORD   WRTMSG
      106322  012124                                                              .WORD   SFIMSG
10767 106324                   23$:    CKLOOP                          ;LOOP IF SELECTED
      106324  104406                                                              TRAP    C$CLP1
10768 106326  004737  011104           JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10769 106332  103411                   BCS     30$                     ;BR, IF NO PROBLEM
10770 106334  016501  000002           MOV     TSSR(R5),R1             ;GET TSSR
10771 106340  010004                   MOV     R0,R4                   ;SAVE PACKET ADDRESS
10772 106342  005237  002212           INC     FATFLG                  ;BUMP COUNT
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10776 106346                                ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
      106346  104456                                                          TRAP    C$ERHRD
      106350  001455                                                          .WORD   813
      106352  111601                                                          .WORD   T28RWN
      106354  012136                                                          .WORD   PKTSSR
10777 106356                          30$:  CKLOOP                          ;LOOP IF SELECTED
      106356  104406                                                          TRAP    C$CLP1
10778 106360  013701  110510                MOV     T28BFR+6,R1             ;PICK UP XSTO
10779 106364  010102                        MOV     R1,R2                   ;SET UP EXPECTED
10780 106366  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10781 106372  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
10782 106374  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
10783 106376  005237  002212                INC     FATFLG                  ;BUMP COUNT
10787 106402                                ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      106402  104456                                                          TRAP    C$ERHRD
      106404  001456                                                          .WORD   814
      106406  111457                                                          .WORD   T28BOT
      106410  015564                                                          .WORD   EXPREC
10788 106412                          40$:  CKLOOP                          ;LOOP IF SELECTED
      106412  104406                                                          TRAP    C$CLP1
10789 106414  005737  002216          42$:  TST     EXTFEA                  ;CHECK FOR EXTENDED FEATURES SW SWITCH
10790 106420  001024                        BNE     50$                     ;BR IF SWITCH IS ON
10791 106422  112737  000200  110621        MOVB    #200,T28BS1             ;WRITE MISCELLANEOUS CONT/READ STATUS
10792 106430  112737  000010  110620        MOVB    #10,T28BSO              ;FUNC. SEL. BIT (TURN ON EXTFEA SWITCH)
10793 106436  012704  110570                MOV     #T28PK2,R4              ;WRITE SUBSYS MEM PACKET
10794 106442  010465  000000                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10795 106446  004737  016426                JSR     PC,CHKTSSR              ;WAIT FOR SSR
10796 106452  103407                        BCS     50$                     ;BR, IF NO ERROR
10797 106454  010001                        MOV     R0,R1                   ;ERROR, SAVE TSSR
10798 106456  005237  002212                INC     FATFLG                  ;BUMP COUNT
10802 106462                                ERRHRD  ERRNO,T28SSR,PKTSSR     ;TSSR NOT CORRECT AFTER WRT. MISCELLANEOUS
      106462  104456                                                          TRAP    C$ERHRD
      106464  001457                                                          .WORD   815
      106466  111315                                                          .WORD   T28SSR
      106470  012136                                                          .WORD   PKTSSR
10803 106472                          50$:  CKLOOP                          ;LOOP IF SELECTED
      106472  104406                                                          TRAP    C$CLP1
10804 106474  012737  000007  110500        MOV     #7,T28DSW               ;SET UP DRIVE NUMBER
10805 106502  012704  110460                MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10806 106506  004737  010752                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10807 106512  103407                        BCS     60$                     ;BR, IF COMMAND ISSUED OK
10808 106514  005237  002212                INC     FATFLG                  ;BUMP COUNT
10812 106520  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10813 106522                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      106522  104456                                                          TRAP    C$ERHRD
      106524  001460                                                          .WORD   816
      106526  005054                                                          .WORD   WRTMSG
      106530  012124                                                          .WORD   SFIMSG
10814 106532                          60$:  CKLOOP                          ;SCOPE LOOP
      106532  104406                                                          TRAP    C$CLP1
10815 106534  016501  000002                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10816 106540  032701  000100                BIT     #OFL,R1                 ;CHECK FOR THE OFFLINE BIT SET
10817 106544  001006                        BNE     65$                     ;BR, IF OFFLINE (GOOD)
10818 106546  005237  002212                INC     FATFLG                  ;BUMP COUNT
10822 106552                                ERRDF   ERRNO,T28OFL,SFIMSG     ;OFF LINE SHOULD HAVE BEEN SET (BAD)
      106552  104455                                                          TRAP    C$ERDF
      106554  001461                                                          .WORD   817
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                106556  111650                                                          .WORD   T28OFL
                106560  012124                                                          .WORD   SFIMSG
10823           106562                          65$:    CKLOOP                                  ;LOOP IF SELECTED
                106562  104406                                                          TRAP    C$CLP1
10824           106564  013737  002172  110500          MOV     UNITN,T28DSW            ;SET UP DRIVE NUMBER
10825           106572  012704  110460                  MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10826           106576  004737  010752                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10827           106602  103407                          BCS     68$                     ;BR, IF COMMAND ISSUED OK
10828           106604  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10832           106610  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10833           106612                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                106612  104456                                                          TRAP    C$ERHRD
                106614  001462                                                          .WORD   818
                106616  005054                                                          .WORD   WRTMSG
                106620  012124                                                          .WORD   SFIMSG
10834           106622                          68$:    CKLOOP                          ;LOOP IF SELECTED
                106622  104406                                                          TRAP    C$CLP1
10835           106624  012737  140011  110610          MOV     #140011,T28PK3          ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
10836           106632  012704  110610                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10837           106636  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10838           106642  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10839           106646  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10840           106652  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10841           106656  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10842           106660  001406                          BEQ     70$                     ;BR, IF OK
10843           106662  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10847           106666                                  ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE TAPE MARK
                106666  104456                                                          TRAP    C$ERHRD
                106670  001463                                                          .WORD   819
                106672  111723                                                          .WORD   T28WDC
                106674  012136                                                          .WORD   PKTSSR
10848           106676                          70$:    CKLOOP                          ;LOOP IF SELECTED
                106676  104406                                                          TRAP    C$CLP1
10849           106700  013701  110510                  MOV     T28BFR+6,R1             ;PICK UP XSTO (VCK CHECK)
10850           106704  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10851           106706  042702  000020                  BIC     #BIT4,R2                ;VCK SHOULD BE 0
10852           106712  020102                          CMP     R1,R2                   ;IS VCK SET CORRECTLY
10853           106714  001406                          BEQ     80$                     ;BR, IF VCK IS CLEAR
10854           106716  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10858           106722                                  ERRHRD  ERRNO,T28VCK,EXPREC     ;VCK WAS NOT CLEAR AFTER CVC=1
                106722  104456                                                          TRAP    C$ERHRD
                106724  001464                                                          .WORD   820
                106726  112002                                                          .WORD   T28VCK
                106730  015564                                                          .WORD   EXPREC
10859           106732                          80$:    CKLOOP                          .LOOP IF SELECTED
                106732  104406                                                          TRAP    C$CLP1
10860           106734  013701  110510                  MOV     T28BFR+6,R1             ;PICK UP XSTO (CHECK TMK)
10861           106740  010102                          MOV     R1,R2                   .SET UP EXPECTED
10862           106742  052702  100000                  BIS     #BIT15,R2               .TMK SHOULD BE SET
10863           106746  020102                          CMP     R1,R2                   .WAS TMK SET
10864           106750  001406                          BEQ     90$                     ;BR, IF TMK WAS SET
10865           106752  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10869           106756                                  ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK WAS NOT SET AFTER WRT TAPE MARK
                106756  104456                                                          TRAP    C$ERHRD
                106760  001465                                                          .WORD   821
                106762  112055                                                          .WORD   T28TMK
                106764  015564                                                          .WORD   EXPREC
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10870 106766                          90$:   CKLOOP                          ;LOOP IF SELECTED
      106766  104406                                                                TRAP    C$CLP1
10871 106770  004737  011104                JSR     PC,REWIND                ;CALL TAPE REWIND COMMAND
10872 106774  103411                        BCS     130$                     ;BR, IF NO PROBLEM
10873 106776  010004                        MOV     R0,R4                    ;SAVE PACKET ADDRESS
10874 107000  016501  000002                MOV     TSSR(R5),R1              ;GET TSSR STATUS
10875 107004  005237  002212                INC     FATFLG                   ;BUMP COUNT
10879 107010                                ERRHRD  ERRNO,T28RWN,PKTSSR      ;REWIND NOT ACCEPTED
      107010  104456                                                                TRAP    C$ERHRD
      107012  001466                                                                .WORD   822
      107014  111601                                                                .WORD   T28RWN
      107016  012136                                                                .WORD   PKTSSR
10880 107020                          130$:  CKLOOP                          ;LOOP IF SELECTED
      107020  104406                                                                TRAP    C$CLP1
10881 107022  013701  110510                MOV     T28BFR+6,R1              ;PICK UP XSTO
10882 107026  010102                        MOV     R1,R2                    ;SET UP EXPECTED
10883 107030  052702  000002                BIS     #BIT1,R2                 ;SET BOT BIT IN EXPECTED
10884 107034  020102                        CMP     R1,R2                    ;DOES EXP = REC'D
10885 107036  001406                        BEQ     140$                     ;BR, IF EQUAL (OK)
10886 107040  005237  002212                INC     FATFLG                   ;BUMP COUNT
10890 107044                                ERRHRD  ERRNO,T28BOT,EXPREC      ;TAPE NOT AT BOT AFTER REWIND
      107044  104456                                                                TRAP    C$ERHRD
      107046  001467                                                                .WORD   823
      107050  111457                                                                .WORD   T28BOT
      107052  015564                                                                .WORD   EXPREC
10891 107054                          140$:  CKLOOP                          ;LOOP IF SELECTED
      107054  104406                                                                TRAP    C$CLP1
10892 107056  012703  000012          150$:  MOV     #10.,R3                  ;NUMBER OF RECORDS TO WRITE TM
10893 107062  012737  140011  110610        MOV     #140011,T28PK3           ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
10894 107070  012704  110610                MOV     #T28PK3,R4               ;SET UP R4 WITH PACKET ADDRESS
10895 107074  010465  000000          155$:  MOV     R4,TSDB(R5)              ;ISSUE COMMAND
10896 107100  004737  016340                JSR     PC,WAITF                 ;WAIT FOR SSR TO SET
10897 107104  016501  000002                MOV     TSSR(R5),R1              ;PICK UP TSSR
10898 107110  012702  000200                MOV     #SSR,R2                  ;SET UP EXPECTED (SSR ONLY)
10899 107114  020102                        CMP     R1,R2                    ;WAS STATUS GOOD
10900 107116  001406                        BEQ     165$                     ;BR, IF TERMINATION WAS GOOD
10901 107120  005237  002212                INC     FATFLG                   ;BUMP COUNT
10905 107124                                ERRHRD  ERRNO,T28WDC,PKTSSR      ;TSSR NOT CORRECT AFTER WRT TAPE M.
      107124  104456                                                                TRAP    C$ERHRD
      107126  001470                                                                .WORD   824
      107130  111723                                                                .WORD   T28WDC
      107132  012136                                                                .WORD   PKTSSR
10906 107134                          165$:  CKLOOP                          ;LOOP IF SELECTED
      107134  104406                                                                TRAP    C$CLP1
10907 107136  013701  110510                MOV     T28BFR+6,R1              ;PICK UP XSTO
10908 107142  010102                        MOV     R1,R2                    ;SET UP EXPECTED
10909 107144  052702  100000                BIS     #BIT15,R2                ;SET TMK BIT IN EXPECTED
10910 107150  020102                        CMP     R1,R2                    ;DOES EXP = REC'D
10911 107152  001406                        BEQ     180$                     ;BR, IF EQUAL (OK)
10912 107154  005237  002212                INC     FATFLG                   ;BUMP COUNT
10916 107160                                ERRHRD  ERRNO,T28TMK,EXPREC      ;TMK NOT SET AFTER WRT TAPE MARK
      107160  104456                                                                TRAP    C$ERHRD
      107162  001471                                                                .WORD   825
      107164  112055                                                                .WORD   T28TMK
      107166  015564                                                                .WORD   EXPREC
10917 107170                          180$:  CKLOOP                          ;LOOP IF SELECTED
      107170  104406                                                                TRAP    C$CLP1
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10918 107172 005303                        DEC     R3                      ;BUMP COUNTER DOWN
10919 107174 001337                        BNE     155$                    ;BR, IF LESS THAN 10 TAPE MARKS
10920 107176 012700 177777                 MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
10921 107202 004737 017512                 JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
10922 107206 013737 003114 110612          MOV     FREE,T28WB              ;STARTING READ BUFFER ADDRESS
10923 107214 012737 140401 110610          MOV     #140401,T28PK3          ;READ REVERSE,ACK, COMMAND
10924 107222 012704 110610                 MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10925 107226 013737 000024 110616          MOV     20.,T28SZ               ;SET UP RECORD SIZE IN PACKET
10926 107234 010465 000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10927 107240 004737 016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10928 107244 016501 000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10929 107250 012702 100204                 MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10930 107254 020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10931 107256 001406                        BEQ     200$                    ;BR, IF OK
10932 107260 005237 002212                 INC     FATFLG                  ;BUMP COUNT
10936 107264                               ERRHRD  ERRNO,T28RDF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      107264 104456                                                                TRAP    C$ERHRD
      107266 001472                                                                .WORD   826
      107270 111014                                                                .WORD   T28RDF
      107272 012136                                                                .WORD   PKTSSR
10937 107274                        200$:  CKLOOP                          ;LOOP IF SELECTED
      107274 104406                                                                TRAP    C$CLP1
10938 107276 013701 110510                 MOV     T28BFR+6,R1             ;PICK UP XSTO
10939 107302 010102                        MOV     R1,R2                   ;SET UP EXPECTED
10940 107304 052702 100000                 BIS     #BIT15,R2               ;TMK SHOULD BE SET
10941 107310 020102                        CMP     R1,R2                   ;IS TMK SET
10942 107312 001406                        BEQ     210$                    ;BR, IF TMK WAS SET (GOOD)
10943 107314 005237 002212                 INC     FATFLG                  ;BUMP COUNT
10947 107320                               ERRHRD  ERRNO,T28RRM,EXPREC     ;TMK NOT SET AFTER READ REV
      107320 104456                                                                TRAP    C$ERHRD
      107322 001473                                                                .WORD   827
      107324 112127                                                                .WORD   T28RRM
      107326 015564                                                                .WORD   EXPREC
10948 107330                        210$:  CKLOOP                          ;LOOP IF SELECTED
      107330 104406                                                                TRAP    C$CLP1
10949 107332 017701 073556                 MOV     @FREE,R1                ;FIRST LOC IN READ BUFFER
10950 107336 012702 177777                 MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
10951 107342 020102                        CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
10952 107344 001406                        BEQ     220$                    ;BR, IF NO DATA TRANS (GOOD)
10953 107346 005237 002212                 INC     FATFLG                  ;BUMP COUNT
10957 107352                               ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
      107352 104456                                                                TRAP    C$ERHRD
      107354 001474                                                                .WORD   828
      107356 112342                                                                .WORD   T28DTR
      107360 015564                                                                .WORD   EXPREC
10958 107362                        220$:  CKLOOP                          ;LOOP IF SELECTED
      107362 104406                                                                TRAP    C$CLP1
10959 107364 012737 100410 110610          MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
10960 107372 012737 000001 110612          MOV     #1,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
10961 107400 012704 110610                 MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10962 107404 010465 000000                 MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10963 107410 004737 016340                 JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10964 107414 016501 000002                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10965 107420 012702 100204                 MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10966 107424 020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10967 107426 001406                        BEQ     222$                    ;BR, IF OK
10968 107430 005237 002212                 INC     FATFLG                  ;BUMP COUNT
```

```
10972 107434                                ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
      107434  104456                                                          TRAP    C$ERHRD
      107436  001475                                                          .WORD   829
      107440  111075                                                          .WORD   T28RDG
      107442  012136                                                          .WORD   PKTSSR
10973 107444                          222$:   CKLOOP                        ;LOOP IF SELECTED
      107444  104406                                                          TRAP    C$CLP1
10974 107446  013701  110510                  MOV     T28BFR+6,R1             ;PICK UP XSTO
10975 107452  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10976 107454  052702  100000                  BIS     #BIT15,R2               ;TMK SHOULD BE SET
10977 107460  020102                          CMP     R1,R2                   ;IS TMK SET
10978 107462  001406                          BEQ     226$                    ;BR. IF TMK WAS SET (GOOD)
10979 107464  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10983 107470                                  ERRHRD  ERRNO,T28RRN,EXPREC     ;TMK NOT SET AFTER SPACE REV
      107470  104456                                                          TRAP    C$ERHRD
      107472  001476                                                          .WORD   830
      107474  112205                                                          .WORD   T28RRN
      107476  015564                                                          .WORD   EXPREC
10984 107500                          226$:   CKLOOP                        ;LOOP IF SELECTED
      107500  104406                                                          TRAP    C$CLP1
10985 107502  004737  011104                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10986 107506  103411                          BCS     230$                    ;BR. IF NO PROBLEM
10987 107510  010004                          MOV     R0,R4                   ;SAVE PACKET ADDRESS
10988 107512  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR
10989 107516  005237  002212                  INC     FATFLG                  ;BUMP COUNT
10993 107522                                  ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
      107522  104456                                                          TRAP    C$ERHRD
      107524  001477                                                          .WORD   831
      107526  111601                                                          .WORD   T28RWN
      107530  012136                                                          .WORD   PKTSSR
10994 107532                          230$:   CKLOOP                        ;LOOP IF SELECTED
      107532  104406                                                          TRAP    C$CLP1
10995 107534  013701  110510                  MOV     T28BFR+6,R1             ;PICK UP XSTO
10996 107540  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10997 107542  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10998 107546  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
10999 107550  001406                          BEQ     240$                    ;BR. IF EQUAL (OK)
11000 107552  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11004 107556                                  ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      107556  104456                                                          TRAP    C$ERHRD
      107560  001500                                                          .WORD   832
      107562  111457                                                          .WORD   T28BOT
      107564  015564                                                          .WORD   EXPREC
11005 107566                          240$:   CKLOOP                        ;LOOP IF SELECTED
      107566  104406                                                          TRAP    C$CLP1
11006 107570  012700  177777                  MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
11007 107574  004737  017512                  JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
11008 107600  013737  003114  110612          MOV     FREE,T28RB              ;STARTING READ BUFFER ADDRESS
11009 107606  012737  100001  110610          MOV     #100001,T28PK3          ;READ FORWARD,ACK, COMMAND
11010 107614  012704  110610                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11011 107620  013737  000024  110616          MOV     20.,T28SZ               ;SET UP RECORD SIZE IN PACKET
11012 107626  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11013 107632  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11014 107636  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11015 107642  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11016 107646  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11017 107650  001406                          BEQ     245$                    ;BR. IF OK
```

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11018 107652 005237 002212              INC     FATFLG                  ;BUMP COUNT
11022 107656                            ERRHRD  ERRNO,T28WDE,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      107656 104456                                                             TRAP    C$ERHRD
      107660 001501                                                             .WORD   833
      107662 111366                                                             .WORD   T28WDE
      107664 012136                                                             .WORD   PKTSSR
11023 107666                    245$:   CKLOOP                          ;LOOP IF SELECTED
      107666 104406                                                             TRAP    C$CLP1
11024 107670 013701 110510              MOV     T28BFR+6,R1             ;PICK UP XSTO
11025 107674 010102                     MOV     R1,R2                   ;SET UP EXPECTED
11026 107676 052702 100000              BIS     #BIT15,R2               ;TMK SHOULD BE SET
11027 107702 020102                     CMP     R1,R2                   ;IS TMK SET
11028 107704 001406                     BEQ     247$                    ;BR, IF TMK WAS SET (GOOD)
11029 107706 005237 002212              INC     FATFLG                  ;BUMP COUNT
11033 107712                            ERRHRD  ERRNO,T28RRP,EXPREC     ;TMK NOT SET AFTER READ REV
      107712 104456                                                             TRAP    C$ERHRD
      107714 001502                                                             .WORD   834
      107716 112264                                                             .WORD   T28RRP
      107720 015564                                                             .WORD   EXPREC
11034 107722                    247$:   CKLOOP                          ;LOOP IF SELECTED
      107722 104406                                                             TRAP    C$CLP1
11035 107724 017701 073164              MOV     @FREE,R1                        ;FIRST LOC IN READ BUFFER
11036 107730 012702 177777              MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
11037 107734 020102                     CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
11038 107736 001406                     BEQ     250$                    ;BR, IF NO DATA TRANS (GOOD)
11039 107740 005237 002212              INC     FATFLG                  ;BUMP COUNT
11043 107744                            ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
      107744 104456                                                             TRAP    C$ERHRD
      107746 001503                                                             .WORD   835
      107750 112342                                                             .WORD   T28DTR
      107752 015564                                                             .WORD   EXPREC
11044 107754                    250$:   CKLOOP                          ;LOOP IF SELECTED
      107754 104406                                                             TRAP    C$CLP1
11045 107756 012737 100410 110610       MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
11046 107764 012737 000005 110612       MOV     #5,T28R8                ;NUMBER OF RECORDS TO SPACE BACK
11047 107772 012704 110610              MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11048 107776 010465 000000              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11049 110002 004737 016340              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11050 110006 016501 000002              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11051 110012 012702 100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11052 110016 020102                     CMP     R1,R2                   ;ARE THEY EQUAL
11053 110020 001406                     BEQ     260$                    ;BR, IF OK
11054 110022 005237 002212              INC     FATFLG                  ;BUMP COUNT
11058 110026                            ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE REV CMD.
      110026 104456                                                             TRAP    C$ERHRD
      110030 001504                                                             .WORD   836
      110032 111075                                                             .WORD   T28RDG
      110034 012136                                                             .WORD   PKTSSR
11059 110036                    260$:   CKLOOP                          ;LOOP IF SELECTED
      110036 104406                                                             TRAP    C$CLP1
11060 110040 013701 110510              MOV     T28BFR+6,R1             ;PICK UP XSTO
11061 110044 010102                     MOV     R1,R2                   ;SET UP EXPECTED
11062 110046 052702 100000              BIS     #BIT15,R2               ;TMK SHOULD BE SET
11063 110052 020102                     CMP     R1,R2                   ;IS TMK SET
11064 110054 001406                     BEQ     270$                    ;BR, IF TMK WAS SET (GOOD)
11065 110056 005237 002212              INC     FATFLG                  ;BUMP COUNT
11069 110062                            ERRHRD  ERRNO,T28RRN,EXPREC     ;TMK NOT SET AFTER READ REV
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        110062  104456                                                          TRAP    C$ERHRD
        110064  001505                                                          .WORD   837
        110066  112205                                                          .WORD   T28RRN
        110070  015564                                                          .WORD   EXPREC
11070   110072                          270$:   CKLOOP                          ;LOOP IF SELECTED
        110072  104406                                                          TRAP    C$CLP1
11071   110074  013701  110506                  MOV     T28BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
11072   110100  012702  000004                  MOV     #4.,R2                  ;SHOULD BE THE DIFFERENCE
11073   110104  020102                          CMP     R1,R2                   ;IS COUNTER CORRECT
11074   110106  001406                          BEQ     280$                    ;BR, IF COUNTER CORRECT
11075   110110  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11079   110114                                  ERRHRD  ERRNO,T28PBP,EXPREC     ;RESIDUAL BYTE COUNTER NOT CORRECT
        110114  104456                                                          TRAP    C$ERHRD
        110116  001506                                                          .WORD   838
        110120  110731                                                          .WORD   T28PBP
        110122  015564                                                          .WORD   EXPREC
11080   110124                          280$:   CKLOOP                          ;LOOP IF SELECTED
        110124  104406                                                          TRAP    C$CLP1
11081   110126  012737  100410  110610          MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
11082   110134  012737  000001  110612          MOV     #1,T28R8                ;NUMBER OF RECORDS TO SPACE BACK
11083   110142  012704  110610                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11084   110146  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11085   110152  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11086   110156  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11087   110162  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11088   110166  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11089   110170  001406                          BEQ     290$                    ;BR, IF OK
11090   110172  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11094   110176                                  ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
        110176  104456                                                          TRAP    C$ERHRD
        110200  001507                                                          .WORD   839
        110202  111075                                                          .WORD   T28RDG
        110204  012136                                                          .WORD   PKTSSR
11095   110206                          290$:   CKLOOP                          ;LOOP IF SELECTED
        110206  104406                                                          TRAP    C$CLP1
11096   110210  013701  110516                  MOV     T28BFR+14,R1            ;PICK UP XST3
11097   110214  010102                          MOV     R1,R2                   ;SET UP EXPECTED
11098   110216  052702  000001                  BIS     #BIT0,R2                ;RIB SHOULD BE SET
11099   110222  020102                          CMP     R1,R2                   ;IS RIB SET
11100   110224  001406                          BEQ     300$                    ;BR, IF RIB WAS SET (GOOD)
11101   110226  005237  002212                  INC     FATFLG                  ;BUMP COUNT
11105   110232                                  ERRHRD  ERRNO,T28RIB,EXPREC     ;RIB NOT SET AFTER READ REV
        110232  104456                                                          TRAP    C$ERHRD
        110234  001510                                                          .WORD   840
        110236  110654                                                          .WORD   T28RIB
        110240  015564                                                          .WORD   EXPREC
11106   110242                          300$:   CKLOOP                          ;LOOP IF SELECTED
        110242  104406                                                          TRAP    C$CLP1
11107   110244  012737  100010  110610          MOV     #100010,T28PK3          ;SPACE FORWARD,ACK, COMMAND
11108   110252  012737  000005  110612          MOV     #5,T28R8                ;NUMBER OF RECORDS TO SPACE FORW.
11109   110260  012704  110610                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
11110   110264  010465  000000                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
11111   110270  004737  016340                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
11112   110274  016501  000002                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
11113   110300  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
11114   110304  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
11115   110306  001406                          BEQ     310$                    ;BR, IF OK
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11116 110310  005237  002212                    INC     FATFLG                  ;BUMP COUNT
11120 110314                                    ERRHRD  ERRNO,T28RDF,EXPREC     ;TSSR INCORRECT AFTER SPACE CMD.
      110314  104456                                                            TRAP    C$ERHRD
      110316  001511                                                            .WORD   841
      110320  111014                                                            .WORD   T28RDF
      110322  015564                                                            .WORD   EXPREC
11121 110324                            310$:   CKLOOP                          ;LOOP IF SELECTED
      110324  104406                                                            TRAP    C$CLP1
11122 110326  013701  110510                    MOV     T28BFR+6,R1             ;PICK UP XSTO
11123 110332  010102                            MOV     R1,R2                   ;SET UP EXPECTED
11124 110334  052702  100000                    BIS     #BIT15,R2               ;TMK SHOULD BE SET
11125 110340  020102                            CMP     R1,R2                   ;IS TMK SET
11126 110342  001406                            BEQ     320$                    ;BR, IF TMK WAS SET (GOOD)
11127 110344  005237  002212                    INC     FATFLG                  ;BUMP COUNT
11131 110350                                    ERRHRD  ERRNO,T28RRP,EXPREC     ;TMK NOT SET AFTER READ REV
      110350  104456                                                            TRAP    C$ERHRD
      110352  001512                                                            .WORD   842
      110354  112264                                                            .WORD   T28RRP
      110356  015564                                                            .WORD   EXPREC
11132 110360                            320$:   CKLOOP                          ;LOOP IF SELECTED
      110360  104406                                                            TRAP    C$CLP1
11133 110362  013701  110506                    MOV     T28BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
11134 110366  012702  000004                    MOV     #4.,R2                  ;SHOULD BE THE DIFFERENCE
11135 110372  020102                            CMP     R1,R2                   ;IS COUNTER CORRECT
11136 110374  001406                            BEQ     330$                    ;BR, IF COUNTER CORRECT
11137 110376  005237  002212                    INC     FATFLG                  ;BUMP COUNT
11141 110402                                    ERRHRD  ERRNO,T28PBP,EXPREC     ;RESIDUAL BYTE COUNTER NOT CORRECT
      110402  104456                                                            TRAP    C$ERHRD
      110404  001513                                                            .WORD   843
      110406  110731                                                            .WORD   T28PBP
      110410  015564                                                            .WORD   EXPREC
11142 110412                            330$:   CKLOOP                          ;LOOP IF SELECTED
      110412  104406                                                            TRAP    C$CLP1
11143 110414                                    ENDSUB                          ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
      110414                                                                  L10133:
      110414  104403                                                            TRAP    C$ESUB
11144 110416  023727  002212  000017                    CMP     FATFLG,#15.             ;IS ERROR COUNT AT 25
11145 110424  103402                                    BLO     999$                    ;BR, IF LESS THAN 25
11146 110426  004737  017272                            JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
11147 110432                            999$:
11148                                   ;
11149                                   ;
11150                                   ;
11151 110432  004737  016546                    JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
11152 110436  103002                            BCC     163$                    ;BR, IF NO LOOP REQUIRED
11153 110440  000137  105320                    JMP     T28LOOP                 ;EXECUTE AGAIN
11154 110444                            163$:
11155 110444                                    EXIT    TST                     ;ALL DONE THIS TEST
      110444  104432                                                            TRAP    C$EXIT
      110446  002256                                                            .WORD   L10130 .
11156
11157                                   ;+
11158                                   ;LOCAL STORAGE FOR THIS TEST
11159                                   ;
11161 110450                                    .BLKB   10-<.-TSV2&7>
11163 110460                            T28PACKET:                              ;COMMAND PACKET FOR TEST
11164 110460  100004                            .WORD   100004                  ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
```

```
11165 110462  110470                    .WORD   T28DATA                 ;ADDRESS OF CHARACTERISTICS BLOCK
11166 110464  000000                    .WORD   0
11167 110466  000012                    .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
11168 110470                    T28DATA:                                ;CHARACTERISTICS DATA BLOCK
11169 110470  110502                    .WORD   T28BFR                  ;ADDRESS OF MESSAGE BUFFER
11170 110472  000000                    .WORD   0
11171 110474  000024                    .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
11172 110476  000000                    .WORD   0
11173 110500  000000            T28DSW: .WORD   0                       ;SELECT DRIVE 0
11174 110502                    T28BFR: .BLKW   25.                     ;MESSAGE BUFFER
11175                                   ;
11176                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
11177                                   ;
11179 110564                            .BLKB   10-<.-TSV2&7>
11181 110570                    T28PK2:
11182 110570  100006                    .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, IE AND ACK
11183 110572  110620                    .WORD   T28BF2                  ;ADDRESS OF SELECT BLOCK DATA
11184 110574  000000                    .WORD   0
11185 110576  000006                    .WORD   6.                      ;SIZE OF DATA PACKET
11186
11188 110600                            .BLKB   10-<.-TSV2&7>
11190 110610                    T28PK3:
11191 110610  100005                    .WORD   100005                  ;REREAD COMMAND,  AND ACK
11192 110612                    T28RB:
11193 110612  003114            T28WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
11194 110614  000000                    .WORD   0
11195 110616  000000            T28SZ:   WORD   0                       ;SIZE OF BUFFER (EXTENT)
11196                                   .EVEN
11197                                   ;
11198                                   ;
11199                                   ;
11200 110620                    T28BF2:
11201 110620     010            T28BS0: .BYTE   10                      ;BSELC AREA
11202 110621     200            T28BS1: .BYTE   200                     ;BSEL1 AREA
11203 110622  000000            T28S2:  .WORD   0                       ;SEL 2 AREA
11204 110624  000000            T28S3:  .WORD   0                       ;DATA AREA
11205                                   ;
11206                                   ;
11207                                   .EVEN
11208                                   ;TAPE MOTION PACKET COMMAND VALUES
11209
11210 110626                    T28IMV:
11211 110626  101411                    .WORD   101411                  ;ILLEGAL MODE BITS TEST DATA
11212 110630  102011                    .WORD   102011
11213 110632  103411                    .WORD   103411
11214 110634  177777                    .WORD   177777
11215 110636  100011            T28RN:  .WORD   100011                  ;WRITE TAPE MARK COMMAND
11216 110640  100411            T28WDR: .WORD   100411                  ;ERASE COMMAND
11217 110642  101011            T28CON: .WORD   101011                  ;WRITE TAPE MARK RETRY
11218 110644  177777                    .WORD   177777                  ;END OF DATA
11219
11220                                   ;
11221 110646  000000            T28CNT: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
11222 110650  000000            T28CNU: .WORD   0                       ;TAPE TIMER COUNTER STORAGE AREA
11223 110652  000000            T28DLY: .WORD   0                       ;DELAY COUNTER
11224                                   .EVEN
11225
```

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                                        ;*
                                        ;LOCAL TEXT MESSAGES FOR TEST
                                        ;-


110654      124     141     160  T28RIB: .ASCIZ  'Tape Position Not Correct, RIB Should Be Set'
110731      122     145     163  T28PBP: .ASCIZ  'Residual Byte Counter Register (RBPCR) Not Correct'
111014      124     123     123  T28RDF: .ASCIZ  'TSSR Incorrect After READ REVERSE Into TAPE MARK'
111075      124     123     123  T28RDG: .ASCIZ  'TSSR Incorrect After SPACE Command Into TAPE MARK'
111157      124     123     123  T28WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
111234      111     154     154  T28LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
111315      127     122     111  T28SSR: .ASCIZ  'WRITE MISCELLANEOUS Command Not Accepted'
111366      124     123     123  T28WDE: .ASCIZ  'TSSR Not Correct After READ DATA Command, Into TAPE MARK
111457      124     141     160  T28BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
111524      124     123     123  T28TM:  .ASCIZ  'TSSR Not Correct After FORMAT Command Reject'
111601      122     145     167  T28RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
111650      104     162     151  T28OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
111723      124     123     123  T28WDC: .ASCIZ  'TSSR Not Correct After WRITE TAPE MARK Command'
112002      103     126     103  T28VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
112055      124     115     113  T28TMK: .ASCIZ  'TMK Not Set After WRITE TAPE MARK Command'
112127      124     115     113  T28RRM: .ASCIZ  'TMK Not Set After READ REVERSE Into TAPE MARK'
112205      124     115     113  T28RRN: .ASCIZ  'TMK Not Set After SPACE REVERSE Into TAPE MARK'
112264      124     115     113  T28RRP: .ASCIZ  'TMK Not Set After READ FORWARD Into TAPE MARK'
112342      104     141     164  T28DTR: .ASCIZ  'Data Transferred On READ REVERSE Into A TAPE MARK'
112424      104     141     164  T28DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written
112521      127     162     151  TST28ID:        .ASCIZ  'Write/Read Tape Mark'
                                            .EVEN
                                        ;*
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-

112546                                  T28REST:
112546                                          SAVREG                          ;SAVE THE REGISTERS
112552  012701  110460                          MOV     #T28PACKET,R1           ;START OF THE PACKET
112556  012721  100004                          MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
112562  012721  110470                          MOV     #T28DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
112566  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
112570  012721  000012                          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
112574  012721  110502                          MOV     #T28BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
112600  005021                                  CLR     (R1)+
112602  012721  000024                          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
112606  005021                                  CLR     (R1)+
112610  012711  000000                          MOV     #0,(R1)                 ;SELECT DRIVE ZERO
112614  012702  000030                          MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
112620  012762  177777  110502  64$:           MOV     #177777,T28BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
112626  005742                                  TST     -(R2)                   ;NEXT LOCATION
112630  020227  000000                          CMP     R2,#0                   ;CHECK FOR END
112634  001371                                  BNE     64$                     ;KEEP GOING UNTIL DONE
112636  000207                                  RTS     PC                      ;RETURN


112640                                  T28RT2:
112640                                          SAVREG                          ;SAVE THE REGISTERS
112644  012701  110570                          MOV     #T28PK2,R1              ;START OF THE PACKET
```

```
11283 112650  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
11284 112654  012721  110620                  MOV     #T28BF2,(R1)+           ;ADDRESS OF DATA BLOCK
11285 112660  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
11286 112662  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
11287 112666  005021                          CLR     (R1)+
11288 112670  012701  110620                  MOV     #T28BF2,R1              ;POINT TO DATA SEL AREA
11289 112674  005021                          CLR     (R1)+
11290 112676  005011                          CLR     (R1)
11291 112700  000207                          RTS     PC                      ;RETURN
11292 112702                          T28RT3:
11293 112702                                  SAVREG
11294 112706  012701  110610                  MOV     #T28PK3,R1              ;GET PACKET ADDRESS
11295 112712  005021                          CLR     (R1)+                   ;CLEAR COMMAND AREA
11296 112714  005021                          CLR     (R1)+                   ;CLEAR ADDRESS AREA
11297 112716  005021                          CLR     (R1)+                   ;CLEAR EXTENDED ADDRESS AREA
11298 112720  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER
11299 112722  000207                          RTS     PC                              ;RETURN
11300 112724                                  ENDTST
      112724                                                          L10130:
      112724  104401                                                          TRAP    C$ETST
11301 112726                                  ENDMOD
```

```
                                        .TITLE  TSV6   PARAMETER CODING


                                        BGNMOD  TSV6
                                TSV6::

                                        .SBTTL  HARDWARE PARAMETER CODING SECTION

                                ;++
                                ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;--
                                        BGNHRD
112726  000010                          .WORD L10134-L$HARD/2
112730                          L$HARD::

                                        GPRMA   HPM1,0,0,160010,177776,YES      ;GET TSBA/TSDB REGISTER ADDRESS.
112730  000031                          .WORD   T$CODE
112732  112750                          .WORD   HPM1
112734  160010                          .WORD   T$LOLIM
112736  177776                          .WORD   T$HILIM
                                        GPRMA   HPM2,2,0,0,776,YES              ;GET VECTOR ADDRESS.
112740  001031                          .WORD   T$CODE
112742  113004                          .WORD   HPM2
112744  000000                          .WORD   T$LOLIM
112746  000776                          .WORD   T$HILIM
                                        ;GPRMD  HPM3,4,0,340,0,7,YES            ;GET INTERRUPT PRIORITY.
                                        ENDHRD
                                        .EVEN
112750                          L10134:
112750      104     105     126 HPM1:   .ASCIZ  'DEVICE ADDRESS (TSBA/TSDB) '
113004      111     116     124 HPM2:   .ASCIZ  'INTERRUPT VECTOR    '
113030      111     116     124 HPM3:   .ASCIZ  'INTERRUPT PRIORITY      '
                                        .EVEN
```

SOFTWARE PARAMETER CODING SECTION

```
                                        .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.
                                ;--
113060                                  BGNSFT
113060  000003                          .WORD L10135-L$SOFT/2
113062                          L$SOFT::
                                ;       GPRML   SPM1,0,-1,YES                   ; GET TRANSPORT TEST FLAG.
113062                                  GPRML   SPM4,2,-1,YES                   ; GET ITERATION CONTROL.
113062  001130                          .WORD   T$CODE
113064  113120                          .WORD   SPM4
113066  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
113070                                  ENDSFT
                                        .EVEN
113070                          L10135:

113070  105  116  101           SPM1:   .ASCIZ  'ENABLE TRANSPORT TESTS '
113120  111  116  110           SPM4:   .ASCIZ  'INHIBIT ITERATIONS     '
113150  120  105  122           SPM6:   .ASCIZ  'PER TEST ERROR LIMIT   '
113200  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).
                                ;

113230                          PATCH::

113230                                  .BLKW   32.

        113400                          .=.!377+1
113400                                  LASTAD          ;SET LAST USED ADDRESS.
                                        .EVEN
113400  000000                          .WORD   0
113402  000000                          .WORD   0
113404                          L$LAST::
113404                                  ENDMOD
        000001                          .END
```

TSV6 - PARAMETER CODING MACRO M1113 14-JUN-84 14:17 SEQ 0322
SYMBOL TABLE

```
ADDSSR  012216 G        C$AU  = 000052        DEVDRO  023422        FREE    003114 G        INCERK  017134
ADR   = 000020 G        C$AUTO= 000061        DEVNRD  023341        FREEHI  003120         INTCPC  016240
AMBTSS  006725          C$BRK = 000022        DEVNXR  023257        FRESIZ  003116 G       INTFLA  016235
ASSEMB= 000010          C$BSEG= 000004        DEVONL  023207        FUSI    004115         INTMAS  016234
A1716 = 000003          C$BSUB= 000002        DEVSUM  023152        F$AU  = 000015         INTR    016306 G
BADDAT  003146 G        C$CEFG= 000045        DFPTBL  002146 G      F$AUTO= 000020         INTREC  002214 G
BADSSR  015770 G        C$CLCK= 000062        DIAGMC= 000000        F$BGN = 000040         INTVEC  016236
BDVPCR= 177520 G        C$CLEA= 000012        DICEC = 000001        F$CLEA= 000007         INTX    004276
BENBSW  002220 G        C$CLOS= 000035        DSBINT  016274        F$DU  = 000016         INVERT  021232 G
BIE   = 040000          C$CLP1= 000006        DUAD12  004641        F$END = 000041         IOKCKI= 000200
BIT0  = 000001 G        C$CVEC= 000036        DUFLG   003102 G      F$HARD= 000004         IOKSTP= 000001
BIT00 = 000001 G        C$DCLN= 000044        DUMMY   003052        F$HW  = 000013         IPRI    002202 G
BIT01 = 000002 G        C$DODU= 000051        EF.CON= 000036 G      F$INIT= 000006         ISR   = 000100 G
BIT02 = 000004 G        C$DRPT= 000024        EF.NEW= 000035 G      F$JMP = 000050         IVEC    002200 G
BIT03 = 000010 G        C$DU  = 000053        EF.PWR= 000034 G      F$MOD = 000000         IXE   = 004000 G
BIT04 = 000020 G        C$EDIT= 000003        EF.RES= 000037 G      F$MSG = 000011         I$AU  = 000041
BIT05 = 000040 G        C$ERDF= 000055        EF.STA= 000040 G      F$PROT= 000024         I$AUTO= 000041
BIT06 = 000100 G        C$ERHR= 000056        EMAXDU  017067        F$PWR = 000017         I$CLN = 000041
BIT07 = 000200 G        C$ERRO= 000060        EN    = 000000        F$RPT = 000012         I$DU  = 000041
BIT08 = 000400 G        C$ERSF= 000054        ENAINT  016242        F$SEG = 000003         I$HRD = 000041
BIT09 = 001000 G        C$ERSO= 000057        ENVIRN  020720        F$SOFT= 000005         I$INIT= 000041
BIT1  = 000002 G        C$ESCA= 000010        EPRTSW  002170 G      F$SRV = 000010         I$MOD = 000041
BIT10 = 002000 G        C$ESEG= 000005        EPRT1   006356        F$SUB = 000002         I$MSG = 000041
BIT11 = 004000 G        C$ESUB= 000003        EPRT2   006446        F$SW  = 000014         I$PROT= 000040
BIT12 = 010000 G        C$ETST= 000001        ERCM    012023        F$TEST= 000001         I$PTAB= 000041
BIT13 = 020000 G        C$EXIT= 000032        ERRHI   002226 G      GDDAT   003150 G       I$PWR = 000041
BIT14 = 040000 G        C$GETB= 000026        ERRK    017046        GERRMA  002164 G       I$RPT = 000041
BIT15 = 100000 G        C$GETW= 000027        ERRLO   002230 G      GETPAT  020264 G       I$SEG = 000041
BIT2  = 000004 G        C$GMAN= 000043        ERRNO = 001513        GETSEL  020346 G       I$SETU= 000041
BIT3  = 000010 G        C$GPHR= 000042        ERRVEC= 000004 G      G$CNTO= 000200         I$SFT = 000041
BIT4  = 000020 G        C$GPLO= 000030        ERTABE  003366        G$DELM= 000372         I$SRV = 000041
BIT5  = 000040 G        C$GPRI= 000040        ERTABL  003166        G$DISP= 000003         I$SUB = 000041
BIT6  = 000100 G        C$INIT= 000011        ESUM    017050        G$EXCP= 000400         I$TST = 000041
BIT7  = 000200 G        C$INLP= 000020        EVL   = 000004 G      G$HILI= 000002         J$JMP = 000167
BIT8  = 000400 G        C$MANI= 000050        EXBCNT= 000010        G$LOLI= 000001         KIPAR0= 172340
BIT9  = 001000 G        C$MEM = 000031        EXIT    034324        G$NO  = 000000         KIPAR1= 172342
BOE   = 000400 G        C$MSG = 000023        EXPBRE  015572 G      G$OFFS= 000400         KIPAR2= 172344
BRINIT  004455          C$OPEN= 000034        EXPD    002222 G      G$OFSI= 000376         KIPAR3= 172346
BSEL0 = 000000          C$PNTB= 000014        EXPGOT  004531        G$PRMA= 000001         KIPAR4= 172350
BSEL1 = 000001          C$PNTF= 000017        EXPGT2  004565        G$PRMD= 000002         KIPAR5= 172352
CHKAMB  016134          C$PNTS= 000016        EXPMSG  002312 G      G$PRML= 000000         KIPAR6= 172354
CHKMAN  020570 G        C$PNTX= 000015        EXPREC  015564 G      G$RADA= 000140         KIPAR7= 172356
CHKTSS  016426          C$QIO = 000377        EXTA    005770        G$RADB= 000000         KIPDR0= 172300
CKDROP  017272          C$RDBU= 000007        EXTEND  005766        G$RADD= 000040         KIPDR1= 172302
CKEMAX  017172          C$REFG= 000047        EXTFEA  002216 G      G$RADL= 000120         KIPDR2= 172304
CKMSG   011450 G        C$RESE= 000033        E$END = 002100        G$RADO= 000020         KIPDR3= 172306
CKMSG2  011570 G        C$REVI= 000003        E$LOAD= 000035        G$XFER= 000004         KIPDR4= 172310
CKRAM   011204 G        C$RFLA= 000021        FATAL   034424        G$YES = 000010         KIPDR5= 172312
CKRAM2  011314 G        C$RPT = 000025        FATERR= 000060        HIADDR= 001400         KIPDR6= 172314
CMDPKT  021304 G        C$SEFG= 000046        FATFLG  002212 G      HOE   = 100000 G       KIPDR7= 172316
CMPMEM  017750          C$SPRI= 000041        FERCM   012012        HPM1    112750         KTENAB  003124 G
CONFIG  017340          C$SVEC= 000037        FIFEXP  012260 G      HPM2    113004         KTFLG   003122 G
COUNT   002300 G        C$TPRI= 000013        FIF1MS  012332        HPM3    113030         KTINIT  021100
CSRADD  002176 G        DATA    002302 G      FIF2MS  012401        IBE   = 010000 G       KTOFF   017364
CTAB    003154 G        DATASC  020322         FILLME  017512        IDU   = 000040 G       KTON    017346
CTABE   003166 G        DEBUGM  011722         FNOINT  004213        IER   = 020000 G       LERRMA  002162 G
CTABM   003154 G        DEVCNT  002210 G      FORCER  002166 G      IFAULT  004254         LISTAL= 000001
```

TSV6 PARAMETER CODING MACRO M1113 14-JUN 84 14:17 SEQ 0323

SYMBOL TABLE

```
LOE    = 040000 G      L$UNIT  002012 G      L10071  055642      M8189   005643      PRBEXP  015560
LOOPCN  002206 G       L10000  002154        L10072  047704      NBA    = 002000     PRBMSG  015426
LOOPCO  013216         L10001  002166        L10073  050304      NEWPAS  022034      PRBREC  015562
LOOPFL  003152 G       L10002  005764        L10074  050760      NODEV   003104 G    PRBTOT  015513
LOT    = 000010 G      L10003  012134        L10075  051424      NOINIT  004333      PRBYTE  015212 G
L$ACP   002110 G       L10004  012152        L10076  052164      NOINTR  004217      PRI    = 002000 G
L$APT   002036 G       L10005  012170        L10077  053124      NOITS   002160 G    PRIADD  010250
L$AU    022376 G       L10006  012176        L10100  053444      NOMAN   020624      PRIAO   010320
L$AUT   002070 G       L10007  012214        L10101  054046      NOMEM   005456      PRIBXO  007702 G
L$AUTO  022602 G       L10010  012232        L10102  075224      NP.IR  = 000200     PRIEQU  010150
L$CCP   002106 G       L10011  012256        L10103  056604      NP.LOO = 000040     PRIPKT  007460 G
L$CLEA  022662 G       L10012  012330        L10104  057452      NP.OUT = 000100     PRIRAM  010156
L$CO    002032 G       L10013  012500        L10105  060344      NP.WRP = 000020     PRITAD  010364
L$DEPO  002011 G       L10014  013214        L10106  061272      NSI     004150      PRITSS  006022
L$DESC  003400 G       L10015  014042        L10107  062050      NSINIT  004405      PRITO   010446
L$DESP  002076 G       L10016  014064        L10110  062712      NUL     004525      PRIT1   010511
L$DEVP  002060 G       L10017  015570        L10111  063564      NULCR   004526      PRIXOR  010032 G
L$DISP  002124 G       L10020  015576        L10112  064436      NXM    = 004000     PRIO0  = 000000 G
L$DLY   002116 G       L10021  015604        L10113  065312      NXMFLG  003126 G    PRIO1  = 000040 G
L$DTP   002040 G       L10022  015616        L10114  066166      NXMHI   003132 G    PRIO2  = 000100 G
L$DTYP  002034 G       L10023  015640        L10115  067036      NXMLO   003130 G    PRIO3  = 000140 G
L$DU    022474 G       L10024  015666        L10116  067770      NXMTST  021476      PRIO4  = 000200 G
L$DUT   002072 G       L10025  016026        L10117  071020      NXR     003736      PRIO5  = 000240 G
L$DVTY  003372 G       L10026  016336        L10120  071400      NXRERR  005734 G    PRIO6  = 000300 G
L$EF    002052 G       L10030  022326        L10121  072054      NXRX    003775      PRIO7  = 000340 G
L$ENVI  002044 G       L10031  022472        L10122  105262      NXTU    022046      PRMESS  014332
L$ETP   002102 G       L10032  022600        L10123  075646      OFL    = 000100     PRMNO   002310 G
L$EXP1  002046 G       L10033  022660        L10124  076430      ONEFIL = 000000     PRMSGE  014642 G
L$EXP4  002064 G       L10034  022706        L10125  077252      O$APTS = 000000     PRMSGO  015022
L$EXP5  002066 G       L10035  023150        L10126  100154      O$AU   = 000001     PRMSG1  015067
L$HARD  112730 G       L10036  024610        L10127  101704      O$BGNR = 000001     PRMSG2  015125
L$HIME  002120 G       L10037  027270        L10130  112724      O$BGNS = 000001     PROASC  014510
L$HPCP  002016 G       L10040  025216        L10131  105662      O$DU   = 000001     PR1ASC  014555
L$HPTP  002022 G       L10041  025540        L10132  106142      O$ERRT = 000000     PST32W  003142 G
L$HW    002146 G       L10042  026120        L10133  110414      O$GNSW = 000001     PUNIT   022330
L$ICP   002104 G       L10043  034450        L10134  112750      O$POIN = 000001     PW.D11 = 000021
L$INIT  021602 G       L10044  027676        L10135  113070      O$SETU = 000000     PW.D13 = 000022
L$LADP  002026 G       L10045  030546        MEMADD  014044 G    PASRPT  022100      PW.D22 = 000020
L$LAST  113404 G       L10046  031366        MEMCK   021322 G    PATCH   113230 G    PW.NOP = 000000
L$LOAD  002100 G       L10047  031602        MENASC  020537      PATDAT  020320      PW.NO1 = 000023
L$LUN   002074 G       L10050  032150        MENERR  020464      PC.ERA = 002400     PW.RDE = 000024
L$MREV  002050 G       L10051  032514        MENRES  020566      PC.IER = 002000     PW.RDR = 000001
L$NAME  002000 G       L10052  046714        MMVEC  = 000250     PC.NOO = 001000     PW.RDS = 000005
L$PRIO  002042 G       L10053  035122        MSA.FR = 000006     PC.REL = 000000     PW.RFI = 000003
L$PROT  021572 G       L10054  035702        MSA.NO = 000000     PC.REW = 000400     PW.WCT = 000006
L$PRT   002112 G       L10055  036456        MSA.NR = 000004     PKBCNT = 000006     PW.WFI = 000004
L$REPP  002062 G       L10056  037160        MSA.VO = 000002     PKHI   = 000004     PW.WFM = 000007
L$REV   002010 G       L10057  037624        MSGEXP  012234 G    PKLOW  = 000002     PW.WMI = 000010
L$RPT   022710 G       L10060  040260        MSGLOO  013154 G    PKTADD  007644      PW.WNP = 000011
L$SOFT  113062 G       L10061  040714        MSGSTA  012440 G    PKTFRM  007606      PW.WTR = 000002
L$SPC   002056 G       L10062  041306        MSGSUB  014052 G    PKTGET  012154 G    P.ACK  = 100000
L$SPCP  002020 G       L10063  042010        MS.ATT = 000006     PKTMES  012200 G    P.CMD  = 000037
L$SPTP  002024 G       L10064  042254        MS.EXT = 000200     PKTRAM  004743 G    P.CONT = 000012
L$STA   002030 G       L10065  042526        MS.RSD = 000001     PKTSSR  012136 G    P.CVC  = 040000
L$SW    002156 G       L10066  043012        MS.RSF = 000020     PNT    = 001000 G    P.FMT  = 000140
L$TEST  002114 G       L10067  043312        MS.RST = 000010     PRAMPK  014066      P.FORM = 000011
L$TIML  002014 G       L10070  043776        M8186   005552      PRASC   014613      P.GETS = 000017
```

SYMBOL TABLE

```
P.IE  = 000200          SPM6    113150          TSREJ = 000006          T$$CLE= 010034          T22WRT  026310
P.INIT= 000013          SPM7    113200          TSSDEF  006676        T$$DU = 010032          T23A    003134 G
P.MODE= 007400          SR0   = 177572          TSSR  = 000002 G        T$$HAR= 010134          T23AM3  033340
P.OPP = 020000          SR1   = 177574          TSSRBI  003500 G        T$$HW = 010000          T23B    003136 G
P.POSI= 000010          SR2   = 177576          TSSRFO  006505          T$$INI= 010030          T23BA   033725
P.READ= 000001          SR3   = 172516          TSSRH = 000003 G        T$$MSG= 010025          T23BFR  032602
P.SWB = 010000          SSR   = 000200          TSSX    004016          T$$PRO= 010027          T23BF2  032722
P.WRIT= 000005          STATCO  012502          TSTBLK  002742 G        T$$RPT= 010035          T23BS0  032722
P.WRTC= 000004          SVCGBL= 000000          TSTCNT  002204 G        T$$SOF= 010135          T23BS1  032723
P.WRTS= 000006          SVCINS= 000000          TSTEND  017010          T$$SRV= 010026          T23CHK  034262
QVP     002174 G        SVCSUB= 000001          TSTFLA  002304 G        T$$SUB= 010133          T23CON  032740
RAMASC  014246          SVCTAG= 000000          TSTLOO  016546 G        T$$SW = 010001          T23DAT  032570
RAMDAT  002232 G        SVCTST= 000001          TSTPTR  002306 G        T$$TES= 010130          T23DSW  032600
RAMERR  015600 G        SYSLSYM= 010000         TSTSET  016600 G        T1      023472 G        T23EOT  033064
RAMEXP  015620 G        S0 IDB= 000010          TST21I  024434          T2      024612 G        T23ET   032777
RAMFOR  010206          S0.IFB= 000002          TST22I  027077          T2.1    024642          T23LOO  027342
RAMSIZ  002272 G        S0.IFP= 000001          TST23I  034066          T2.2    025234          T23OFL  033406
RAMTAD  015606 G        S0.ILD= 000020          TST24I  046462          T2.3    025556          T23PAC  032560
RCVHIA  002274 G        S0.ION= 000040          TST25I  055440          T21AM3  024313          T23PK2  032670
RCVLOA  002276 G        S0.IRD= 000100          TST26I  075027          T21BFR  024114          T23PK3  032710
RDERR   005204          S0.IRW= 000004          TST27I  105063          T21BF2  024210          T23RES  034102
RECMSG  002456 G        S0.ISP= 000200          TST28I  112521          T21BS0  024210          T23RNC  033265
RECV    002224 G        S1.ICE= 002000          TSV2    002000 G        T21BS1  024211          T23RSZ  032720
REGSAV  020230          S1.IEO= 010000          TSV3    002166 G        T21DAT  024100          T23RT2  034174
RETERR  005370          S1.IF.1= 001000         TSV4    021572 G        T21DLY  024112          T23RT3  034236
RETRY   034326          S1.IHE= 000400          TSV6    112726 G        T21DSW  024110          T23RUN  033216
REWIND  011104 G        S1.IID= 004000          TSV7    023472 G        T21LOO  023522          T23SSR  032744
RMCHBE= 000167          S1.I1R= 020000          TTIBFR= 177562 G        T21OFL  024413          T23SZ   032716
RMCHEN= 000200          S1.I2R= 040000          TTICSR= 177560 G        T21PAC  024070          T23S2   032724
RMMSGB= 000215          S1.PAR= 100000          TTIVEC= 000060 G        T21PK2  024200          T23S3   032726
RMMSGE= 000234          S2.ATI= 000010          T$ARGC= 000003          T21RES  024456          T23TM   033142
RMPKTB= 000201          S2.BTI= 000004          T$CODE= 001130          T21RT2  024546          T23TMP  032730
RMPKTE= 000210          S2.DIM= 000200          T$ERRN= 001513          T21SSR  024216          T23VCK  033652
RMR   = 010000          S2.ILW= 000100          T$EXCP= 000000          T21S2   024212          T23WB   032712
RMPACK  011200          S2.INR= 000020          T$FLAG= 000040          T21S3   024214          T23WD   032734
SC    = 100000          S2.OUT= 000040          T$GMAN= 000000          T22AM3  026415          T23WDC  033550
SCE   = 020000          S2.UND= 000003          T$HILI= 000776          T22BFR  026202          T23WDD  033461
SCHERR  005276          TBLEND= 003052 G        T$LAST= 000001          T22BF2  026300          T23WDR  032736
SCHE    005011          TCOASC  006566          T$LOGI= 000000          T22BS0  026300          T23WRT  032732
SDELAY  010750          TCOCOD  006766          T$LSYM= 010000          T22BS1  026301          T23WSS  033777
SELASC  020532          TEMP1   003106 G        T$LTNO= 000010          T22DAT  026170          T24AM3  045450
SELDAT= 000004          TEMP2   003110 G        T$NEST= 177777          T22FOR  026314          T24BA   046002
SEL2  = 000002          TERCLS= 000016          T$NS0 = 000000          T22LOO  024642          T24BFR  044062
SETMAP  017406          TESTNO= 000010          T$NS1 = 000005          T22OFL  026515          T24BF2  044200
SETU    022132          TEXASC  006525          T$NS2 = 000002          T22PAC  026160          T24BOT  045043
SFFMSG  012172 G        TFCASC  006627          T$PTAU= 000000          T22PK2  026270          T24BS0  044200
SFHERR  003703          TIMEXP  015642 G        T$SAVL= 177777          T22POS  026312          T24BS1  044201
SFIERR  003650          TIMSGO  015670          T$SEGL= 177777          T22RD   026306          T24CON  044212
SFIMSG  012124 G        TINERR  012111          T$SUBN= 000003          T22RES  027132          T24DAT  044050
SFPTBL  002156 G        TMPBFR  002622 G        T$TAGL= 177777          T22RT2  027224          T24DLY  044216
SIFLAG  003144 G        TNAM    016774          T$TAGN= 010136          T22RWJ  026664          T24DSW  044060
SIMSG   012056          TRANST  002156 G        T$TEMP= 000000          T22SSR  026320          T24DTA  045110
SKIPT   003370          TSBA  = 000000 G        T$TEST= 000010          T22S2   026302          T24EOT  045176
SOFINI  016064 G        TSBAH = 000001 G        T$TSTM= 177777          T22S3   026304          T24ILA  044572
SPACE   010556 G        TSDB  = 000000 G        T$TSTS= 000001          T22TM   026570          T24LON  046142
SPM1    113070          TSDBH = 000001 G        T$$AU = 010031          T22VCK  026737          T24LOO  034516
SPM4    113120          TSFCOD  007326          T$$AUT= 010033          T22WLK  027012          T24LOP  046224
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TSV6 PARAMETER CODING MACRO M1113 14-JUN-84 14:17 SEQ 0325
SYMBOL TABLE

```
T24LOQ  044656        T25SSR  054274        T26WDC  074140        T27WDR  102120        T4      034452 G
T24LOR  044272        T25SZ   054246        T26WDD  074050        T27WNG  102134        T4.1    034516
T24NEF  044220        T25S2   054252        T26WDE  073243        T27WRF  104706        T4.10   042026
T24NXM  044431        T25S3   054254        T26WDF  073051        T27WSS  104042        T4.11   042272
T24OFL  045515        T25TM   054502        T26WNG  072306        T28BFR  110502        T4.12   042544
T24PAC  044040        T25WB   054242        T26WSS  074341        T28BF2  110620        T4.13   043030
T24PBP  046306        T25WDC  055367        T27AM3  103427        T28BOT  111457        T4.14   043330
T24PK2  044150        T25WDE  054355        T27BA   103767        T28BSO  110620        T4.2    035140
T24PK3  044170        T25WDR  054260        T27BFR  101772        T28BS1  110621        T4.3    035720
T24RB   044172        T25WNG  054645        T27BF2  102110        T28CNT  110646        T4.4    036474
T24RES  046530        T25WNH  055020        T27BOT  103001        T28CNU  110650        T4.5    037176
T24RN   044206        T26AM3  073726        T27BSO  102110        T28CON  110642        T4.6    037642
T24RNC  045375        T26BA   074266        T27BS1  102111        T28DAT  110470        T4.7    040276
T24RT2  046622        T26BFR  072142        T27CNT  102126        T28DLY  110652        T4.8    040732
T24RT3  046664        T26BF2  072260        T27CNU  102130        T28DSW  110500        T4.9    041324
T24RWN  045326        T26BOT  073315        T27CON  102122        T28DTA  112424        T5      046716 G
T24SSR  044737        T26BSO  072260        T27DAT  101760        T28DTR  112342        T5.1    046746
T24SZ   044176        T26BS1  072261        T27DLY  102132        T28IMV  110626        T5.2    047722
T24S2   044202        T26CNT  072276        T27DSW  101770        T28LOO  105320        T5.3    050322
T24S3   044204        T26CNU  072300        T27DTA  104766        T28LOQ  111234        T5.4    050776
T24TM   045253        T26DAT  072130        T27EOT  103151        T28OFL  111650        T5.5    051442
T24TRL  046374        T26DLY  072304        T27LON  104131        T28PAC  110460        T5.6    052202
T24VCK  045727        T26DSW  072140        T27LOO  075266        T28PBP  110731        T5.7    053142
T24WB   044172        T26DTA  073362        T27LOP  104213        T28PK2  110570        T5.8    053462
T24WDC  045656        T26EOT  073450        T27LOQ  102575        T28PK3  110610        T6      055644 G
T24WDD  045570        T26LON  074430        T27LOR  102450        T28RB   110612        T6.1    055710
T24WDE  044771        T26LOO  055710        T27NEF  104451        T28RDF  111014        T6.10   065330
T24WDF  044515        T26LOP  074512        T27OFL  103476        T28RDG  111075        T6.11   066204
T24WDG  044342        T26LOQ  073126        T27PAC  101750        T28RES  112546        T6.12   067054
T24WDR  044210        T26LOR  073001        T27PBP  104275        T28RIB  110654        T6.13   070006
T24WSS  046053        T26NEF  072374        T27PK2  102060        T28RN   110636        T6.14   071036
T25BFR  054132        T26NEQ  074750        T27PK3  102100        T28RRM  112127        T6.15   071416
T25BF2  054250        T26OFL  073775        T27RB   102102        T28RRN  112205        T6.2    056622
T25BNC  054730        T26PAC  072120        T27RDF  102222        T28RRP  112264        T6.3    057470
T25BOT  054435        T26PBP  074574        T27RES  105104        T28RT2  112640        T6.4    060362
T25BSO  054250        T26PK2  072230        T27RN   102116        T28RT3  112702        T6.5    061310
T25BS1  054251        T26PK3  072250        T27RNC  103354        T28RWN  111601        T6.6    062066
T25CNT  054270        T26RB   072252        T27RRF  102271        T28SSR  111315        T6.7    062730
T25CN2  054266        T26RDF  072456        T27RT2  105176        T28SZ   110616        T6.8    063602
T25CON  054262        T26RES  075040        T27RT3  105240        T28S2   110622        T6.9    064454
T25DAT  054120        T26RN   072266        T27RWN  103305        T28S3   110624        T7      075226 G
T25DLY  054272        T26RNC  073653        T27SC   102366        T28TM   111524        T7.1    075266
T25DSW  054130        T26RRF  072525        T27SCF  104547        T28TMK  112055        T7.2    075664
T25LOO  046746        T26RRG  072622        T27SSR  102656        T28VCK  112002        T7.3    076446
T25NEF  055103        T26RSZ  072302        T27SZ   102106        T28WB   110612        T7.4    077270
T25NET  054571        T26RT2  075132        T27S2   102112        T28WDC  111725        T7.5    100172
T25OFL  055314        T26RT3  075174        T27S3   102114        T28WDE  111366        T8      105264 G
T25PAC  054110        T26RWN  073604        T27TIM  103074        T28WDF  111157        T8.1    105320
T25PK2  054220        T26SC   072717        T27TM   103230        T28WDR  110640        T8.2    105700
T25PK3  054240        T26SSR  073207        T27TRL  104363        T3      027272 G      T8.3    106160
T25RB   054242        T26SZ   072256        T27TSA  104624        T3BFLG  003140 G      UAM   = 000200 G
T25RES  055456        T26S2   072262        T27VCK  103714        T3.1    027342        UNITN   002172 G
T25RIB  055163        T26S3   072264        T27WB   102102        T3.2    027714        UNREC = 000006
T25RN   054256        T26TM   073527        T27WDC  103641        T3.3    030564        USI     004121
T25RT2  055550        T26TRL  074662        T27WDD  103551        T3.4    031404        WAITF   016340 G
T25RT3  055612        T26VCK  074213        T27WDE  102712        T3.5    031620        WC.IFA= 000200
T25RWN  055245        T26WB   072252        T27WDF  102520        T3.6    032166        WC.IFE= 000002
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TSV6   PARAMETER CODING MACRO M1113  14 JUN 84 14:1'                                                    SEQ 0326
SYMBOL TABLE

WC.IGO= 000001          WRTERR  005111          XSOILA= 000400          X$FALS= 000040          X2.UNI= 000007
WC.IRE= 000010          WRTMSG  005054          XSOILC= 001000          X$OFFS= 000400          X2.WCF= 002000
WC.IRW= 000004          WSMBK   021314 G        XSOLET= 020000          X$TRUE= 000020          X3.DCK= 000010
WC.IOT= 000100          XFERAS  016030          XSOMOT= 000200          X1.COR= 020000          X3.MBZ= 000006
WC.IIT= 000040          XNXM    016466          XSONEF= 002000          X1.DLT= 100000          X3.MDE= 177400
WC.ISR= 000020          XORBFO  007764          XSOONL= 000100          X1.MBZ= 017375          X3.OPI= 000100
WF.IED= 000010          XORFOR  010102          XSOPED= 000010          X1.RBP= 000400          X3.REV= 000040
WF.IER= 000004          XST0  = 000006 G        XSORLL= 010000          X1.SPA= 040000          X3.RIB= 000001
WF.IHI= 000200          XST1  = 000010 G        XSORLS= 040000          X1.UNC= 000002          X3.SPA= 000200
WF.IRE= 000040          XST2  = 000012 G        XSOTMK= 100000          X2.BUF= 000100          X3.TRF= 000020
WF.IWF= 000020          XST3  = 000014 G        XSOVCK= 000020          X2.EXT= 000200          X4.HSP= 100000
WF.IWR= 000100          XST4  = 000016 G        XSOWLE= 004000          X2.OPM= 100000          X4.MBZ= 017400
WF.I3R= 000002          XSOBOT= 000002          XSOWLK= 000004          X2.RCE= 040000          X4.RCE= 040000
WF.I4R= 000001          XSOEOT= 000001          XXCOMM  003112 G        X2.REV= 000077          X4.TSM= 020000
WRTCHR  010752 G        XSOIE = 000040          X$ALWA= 000000          X2.SPA= 035400          X4.WRC= 000377

. ABS.  113404      000
        000000      001
ABS     000000      002
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  31592 WORDS  ( 124 PAGES)
DYNAMIC MEMORY:  20614 WORDS  ( 79 PAGES)
ELAPSED TIME:  00:58:44
CVTSCB,CVTSCB/-SP=SVC/ML,TSV1C,TSV22C,TSV3B,TSV4,TSV7A,TSV6

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