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IDENTIFICATION

PRODUCT ID: AC-T779A-MC
PRODUCT TITLE: CZTKGA TK25 FRT END FUNC 03
PRODUCT DATE: MARCH, 1984
DEPARTMENT: TAPE DIAGNOSTIC ENGINEERING
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TABLE OF CONTENTS

1.0 ABSTRACT
2.0 REQUIREMENTS
2.1 HARDWARE REQUIREMENTS
2.2 SOFTWARE REQUIREMENTS
2.3 PREREQUISITES
3.0 OPERATING INSTRUCTIONS - OPERATOR COMMANDS
3.1 OPERATOR COMMANDS
3.2 HARDWARE PARAMETERS
3.3 SOFTWARE PARAMETERS
4.0 OPERATING INSTRUCTIONS - SAMPLE PRINTOUTS
4.1 SUCCESSFUL RUN EXAMPLES
4.2 ERROR MESSAGES
5.0 PROGRAM RUN TIMES
5.1 RUN TIME - CZTKG
6.0 TEST DESCRIPTIONS - CZTKG
6.1 TEST 1 - SPACE RECORDS TEST
6.2 TEST 2 - REREADS TEST
6.3 TEST 3 - WRITE DATA RETRY TEST
6.4 TEST 4 - WRITE/READ TAPE MARK

1.0 ABSTRACT

THIS IS A PDP-11/LSI RESIDENT DIAGNOSTIC WHICH CHECKS THE FUNCTIONALITY OF AN TK25 MAGTAPE SUBSYSTEM WHILE CONNECTED TO A PDP-11 SYSTEM (Q-BUS OR UNIBUS). THE PROGRAM HAS BEEN DIVIDED INTO FOUR MAJOR PIECES: CZTKE, CZTKF, CZTKG, CZTKH. SUCCESSFUL RUN EXAMPLES, AND TEST DESCRIPTIONS HAVE BEEN PROVIDED FOR EACH PROGRAM.

THE PROGRAMS PROVIDE ERROR MESSAGES WHICH IDENTIFY FAILING FUNCTIONS, AND AID IN DEVICE REPAIR. REFERENCE THE FOLLOWING DIGITAL EQUIPMENT DOCUMENTS:

1. CIQPMAO XXDP+ PROGRAMMER'S MANUAL; DOCUMENT NUMBER AC-S296A-AC;
    DATE: 14 JULY 1980.

1.1 REVISION HISTORY

NEW RELEASE APRIL 1984

2.0 REQUIREMENTS

2.1 HARDWARE REQUIREMENTS

PDP-11 FAMILY PROCESSOR WITH 32K WORDS OF MEMORY
TK25 MAGTAPE SUBSYSTEM (DRIVE AND CONTROLLER)
CAUTION:DIAGNOSTIC REQUIRES 32K WORDS OF MEMORY
(28K USEABLE I.E. 4K FOR I/O PAGE)

2.1.1 OPTIONAL HARDWARE -

FOUR TK25 CONTROLLERS PER PDP-11, ONE
DRIVE PER CONTROLLER

2.2 SOFTWARE REQUIREMENTS

PDP-11 DIAGNOSTIC SUPERVISOR (CIQPMA0 VERSION 34 OR LATER)
PDP-11 DIAGNOSTIC LOADER/MONITOR (XXDP+)

2.3 PREREQUISITES

FUNCTIONAL PDP-11/LSI FAMILY CENTRAL PROCESSOR AND MEMORY
FUNCTIONAL CONSOLE TERMINAL
FUNCTIONAL STANDALONE DIAGNOSTIC SUPERVISOR

3.0 OPERATING INSTRUCTIONS - OPERATOR COMMANDS

3.1 OPERATOR COMMANDS

THE TK25 DIAGNOSTICS ARE PDP-11 DIAGNOSTIC SUPERVISOR COMPATIBLE PROGRAMS.
ALL LOADING AND RUN TIME INSTRUCTIONS CAN BE REFERENCED IN THE PDP-11
PROGRAMMER'S MANUAL "CIQPMA0 XXDP" PROGRAMMER'S MANUAL NUMBER AC-S296A-AC.

BOOT THE DIAGNOSTIC XXDP+ MEDIA (OPERATOR RESPONSES ARE UNDERLINED)

```
CHMDLE0 XXDP+ DL MONITOR
BOOTED VIA UNIT 0
28K NON-UNIBUS SYSTEM

ENTER DATE <DD-MMM-YY>: 29-JAN-82

RESTART ADDRESS: 152010
THIS IS XXDP+ TYPE "H" OR "H/L" FOR HELP.

.R CZTKGA
CZTKGA.BIC

DRS-E0
CZTKG-A-0
CZTKGA TK-25 FRT END FUNC #3 UNIT IS TK25
RSTRT ADR 147642
DR>START/FLAG:PNT:HOE
```

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".

3.2 HARDWARE PARAMETERS

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) RESPONCE TO THE QUESTION, THE PROGRAM WILL USE IT'S DEFAULT HARDWARE PARAMETER VALUES. IT WILL DEFAULT TO ONE UNIT SELECTED (UNIT 0), THE DEFAULT TSBA/TSDB WILL BE 172522 AND THE INTERRUPT VECTOR WILL BE 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 ONLY IF 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)" THAT A LOGICAL RESPONSE IS TO BE MADE: "Y" FOR YES, "N' FOR NO.

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

      UNIT 0

      DEVICE ADDRESS (O) 172522 ? <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 EIGHT UNITS CAN BE SELECTED FOR TESTING.

3.3 SOFTWARE PARAMETERS

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.>

ENABLE CONTROLLER RAM DUMP ON ERROR (L) N? < TYPE "Y" TO DUMP
                             SELECTED RAM CONTENTS IN THE
                             CONTROLLER MODULE.>
```

4.0 OPERATING INSTRUCTIONS - SAMPLE PRINTOUTS

4.1 SUCCESSUL RUN EXAMPLES

4.1.1 SUCCESSFUL RUN EXAMPLE - CZTKG -

```
TST: 001 SPACE RECORDS TEST
TST: 002 REREADS TEST
TST: 003 WRITE DATA RETRY TEST
TST: 004 WRITE TAPE MARK TEST
CZTKG EOP 1
    0 TOTAL ERRS

NOTE: PROGRAM NOW STARTS OVER AGAIN AT TEST 1
```

4.2 OPERATING INSTRUCTIONS - SAMPLE ERROR MESSAGES

ERROR MESSAGE EXAMPLE 1

```
TST: 001 SPACE RECORDS TEST
CZTKG HRD ERR  00120 ON UNIT 00 TST 001 SUB 003 PC: 025214
TAPE NOT AT BOT AFTER REWIND COMMAND

 EXPD: 002022 RECV: 002020 XOR: 000002
```

ERROR MESSAGE EXAMPLE 2

```
CZTKG HRD ERR 00122 ON UNIT 00 TST 001 SUB 003 PC: 025332
TSSR NOT CORRECT AFTER POSITION (SPACE) COMMAND

TSSR=100306
TSSR BITS SET: SC, SSR, OFL
TERMINATION CODE = FUNCTION REJECT
*****CHECK CABLES BETWEEN CONTROLLER AND TRANSPORT*****
PACKET ADDRESS =030240
PACKET WORD #0 =140410
PACKET WORD #1 =000001
PACKET WORD #2 =000000
PACKET WORD #3 =000000

MESSAGE BUFFER ADDRESS   =030130
MESSAGE BUFFER CONTENTS:
MESSAGE BUFFER HEADER    =101021
DATA FIELD LENGTH        =000012
RESIDUAL BYTE COUNTER    =000000
XSTAT0 CONTENTS          =000012
XSTAT1 CONTENTS          =000000
XSTAT2 CONTENTS          =001000
XSTAT3 CONTENTS          =000040
```

5.0 PROGRAM RUN TIMES

THE AVERAGE RUN TIMES OF THE PROGRAMS ARE LISTED BELOW. THESE FIGURES ARE TO BE USED AS A GUIDE. THE TIMING WAS DONE ON A PDP-11/23 (LSI) PROCESSOR WITH A LA-120 CONSOLE.

THE PROGRAMS RUN IN NON-ITERATIVE MODE. EACH TEST IS RUN ONCE, WITH NO ITERATIONS. THEREFOR, THE DEFAULT MODE (NORMALLY ITERATIVE) AND THE NON-ITERATIVE MODE TIMES ARE IDENTICAL.

5.1 RUN TIMES - CZTKG

TEST NUMBER	N/I SECS.	DEF SECS.
1	65	65
2	130	130
3	120	120
4	35	35

THE TIMES REQUIRED TO RUN TESTS 1 THROUGH 4 TN ONE COMMAND:

Q.V. 5 MINS 50 SECONDS
DEFAULT 5 MINS 50 SECONDS

6.0 TEST DESCRIPTIONS - CZTKG

6.1 TEST 1 - SPACE RECORDS TEST

```
**************************************************************
* NOTE: THIS TEST MUST HAVE A GOOD MAGTAPE IN THE DRIVE      *
* ANY TAPE ERRORS WILL BE DISPLAYED AS TAPE STATUS ALERT     *
**************************************************************
```

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.

6.1.1 TEST 1, SUBTEST 1: -

THIS SUBTEST VERIFIES THAT A SPACE RECORDS FORWARD COMMAND WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE VOLUME CHECK FLAG (VCK) IS SET.

6.1.2 TEST 1, SUBTEST 2: -

THIS SUBTEST VERIFIES THAT A SPACE RECORDS REVERSE COMMAND WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
THE VOLUME CHECK (VCK) FLAG IS
SET.

6.1.3 TEST 1, SUBTEST 3: -

THIS SUBTEST VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE RECORD OFF BOT AND CAUSE BOT STATUS TO BE CLEARED.

6.1.4 TEST 1, SUBTEST 4: -

THIS SUBTEST VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE BACK OVER THE FIRST RECORD ON TAPE.

6.1.5 TEST 1, SUBTEST 5: -

THIS SUBTEST VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE A MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K, OR THE MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE, WHICHEVER IS LESS.).

6.1.6 TEST 1, SUBTEST 6: -

THIS SUBTEST VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE A MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K, OR THE MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE, WHICH EVER IS LESS).

6.1.7 TEST 1, SUBTEST 7: -

THIS SUBTEST VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.

6.1.8 TEST 1, SUBTEST 8: -

THIS SUBTEST VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT CAUSES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT TERMINATION AND SETS THE REVERSE INTO BOT (RIB) STATUS BIT.

6.2 TEST 2 - REREADS TEST

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.

6.2.1 TEST 2, SUBTEST 1: -

THIS SUBTEST 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 TAPE RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE IS THEN REWOUND AGAIN. FOR EACH RECORD THE TAPE IS SPACED FORWARD ONE RECORD AND THE REREAD PREVIOUS COMMAND IS 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.

6.2.2 TEST 2, SUBTEST 2: -

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0 AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS SWAPPED BYTES.

6.2.3 TEST 2, SUBTEST 3: -

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1 (READ REVERSE, SPACE FORWARD) AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST REWOUND, AND THEN WRITTEN WITH A SERIES OF TEST RECORDS OF VARYING LENGTH AND DATA CONTENT. THE FIRST FOUR BYTES OF EACH RECORD CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH TEST RECORD THE FOLLOWING SEQUENCE IS EXECUTED:

1. THE REREAD PREVIOUS COMMAND WITH OPP=1 IS ISSUED AND THE RESULTS ARE CHECKED.

2. A READ FORWARD COMMAND IS THEN ISSUED AND THE DATA IS CHECKED TO VERIFY THAT THE TAPE WAS POSITIONED PROPERLY AFTER THE REREAD PREVIOUS COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT POSITIONED AT THE START OF THE TEST RECORD.). THE READ FORWARD COMMAND LEAVES THE TAPE POSITIONED PROPERLY AT THE START OF THE NEXT RECORD.

THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET TO THE LENGTH OF THE EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.

6.2.4 TEST 2, SUBTEST 4: -

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

6.2.5 TEST 2, SUBTEST 5: -

THIS SUBTEST 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).

6.2.6 TEST 2, SUBTEST 6: -

THIS SUBTEST VERIFIES THAT A REREAD PREVIOUS COMMAND READING A RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER CONTAINS THE APPROPRIATE 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).

6.2.7 TEST 2, SUBTEST 7: -

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

6.2.8 TEST 2, SUBTEST 8: -

THIS SUBTEST VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0 AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS SWAPPED BYTES.

6.2.9 TEST 2, SUBTEST 9: -

THIS SUBTEST VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1 (READ FORWARD, SPACE REVERSE) AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN WITH A SERIES OF TAPE RECORDS VARYING IN LENGTH AND DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH TEST RECORD THE FOLLOWING SEQUENCE IS EXECUTED:

1. THE REREAD NEXT COMMAND WITH OPP=1 IS ISSUED AND THE RESULT IS CHECKED.

2. A READ FORWARD COMMAND IS THEN ISSUED AND THE DATA IS CHECKED TO VERIFY THAT THE TAPE WAS POSITIONED PROPERLY AFTER THE REREAD NEXT COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT POSITIONED AT THE START OF THE TEST RECORD). THE READ FORWARD COMMAND LEAVES THE TAPE POSITIONED PROPERLY AT THE START OF THE NEXT TEST RECORD.

THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET TO THE LENGTH OF THE EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.

6.2.10 TEST 2, SUBTEST 10: -

THIS SUBTEST VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1 AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS THE SAME AS THAT USED IN SUBTEST 3, BUT IT IS VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS SWAPPED BYTES.

6.2.11 TEST 2, SUBTEST 11: -

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

6.2.12 TEST 2, SUBTEST 12: -

THIS SUBTEST VERIFIES THAT A REREAD NEXT COMMAND READING A RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE RESIDUAL BYTE COUNTER IN THE MESSAGE BUFFER CONTAINS THE PROPER NONZERO MESSAGE (E.G. THE DIFFERENCE BETWEEN THE THE ORIGINAL BYTE COUNT AND THE ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH STATES OF OPP (0 AND 1).

6.2.13 TEST 2, SUBTEST 13: -

THIS SUBTEST VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING NONEXISTANT MEMORY RECOVERABLE ERROR TERMINATION (TC=4 OR 5) WITH NXM=1 AND THAT THE TAPE IS ULTIMATELY POSITIONED PROPERLY. ALL COMBINATIONS OF REREAD PREVIOUS/NEXT AND OPP=0/1 ARE TESTED.

6.2.14 TEST 2, SUBTEST 14: -

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS WITH OPP=0 (SPACE REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1 (READ RE
VERSE SPACE FORWARD)
ISSUED WHEN THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT TERMINATION WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.

6.2.15 TEST 2, SUBTEST 15: -

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS WITH OPP=1 (SPACE REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=0 (READ REVERSE, SPACE FORWARD)
ISSUED WHEN THE TAPE POSITIONED JUST BEFORE THE FIRST RECORD ON TAPE (BUT NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION WITH THE REVERSE INTO BOT (RIB) STATUS BIT SET.

6.3 TEST 3 - WRITE DATA RETRY TEST

```
**********************************************************
* NOTE: THIS TAPE MUST HAVE A GOOD MAGTAPE IN THE DRIVE  *
* ANY TAPE ERRORS WILL BE DISPLAYED AS TAPE STATUS ALERT.*
**********************************************************
```

THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY COMMAND (SPACE REVERSE, ERASE, WRITE DATA). THE TEST CONSISTS OF THE FOLLOWING FIVE SUBTESTS.

6.3.1 TEST 3, SUBTEST 1: -

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT TERMINATION WITH THE NON-EXECUTABLE FUNCTION (NEF) ERROR BIT SET.

6.3.2 TEST 3, SUBTEST 2: -

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE THE TAPE IS POSITIONED BEFORE THE FIRST RECORD ON TAPE (BUT NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION, WITH THE REVERSE INTO BOT (RIB) STATUS ERROR BIT SET.

6.3.3 TEST 3, SUBTEST 3: -

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=0 TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE (THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS BYTE COUNTS AND DATA PATTERNS ARE USED.

6.3.4 TEST 3, SUBTEST 4: -

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=1 TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE (THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS BYTE COUNTS AND DATA PATTERNS ARE USED.

6.3.5 TEST 3, SUBTEST 5: -

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND IS PERFORMING THE ERASE PART OF THE OPERATION BY COMPLETING THE FOLLOWING STEPS:

1. THE TAPE IS REWOUND AND A SERIES OF RECORDS ARE WRITTEN WITH THE NORMAL WRITE DATA COMMAND. THIS SHOULD RESULT IN RECORDS

SEPERATED BY THE STANDARD INTERRECORD GAP.

2. A PROGRAM TIMING VALUE IS CALIBRATED BY REWINDING THE TAPE AND THEN CONTINUING THE NUMBER OF CYCLES THROUGH A PROGRAMMED LOOP REQUIRED TO SPACE OVER THE SERIES OF RECORDS WRITTEN IN THE PREVIOUS STEP.

3. THE TAPE IS AGAIN REWOUND AND THE SAME SERIES OF RECORDS WRITTEN AGAIN, THIS TIME USING THE WRITE DATA RETRY COMMAND. THIS SHOULD RESULT IN RECORDS SEPERATED BY A A LONG INTERRECORD GAP.

4. THE TAPE IS AGAIN REWOUND, THE SPACING COMMAND ISSUED, AND THE NUMBER OF TIMING LOOP CYCLES COUNTED TO COMPLETE THE OPERATION.

5. THE TWO LOOPS ARE COMPARED, CHECKING TO SEE THAT THEY DIFFER BY A SIGNIFICANT AMOUNT.

6.4 TEST 4 - WRITE/READ TAPE MARK

```
**************************************************************
* NOTE; THIS TEST MUST HAVE A GOOD MAGTAPE IN THE DRIVE      *
* ANY TAPE ERRORS WILL BE DISPLAYED AS A TAPE STATUS ALERT   *
**************************************************************
```

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.

6.4.1 TEST 4, SUBTEST 1: -

THIS SUBTEST VERIFIES THAT A FORMAT COMMAND (WITH ANY LEGAL MODE CODE) WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL VALID MODE CODES ARE CHECKED.

6.4.2 TEST 4, SUBTEST 2: -

THIS SUBTEST VERIFIES THAT A FORMAT COMMAND WITH AN ILLEGAL MODE CODE CAUSES FUNCTION REJECT TERMINATION WITH THE ILLEGAL COMMAND (ILC) ERROR BIT SET. ALL ILLEGAL MODE CODES ARE CHECKED.

6.4.3 TEST 4, SUBTEST 3: -

THIS SUBTEST VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED TO DETECT THE WRITTEN TAPE MARKS TERMINATE WITH TAPE STATUS ALERT AND THE TAPE MARK DETECTED (TMK) STATUS BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED:

1. THE CONTROLLER IS INITIALIZED AND THE TAPE REWOUND. THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
2. A WRITE TAPE MARK COMMAND, WITH CVC=1, IS ISSUED AND PROPER TERMINATION AND STATUS IS VERIFIED (I.E. VCK=0, AND TMK=1).
3. SEVERAL MORE WRITE TAPE MARK COMMANDS, THESE WITH CVC=0, ARE ISSUED AND PROPER TERMINATION (NORMAL) AND STATUS (TMK) VERIFIED.
4. A READ REVERSE COMMAND IS ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS TRANSFERRED INTO MEMORY.
5. A SPACE RECORDS REVERSE COMMAND IS ISSUED AND PROPER TERMINATION

(TAPE STATUS ALERT) AND STATUS (TMK) VERIFIED.

6. THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS TRANSFERRED INTO MEMORY.

7. A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A RECORD COUNT GREATER THAN 1 IS ISSUED, AND IT IS VERIFIED THAT TAPE STATUS ALERT TERMINATION OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO VALUE. THIS OPERATION VERIFIES THAT DETECTION OF THE TAPE MARK CAUSE THE SPACE RECORDS OPERATION TO BE PREMATURELY TERMINATED. THIS SHOULD LEAVE THE DEVICE POSITIONED JUST BEFORE THE FIRST RECORD ON THE TAPE.

8. TAPE POSITION IS VERIFIED BY ISSUING ANOTHER SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT TAPE STATUS ALERT TERMINATION OCCURS, WITH THE REVERSE INTO BOT (RIB) ERROR STATUS BIT SET.

9. A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A RECORD GREATER THAN 1 IS ISSUED AND IT IS VERIFIED THAT TAPE STATUS ALERT TERMINATION 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 OPERATIONS TO PREMATURELY TERMINATE.

```
                                .SBTTL  PROGRAM HEADER
                                .MCALL  SVC
                                SVC                     ; INITIALIZE SUPERVISOR MACROS
                                .ENABLE LC
                                .NLIST  BEX,CND
                                .ENABL  AMA,ABS
                                . = 2000
                                        BGNMOD  TUV2A
                                TUV2A::

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


                                        POINTER BGNSW,BGNSFT,BGNAU,BGNDU,BGNRPT,BGNSETUP
                                        HEADER  CZTKG,A,0,655.,0
                                L$NAME::                ;DIAGNOSTIC NAME
002000  103                             .ASCII /C/
002001  132                             .ASCII /Z/
002002  124                             .ASCII /T/
002003  113                             .ASCII /K/
002004  107                             .ASCII /G/
002005  000                             .BYTE   ''
002006  000                             .BYTE   0
002007  000                             .BYTE   0
002010                          L$REV::                 ;REVISION LEVEL
002010  101                             .ASCII  /A/
002011                          L$DEP::                 ;0
002011  060                             .ASCII  /0/
002012                          L$UNIT::                ;NUMBER OF UNITS
002012  000001                          .WORD   T$PTHV
002014                          L$TIML::                ;LONGEST TEST TIME
002014  001217                          .WORD   655.
002016                          L$HPCP::                ;POINTER TO H.W. QUES.
002016  065460                          .WORD   L$HARD
002020                          L$SPCP::                ;POINTER TO S.W. QUES.
002020  065620                          .WORD   L$SOFT
002022                          L$HPTP::                ;PTR. TO DEF. H.W. PTABLE
002022  002124                          .WORD   L$HW
002024                          L$SPTP::                ;PTR. TO S.W. PTABLE
002024  002134                          .WORD   L$SW
002026                          L$LADP::                ;DIAG. END ADDRESS
002026  066026                          .WORD   L$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$DTP::                 ;PTR. TO DISPATCH TABLE
002040  066012                          .WORD   L$DISPATCH
002042                          L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
002042  000000                          .WORD   0
```

J2

PROGRAM HEADER

```
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  003334                          .WORD   L$DVTYP
002062                          L$REPP::                ;PTR. TO REPORT CODE
002062  023066                          .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  022560                          .WORD   L$AU
002072                          L$DUT::                 ;PTR. TO DROP UNIT CODE
002072  022656                          .WORD   L$DU
002074                          L$LUN::                 ;LUN FOR EXERCISERS TO FILL
002074  000000                          .WORD   0
002076                          L$DESP::                ;POINTER TO DIAG. DESCRIPTION
002076  003342                          .WORD   L$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  022000                          .WORD   L$INIT
002106                          L$CCP::                 ;PTR. TO CLEAN-UP CODE
002106  023040                          .WORD   L$CLEAN
002110                          L$ACP::                 ;PTR. TO AUTO CODE
002110  022764                          .WORD   L$AUTO
002112                          L$PRT::                 ;PTR. TO PROTECT TABLE
002112  021770                          .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  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.
                        ;--
002122                          BGNHW   DFPTBL          ;DEFAULT HARD-P-TABLE
002122  000003                  .WORD   L10000-L$HW/2
002124                  L$HW::
002124                  DFPTBL.:

002124  172522                  .WORD   172522          ; 2ND (OF 2) REGISTERS.
002126  000224                  .WORD   224             ; INTERRUPT VECTOR
002130  000240                  .WORD   PRI05           ; INTERRUPT PRIORITY.
002132                          ENDHW
002132                  L10000:
```

```
                                        .SBTTL  SOFTWARE P-TABLE

                                ;++
                                ; THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
                                ; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
                                ;--
002132                                  BGNSW   SFPTBL
002132  000004                         .WORD   L10001-L$SW/2
002134                          L$SW::
002134                          SFPTBL::

                                TRANSTST::      .WORD   0       ;ENABLE RAM DUMP IF =1
002134  000000                  NOITS::         .WORD   0       ; INHIBIT ITERATION OPTION.
002136  000000                                                  ; ... 0 = ITERATE.
                                                                ; ...NZ = INHIBIT ITERATE.
002140  000031                  LERRMAX::       .WORD   25.     ; LOCAL (PER TEST) ERROR LIMIT
002142  000310                  GERRMAX::       .WORD   200.    ; GLOBAL (PER UNIT) ERROR LIMIT
002144                                  ENDSW
002144                          L10001:

```

```
                                .SBTTL  GLOBAL EQUATES SECTION


                                .SBTTL  GLOBAL EQUATES SECTION

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

002144                          EQUALS          ; GET STANDARD EQUATES.
                        ;
                        ; BIT DIFINITIONS
                        ;
100000                  BIT15== 100000
040000                  BIT14== 40000
020000                  BIT13== 20000
010000                  BIT12== 10000
004000                  BIT11== 4000
002000                  BIT10== 2000
001000                  BIT09== 1000
000400                  BIT08== 400
000200                  BIT07== 200
000100                  BIT06== 100
000040                  BIT05== 40
000020                  BIT04== 20
000010                  BIT03== 10
000004                  BIT02== 4
000002                  BIT01== 2
000001                  BIT00== 1
                        ;
001000                  BIT9==  BIT09
000400                  BIT8==  BIT08
000200                  BIT7==  BIT07
000100                  BIT6==  BIT06
000040                  BIT5==  BIT05
000020                  BIT4==  BIT04
000010                  BIT3==  BIT03
000004                  BIT2==  BIT02
000002                  BIT1==  BIT01
000001                  BIT0==  BIT00
                        ;
                        ; EVENT FLAG DEFINITIONS
                        ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
                        ;
000040                  EF.START==      32.             ; START COMMAND WAS ISSUED
000037                  EF.RESTART==    31.             ; RESTART COMMAND WAS ISSUED
000036                  EF.CONTINUE==   30.             ; CONTINUE COMMAND WAS ISSUED
000035                  EF.NEW==        29.             ; A NEW PASS HAS BEEN STARTED
000034                  EF.PWR==        28.             ; A POWER-FAIL/POWER-UP OCCURRED
                        ;
                        ;
                        ; PRIORITY LEVEL DEFINITIONS
                        ;
```

```
000340                  PRI07== 340
000300                  PRI06== 300
000240                  PRI05== 240
000200                  PRI04== 200
000140                  PRI03== 140
000100                  PRI02== 100
000040                  PRI01== 40
000000                  PRI00== 0
                        ;
                        ;OPERATOR FLAG BITS
                        ;
000004                  EVL==     4
000010                  LOT==    10
000020                  ADR==    20
000040                  IDU==    40
000100                  ISR==   100
000200                  UAM==   200
000400                  BOE==   400
001000                  PNT==  1000
002000                  PRI==  2000
004000                  IXE==  4000
010000                  IBE== 10000
020000                  IER== 20000
040000                  LOE== 40000
100000                  HOE== 100000
844
845 002144                      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 REGISTERS
                        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
UUPAR3= 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  TK-25 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

                        ;+
                        ;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)
                        ;-
```

```
                        
                        X1.DLT  = BIT15                 ;DATA LATE
                        X1.SPARE= BIT14                 ;NOT USED
                        X1.COR  = BIT13                 ;CORRECTABLE DATA ERROR
                        X1.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT7+BIT6+BIT5+BIT4+BIT3+BIT2+BIT0 ;ALWAYS 0
                        X1.RBP  = BIT8                  ;READ BUS PARITY ERROR
                        X1.UNC  = BIT1                  ;UNCORRECTABLE DATA OR HARD ERROR
                        
                        ;+
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 2
                        ;(XST2)
                        ;-
                        X2.OPM  = BIT15                 ;OPERATION IN PROGRESS (TAPE MOVING)
                        X2.RCE  = BIT14                 ;RAM CHECKSUM ERROR
                        X2.SPARE= BIT13+BIT12+BIT11+BIT9+BIT8   ;NOT USED BY TK-25 (ALWAYS=0)
                        X2.WCF  = BIT10                 ;WRITE CLOCK FAILURE (FIFO NOT EMPTIED BY TRANSPORT)
                        X2.EXTF = BIT7                  ;IF WRITE CHAR CMD THEN = EXTENDED FEATURES ENABLED
                        X2.BUFE = BIT6                  ;IF WRITE CHAR CMD THEN = BUFFERING ENABLED
                        X2.REV  = 000077                ;IF WRITE CHAR CMD THEN = MICROCODE REVISION LEVEL
                        X2.UNIT = BIT2+BIT1+BIT0        ;IF GET STATUS THEN = CURRENTLY SELECTED UNIT NO.
                        
                        ;+
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 3
                        ;(XST3)
                        ;-
                        X3.MDE  = 177400                ;MICRO-DIAGNOSTIC ERROR CODE
                        X3.SPARE= BIT7                  ;NOT USED BY TK-25
                        X3.OPI  = BIT6                  ;OPERATION INCOMPLETE
                        X3.REV  = BIT5                  ;REVERSE
                        X3.TRF  = BIT4                  ;TRANSPORT RESPONSE FAILURE
                        X3.DCK  = BIT3                  ;DENSITY CHECK
                        X3.MBZ  =BIT2+BIT1              ;NOT USED ALWAYS 0
                        X3.RIB  = BIT0                  ;REVERSE INTO BOT
                        
                        ;+
                        ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 4
                        ;(XST4)
                        ;-
                        X4.HSP  = BIT15                 ;HIGH SPEED
                        X4.RCE  = BIT14                 ;RETRY COUNT EXCEEDED
                        X4.TSM  = BIT13                 ;TRANSPORT SPECIAL MODE
                        X4.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT8   ;NOT USED ALWAYS 0
                        X4.WRC  = 000377                ;WRITE RETRY COUNT FIELD
                        
                        
                        ;+
                        ;
                        ;TSSR TERMINATION CODES (BIT 0-2)
                        ;
                        ;-
                        
                                TSREJ=  3+2                     ;COMMAND REJECTED
                                UNREC=  6                       ;UNRECOVERABLE ERROR
                        
                        ;+
                        ;
                        ;DEVICE REGISTER OFFSETS
                        ;
```

F3


```
                        ;-
                        ;
177776                  TSBA==  -2
177776                  TSBAL== -2
177776                  TSDB==  -2                      ;TSDB/TSBA REGISTER
177776                  TSDBL== -2                      ;TSDB/TSBA REGISTER
177777                  TSBAH== -1
177777                  TSDBH== -1                      ;TSDB/TSBA REGISTER HIGH BYTE
000000                  TSSR==  0                       ;TSSR REGISTER
000001                  TSSRH== 1                       ;TSSR REGISTER HIGH BYTE
                        ;
                        ;+
                        ; TSDB ADDRESS BIT DEFINITIONS
                        ;-
000003                  A1716   = BIT1+BIT0             ;ADDRESS BITS 17:16 ARE IN 1:0
                        ;
                        ;+
                        ; COMMAND DEFINITIONS
                        ;-
000017                  P.GETSTAT       = 17            ;GET STATUS
000013                  P.INIT          = 13            ;INITIALIZE
000012                  P.CONTROL       = 12            ;CONTROL COMMANDS
000011                  P.FORMAT        = 11            ;FORMAT
000010                  P.POSITION      = 10            ;POSITION
000006                  P.WRTSUB        = 6             ;SUBSYSTEM WRITE
000005                  P.WRITE         = 5             ;WRITE
000004                  P.WRTCHAR       = 4             ;WRITE CHARACTERISTICS
000001                  P.READ          = 1             ;READ
                        ;
                        ;+
                        ; COMMAND PACKET HEADER WORD BIT DEFINITIONS
                        ;-
100000                          P.ACK   = BIT15                 ;BUFFER AVAIL FOR CONTROLLER
040000                          P.CVC   = BIT14                 ;CLEAR VOLUME CHECK
020000                          P.OPP   = BIT13                 ;REVERSE SEQUENCE OF DATA BITS
010000                          P.SWB   = BIT12                 ;SWAP BYTES IN MEMORY
007400                          P.MODE  = BIT11!BIT10!BIT9!BIT8 ;EXTENDED COMMAND MODE FIELD
000200                          P.IE    = BIT7                  ;INTERRUPT ENABLE
000140                          P.FMT= BIT6!BIT5                ;PACKET HEADER TYPE (ALWAYS=0)
000037                          P.CMD   = 37                    ;MAJOR COMMAND FIELD
                        ;
                        ;+
                        ; CONTROL COMMAND MODE CODES
                        ;-
000000                          PC.RELEASE      = 0*256.        ;RELEASE BUFFER
000400                          PC.REWIND       = 1*256.        ;REWIND
001000                          PC.NOOP         = 2*256.        ;NO-OP
002000                          PC.IEREW        = 4*256.        ;REWIND IMMEDIATE INTERRUPT
002400                          PC.ERASE        = 5*256.        ;SECURITY ERASE
                        ;
                        ;+
                        ; CONTROLLER RAM DEFINITIONS
                        ;-
000167                  RMCHBEG = 167                   ;CHARACTERISTICS IO DATA BEGIN RAM ADDRESS
000200                  RMCHEND = 200                   ;CHARACTERISTICS IO DATA END RAM ADDRESS
000020                  RMPKTBEG= 20                    ;COMMAND PACKET BEGIN RAM ADDRESS
000027                  RMPKTEND= 27                    ;COMMAND PACKET END RAM ADDRESS
000104                  RMMSGBEG= 104                   ;MESSAGE BUFFER BEGIN RAM ADDRESS
```

```
1021    000117                  RMMSGEND= 117                           ;MESSAGE BUFFER END RAM ADDRESS
1022                            ;*
1023                            ;
1024                            ;REGISTER DEFINITIONS IN THE MESSAGE BUFFER
1025                            ;
1026                            ;-
1027
1028    000006                  XST0==  6                               ;EXTENDED STATUS REGISTER 0 (WORD 4)
1029    000010                  XST1==  8.                              ;EXTENDED STATUS REGISTER 1 (WORD 5)
1030    000012                  XST2==  10.                             ;EXTENDED STATUS REGISTER 2 (WORD 6)
1031    000014                  XST3==  12.                             ;EXTENDED STATUS REGISTER 3 (WORD 7)
1032    000016                  XST4==  14.                             ;EXTENDED STATUS REGISTER 4 (WORD 8)
1033
1034
1035                            ;*
1036                            ;
1037                            ;OFFSETS TO WORD LOCATIONS IN PACKET DEFINITIONS
1038                            ;
1039                            ;-
1040
1041    000002                          PKLOW   = 2                     ;LOW ORDER CHARACTERISTIC DATA POINTER
1042    000004                          PKHI    = 4                     ;HIGH ORDER CHARACTERISTIC DATA POINTER
1043    000006                          PKBCNT  = 6                     ;NUMBER OF BYTES IN DATA PACKET
1044
1045    000010                          EXBCNT=10                       ;NUMBER OF BYTES IN EXTENDED DATA PACKET
1046
1047                            ;*
1048                            ;DATA PACKET OFFSETS FOR WRITE SUBSYTEM COMMAND
1049                            ;-
1050    000000                          BSEL0   = 0                     ;BYTE 0
1051    000001                          BSEL1   = 1                     ;BYTE 1
1052    000002                          SEL2    = 2                     ;WORD 2
1053    000004                          SELDATA = 4                     ;WORD 3
1054
1055                            ;*
1056                            ;BSELO SELECT CODES FOR WRITE SUBSYSTEM COMMAND
1057                            ;-
1058    000000                  PW.NOP          = 0                     ;NO-OP
1059    000001                  PW.RDRAM        = 1                     ;READ RAM
1060    000002                  PW.WTRAM        = 2                     ;WRITE RAM
1061    000003                  PW.RFIFO        = 3                     ;READ FIFO
1062    000004                  PW.WFIFO        = 4                     ;WRITE FIFO
1063    000005                  PW.RDSTAT       = 5                     ;READ STATUS
1064    000006                  PW.WCTL         = 6                     ;WRITE TAPE CONTROL
1065    000007                  PW.WFMT         = 7                     ;WRITE TAPE FORMAT
1066    000010                  PW.WMISC        = 10                    ;WRITE MISCELLANEOUS
1067    000011                  PW.WNPR         = 11                    ;WRITE NPR CONTROL
1068    000020                  PW.D22          = 20                    ;DO MICROTEST 22
1069    000021                  PW.D11          = 21                    ;DO MICROTEST 11
1070    000022                  PW.D13          = 22                    ;DO MICROTEST 13
1071    000023                  PW.NO1311       = 23                    ;DISABLE MICROTEST 11 AND 13
1072    000024                  PW.RDEXT        = 24                    ;READ EXT. TAPE STATUS (NOT SUPPORTED BY ALL TRANSPO
RTS
1073
1074                            ;*
1075                            ;BSEL1 CODES FOR WRITE TAPE CONTROL
1076                            ;-
1077    000200                  WC.IFAD         = BIT7                  ;IFAD - FORMATTER ADDRESS
```

```
                                WC.IOTAD        = BIT6          ;ITAD0  - TRANSPORT ADDRESS BIT 0
                                WC.I1TAD        = BIT5          ;ITAD1  - TRANSPORT ADDRESS BIT 1
                                WC.I5RESV       = BIT4          ;IRESV5 - RESERVED #5
                                WC.IREW         = BIT3          ;IREW   - REWIND
                                WC.IRWU         = BIT2          ;IRWU   - REWIND AND UNLOAD
                                WC.IFEN         = BIT1          ;IFEN   - FORMATTER ENABLE
                                WC.IGO          = BIT0          ;GO

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


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

                                S2.DIM          = BIT7          ;WORD #9 BYTE 2 DATA IN MISS
                                S2.ILW          = BIT6          ;               ILW H
                                S2.OUTRDY       = BIT5          ;               OUT RDY H
                                S2.INRDY        = BIT4          ;               IN RDY H
                                S2.ATIMR        = BIT3          ;               TIMER A FLAG H
                                S2.BTIMR        = BIT2          ;               TIMER B FLAG H
                                S2.UNDEF        = BIT1+BIT0     ;(UNDEFINED)
                                S1.PARIN        = BIT15         ;WORD #8 BYTE 1 PARIN H
                                S1.I2RESV       = BIT14         ;               IRESV2
                                S1.I1RESV       = BIT13         ;               IRESV1
```

```
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
                ;       SPECIAL KEYBORD STUFF FOR MOVER PROGRAM

177560                  TKS     =177560                 ;KEYBOARD STATUS REGISTER
177562                  TKB     =177562                 ;KEYBOARD DATA REGISTER
177564                  TPS     =177564                 ;CONSOLE PRINTER STATUS REGISTER
177566                  TPB     =177566                 ;CONSOLE PRINTER DATA REGISTER
007776                  HIMEM   =007776                 ;HIGH MEMORY MASK VALUE
                ;       CONTROLLER DEFINITIONS
                ;
                ;
174400                  CSR     =174400                 ;STATUS AND CONTROL REGISTER
174402                  BAR     =174402                 ;DL ADDRESS REGISTER
174404                  DAR     =174404                 ;PLATTER ADDRESS
174406                  MPR     =174406                 ;MULTIPURPOSE REGISTER
                ;
                ;
                ;
                ;
                ;
                ;       CONTROLLER COMMANDS
                ;
                ;
000004                  DLGETS  =4                      ;GET STATUS COMMAND
000006                  SEEK    =6                      ;SEEK TRACK AND HEAD SELECT
000010                  DLRDHD  =10                     ;READ SECTOR HEADER
000014                  READ    =14                     ;READ COMMAND
000016                  DLRDNH  =16                     ;READ SECTOR NO HEADER CHECK
                ;
                ;
                ;
                ;
                ;
                ;
000001                  READY   =1                      ;DRIVE READY BIT IN STATUS REG.
000013                  DLSR    =13                     ;STATUS AND RESET
177730                  DLERR   =177730                 ;MASK FOR COVER OPEN
000006                  DLUN    =6                      ;HEADS UNLOADED
000177                  DLCYL   =000177                 ;MASK FOR CYLINDER ADDRESS
100200                  DLDNER  =100200                 ;DONE SET OR ERROR SET BITS
                ;
                ;
                ;
                ;
177560                  TTICSR  =       177560          ;KEYBOARD INPUT STATUS
```

```
1192        177562                  TTIBFR  =       177562          ;KEYBOARD DATA REGISTER
1193        177564                  TTOCSR  =       177564          ;CONSOLE PRINTER STATUS REGISTER
1194        177566                  TTOBFR  =       177566          ;CONSOLE PRINTER DATA REGISTER
1195
```

```
1197                                    .SBTTL  SPECIAL MACROS AND OPDEFS.
1198
1199
1200                                    ;+
1201                                    ;SAVE GENERAL REGS 1 TO 5
1202                                    ;-
1203
1204                                            .MACRO  SAVREG
1205                                            JSR     R5,REGSAV
1206                                            .ENDM
1207
1208                                    ;+
1209                                    ; MACRO TO FORCE AN ERROR
1210                                    ;-
1211                                    .MACRO  FORCERROR       TAG,NOTSSR
1212                                    .NLIST
1213                                    .IIF NDF LISTALL, .NLIST
1214                                    .LIST
1215                                    .IF B NOTSSR
1216                                            MOV     TSSR(R5),R1             ;READ TSSR
1217                                    .ENDC
1218                                            MOV     FORCER,FORCER           ;IS FORCER SET? (LEAVE C BIT ALONE)
1219                                            BNE     TAG                     ;BR IF YES
1220                                    .NLIST
1221                                    .IIF NDF LISTALL, .LIST
1222                                    .LIST
1223                                    .ENDM
1224
1225                                    ;+
1226                                    ; MACRO TO FORCE AN EXIT TO AVOID SECTION ITERATIONS
1227                                    ;       WILL EXIT TO A LABEL IF FORCER IS NEGATIVE
1228                                    ;       SO TO FORCE ERRORS AND EXIT ON 1 ERROR SET
1229                                    ;       FORCER TO 177777
1230                                    ;       TO FORCE ERRORS AND ITERATIONS SET FORCER TO 1.
1231                                    ;-
1232                                    .MACRO  FORCEXIT        TAG
1233                                    .NLIST
1234                                    .IIF NDF LISTALL, .NLIST
1235                                    .LIST
1236                                            MOV     FORCER,FORCER           ;IS FORCER NEGATIVE?
1237                                            BMI     TAG                     ;BR IF YES
1238                                    .NLIST
1239                                    .IIF NDF LISTALL, .LIST
1240                                    .LIST
1241                                    .ENDM
1242                                    ;+
1243                                    ; MACRO TO INCREMENT ERROR COUNTS
1244                                    ;-
1245                                    .MACRO  NEXT.ERRNO
1246                                    .NLIST
1247                                    ;;;.IIF NDF LISTALL, .NLIST
1248                                            ERRNO=ERRNO+1
1249                                    ;;;.IIF NDF LISTALL, .LIST
1250                                    .LIST
1251                                    .ENDM
1252
1253                                    ;+
```

```
                                ;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.
                                ;

002144  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.
```

```
1279                                    .SBTTL  GLOBAL DATA SECTION
1280
1281                                    ;++
1282                                    ;THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
1283                                    ;IN MORE THAN ONE TEST.
1284                                    ;--
1285
1286                                    ;
1287                                    ;THE FOLLOWING DATA ARE SET FOR EACH UNIT AT INIT TIME.
1288                                    ;SINGLE UNIT DEFAULTS (LISTED) ARE IN THE DEFAULT P-TABLE
1289                                    ;
1290 002146  000000   EPRTSW::          .WORD   0               ;PRINT SWITCH
1291 002150  000000   UNITN::          .WORD   0               ;UNIT # UNDER TEST.
1292 002152  000000   QVP::            .WORD   0               ;QUICK VERIFY FLAG.
1293 002154  000000   CSRADDR::        .WORD   0               ;ADDRESS OF CSR FOR CURRENT DEVICE
1294 002156  000224   IVEC::           .WORD   224             ;INTERRUPT VECTOR
1295 002160  000200   IPRI::           .WORD   PRI04           ;INTERRUPT PRIORITY.
1296 002162  000000   TSTCNT::         .WORD   0               ;NUMBER OF TESTS RUN IN THIS PASS
1297 002164  000000   LOOPCNT::        .WORD   0               ;REMAINING ITERATION COUNT FOR TEST
1298 002166  000000   DEVCNT::         .WORD   0               ;NUMBER OF DEVICE UNDER TEST
1299 002170  000000   FATFLG::         .WORD   0               ;SET IF FATAL ERROR IS DETECTED IN TEST
1300 002172  000000   INTRECV::        .WORD   0               ;SET IF TAPE INTERRUPT WAS RECEIVED
1301 002174  000000   BENBSW::         .WORD   0               ;BUFFER ENABLE SWITCH SW 0=OFF;1=ON
1302 002176  000000   EXPD::           .WORD   0               ;EXPECTED RAM DATA FOR PRAMPKT ROUTINE
1303 002200  000000   RECV::           .WORD   0               ;RECEIVED RAM DATA FOR PRAMPKT ROUTINE
1304 002202  000000   ERRHI::          .WORD   0               ;HIGH ADDRESS MEMORY ERROR
1305 002204  000000   ERRLO::          .WORD   0               ;LOW ADDRESS MEMORY ERROR
1306 002206           RAMDATA::        .BLKW   16.             ;DATA READ FROM RAM PACKET OR MESSAGE BUF AREA
1307 002246  000000   RAMSIZ::         .WORD   0               ;RAM DATA SIZE FOR PRAMPKT ROUTINE
1308 002250  000000   RCVHIADD::       .WORD   0               ;RECEIVED BUFFER HIGH ADDRESS
1309 002252  000000   RCVLOADD::       .WORD   0               ;RECEIVED BUFFER LOW ADDRESS
1310 002254  000000   COUNT::          .WORD   0               ;TEST COUNT PATTERN
1311 002256  000000   DATA::           .WORD   0               ;TEST DATA
1312 002260  000000   TSTFLAG::        .WORD   0               ;TEST FLAG WORD
1313 002262  000000   TSTPTR::         .WORD   0               ;TSTBLK POINTER
1314 002264  000000   PRMNO::          .WORD   0               ;PRINT ROUTINE TEMP
1315 002266           EXPMSG::         .BLKB   100.            ;EXPECTED MESSAGE BUFFER DATA
1316 002432           RECMSG::         .BLKB   100.            ;RECEIVED MESSAGE BUFFER DATA
1317 002576           TMPBFR::         .BLKB   80.             ;TEMPORARY STORAGE FOR PRINT
1318 002716  000000   MESBFA::         .WORD   0               ;STORES ADDRESS OF MESSAGE BUFFER FOR ERR PRT
```

```
                                        .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
                                ;
                                ;-

002720                          TSTBLK::
002720  000000                          .WORD   0                       ;ALL ZEROS
002722  177777                          .WORD   177777                  ;ALL ONES
002724  000001                          .WORD   BIT0                    ;DATA FOR WALKING ONES
002726  000002                          .WORD   BIT1
002730  000004                          .WORD   BIT2
002732  000010                          .WORD   BIT3
002734  000020                          .WORD   BIT4
002736  000040                          .WORD   BIT5
002740  000100                          .WORD   BIT6
002742  000200                          .WORD   BIT7
002744  000400                          .WORD   BIT8
002746  001000                          .WORD   BIT9
002750  002000                          .WORD   BIT10
002752  004000                          .WORD   BIT11
002754  010000                          .WORD   BIT12
002756  020000                          .WORD   BIT13
002760  040000                          .WORD   BIT14
002762  100000                          .WORD   BIT15
002764  177776                          .WORD   ^CBIT0                  ;DATA FOR WALKING ZEROS
002766  177775                          .WORD   ^CBIT1
002770  177773                          .WORD   ^CBIT2
002772  177767                          .WORD   ^CBIT3
002774  177757                          .WORD   ^CBIT4
002776  177737                          .WORD   ^CBIT5
003000  177677                          .WORD   ^CBIT6
003002  177577                          .WORD   ^CBIT7
003004  177377                          .WORD   ^CBIT8
003006  176777                          .WORD   ^CBIT9
003010  175777                          .WORD   ^CBIT10
003012  173777                          .WORD   ^CBIT11
003014  167777                          .WORD   ^CBIT12
003016  157777                          .WORD   ^CBIT13
003020  137777                          .WORD   ^CBIT14
003022  077777                          .WORD   ^CBIT15
003024  125252                          .WORD   125252                  ;ALTERNATING ONES, ZEROS
003026  052525                          .WORD   052525                  ;ALTERNATING ONES, ZERO OPPOSITE FROM ABOVE
003030                          TBLEND==.
```

```
                                        .SBTTL  GLOBAL ENVIRONMENT STORAGE
                                ;
                                ;STORAGE FOR DEVICE REGISTERS
                                ;
003030  000000  100000  000000  DUMMY:  0,100000,0,0                    ;DUMMY DEVICE REGISTERS...
003040  000000  000000  000000          0,0,0,0,0,0,0,0
                                                                        ;...FOR MULTI-UNIT CHECKOUT.


003060  000000                  DUFLG::         .WORD   0               ;"DROPPED UNIT" FLAG.
                                                                        ;INHIBITS CODE IN "CLEAN-UP".
003062  000000                  NODEV::         .WORD   0               ;FLAG TO SAY NO DEVICE.

003064  000000                  TEMP1::         .WORD   0               ;SOME TEMP LOCATIONS.
003066  000000                  TEMP2::         .WORD   0
003070  000000                  XXCOMM::        .WORD   0               ;XXDP+ COMM BLOCK POINTER.
003072  000000                  FREE::          .WORD   0               ;1ST FREE MEMORY ADDRESS...
003074  000000                  FRESIZ::        .WORD   0               ;...AND SIZE (IN WORDS).
003076  000000                  FREEMI:         .WORD   0               ;LAST WORD IN FREE SPACE
003100  000000                  KTFLG::         .WORD   0               ;KT11, MEM AVAIL FLAG -
                                                                        ;- .WORD        0 = <24K OR NO KT -
                                                                        ;- NZ = >24K AND KT.
003102  000000                  KTENABLE::      .WORD   0               ;SET BY TEST ROUTINES TO FLAG >28K UNDER TEST
003104  002000                  PST32W::        .WORD   2000            ;32W BLOCK ADDRESS FOR 32K START
003106  000000                  SIFLAG::        .WORD   0               ;
003110  000000                  BADDAT::        .WORD   0               ;ACTUAL DATA
003112  000000                  GDDAT::         .WORD   0               ;EXPECTED DATA
003114  000000                  LOOPFL::        .WORD   0
003116                          CTAB::                                  ;CONFIGURATION TABLES.
003116  000000                  CTABM::         .WORD   0               ;CONFIG WORK.
003120  000000                                  .WORD   0
003122  000000                                  .WORD   0
003124  000000                                  .WORD   0
003126  177777                                  .WORD   -1              ;END OF MEM TABLE.
003130                          CTABE::
                                ;ERROR STATISTICS TABLE (1 WORD PER UNIT), 64 UNITS MAX:
                                ;
                                ;       0       =       UNIT NOT TESTED
                                ;       100000  =       UNIT ONLINE, NO ERRORS
                                ;       10XXXX  =       UNIT ONLINE, ENCOUNTERED XXXX ERRORS
                                ;       160000  =       UNIT DROPPED, NON-EXISTENT DEVICE REGISTER
                                ;       160001  =       UNIT DROPPED, NOT IDLE AT START
                                ;       14XXXX  =       UNIT DROPPED, ENCOUNTERED XXXX ERRORS
                                ;
003130                          ERTABL:         .BLKW   64.
003330  000000                  ERTABE:         .WORD   0

003332  000000                  SKIPT:  .WORD   0                       ;1=SKIP SUBTEST 0=NO SKIP OF SUBTEST
```

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



                                ;+
                                ;NAMES OF DEVICES SUPPORTED
                                ;-

003334                                  DEVTYP  <TK-25>
003334                          L$DVTYP::
003334  124     113     055             .ASCIZ  /TK-25/
                                        .EVEN

                                ;+
                                ;TEST DESCRIPTION
                                ;-
003342                                  DESCRIPT <CZTKGA TK-25 FRT END FUNC 03>
003342                          L$DESC::
003342  103     132     124             .ASCIZ  /CZTKGA TK-25 FRT END FUNC 03/
                                        .EVEN

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

003400  003440  003443  003447  TSSRBIT::        .WORD   1$,2$,3$,4$,5$,6$,7$,8$
003420  003501  003505  003511                  .WORD   9$,10$,11$,12$,13$,14$,15$,16$
003440     123     103     000  1$:     .ASCIZ  'SC'
003443     102     111     105  2$:     .ASCIZ  'BIE'
003447     123     103     105  3$:     .ASCIZ  'SCE'
003453     122     115     122  4$:     .ASCIZ  'RMR'
003457     116     130     115  5$:     .ASCIZ  'NXM'
003463     116     102     101  6$:     .ASCIZ  'NBA'
003467     102     111     124  7$:     .ASCIZ  'BIT9'
003474     102     111     124  8$:     .ASCIZ  'BIT8'
003501     123     123     122  9$:     .ASCIZ  'SSR'
003505     117     106     114  10$:    .ASCIZ  'OFL'
003511     102     111     124  11$:    .ASCIZ  'BIT5'
003516     102     111     124  12$:    .ASCIZ  'BIT4'
003523     102     111     124  13$:    .ASCIZ  'BIT3'
003530     102     111     124  14$:    .ASCIZ  'BIT2'
003535     102     111     124  15$:    .ASCIZ  'BIT1'
003542     102     111     124  16$:    .ASCIZ  'BIT0'
                                .EVEN
003550     124     123     123  SFIERR: .ASCIZ  'TSSR ERROR AFTER SOFT INIT'
003603     124     123     123  SFHERR: .ASCIZ  'TSSR ERROR AFTER BUS RESET'
003636     040     040     116  NXR:    .ASCIZ  /  NON-EXISTANT DEVICE REGISTER/
003675     045     101     040  NXRX:   .ASCIZ  /%A  ADDRESS: %O6/
003716     045     101     040  TSSX:   .ASCII  /%A  TSBA,TSSR EXP'D: %O6%A,%O6%N/
003756     045     101     040          .ASCIZ  /%A  TSBA,TSSR REC'D: %O6%A,%O6/
004015     045     116     045  FUSI:   .ASCII  /%N%A/
004021     040     040     125  USI:    .ASCIZ  /  UNEXPECTED INTERRUPT/
```

```
1475 004050  040  040  111  NSI:     .ASCIZ  /  INTERRUPT EXPECTED, NOT RECEIVED/
1476 004113  045  116  045  FNOINTR:         .ASCII  /%N%A/
1477 004117  040  040  116  NOINTR:  .ASCIZ  /  NO INTERRUPT WAS GENERATED/
1478 004154  040  040  111  IFAULT:  .ASCIZ  /  INTERRUPT FAULT/
1479 004176  045  101  040  INTX:    .ASCIZ  /%A  CPU PC: %O6%A  TSBA: %O6/
1480 004233  040  040  042  NOINIT:  .ASCIZ  /  "BUS-INIT" DIDN'T INITIALIZE CONTROLLER/
1481 004305  040  040  042  NSINIT:  .ASCIZ  /  "SOFT-INIT" DIDN'T INITIALIZE THE DPU/
1482 004355  040  040  042  BRINIT:  .ASCIZ  /  "BUS-RESET" DIDN'T INITIALIZE THE DPU/
1483
1484 004425  000            NUL:     .ASCIZ  //
1485 004426  045  116  000  NULCR:   .ASCIZ  /%N/
1486 004431  045  101  040  EXPGOT:  .ASCIZ  /%A EXP'D: %O6%A, REC'D: %O6/
1487 004465  045  116  045  EXPGT2:  .ASCIZ  /%N%A EXP'D: %O6%A, %O6%N%A REC'D: %O%A, %O6/
1488 004541  045  101  040  DUAD12:  .ASCIZ  /%A REG(W) WRITTEN TO: %O6%A REG(R) READ, EXP'D: %O6%A, REC'D: %O6/
1489 004643  122  101  115  PKTRAM::         .ASCIZ  'RAM Contents Do Not Match Packet Sent'
1490 004711  040  040  103  SCME:    .ASCIZ  /  CONFIG DOESN'T MATCH MFG. MASTER/
1491 004754  127  122  111  WRTMSG:  .ASCIZ  'WRITE CHARACTERISTICS Failed'
1492 005011  124  123  123  WRTERR:  .ASCIZ  'TSSR Incorrect After WRITE Command, More Bits Set Than SSR'
1493 005104  124  123  123  RDERR:   .ASCIZ  'TSSR Incorrect After READ Command, More Bits Set Than SSR'
1494                          .EVEN
1495
1496
1497
```

```
1499                                    .SBTTL  GLOBAL ERROR REPORT SECTION
1500
1501                                ;++
1502                                ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX
1503                                ; CALLS THAT ARE USED IN MORE THAN ONE TEST.
1504                                ; ASCII TEXT STRINGS ARE FOUND IN THE GLOBAL TEXT SECTION.
1505                                ;--
1506
1507 005176                            BGNMSG  NXRERR                  ;NON-EXISTANT DEVICE REGISTER.
     005176                        NXRERR::
1508 005176                            PRINTX  #NXRX,NODEV             ;NODEV = NEXM ADDRESS.
     005176  013746  003062            MOV     NODEV,-(SP)
     005202  012746  003675            MOV     #NXRX,-(SP)
     005206  012746  000002            MOV     #2,-(SP)
     005212  010600                    MOV     SP,R0
     005214  104415                    TRAP    C$PNTX
     005216  062706  000006            ADD     #6,SP
1509 005222  004737  005230            JSR     PC,EXTEND               ; PRINT EXTENSION IF REQUIRED.
1510 005226                            ENDMSG
     005226                        L10002:
     005226  104423                    TRAP    C$MSG
1511
1512
1513                                ;
1514                                ; THIS ROUTINE APPENDS A UNIQUE EXTENSION (IF REQUIRED)
1515                                ; TO ANY OF THE ABOVE ERROR SIGNATURES.
1516                                ;
1517 005230  005727                EXTEND: TST     (PC)+
1518 005232  000000                EXTA:   0                               ; 0 = NO EXTENSION.
1519 005234  001402                        BEQ     1$
1520 005236  004777  177770               JSR     PC,@EXTA                ; APPEND EXTENSION TEXT.
1521 005242                        1$:     PRINTX  #NULCR                  ; PRINT A BLANK LINE
     005242  012746  004426            MOV     #NULCR,-(SP)
     005246  012746  000001            MOV     #1,-(SP)
     005252  010600                    MOV     SP,R0
     005254  104415                    TRAP    C$PNTX
     005256  062706  000004            ADD     #4,SP
1522 005262  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
                ;
                ;-

                PRITSSR:
                        SAVREG                          ;SAVE GENERAL REGISTERS
005264  010104          MOV     R1,R4                   ;SAVE THE TSSR CONTENTS
005266  012746  006123  MOV     #TSSRFOR,-(SP)          ;PRINT THE CONTENTS OF TSSR
005272  010446          MOV     R4,-(SP)
005274  012746  006123  MOV     #TSSRFOR,-(SP)
005300  012746  000002  MOV     #2,-(SP)
005304  010600          MOV     SP,R0
005306  104414          TRAP    C$PNTB
005310  062706  000006  ADD     #6,SP
005314  010400          MOV     R4,R0                   ;GET TSSR BACK FOR CHKAMB
005316  004737  016730  JSR     PC,CHKAMB               ;ARE CONTENTS AMBIGUOUS ?
005322  103410          BCS     5$                      ;BRANCH IF NOT
005324                  PRINTX  #AMBTSSR                ;SHOW CONTENTS ARE AMBIGUOUS
005334  012746  006343  MOV     #AMBTSSR,-(SP)
005340  012746  000001  MOV     #1,-(SP)
005344  010600          MOV     SP,R0
005346  104415          TRAP    C$PNTX
005350  062706  000004  ADD     #4,SP
005354  010403          5$:     MOV     R4,R3                   ;CONTENTS OF TSSR
005356  042703  001476          BIC     #HIADDR!FATERR!TERCLS,R3        ;CLEAR ALL MULTIPLE BIT FIELDS
005362  001434          BEQ     20$                     ;NO BITS ARE SET
005364  012702  002576  MOV     #TMPBFR,R2              ;TEMPORARY ASCII BUFFER
005370  012701  003400  MOV     #TSSRBIT,R1             ;ASCII EQUIVALENT OF BITS
005374  005703          10$:    TST     R3              ;REMAINING BITS TO CONVERT
005376  001413          BEQ     15$                     ;BRANCH WHEN ALL ARE DONE
005400  000241          CLC                             ;CLEAR CARRY FOR SHIFT
005402  006103          ROL     R3                      ;SHIFT NEXT BIT TO CARRY
005404  103006          BCC     13$                     ;BRANCH IF BIT NOT SET
005406  011100          MOV     (R1),R0                 ;POINTER TO BIT DEFINITION
005410  112022          11$:    MOVB    (R0)+,(R2)+     ;MOVE ASCIZ TO BUFFER
005412  001376          BNE     11$                     ;MOVE ALL BITS
005414  112762  000054  177777  MOVB    #',,-1(R2)      ;INSERT A COMMA TO TERMINATE
005422  005721          13$:    TST     (R1)+           ;POINT TO NEXT DESCRIPTION
005424  000763          BR      10$                     ;GET THE REMAINING BITS
005426  105042          15$:    CLRB    -(R2)           ;TERMINATE THE LINE
005430                  PRINTX  #TSSDEF,#TMPBFR         ;PRINT THE BIT DEFINITIONS
005430  012746  002576  MOV     #TMPBFR,-(SP)
005434  012746  006314  MOV     #TSSDEF,-(SP)
```

```
                005430  012746  000002                  MOV     #2,-(SP)
                005434  010600                          MOV     SP,R0
                005436  104415                          TRAP    C$PNTX
                005440  062706  000006                  ADD     #6,SP
     1569
     1570       005444  010403                  20$:    MOV     R4,R3                   ;GET THE TSSR CONTENTS
     1571       005446  042703  177761                  BIC     #^CTERCLS,R3            ;CLEAR ALL BUT TERMINATION
     1572       005452  016303  006404                  MOV     TCOCOD(R3),R3           ;GET THE TERMINATION CODE MEANING
     1573       005456                                  PRINTX  #TCOASC,R3              ;PRINT THE TERMINATION CODE
                005462  010346                          MOV     R3,-(SP)
                005464  012746  006204                  MOV     #TCOASC,-(SP)
                005470  012746  000002                  MOV     #2,-(SP)
                005474  010600                          MOV     SP,R0
                005476  104415                          TRAP    C$PNTX
                005500  062706  000006                  ADD     #6,SP
     1574       005504  010403                          MOV     R4,R3                   ;TSSR CONTENTS AGAIN
     1575       005506  042703  177717                  BIC     #^CFATERR,R3            ;CLEAR ALL BUT FATAL TERMINATION
     1576       005512  001421                          BEQ     25$                     ;DON'T PRINT IF ZERO
     1577       005514  006203                          ASR     R3
     1578       005516  006203                          ASR     R3
     1579       005520  006203                          ASR     R3                      ;ALINE TERMINATION CODE FOR INDEX
     1580       005522  016303  006744                  MOV     TSFCOD(R3),R3           ;GET THE FATAL TERMINATION CODE
     1581       005526                                  PRINTX  #TFCASC,R3              ;PRINT THE FATAL TERMINATION CODE
                005532  010346                          MOV     R3,-(SP)
                005534  012746  006245                  MOV     #TFCASC,-(SP)
                005540  012746  000002                  MOV     #2,-(SP)
                005544  010600                          MOV     SP,R0
                005546  104415                          TRAP    C$PNTX
                005550  062706  000006                  ADD     #6,SP
     1582       005554  012737  000001  002170          MOV     #25.,FATFLG             ;DROP THIS UNIT AFTER ERROR MESSAGE
     1583       005562  010403                  25$:    MOV     R4,R3                   ;GET TSSR CONTENTS
     1584       005564  042703  176377                  BIC     #^CHIADDR,R3            ;CLEAR ALL BUT EXTENDED ADDRESS
     1585       005570  001411                          BEQ     30$                     ;DON'T PRINT IF ZERO
     1586       005572                                  PRINTX  #TEXASC,R3              ;PRINT THE EXTENDED ADDRESS BITS
                005606  010346                          MOV     R3,-(SP)
                005610  012746  006143                  MOV     #TEXASC,-(SP)
                005614  012746  000002                  MOV     #2,-(SP)
                005620  010600                          MOV     SP,R0
                005622  104415                          TRAP    C$PNTX
                005624  062706  000006                  ADD     #6,SP
     1587       005630  022704  100210          30$:    CMP     #100210,R4              ;CHECK FOR MEDIA ERROR
     1588       005634  001003                          BNE     31$                     ;BR, IF PROBABLY NOT TAPE ERROR
     1589       005636  012737  006032  002146          MOV     #EPRT3,EPRTSW           ;"PROBABLY MEDIA RELETED ERROR - BAD TAPE"
     1590       005644  005737  002146          31$:    TST     EPRTSW                  ;CHECK FOR THE SWITCH EMPTY
     1591       005650  001003                          BNE     310$                    ;BR, IF SWITCH IS NOT EMPTY
     1592       005652  012737  005672  002146          MOV     #EPRT1,EPRTSW           ;SET SWITCH TO DEFAULT
     1593       005660  013737  002146  005644  310$:   MOV     EPRTSW,32$+2            ;PUT REAL SWITCHABLE MESSAGE IN PLACE
     1594       005666                          32$:    PRINTB  #EPRT1                  ;PRINT THE ERROR MESSAGE
                005672  012746  005672                  MOV     #EPRT1,-(SP)
                005676  012746  000001                  MOV     #1,-(SP)
                005702  010600                          MOV     SP,R0
                005704  104414                          TRAP    C$PNTB
                005706  062706  000004                  ADD     #4,SP
     1595       005712  012737  005672  002146          MOV     #EPRT1,EPRTSW           ;RESET TO NORMAL ERROR POINTER
     1596       005720  000207                          RTS     PC                      ;RETURN TO CALLER
     1597
     1598       005672      045     116     045  EPRT1:  .ASCIZ  '%N%A *****CHECK CABLES BETWEEN CONTROLLER AND TRANSPORT******%S'
```

```
1599 005771     045     116     045  EPRT2:  .ASCIZ  '%N%A *****CHECK TRANSPORT******%S'
1600 006052     045     116     045  EPRT3:  .ASCIZ  '%N%A *****POSSIBLE MEDIA RELATED ERROR - BAD TAPE******%S'
1601 006133     045     116     045  TSSRFOR:        .ASCIZ  '%N%A TSSR = %O6'
1602 006143     045     116     045  TEXASC:         .ASCIZ  '%N%A Extended Address Bits = %O6'
1603 006203     045     116     045  TCOASC:         .ASCIZ  '%N%A Termination Class Code = %T'
1604 006245     045     116     045  TFCASC:         .ASCIZ  '%N%A Fatal Termination Class Code = %T'
1605 006314     045     116     045  TSSDEF:         .ASCIZ  '%N%A TSSR Bits Set: %T'
1606 006343     045     116     045  AMBTSSR:        .ASCIZ  '%N%A TSSR Contents Are Ambiguous'
1607                                                 .EVEN
1608 006404  006424  006447  006475  TCOCOD: .WORD   1$,2$,3$,4$,5$,6$,7$,8$
1609 006424     116     157     162  1$:     .ASCIZ  'Normal Termination'
1610 006447     124     145     162  2$:     .ASCIZ  'Termination Condition'
1611 006475     124     141     160  3$:     .ASCIZ  'Tape Status Alert'
1612 006537     106     165     156  4$:     .ASCIZ  'Function Reject'
1613 006557     122     145     143  5$:     .ASCIZ  'Recoverable Error - Tape Position One Record Down'
1614 006621     122     145     143  6$:     .ASCIZ  'Recoverable Error - Tape Was Not Moved'
1615 006675     125     156     162  7$:     .ASCIZ  'Unrecoverable Error'
1616 006714     106     141     164  8$:     .ASCIZ  'Fatal Controller Error'
1617                                                 .EVEN
1618
1619 006771  006754  007010  007021  TSFCOD: .WORD   1$,2$,3$,4$
1620 006754     111     156     164  1$:     .ASCIZ  'Internal Diagnostic Failure'
1621 007010     122     145     163  2$:     .ASCIZ  'Reserved'
1622 007021     102     165     163  3$:     .ASCIZ  'Bus Interface or Sanity Check Error'
1623 007065     122     145     163  4$:     .ASCIZ  'Reserved'
1624                                                 .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.
                                ;-
                                PRIPKT::
007076                                  SAVREG                          ;SAVE THE REGISTERS
007076                                  MOV     R0,R5                   ;SAVE NO. OF WORDS IN PACKET
007102  010005
007104  005737  003102                   TST     KTENABLE                ;ABOVE 28K UNDER TEST?
007110  001001                          BNE     10$                     ;BR IF YES
007112  005003                          CLR     R3                      ;SET HIGH ORDER ADDRESS TO 0
007114  010301                  10$:    MOV     R3,R1                   ;COPY HIGH ORDER ADDRESS
007116  010400                          MOV     R4,R0                   ;GET LOWER ADDRESS
007120  006100                          ROL     R0                      ;SHIFT BIT 15 INTO C BIT
007122  006101                          ROL     R1                      ;AND INTO HIGH ORDER.
007124                                  PRINTB  #PKTADD,R1,R4           ;PRINT PACKET ADDRESS
007124  010446                          MOV     R4,-(SP)
007126  010146                          MOV     R1,-(SP)
007130  012746  007302                  MOV     #PKTADD,-(SP)
007134  012746  000003                  MOV     #3,-(SP)
007140  010600                          MOV     SP,R0
007142  104414                          TRAP    C$PNTB
007144  062706  000010                  ADD     #10,SP
007150  010300                  15$:    MOV     R3,R0                   ;GET HIGH ORDER ADDRESS
007152  001404                          BEQ     20$                     ;BR IF NOT ABOVE 28K.
007154  010401                          MOV     R4,R1                   ;GET LOW ORDER ADDRESS
007156  004737  020304                  JSR     PC,SETMAP               ;SETUP PAR6 MAPPING FOR 18 BIT ADDRESS
007162  000004                          MOV     R0,R4                   ;GET RETURNED PAR6 ADDRESS BIAS
007164  005001                  20$:    CLR     R1                      ;SAVE WORD NUMBER
007166  012402                  25$:    MOV     (R4)+,R2                ;GET PACKET CONTENTS
007170                                  PRINTB  #PKTFRM,R1,R2           ;PRINT THE DATA
007170  010246                          MOV     R2,-(SP)
007172  010146                          MOV     R1,-(SP)
007174  012746  007244                  MOV     #PKTFRM,-(SP)
007200  012746  000003                  MOV     #3,-(SP)
007204  010600                          MOV     SP,R0
007206  104414                          TRAP    C$PNTB
007210  062706  000010                  ADD     #10,SP
007214  005201                          INC     R1                      ;NEXT WORD NUMBER
007216  020105                          CMP     R1,R5                   ;DONE ALL PACKET WORDS?
007220  002762                          BLT     25$                     ;LOOP TILL ALL DONE
007222                                  PRINTB  #PKTNEW                 ;JUST A COUPLE NEW LINES
007222  012746  007337                  MOV     #PKTNEW,-(SP)
007226  012746  000001                  MOV     #1,-(SP)
007232  010600                          MOV     SP,R0
007234  104414                          TRAP    C$PNTB
007236  062706  000004                  ADD     #4,SP
```

J4


```
   166  007242  000207                          RTS     PC              ;RETURN
   167
   168  007244     045     116     045  PKTFRM: .ASCIZ  '%N%A Packet Word 0%D1%A = %06'
   169  007332     045     116     045  PKTADD: .ASCIZ  '%N%A Packet Address = %01%05'
   170
   171  007337     045     116     045  PKTNEW: .ASCIZ  '%N%N%A  '
   172                                     .EVEN
   173
```

```
                                        .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
                                ;
                                ;-

007350                          PRIBXOR::
                                        SAVREG                          ;SAVE THE REGISTERS
007350  010203                          MOV     R2,R3                   ;EXPECTED DATA
007354                                  XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
007356  012700  177400                  MOV     #^C<377>,R0             ;BYTE MASK
007366  040001                          BIC     R0,R1                   ;SAVE LOW BYTE RECV
007372  040002                          BIC     R0,R2                   ;SAVE LOW BYTE EXPD
007374  040003                          BIC     R0,R3                   ;SAVE LOW BYTE XOR
007376                                  PRINTB  #XORBFOR,R2,R1,R3       ;PRINT THE MESSAGE
007400  010346                          MOV     R3,-(SP)
007402  010146                          MOV     R1,-(SP)
007404  010246                          MOV     R2,-(SP)
007406  012746  007432                  MOV     #XORBFOR,-(SP)
007412  012746  000004                  MOV     #4,-(SP)
007416  010600                          MOV     SP,R0
007420  104414                          TRAP    C^PNTB
007422  062706  000012                  ADD     #12,SP
007426  010300                          MOV     R3,R0                   ;R0 HAS XOR ON RETURN
007430  000207                          RTS     PC                      ;RETURN TO CALLER

007432  045  116  045  XORBFOR:                .ASCIZ  '%N%A EXPD: %O3%A RECV: %O3%A XOR: %O3'
                                        .EVEN
```

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

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

                PRIXOR::
                        SAVREG                          ;SAVE THE REGISTERS
007500  010203          MOV     R2,R3                   ;EXPECTED DATA
007502  040103          XOR     R1,R3                   ;FORM THE EXCLUSIVE OR
007506                  PRINTB  #XORFOR,R2,R1,R3 ;PRINT THE MESSAGE
007516  010346          MOV     R3,-(SP)
007520  010146          MOV     R1,-(SP)
007522  010246          MOV     R2,-(SP)
007524  012746  007550  MOV     #XORFOR,-(SP)
007530  012746  000004  MOV     #4,-(SP)
007534  010600          MOV     SP,R0
007536  104414          TRAP    C$PNTB
007540  062706  000012  ADD     #12,SP
007544  010300          MOV     R3,R0                   ;R0 HAS XOR ON RETURN
007546  000207          RTS     PC                      ;RETURN TO CALLER

007550  045  116  045  XORFOR: .ASCIZ  '%N%A EXPD: %06%A RECV: %06%A XOR: %06'
                        .EVEN
```

```
                                        .SBTTL  PRIEQU  - PRINT BIT NUMBERS AS ASCII EQUIVALENT
                                ;*
                                ;
                                ;ROUTINE TO CONVERT BIT VALUES TO ASCII AND PRINT THE STRING
                                ;THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                                ;
                                ;INPUTS:
                                ;
                                ;       R0      OCTAL VALUE TO CONVERT
                                ;       R1      TABLE OF POINTERS TO ASCII EQUIVALENT
                                ;
                                ;-
007616                          PRIEQU:
007616                                  SAVREG                          ;SAVE THE REGISTERS
007622  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
                                ;
                                ;-
007624                          PRIRAM:
007624                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
007630                                  PRINTB  #RAMFOR,R4              ;PRINT RAM ADDRESS IN ERROR
007630  010446                          MOV     R4,-(SP)
007632  012746  007654                  MOV     #RAMFOR,-(SP)
007636  012746  000002                  MOV     #2,-(SP)
007642  010600                          MOV     SP,R0
007644  104414                          TRAP    C$PNTB
007646  062706  000006                  ADD     #6,SP
007652  000207                          RTS     PC                      ;RETURN

007654   045   116   045  RAMFOR: .ASCIZ  '%N%A CONTROLLER RAM ADDRESS = %O6'
                                        .EVEN


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

```
1787                                    ;
1788                                    ;-
1789 007716                             PRIADD:
1790 007716                                     SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
1791 007722  013700  002202                     MOV     ERRHI,R0                ;GET HIGH ADDRESSS
1792 007726  013701  002204                     MOV     ERRLO,R1                ;GET LOW ADDRESS
1793 007732  010102                             MOV     R1,R2                   ;COPY LOW ADDRESS
1794 007734  006101                             ROL     R1                      ;SHIFT BIT 15 TO C BIT
1795 007736  006100                             ROL     R0                      ;SHIFT INTO HIGH ORDER
1796 007740                                     PRINTB  #PRIA0,R0,R2            ;PRINT MEMORY ADDRESS IN ERROR
     007740  010246                             MOV     R2,-(SP)
     007742  010046                             MOV     R0,-(SP)
     007744  012746  007766                     MOV     #PRIA0,-(SP)
     007750  012746  000003                     MOV     #3,-(SP)
     007754  010600                             MOV     SP,R0
     007756  104414                             TRAP    C$PNTB
     007760  062706  000010                     ADD     #10,SP
1797 007764  000207                             RTS     PC                      ;RETURN
1798
1799 007766     045     116     045  PRIA0:     .ASCIZ  '%N%A MEMORY ERROR ADDRESS = %01%05'
1800                                            .EVEN
1801
1802
1803                                            .SBTTL  PRITADD - PRINT MEMORY TEST ADDRESS
1804                                    ;+
1805                                    ;
1806                                    ;PRINT MEMORY ADDRESS
1807                                    ;THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
1808                                    ;
1809                                    ; IMPLICIT INPUTS
1810                                    ;
1811                                    ;       ERRHI   - HIGH ORDER ADDRESS
1812                                    ;       ERRLO   - LOW ORDER ADDRESS
1813                                    ;
1814                                    ;-
1815 010032                             PRITADD:
1816 010032                                     SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
1817 010036  013700  002202                     MOV     ERRHI,R0                ;GET HIGH ADDRESSS
1818 010042  013701  002204                     MOV     ERRLO,R1                ;GET LOW ADDRESS
1819 010046  010102                             MOV     R1,R2                   ;COPY LOW ADDRESS
1820 010050  006101                             ROL     R1                      ;SHIFT BIT 15 TO C BIT
1821 010052  006100                             ROL     R0                      ;SHIFT INTO HIGH ORDER
1822 010054                                     PRINTB  #PRIT0,R0,R2            ;PRINT MEMORY ADDRESS IN ERROR
     010054  010246                             MOV     R2,-(SP)
     010056  010046                             MOV     R0,-(SP)
     010060  012746  010102                     MOV     #PRIT0,-(SP)
     010064  012746  000003                     MOV     #3,-(SP)
     010070  010600                             MOV     SP,R0
     010072  104414                             TRAP    C$PNTB
     010074  062706  000010                     ADD     #10,SP
1823 010100  000207                             RTS     PC                      ;RETURN
1824
1825 010102     045     116     045  PRIT0:     .ASCIZ  '%N%A MEMORY TEST ADDRESS = %01%05'
1826                                            .EVEN
1827
1828
1829
```

```
1831                                    .SBTTL  SPACE   - SPACE RECORDS (FORWARD AND REVERSE) COMMAND
1832
1833                            ;+
1834                            ;
1835                            ;ROUTINE TO ISSUE A SPACE RECORDS
1836                            ;COMMAND (FORWARD OR REVERSE)
1837                            ;
1838                            ;INPUT:
1839                            ;
1840                            ;       R3      NUMBER OF RECORDS TO BE SPACED OVER
1841                            ;               BIT15 CONTROLS DIRECTION
1842                            ;               BIT15 = 0 IS FORWARD
1843                            ;               BIT15 = 1 IS REVERSE
1844                            ;       R5      FIRST DEVICE UNIBUS ADDRESS
1845                            ;
1846                            ;       REQUIRES A WRITE CHARACTERISTICS DONE PREVIOUSLY
1847                            ;
1848                            ;OUTPUT:
1849                            ;
1850                            ;       CARRY   SET - SPACE RECORDS COMMAND OK
1851                            ;               CLR - SPACE RECORDS FAILED
1852                            ;
1853                            ;
1854                            ;       R0      THE CONTENTS OF R4 IS MOVED TO R0
1855                            ;
1856                            ;
1857                            ;IMPLICIT OUTPUT:
1858                            ;
1859                            ;       TAPE HAS BEEN MOVED
1860                            ;
1861                            ;SIDE EFFECTS:
1862                            ;
1863                            ;
1864                            ;-
1865
1866 010144                     SPACE::
1867 010144                             SAVREG                          ;SAVE THE GENERAL REGISTERS
1868 010150  012737  000764  010340      MOV     #500.,SDELAY            ;SET UP DELAY
1869 010156  012737  140010  010330      MOV     #140010,80$             ;SET UP COMMAND, SPACE FORWARD
1870 010164  005703                     TST     R3                      ;CHECK FOR DIRECTION
1871 010166  100403                     BMI     5$                      ;BR, IF REVERSE INDICATED
1872 010170  010337  010332              MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
1873 010174  000407                     BR      10$                     ;GO DO COMMAND
1874 010176  042703  100000      5$:     BIC     #BIT15,R3               ;CLEAR DIRECTION BIT
1875 010202  010337  010332              MOV     R3,90$                  ;LOAD UP NUMBER OF RECORDS TO SPACE
1876 010206  052737  000400  010330      BIS     #BIT8,80$               ;SET REVERSE BIT IN COMMAND PACKET
1877 010214  012704  010330      10$:    MOV     #80$,R4                 ;SET UP R4 WITH PACKET ADDRESS
1878 010220  010465  177776              MOV     R4,TSDB(R5)             ;SEND OUT COMMAND
1879 010224  004737  017134      15$:    JSR     PC,WAITF                ;WAIT FOR SSR
1880 010230  103420                     BCS     20$                     ;BR, IF SSR IS SET AND OK
1881 010232                             DELAY   250                     ;DELAY ABOUT .25 SECONDS
     010232  012727  000250              MOV     #250,(PC)+
     010236  000000                      .WORD   0
     010240  013727  002116              MOV     L$DLY,(PC)+
     010244  000000                      .WORD   0
     010246  005367  177772              DEC     -6(PC)
     010252  001375                      BNE     .-4
```

```
        010254  005367  177756                  DEC     -2(PC)
        010260  001367                          BNE     .-20
  1882  010262  005337  010340                  DEC     SDELAY          ;BUMP DELAY COUNTER DOWN
  1883  010266  001356                          BNE     15$             ;BR. IF MORE DELAY
  1884  010270  000411                          BR      60$             ;BR IF TROUBLE CARRY = CLEAR
  1885  010272  016501  000000          20$:    MOV     TSSR(R5),R1     ;READ TSSR
  1886  010276  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
  1887  010302  020201                  25$:    CMP     R2,R1           ;ARE THEY OK
  1888  010304  001401                          BEQ     40$             ;BR. IF EQUAL = OK
  1889  010306  000402                          BR      60$             ;TROUBLE EXIT
  1890  010310  000261                  40$:    SEC                     ;SET CARRY NO TROUBLE
  1891  010312  000401                          BR      70$             ;EXIT
  1892  010314  000241                  60$:    CLC                     ;CARRY CLEAR = ERROR
  1893  010316                          70$:
  1894  010316  010400                          MOV     R4,R0           ;PASS PACKET ADDRESS
  1895  010320  000207                          RTS     PC              ;RETURN
```

```
                                        ;
                                        ;
                                        ;
                                        ;PACKET FOR SPACE COMMAND
                                        ;
1903 010322                                     .BLKB   10-<.-TUV2A&7>
                                        ;
                                        ;COMMAND WORD
1907 010330  000000                     80$:    .WORD
                                        ;NUMBER OF RECORDS TO BE SPACED OVER WORD
1909 010332  000000                     90$:    .WORD
1910 010334  000000                             .WORD
1911 010336  000000                             .WORD
1912 010340  000000                     SDELAY: .WORD   0               ;DELAY COUNTER
                                                .EVEN
```

```
                        .SBTTL  WRTCHR  - WRITE CHARACTERISTICS COMMAND

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

010342          WRTCHR::
010342                  SAVREG                          ;SAVE THE GENERAL REGISTERS
010346  005037  002174          CLR     BENBSW          ;CLEAR BUFFER ENABLE SWITCH
010352  010465  177776  10$:    MOV     R4,TSDB(R5)     ;SEND OUT COMMAND
010356  004737  017252          JSR     PC,CHKTSSR      ;WAIT FOR SSR
010362  103401                  BCS     20$             ;BR, IF SSR IS SET AND OK
010364  000423                  BR      60$             ;BR IF TROUBLE CARRY = CLEAR
010366  016501  000000  20$:    MOV     TSSR(R5),R1     ;READ TSSR
010372  012702  000200          MOV     #SSR,R2         ;SET UP EXPECTED
010376  032701  000100          BIT     #OFL,R1         ;WAS OFF LINE SET IN TSSR
010402  001402                  BEQ     25$             ;BR, IF NO OFL SET
010404  052702  000100          BIS     #OFL,R2         ;MAKE THEM LOOK ALIKE
010410  020201          25$:    CMP     R2,R1           ;ARE THEY OK
010412  001401                  BEQ     40$             ;BR, IF EQUAL = OK
010414  000407                  BR      60$             ;TROUBLE EXIT
010416  062704  000010  40$:    ADD     #8.,R4          ;POINT TO WRT CHARA DATA PACKET
010422  011403                  MOV     (R4),R3         ;GET ADDRESS OF MESSAGE BUFFER
010424  010337  002716          MOV     R3,MESBFA       ;STORE FOR PRINT ROUTINES
010430  000261                  SEC                     ;SET CARRY NO TROUBLE
010432  000401                  BR      70$             ;EXIT
010434  000241          60$:    CLC                     ;CARRY CLEAR = ERROR
010436  016500  000000  70$:    MOV     TSSR(R5),R0     ;RETURN TSSR CONTENTS
010442  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
                ;-
1997 010444     REWIND::
1998 010444             SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
1999 010450 012704 010540       MOV     #RWPACK,R4      ;GET PACKET ADDRESS
2000 010454 010465 177776       MOV     R4,TSDB(R5)     ;SEND PACKET ADDRESS TO EXECUTE
2001 010460 012703 000550       MOV     #360.,R3        ;ENOUGH TIME FOR 2400' REEL TO REWIND
2002 010464 004737 017134 10$:  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
2003 010470 103417              BCS     20$             ;LEAVE WHEN SSR IS SET
2004 010472                     DELAY   250.            ;WAIT FOR .25 SECONDS
     010472 012727 000372       MOV     #250.,(PC)+
     010476 000000              .WORD   0
     010500 013727 002116       MOV     L$DLY,(PC)+
     010504 000000              .WORD   0
     010506 005367 177772       DEC     -6(PC)
     010512 001375              BNE     .-4
     010514 005367 177756       DEC     -22(PC)
     010520 001367              BNE     .-20
2005 010522 005303              DEC     R3              ;BUMP COUNTER DOWN
2006 010524 001357              BNE     10$             ;KEEP GOING
2007 010526 000241              CLC                     ;CLEAR CARRY TO SET ERROR
2008 010530 010400      20$:    MOV     R4,R0           ;PASS THE PACKET ADDRESS
2009 010532 000207              RTS     PC              ;RETURN
2011 010534             .BLKB   10-<.-TUV2A67>
2013 010540     RWPACK:
2014 010540 102010              .WORD   102010          ;POSTION COMMAND (REWIND)
2015 010542 000000              .WORD   0               ;NOT USED
```

CKRAM - COMPARE RAM TO I/O PACKET

```
2017                                    .SBTTL  CKRAM   - COMPARE RAM TO I/O PACKET
2018
2019                                ;+
2020                                ;
2021                                ;ROUTINE TO READ THE FIRST 8 BYTES FROM RAM
2022                                ;MEMORY AND COMPARE THIS DATA TO A COMMAND PACKET.
2023                                ;
2024                                ;INPUT:
2025                                ;
2026                                ;       R4      ADDRESS OF THE COMMAND PACKET
2027                                ;       R5      FIRST DEVICE UNIBUS ADDRESS
2028                                ;
2029                                ;OUTPUT:
2030                                ;
2031                                ;       CARRY   SET - RAM MATCHES PACKET
2032                                ;               CLR - RAM DOES NOT MATCH PACKET
2033                                ;
2034                                ;IMPLICIT OUTPUT:
2035                                ;
2036                                ;       THE TABLE RAMDATA IS FILLED WITH THE
2037                                ;       DATA HELD IN RAM.
2038                                ;       RAMSIZ IS SET TO 8. FOR PRAMPKT ROUTINE
2039                                ;
2040                                ;SIDE EFFECTS:
2041                                ;
2042                                ;
2043                                ;-
2044
2045 010544                        CKRAM::
2046 010544                                SAVREG                  ;SAVE THE GENERAL REGISTERS
2047 010550  012701  002206                MOV     #RAMDATA,R1     ;ADDRESS TO SAVE THE RAM DATA
2048 010554  012702  000020                MOV     #RMPKTBEG,R2    ;BYTE ADDRESS OF FIRST RAM DATA
2049 010560  005003                        CLR     R3              ;CLEAR THE ERROR FLAG
2050 010562  004737  017252                JSR     PC,CHKTSSR      ;WAIT FOR SSR
2051 010566  004737  017252        10$:    JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
2052 010572  110265  177777                MOVB    R2,TSDBH(R5)    ;SELECT NEXT RAM ADDRESS
2053 010576  004737  017252                JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
2054 010602  116511  177776                MOVB    TSBAL(R5),(R1)  ;READ THE RAM DATA
2055 010606  122124                        CMPB    (R1)+,(R4)+     ;COMPARE TO EXPECTED
2056 010610  001401                        BEQ     20$             ;BRANCH IF OK
2057 010612  005203                        INC     R3              ;SET ERROR FLAG
2058 010614  005202                20$:    INC     R2              ;ADDRESS OF NEXT RAM LOCATION
2059 010616  020227  000027                CMP     R2,#RMPKTEND    ;REACHED END YET ?
2060 010622  003761                        BLE     10$             ;BRANCH TILL ALL READ
2061 010624  005703                        TST     R3              ;WAS AN ERROR FOUND ?
2062 010626  001402                        BEQ     30$             ;BRANCH IF NOT
2063 010630  000241                        CLC                     ;CLEAR CARRY TO SHOW ERROR
2064 010632  000401                        BR      50$             ;AND EXIT
2065 010634  000261                30$:    SEC                     ;SHOW GOOD COMPARE
2066 010636  012737  000010  002246  50$:  MOV     #8.,RAMSIZ      ;SETUP RAMSIZ FOR PRAMPKT ROUTINE
2067 010644  000207                        RTS     PC              ;RETURN
2068
```

```
                                        .SBTTL RAMER - READ AND DISPLAY SELECTED RAM
                                ;+
                                ;
                                ;ROUTINE TO READ THE SELECTED RAM LOCATIONS
                                ;
                                ;INPUT:
                                ;
                                ;       R5      FIRST DEVICE UNIBUS ADDRESS
                                ;       CONSOLE WILL ALSO BE PRINTED TO
                                ;
                                ;IMPLICIT OUTPUT:
                                ;
                                ;       THE TABLE RAMDATA IS FILLED WITH THE
                                ;       DATA HELD IN RAM.
                                ;
                                ;SIDE EFFECTS:
                                ;
                                ;
                                ;-
                                RAMER::
                                        SAVREG                  ;SAVE THE GENERAL REGISTERS
                                        MOV     RAMR5H,R5       ;RESET R5 TO FIRST DEVICE REGISTER
                                        MOV     #RAMDATA,R1     ;ADDRESS TO SAVE THE RAM DATA
                                        MOV     RAMHLD,R2       ;BYTE ADDRESS OF THE FIRST RAM DATA
                                        MOV     RAMSIZ,R3       ;SET THE SIZE OF THE READ UP
                                10$:    JSR     PC,CHKTSSR      ;WAIT FOR THE SSR TO SET
                                        MOVB    R2,TSD8H(R5)    ;SELECT NEXT RAM ADDRESS
                                        JSR     PC,CHKTSSR      ;WAIT FOR SSR TO SET
                                        MOVB    TS8AL(R5),(R1)+ ;READ THE RAM DATA
                                20$:    ADD     #1,R2           ;ADDRESS OF THE NEXT RAM LOCATION
                                        SOB     R3,10$          ;NUMBER OF LOCATIONS COUNTER
                                        MOV     RAMSIZ,R4       ;GET THE RAM SIZE
                                        MOV     RAMHLD,R2       ;GET THE STARTING RAM ADDRESS
                                        ADD     R2,R4           ;CALCULATE THE END ADDRESS
                                        SUB     #1,R4           ;CORRECT VALUE OF PRINTOUT
                                        PRINTX  #RAMIOP,R2,R4   ;RAM ADDRESS = 10 - 17, ETC.
                                        MOV     R4,-(SP)
                                        MOV     R2,-(SP)
                                        MOV     #RAMIOP,-(SP)
                                        MOV     #3,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
                                        ADD     #10,SP
                                        MOV     #RAMDATA,R1     ;ADDRESS OF WHERE RAM DATA IS
                                        MOV     RAMSIZ,R3       ;THE SIZE OF THE RAM FIELD READ
                                30$:    CLR     R4              ;NO EXTRA DATA LEFT OVER
                                        MOVB    (R1)+,R4        ;PICK UP BYTE OF RAM DATA
                                        BIC     #177400,R4      ;GET RID OF SIGN EXTEND
                                        PRINTX  #RAMPD,R4       ;"010 211 111 222 377 000 123 134 ETC."
                                        MOV     R4,-(SP)
                                        MOV     #RAMPD,-(SP)
                                        MOV     #2,-(SP)
                                        MOV     SP,R0
                                        TRAP    C$PNTX
                                        ADD     #6,SP
                                        SOB     R3,30$          ;LOOP UNTIL ALL PRINTED
```

```
2114 011026  000207                  50$:    RTS     PC              ;RETURN
2115
2116 011030  000000                  RAM%LD: .WORD   0               ;RAM ADDR HOLDER 1ST ADDRESS
2117 011032  000000                  RAMR5H: .WORD   0               ;HOLDS R5 FOR LATER
2118 011034     045     116     045  RAMIOP: .ASCIZ  '%N%A Ram Address (Octal) = %03%A - %03%N'
2119 011105     045     101     040  RAMPD:  .ASCIZ  '%A %03%A '
2120                                         .EVEN
2121
```

```
                                        .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:
                                ;
                                ;
                                ;-

011120                          CKRAM2::
011120                                  SAVREG                          ;SAVE THE GENERAL REGISTERS
011124  012701  002206                   MOV     #RAMDATA,R1             ;ADDRESS TO SAVE THE RAM DATA
011130  012702  000167                   MOV     #RMCHBEG,R2             ;BYTE ADDRESS OF FIRST RAM DATA
011134  005003                           CLR     R3                      ;CLEAR THE ERROR FLAG
011136  004737  017252                   JSR     PC,CHKTSSR              ;WAIT FOR SSR
011142  004737  017252           10$:    JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011146  110265  177777                   MOVB    R2,TSDBH(R5)            ;SELECT NEXT RAM ADDRESS
011152  004737  017252                   JSR     PC,CHKTSSR              ;WAIT FOR SSR TO SET
011156  116511  177776                   MOVB    TSBAL(R5),(R1)          ;READ THE RAM DATA
011162  122124                           CMPB    (R1)+,(R4)+             ;COMPARE TO EXPECTED
011164  001401                           BEQ     20$                     ;BRANCH IF OK
011166  005203                           INC     R3                      ;SET ERROR FLAG
011170  005202                   20$:    INC     R2                      ;ADDRESS OF NEXT RAM LOCATION
011172  012737  000010  002246           MOV     #8.,RAMSIZ              ;ASSUME NORMAL NOT SET
011200  020227  000176                   CMP     R2,#RMCHEND-2           ;REACHED END YET ?
011204  003756                           BLE     10$                     ;BRANCH TILL ALL READ
011206  005703                   27$:    TST     R3                      ;WAS AN ERROR FOUND ?
011210  001402                           BEQ     30$                     ;BRANCH IF NOT
011212  000241                           CLC                             ;CLEAR CARRY TO SHOW ERROR
011214  000401                           BR      50$                     ;AND EXIT
011216  000261                   30$:    SEC                             ;SHOW GOOD COMPARE
011220  000207                   50$:    RTS     PC                      ;RETURN
```

```
                        .SBTTL  CKMSG   - COMPARE WRITE CHAR. MESSAGE BUFFERS
                ;+
                ;
                ;ROUTINE TO COMPARE A WRITE CHARACTERISTICS EXPD AND RECV
                ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
                ;ERROR PRINT ROUTINES.
                ;
                ;INPUT:
                ;
                ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
                ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
                ;       R2      EXPD MESSAGE BUFFER ADDRESS
                ;OUTPUT:
                ;
                ;       CARRY   SET - MESSAGE BUFFERS MATCH
                ;               CLR -MESSAGE BUFFERS DON'T MATCH
                ;
                ;IMPLICIT OUTPUT:
                ;
                ;       EXPMSG          BUFFER IS SET TO EXPD DATA
                ;       RECMSG          BUFFER IS SET TO RECV DATA
                ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
                ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
                ;
                ;-
                CKMSG::
                        SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
002250                  MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
002252                  MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
003102                  TST     KTENABLE                ;TESTING ABOVE 28K?
                        BEQ     10$                     ;BR IF NO
020304                  JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
                        MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
                10$:    CLR     R4                      ;WORD IN BUFFER
                        CLR     R3                      ;CLEAR ERROR SEEN FLAG
                        MOV     R2,R5                   ;GET EXPD BUFFER ADDRESS
002266          15$:    MOV     (R2),EXPMSG(R4)         ;SAVE EXPD FOR ERROR REPORT
002432                  MOV     (R1),RECMSG(R4)         ;SAVE RECV FOR ERROR REPORT
                        CMP     (R2)+,(R1)+             ;EXPD EQUAL RECV?
                        BEQ     25$                     ;BR IF YES
                        INC     R3                      ;SET ERROR SEEN FLAG
000002          25$:    ADD     #2,R4                   ;POINT TO NEXT WORD ADDRESS
000014                  CMP     R4,#14                  ;DONE FIRST 7 WORDS?
                        BLE     15$                     ;BR IF NO
000200  000012          BIT     #X2.EXTF,XST2(R5)       ;IS EXTENDED FEATURES SET IN EXPD?
                        BEQ     50$                     ;BR IF NO
000016                  CMP     R4,#16                  ;DONE EXTENDED FEATURES WORD?
                        BLE     15$                     ;BR IF NO
                50$:    TST     R3                      ;ANY ERRORS SEEN?
                        BEQ     55$                     ;BR IF NO
                        CLC                             ;SET FAILURE
                        BR      60$                     ;
                55$:    SEC                             ;SET SUCCESS
                60$:    RTS     PC                      ;RETURN
```

```
                                        .SBTTL  CKMSG2  - COMPARE EXPD RECV MESSAGE BUFFERS
                                ;+
                                ;
                                ;ROUTINE TO COMPARE AN EXPECTED AND RECEIVED MESSAGE
                                ;BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
                                ;ERROR PRINT ROUTINES.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
                                ;       R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
                                ;       R2      EXPD MESSAGE BUFFER ADDRESS
                                ;       R3      NUMBER OF BYTES TO COMPARE
                                ;
                                ;OUTPUT:
                                ;
                                ;       CARRY   SET - MESSAGE BUFFERS MATCH
                                ;               CLR - MESSAGE BUFFERS DON'T MATCH
                                ;
                                ;IMPLICIT OUTPUT:
                                ;
                                ;       EXPMSG          BUFFER IS SET TO EXPD DATA
                                ;       RECMSG          BUFFER IS SET TO RECV DATA
                                ;       RCVHIADD        SET TO HIGH ORDER ADDRESS OF RECV
                                ;       RCVLOADD        SET TO LOW ORDER ADDRESS OF RECV
                                ;
011342                          CKMSG2::
                                        SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
011346  020327  000144                  CMP     R3,#RECMSG-EXPMSG;@@D IS COUNT ABOVE MAX ALLOWED?
011352  003412                          BLE     5$                      ;@@D BR IF NO
011354  012703  000144                  MOV     #RECMSG-EXPMSG,R3;@@D
011360                                  PRINTF  #DEBUGMSG               ;@@D
011360  012746  011474                  MOV     #DEBUGMSG,-(SP)
011364  012746  000001                  MOV     #1,-(SP)
011370  010600                          MOV     SP,R0
011372  104417                          TRAP    C$PNTF
011374  062706  000004                  ADD     #4,SP
011400  010037  002250          5$:     MOV     R0,RCVHIADD             ;SAVE RECV HIGH ADDRESS
011404  010137  002252                  MOV     R1,RCVLOAD              ;SAVE RECV LOW ADDRESS
011410  005737  003102                  TST     KTENABLE                ;TESTING ABOVE 28K?
011414  001403                          BEQ     10$                     ;BR IF NO
011416  004737  020304                  JSR     PC,SETMAP               ;RETURN ADDRESS BIASED TO PAR6 IN R0
011422  010001                          MOV     R0,R1                   ;GET RETURNED ADDRESS BIASED TO PAR6
011424  005004          10$:    CLR     R4                              ;WORD IN BUFFER
011426  005005                  CLR     R5                              ;CLEAR ERROR SEEN FLAG
011430  111264  002266  15$:    MOVB    (R2),EXPMSG(R4)         ;SAVE EXPD FOR ERROR REPORT
011434  111164  002432          MOVB    (R1),RECMSG(R4)         ;SAVE RECV FOR ERROR REPORT
011440  122221                  CMPB    (R2)+,(R1)+             ;EXPD EQUAL RECV?
011442  001401                  BEQ     25$                     ;BR IF YES
011444  005205                  INC     R5                      ;SET ERROR SEEN FLAG
011446  062704  000001  25$:    ADD     #1,R4                   ;POINT TO NEXT BYTE
011452  020403                  CMP     R4,R3                   ;DONE ALL BYTES?
011454  002001                  BGE     50$                     ;BR IF YES
011456  000764                  BR      15$                     ;DO NEXT BYTE
011460  005705          50$:    TST     R5                      ;ANY ERRORS SEEN?
011462  001402                  BEQ     55$                     ;BR IF NO
```

```
2282 011464  000241                        CLC                     ;SET FAILURE
2283 011466  000401                        BR      60$             ;
2284 011470  000261                55$:    SEC                     ;SET SUCCESS
2285 011472  000207                60$:    RTS     PC              ;RETURN
2286
2287 011474     120     122     117  DEBUGMSG:       .ASCIZ  'PROGRAM INTERNAL ERROR -CKMSG2 MESSAGE BUFFER EXCEEDED-';@@@D
2288 011564     045     116     045  FERCM:  .ASCII  /%N%A  ***/
2289 011575     040     040     124  ERCM:   .ASCIZ  /  TSSR ERROR CODE REC'D - /
2290 011630     056     056     056  SIMSG:  .ASCIZ  /.... AFTER DOING SOFT INIT/
2291 011663     124     105     123  TINERR: .ASCIZ  /TEST: .../
2292                                    .EVEN
```

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

                                        BGNMSG  SFIMSG
011676                          SFIMSG::
011676  004737  005264                  JSR     PC,PRITSR       ;PRINT CONTENTS OF TSSR REGISTER
011702  004737  020170                  JSR     PC,CKDROP       ;DROP UNIT, IF ALLOWED
011706                                  ENDMSG
011706                          L10003:
011706  104423                          TRAP    C$MSG

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

                                        BGNMSG  PKTSSR
011710                          PKTSSR::
011710  004737  005264                  JSR     PC,PRITSR       ;PRINT THE CONTENTS OF TSSR REGISTER
011714  012700  000004                  MOV     #4,R0           ;NO. OF WORDS IN PACKET
011720  004737  007076                  JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
011724  013700  002716                  MOV     MESBFA,R0       ;ADDRESS OF MESSAGE BUFFER
011730  005001                          CLR     R1              ;ASSUME NO HIGH MEMORY
011732  004737  014072                  JSR     PC,PRMESS       ;PRINT THE MESSAGE BUFFER ALSO
011736                                  ENDMSG
011736                          L10004:
011736  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
                                ;
                                ;-
```

```
2345
2346 011740                                    BGNMSG  PKTGETS
     011740                              PKTGETS::
2347 011740  004737  005264                    JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
2348 011744  012700  000002                    MOV     #2,R0           ;NO. OF WORDS IN GET STATUS PACKET
2349 011750  004737  007076                    JSR     PC,PRIPKT       ;PRINT THE CONTENTS OF COMMAND PACKET
2350 011754                                    ENDMSG
     011754                              L10005:
     011754  104423                            TRAP    C$MSG
2351
2352
2353                                        ;+
2354                                        ;PRINT TSSR ERRORS FOR INITIALIZATION TESTS
2355                                        ;
2356                                        ;INPUTS:
2357                                        ;
2358                                        ;       R1      TSSR CONTENTS
2359                                        ;       R4      ADDRESS OF COMMAND PACKET
2360                                        ;-
2361
2362 011756                                    BGNMSG  SFFMSG
     011756                              SFFMSG::
2363 011756  004737  005264                    JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
2364 011762                                    ENDMSG
     011762                              L10006:
     011762  104423                            TRAP    C$MSG
2365
2366
2367                                            .SBTTL  PKTMES  - PRINT TSSR AND MESSAGE BUFFER
2368                                        ;+
2369                                        ;
2370                                        ;PRINT ROUTINE TO PRINT THE CONTENTS OF TSSR AND MESSAGE
2371                                        ;BUFFER FOR ERROR REPORTS
2372                                        ;
2373                                        ;INPUTS:
2374                                        ;
2375                                        ;       R1      CONTENTS OF TSSR
2376                                        ;       R2      LOW ORDER MESSAGE BUFFER
2377                                        ;       R3      HIGH ORDER MESSAGE BUFFER ADDRESS
2378                                        ;       NOTE: R3 IS IGNORED IF KTENABLE FLAG IS CLEAR
2379                                        ;-
2380 011764                                    BGNMSG  PKTMES
     011764                              PKTMES::
2381 011764  004737  005264                    JSR     PC,PRITSSR      ;PRINT CONTENTS OF TSSR
2382 011770  010200                            MOV     R2,R0           ;LOW ORDER ADDRESS
2383 011772  010301                            MOV     R3,R1           ;HIGH ORDER ADDRESS
2384 011774  004737  014072                    JSR     PC,PRMESS       ;PRINT THE MESSAGE BUFFER
2385 012000                                    ENDMSG
     012000                              L10007:
     012000  104423                            TRAP    C$MSG
2386
```

```
2388                                            .SBTTL  ADDSSR  - PRINT TEST ADDRESS AND TSSR
2389                                    ;+
2390                                    ;PRINT ROUTINE TO PRINT THE CONTENTS OF
2391                                    ;TSSR AND A MEMORY TEST ADDRESS
2392                                    ;
2393                                    ;INPUTS:
2394                                    ;
2395                                    ;       R5      FIRST DEVICE UNIBUS ADDRESS
2396                                    ;       ERRHI   HIGH ORDER MEMORY TEST ADDRESS
2397                                    ;       ERRLO   LOW ORDER MEMORY TEST ADDRESS
2398                                    ;-
2399
2400 012002                                            BGNMSG  ADDSSR
     012002                             ADDSSR::
2401 012002  004737  010032                            JSR     PC,PRITADD      ;PRINT MEMORY TEST ADDRESS
2402 012006  016501  000000                            MOV     TSSR(R5),R1     ;GET CURRENT TSSR
2403 012012  004737  005264                            JSR     PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
2404 012016                                            ENDMSG
     012016                             L10010:
     012016  104423                             5$:     TRAP    C$MSG
2405
2406                                            .SBTTL  MSGEXP - PRINT WRITE CHAR. EXPD-RECV MESSAGE BUFFERS
2407                                    ;+
2408                                    ;
2409                                    ;PRINT ROUTINE TO PRINT WRITE CHARACTERISTIC MESSAGE BUFFER
2410                                    ;
2411                                    ;IMPLICIT INPUTS:
2412                                    ;
2413                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
2414                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
2415                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
2416                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
2417                                    ;-
2418
2419 012020                                            BGNMSG  MSGEXP
     012020                             MSGEXP::
2420 012020  012700  000007                            MOV     #7,R0           ;ASSUME NO EXT FEATURES
2421 012024  004737  015436                    5$:     JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
2422 012030                                            ENDMSG
     012030                             L10011:
     012030  104423                             5$:     TRAP    C$MSG
2423
2424
```

```
                                        .SBTTL  FIFEXP  - PRINT FIFO EXP/RECV DATA
                                ;+
                                ;
                                ;PRINT ROUTINE TO PRINT FIFO EXP/RECV DATA
                                ;
                                ;       R1      - BYTE COUNT
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       EXPMSG  - EXPECTED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY
                                ;       RECMSG  - RECEIVED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY)
                                ;-
                                        BGNMSG  FIFEXP
012032                          FIFEXP::
012032                                  PRINTX  #FIF1MSG,R1     ;PRINT BYTES TRANSFERRED
012032  010146                          MOV     R1,-(SP)
012034  012746  012104                  MOV     #FIF1MSG,-(SP)
012040  012746  000002                  MOV     #2,-(SP)
012044  010600                          MOV     SP,R0
012046  104415                          TRAP    C$PNTX
012050  062706  000006                  ADD     #6,SP
012054                                  PRINTX  #FIF2MSG        ;PRINT HEADER MSG
012054  012746  012153                  MOV     #FIF2MSG,-(SP)
012060  012746  000001                  MOV     #1,-(SP)
012064  010600                          MOV     SP,R0
012066  104415                          TRAP    C$PNTX
012070  062706  000004                  ADD     #4,SP
012074  010100                          MOV     R1,R0           ;GET BYTE COUNT
012076  004737  016006                  JSR     PC,PRBYTEXP     ;PRINT FIFO BYTES IN ERROR
012102                                  ENDMSG
012102                          L10012:
012102  104423                          TRAP    C$MSG
012104     045     116     045  FIF1MSG:        .ASCIZ  '<N><A NUMBER OF BYTES TRANSFERRED = <D2>'
012153     045     116     045  FIF2MSG:        .ASCIZ  '<N><A FIFO DATA BYTES IN ERROR:'
                                        .EVEN
```

```
2449                                            .SBTTL  MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS
2450                                    ;*
2451                                    ;
2452                                    ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
2453                                    ;
2454                                    ;
2455                                    ;IMPLICIT INPUTS:
2456                                    ;
2457                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
2458                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
2459                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
2460                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
2461                                    ;-
2462 012212                                    BGNMSG  MSGSTAT
     012212
2463 012212  012701  012254                MSGSTAT::    MOV     #STATCOD,R1     ;ASCII ADDRESS TABLE
2464 012216  012100                        10$:    MOV     (R1)+,R0        ;DONE ALL MSG LINES?
2465 012220  001410                                BEQ     20$             ;BR IF YES
2466 012222                                        PRINTX  R0              ;PRINT STATUS BIT NAMES
     012222  010046                                MOV     R0,-(SP)
     012224  012746  000001                        MOV     #1,-(SP)
     012230  010600                                MOV     SP,R0
     012232  104415                                TRAP    C$PNTX
     012234  062706  000004                        ADD     #4,SP
2467 012240  000766                                BR      10$             ;DO ANOTHER MSG LINE
2468 012242  012700  000012                20$:    MOV     #10.,R0         ;NUMBER OF WORDS IN A READ STATUS BUFFER
2469 012246  004737  015436                        JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
2470 012252                                        ENDMSG
     012252                                L10013:
     012252  104423                                TRAP    C$MSG
2471
2472 012254  012272  012334  012425        STATCOD:        .WORD   1$,2$,3$,4$,5$,6$,0
2473 012272    045     116     045         1$:.ASCIZ  '%N%A Tape Bus Signals in Word #8:'
2474
2475
2476 012334    045     116     045         2$:.ASCIZ  '%N%A        PARERR<15>  IEOT  <12>  IFMK  <9>  IRDY<6>  IRWD<2>'
2477 012425    045     116     045         3$:.ASCIZ  '%N%A        IRESV2<14>  IIDENT<11>  IHER  <8>  IONL<5>  IFBY<1>'
2478 012516    045     116     045         4$:.ASCIZ  '%N%A        IRESV1<13>  ICER  <10>  ISPEED<7>  ILDP<4>  IFPT<0>'
2479 012607    045     116     045         5$:.ASCIZ  '%N%A Tape Bus Signals in Word #9:'
2480 012651    045     116     045         6$:.ASCIZ  '%N%A        DATMIS<7>  ILW<6>  OUTRDY<5>  INRDY<4>'
2481                                               .EVEN
2482
2483
2484
2485                                            .SBTTL  MSGLOOP - PRINT LOOPBACK HEADER AND MESSAGE BUFFERS
2486                                    ;*
2487                                    ;
2488                                    ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
2489                                    ;
2490                                    ;IMPLICIT INPUTS:
2491                                    ;
2492                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
2493                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
2494                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
2495                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
2496                                    ;-
2497 012726                                    BGNMSG  MSGLOOP
```

F6


```
      012726                                MSGLOOP::
 2498 012726  012701  012770                        MOV     #LOOPCOD,R1      ;ASCII ADDRESS TABLE
 2499 012732  012100                        10$:    MOV     (R1)+,R0         ;DONE ALL MSG LINES?
 2500 012734  001410                                BEQ     20$              ;BR IF YES
 2501 012736                                        PRINTX  R0               ;PRINT STATUS BIT NAMES
      012736  010046                                MOV     R0,-(SP)
      012740  012746  000001                        MOV     #1,-(SP)
      012744  010600                                MOV     SP,R0
      012746  104415                                TRAP    C$PNTX
      012750  062706  000004                        ADD     #4,SP
 2502 012754  000766                                BR      10$              ;DO ANOTHER MSG LINE
 2503 012756  012700  000012                20$:    MOV     #10.,R0          ;NUMBER OF WORDS IN A READ STATUS BUFFER
 2504 012762  004737  015436                        JSR     PC,PRMSGEXP      ;PRINT EXPD/RECV MESSAGE BUFFERS
 2505 012766                                        ENDMSG
      012766                                L10014:
      012766  104423                                TRAP    C$MSG
 2506
 2507 012770  013010  013063  013162        LOOPCOD:        .WORD   1$,2$,3$,4$,5$,6$,7$,0
 2508 013010     045     116     045        1$:.ASCIZ  '#N#A Tape Bus Loopback Signals in Word #8:'
 2509 013063     045     116     045        2$:.ASCIZ  '#N#A      PARERR<15>          IRESV2<14>            IRESV1<13>'
 2510 013162     045     116     045        3$:.ASCIZ  '#N#A IHISP=>IEOT<12>    IWRT=>IIDENT<11>    IREV  =>ICER  <10>'
 2511 013261     045     116     045        4$:.ASCIZ  '#N#A IWFM =>IFMK<09>    IEDIT=>IHER <08>    IFAD  =>ISPEED<07>'
 2512 013360     045     116     045        5$:.ASCIZ  '#N#A ITADO=>IRDY<06>    ITAD1=>IONL <05>    IERASE=>ILDP  <04>'
 2513 013457     045     116     045        6$:.ASCIZ  '#N#A IREW =>IDBY<03>    IRWU =>IRWD <02>    IFEN  =>IFBY  <01>'
 2514 013556     045     116     045        7$:.ASCIZ  '#N#A IGO  =>IFPT<00>'
 2515                                                .EVEN
 2516
```

```
2518                                            .SBTTL  MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER
2519                                    ;+
2520                                    ;
2521                                    ;PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RECV
2522                                    ;
2523                                    ;
2524                                    ;IMPLICIT INPUTS:
2525                                    ;
2526                                    ;       EXPMSG  - EXPECTED MESSAGE BUFFER
2527                                    ;       RECMSG  - RECEIVED MESSAGE BUFFER
2528                                    ;       RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
2529                                    ;       RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
2530                                    ;-
2531 013604                                            BGNMSG  MSGSUB
     013604                             MSGSUB::
2532 013604  012700  000012                           MOV     #10.,R0         ;SIZE OF WRITE SUBSYSTEM BUFFER
2533 013610  004737  015436                           JSR     PC,PRMSGEXP     ;PRINT EXPD/RECV MESSAGE BUFFERS
2534 013614                                            ENDMSG
     013614                             L10015:
     013614  104423                                   TRAP    C$MSG
2535
2536
2537
2538
2539
2540                                            .SBTTL  MEMADD - PRINT MEMORY ADDRESS DATA ERROR
2541                                    ;+
2542                                    ;
2543                                    ;PRINT ROUTINE TO PRINT MEMORY ADDRESS DATA COMPARE ERROR
2544                                    ;
2545                                    ;IMPLICIT INPUTS:
2546                                    ;
2547                                    ;       ERRHI   - MEMORY ERROR HIGH ORDER ADDRESS
2548                                    ;       ERRLO   - MEMORY ERROR LOW ORDER ADDRESS
2549                                    ;       EXP     - EXPECTED DATA
2550                                    ;       RECV    - RECEIVED DATA
2551                                    ;-
2552 013616                                            BGNMSG  MEMADD
     013616                             MEMADD::
2553 013616  004737  007716                           JSR     PC,PRIADD       ;PRINT MEMORY ADDRESS IN ERROR
2554 013622  013701  002176                           MOV     EXPD,R1         ;GET EXPD DATA
2555 013626  013702  002200                           MOV     RECV,R2         ;GET RECEIVED DATA
2556 013632  004737  007500                           JSR     PC,PRIXOR       ;PRINT EXPD/RECV
2557 013636                                            ENDMSG
     013636                             L10016:
     013636  104423                                   TRAP    C$MSG
2558
```

```
                                        .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
                                ;-
                                PRAMPKT:
                                        SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
013644  012701  002206                  MOV     #RAMDATA,R1     ;DATA FROM THE RAM
013650  005002                          CLR     R2              ;INIT BYTE NUMBER
013652  122124                  5$:     CMPB    (R1)+,(R4)+     ;COMPARE EXPECTED, RECEIVED
013654  001000                          BNE     7$              ;BR IF NO MATCH
013656  116105  177777          7$:     MOVB    -1(R1),R5       ;GET RECV RAM DATA
013662  116403  177777                  MOVB    -1(R4),R3       ;GET EXPD PACKET DATA
013666                                  XOR     R5,R3           ;XOR EXPD/RECV
013676  042703  177400                  BIC     #177400,R3      ;LOW BYTE ONLY
013702  116137  177777  002200          MOVB    -1(R1),RECV     ;GET RECEIVED RAM DATA
013710  116437  177777  002176          MOVB    -1(R4),EXPD     ;GET EXPECTED RAM DATA
013716                                  PRINTB  #RAMASC,R2,RECV,EXPD,R3
013716  010346                          MOV     R3,-(SP)
013720  013746  002176                  MOV     EXPD,-(SP)
013724  013746  002200                  MOV     RECV,-(SP)
013730  010246                          MOV     R2,-(SP)
013732  012746  014006                  MOV     #RAMASC,-(SP)
013736  012746  000005                  MOV     #5,-(SP)
013742  010600                          MOV     SP,R0
013744  104414                          TRAP    C$PNTB
013746  062706  000014                  ADD     #14,SP
013752  005202                  10$:    INC     R2              ;UPDATE BYTE COUNT
013754  005737  002246                  TST     RAMSIZ          ;DEFAULT TO 8.?
013760  001404                          BEQ     15$             ;BR IF YES
013762  020237  002246                  CMP     R2,RAMSIZ       ;DONE ALL BYTES?
013766  003731                          BLE     5$              ;BR IF NO
013770  000403                          BR      25$             ;
013772  020227  000010          15$:    CMP     R2,#8.          ;DONE DEFAULT NUMBER OF BYTES?
013776  002725                  20$:    BLT     5$              ;BR IF NO
014000  005037  002246          25$:    CLR     RAMSIZ          ;SET DEFAULT RAMSIZ
014004  000207                          RTS     PC              ;RETURN
014006     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 WORD MESSAGE BUFFER RETURNED BY THE
                                ;TK-25.
                                ;
                                ;INPUT:
                                ;
                                ;       R0      LOW ORDER ADDRESS OF MESSAGE BUFFER
                                ;       R1      HIGH ORDER ADDRESS OF MESSAGE BUFFER
                                ;       NOTE: R1 IS IGNORED IF KTENABLE FLAG IS CLEAR
                                ;
                                ;THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
                                ;
                                ;-

014072                          PRMESS:
014072                                  SAVRLG                  ;SAVE THE REGISTERS
014076  010537  011032                  MOV     R5,RAMR5H       ;SAVE DEVICE REGISTER POINTER
014102  010005                          MOV     R0,R5           ;SAVE LOW ORDER ADDRESS
014104  005737  003102                  TST     KTENABLE        ;ADDRESS ABOVE 28K?
014110  001001                          BNE     10$             ;BR IF YES
014112  005001                          CLR     R1              ;SET HIGH ORDER ADDRESS TO 0
014114  010103                  10$:    MOV     R1,R3           ;SAVE HIGH ORDER ADDRESS
014116  006100                          ROL     R0              ;SHIFT BIT15 TO C BIT
014120  006101                          ROL     R1              ;SHIFT TO HIGH ORDER FOR PRINTOUT
014122                                  PRINTX  #PROASC,R1,R5   ;PRINT MESSAGE BUFFER ADDRESS
014122  010546                          MOV     R5,-(SP)
014124  010146                          MOV     R1,-(SP)
014126  012746  014730                  MOV     #PROASC,-(SP)
014132  012746  000003                  MOV     #3,-(SP)
014136  010600                          MOV     SP,R0
014140  104415                          TRAP    C$PNTX
014142  062706  000010                  ADD     #10,SP
014146  022715  177777                  CMP     #177777,(R5)    ;MESSAGE BUFFER FULL OF ONES
014152  001010                          BNE     15$             ;BR IF BUFFER IS PROBABLY OKAY
014154                                  PRINTX  #MESBFN         ;"MESSAGE BUFFER PROBABLY NOT VALID"
014154  012746  014650                  MOV     #MESBFN,-(SP)
014160  012746  000001                  MOV     #1,-(SP)
014164  010600                          MOV     SP,R0
014166  104415                          TRAP    C$PNTX
014170  062706  000004                  ADD     #4,SP
014174                          15$:    PRINTX  #PR1ASC         ;PRINT HEADER FOR CONTENTS
014174  012746  014775                  MOV     #PR1ASC,-(SP)
014200  012746  000001                  MOV     #1,-(SP)
014204  010600                          MOV     SP,R0
014206  104415                          TRAP    C$PNTX
014210  062706  000004                  ADD     #4,SP
014214  005004                          CLR     R4              ;NUMBER OF THE NEXT WORD
014216  010501                          MOV     R5,R1           ;COPY LOW ORDER ADDRESS
014220  010300                          MOV     R3,R0           ;COPY HIGH ORDER ADDRESS
014222  001403                          BEQ     20$             ;BR IF NOT ABOVE 28K
014224  004737  020304                  JSR     PC,SETMAP       ;SETUP PAR ADDRESS IN R0
014230  010005                          MOV     R0,R5           ;GET PAR FORMAT ADDRESS ABOVE 28K
014232                          20$:
014232                                  PRINTX  #MESHEA,(R5)+   ;PRINT "MESSAGE BUFFER HEADER ="
```

J6


```
        014232  012546                          MOV     (R5)+,-(SP)
        014234  012746  015033                  MOV     #MESHEA,-(SP)
        014240  012746  000002                  MOV     #2,-(SP)
        014244  010600                          MOV     SP,R0
        014246  104415                          TRAP    C$PNTX
        014250  062706  000006                  ADD     #6,SP
2647    014254                                  PRINTX  #DATAFL,(R5)+   ;PRINT "DATA FIELD LENGTH      ="
        014254  012546                          MOV     (R5)+,-(SP)
        014256  012746  015100                  MOV     #DATAFL,-(SP)
        014262  012746  000002                  MOV     #2,-(SP)
        014266  010600                          MOV     SP,R0
        014270  104415                          TRAP    C$PNTX
        014272  062706  000006                  ADD     #6,SP
2648    014276                                  PRINTX  #RBPCRA,(R5)+   ;PRINT "RESIDUAL BYTE COUNTER ="
        014276  012546                          MOV     (R5)+,-(SP)
        014300  012746  015145                  MOV     #RBPCRA,-(SP)
        014304  012746  000002                  MOV     #2,-(SP)
        014310  010600                          MOV     SP,R0
        014312  104415                          TRAP    C$PNTX
        014314  062706  000006                  ADD     #6,SP
2649    014320                                  PRINTX  #XSOCON,(R5)+   ;PRINT "XSTATO CONTENTS        ="
        014320  012546                          MOV     (R5)+,-(SP)
        014322  012746  015212                  MOV     #XSOCON,-(SP)
        014326  012746  000002                  MOV     #2,-(SP)
        014332  010600                          MOV     SP,R0
        014334  104415                          TRAP    C$PNTX
        014336  062706  000006                  ADD     #6,SP
2650    014342                                  PRINTX  #XS1CON,(R5)+   ;PRINT "XSTAT1 CONTENTS        ="
        014342  012546                          MOV     (R5)+,-(SP)
        014344  012746  015257                  MOV     #XS1CON,-(SP)
        014350  012746  000002                  MOV     #2,-(SP)
        014354  010600                          MOV     SP,R0
        014356  104415                          TRAP    C$PNTX
        014360  062706  000006                  ADD     #6,SP
2651    014364                                  PRINTX  #XS2CON,(R5)+   ;PRINT "XSTAT2 CONTENTS        ="
        014364  012546                          MOV     (R5)+,-(SP)
        014366  012746  015324                  MOV     #XS2CON,-(SP)
        014372  012746  000002                  MOV     #2,-(SP)
        014376  010600                          MOV     SP,R0
        014400  104415                          TRAP    C$PNTX
        014402  062706  000006                  ADD     #6,SP
2652    014406                                  PRINTX  #XS3CON,(R5)+   ;PRINT "XSTAT3 CONTENTS        ="
        014406  012546                          MOV     (R5)+,-(SP)
        014410  012746  015371                  MOV     #XS3CON,-(SP)
        014414  012746  000002                  MOV     #2,-(SP)
        014420  010600                          MOV     SP,R0
        014422  104415                          TRAP    C$PNTX
        014424  062706  000006                  ADD     #6,SP
2653    014430  022737  000001  002134          CMP     #1,TRANSTST     ;CHECK FOR RAM DUMP REQUIRED
2654    014436  001401                          BEQ     40$             ;BR, IF DUMP REQUIRED
2655    014440  000137  014550                  JMP     50$             ;NO DUMP
2656    014444                          40$:    PRINTX  #RAMFHR
        014444  012746  014552                  MOV     #RAMFHR,-(SP)
        014450  012746  000001                  MOV     #1,-(SP)
        014454  010600                          MOV     SP,R0
        014456  104415                          TRAP    C$PNTX
        014460  062706  000004                  ADD     #4,SP
```

```
2657 014464  012737  000010  002246          MOV     #3.,RAMSIZ      ;RAM FIELD IS 8 BYTES LONG
2658 014472  012737  000020  011030          MOV     #20,RAMHLD      ;FIELD STARTS AT 20 OCTAL (10 HEX)
2659 014500  004737  010646                  JSR     PC,RAMER        ;READ AND PRINT THEM
2660 014504  012737  000040  011030          MOV     #40,RAMHLD      ;FIELD STARTS AT 40 OCTAL (20 HEX)
2661 014512  004737  010646                  JSR     PC,RAMER        ;READ AND PRINT THEM
2662 014516  012737  000060  011030          MOV     #60,RAMHLD      ;FIELD STARTS AT 60 OCTAL (30 HEX)
2663 014524  004737  010646                  JSR     PC,RAMER        ;READ AND PRINT THEM
2664 014530  012737  000020  002246          MOV     #16.,RAMSIZ     ;RAM FIELD IS SIXTEEN BYTES LONG
2665 014536  012737  000100  011030          MOV     #100,RAMHLD     ;FIELD STARTS AT 100 OCTAL (40 HEX)
2666 014544  004737  010646                  JSR     PC,RAMER        ;READ AND PRINT THEM
2667 014550  000207                  50$:    RTS     PC              ;RETURN
2668 014552     045     116     045  RAMHDR: .ASCIZ  '%N%A ********** SPECIAL CONTROLLER RAM MEMORY DUMP **********'
2669 014650     045     116     045  MESBFN: .ASCIZ  '%N%A MESSAGE BUFFER CONTENTS PROBABLY NOT VALID'
2670 014730     045     116     045  PROASC: .ASCIZ  '%N%A Message Buffer Address = %01%05'
2671 014775     045     116     045  PR1ASC: .ASCIZ  '%N%A Message Buffer Contents:'
2672
2673 015033     045     116     045  MESHEA: .ASCIZ  '%N%A Message Buffer Header      = %06'
2674 015100     045     116     045  DATAFL: .ASCIZ  '%N%A Data Field Length          = %06'
2675 015145     045     116     045  RBPCRA: .ASCIZ  '%N%A Residual Byte Counter     = %06'
2676 015212     045     116     045  XS0CON: .ASCIZ  '%N%A XSTAT0 Contents           = %06'
2677 015257     045     116     045  XS1CON: .ASCIZ  '%N%A XSTAT1 Contents           = %06'
2678 015324     045     116     045  XS2CON: .ASCIZ  '%N%A XSTAT2 Contents           = %06'
2679 015371     045     116     045  XS3CON: .ASCIZ  '%N%A XSTAT3 Contents           = %06'
2680                                  .EVEN
```

```
                                        .SBTTL  PRMSGEXP - PRINT EXPD/RECV MESSAGE BUFFERS
                                ;+[B
                                ;
                                ;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
                                ;-
015436                          PRMSGEXP::
                                        SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
015442  010005                  MOV     R0,R5                   ;SAVE NUMBER OF WORDS
015444  013700  002252          MOV     RCVLOADD,R0             ;GET RECV LOW ADDRESS
015450  010004                  MOV     R0,R4                   ;COPY LOW ADDRESS
015452  013701  002250          MOV     RCVHIADD,R1             ;GET RECV HIGH ADDRESS
015456  006100                  ROL     R0                      ;SHIFT BIT15 TO C BIT
015460  006101                  ROL     R1                      ;SHIFT TO HIGH ORDER FOR PRINTOUT
015462                          PRINTX  #PRMSG0,R1,R4           ;PRINT MESSAGE BUFFER ADDRESS
015462  010446                  MOV     R4,-(SP)
015464  010146                  MOV     R1,-(SP)
015466  012746  015616          MOV     #PRMSG0,-(SP)
015472  012746  000003          MOV     #3,-(SP)
015476  010600                  MOV     SP,R0
015500  104415                  TRAP    C$PNTX
015502  062706  000010          ADD     #10,SP
015506                          PRINTX  #PRMSG1                 ;PRINT HEADER FOR CONTENTS
015506  012746  015663          MOV     #PRMSG1,-(SP)
015512  012746  000001          MOV     #1,-(SP)
015516  010600                  MOV     SP,R0
015520  104415                  TRAP    C$PNTX
015522  062706  000004          ADD     #4,SP
015526  005004                  CLR     R4                      ;NUMBER OF THE CURRENT WORD
015530  012701  002266          MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
015534  012702  002432          MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
015540  011100          20$:    MOV     (R1),R0                 ;GET EXPD
015542  011203                  MOV     (R2),R3                 ;GET RECV
015544                          XOR     R0,R3                   ;XOR EXPD/RECV
015554                          PRINTX  #PRMSG2,R4,(R1)+,(R2)+,R3
015554  010346                  MOV     R3,-(SP)
015556  012246                  MOV     (R2)+,-(SP)
015560  012146                  MOV     (R1)+,-(SP)
015562  010446                  MOV     R4,-(SP)
015564  012746  015721          MOV     #PRMSG2,-(SP)
015570  012746  000005          MOV     #5,-(SP)
015574  010600                  MOV     SP,R0
015576  104415                  TRAP    C$PNTX
015600  062706  000014          ADD     #14,SP
015604  005204                  INC     R4                      ;NUMBER OF THE NEXT
015606  020405                  CMP     R4,R5                   ;DONE ALL YET?
015610  002001                  BGE     50$                     ;BR IF YES
015612  000752                  BR      20$                     ;DO ANOTHER
015614  000207          50$:    RTS     PC                      ;RETURN
```

```
2718
2719 015616  045  116  045  PRMSG0: .ASCIZ  '%N%A Message Buffer Address = %01%05'
2720 015663  045  116  045  PRMSG1: .ASCIZ  '%N%A Message Buffer Contents:'
2721 015721  045  116  045  PRMSG2: .ASCIZ  '%N%A   WORD #%D2%A  EXPD: %06%A  RECV: %06%A  XOR: %06'
2722                         .EVEN
2723
```

```
                                        .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
                                ;-
016006                          PRBYTEXP::
016006                                  SAVREG                          ;SAVE R1-R5 UNTIL NEXT RETURN
016012  010005                          MOV     R0,R5                   ;SAVE NUMBER OF BYTES
016014  005037  002264                  CLR     PRMNO                   ;INIT ERROR COUNT
016020  005004                          CLR     R4                      ;NUMBER OF THE CURRENT BYTE
016022  012701  002266                  MOV     #EXPMSG,R1              ;GET EXPD BUFFER ADDRESS
016026  012702  002432                  MOV     #RECMSG,R2              ;GET RECV BUFFER ADDRESS
016032  111100                  20$:    MOVB    (R1),R0                 ;GET EXPD BYTE
016034  042700  177400                  BIC     #^C<377>,R0             ;CLEAR UPPER BYTE
016040  110037  016354                  MOVB    R0,PRBEXP               ;SAVE FOR ERROR REPORT
016044  111203                          MOVB    (R2),R3                 ;GET RECV BYTE
016046  042703  177400                  BIC     #^C<377>,R3             ;CLEAR UPPER BYTE
016052  110337  016356                  MOVB    R3,PRBREC               ;FOR ERROR REPORT
016056                                  XOR     R0,R3                   ;XOR EXPD/RECV
016066  122122                          CMPB    (R1)+,(R2)+             ;EXPD = RECV?
016070  001431                          BEQ     30$                     ;BR IF YES
016072  005237  002264                  INC     PRMNO                   ;UPDATE ERROR COUNT
016076  023727  002264  000010          CMP     PRMNO,#8.               ;PRINTED 8?
016104  101023                          BHI     30$                     ;BR IF YES
016106                          27$:    PRINTX  #PRBMSG,R4,PRBEXP,PRBREC,R3
016106  010346                          MOV     R3,-(SP)
016110  013746  016356                  MOV     PRBREC,-(SP)
016114  013746  016354                  MOV     PRBEXP,-(SP)
016120  010446                          MOV     R4,-(SP)
016122  012746  016222                  MOV     #PRBMSG,-(SP)
016126  012746  000005                  MOV     #5,-(SP)
016132  010600                          MOV     SP,R0
016134  104415                          TRAP    C$PNTX
016136  062706  000014                  ADD     #14,SP
016142                                  FORCEXIT        50$             ;BUG
016152  000404                          BR      35$                     ;BUG
016154                          30$:
016154                                  FORCERROR  27$,NOTSSR           ;BUG
016164                          35$:                                    ;BUG
016164  005204                          INC     R4                      ;NUMBER OF THE NEXT
016166  020405                          CMP     R4,R5                   ;DONE ALL YET?
016170  002001                          BGE     50$                     ;BR IF YES
016172  000717                          BR      20$                     ;DO ANOTHER
016174                          50$:    PRINTX  #PRBTOT,PRMNO           ;PRINT TOTAL ERROR COUNT
016174  013746  002264                  MOV     PRMNO,-(SP)
016200  012746  016307                  MOV     #PRBTOT,-(SP)
016204  012746  000002                  MOV     #2,-(SP)
016210  010600                          MOV     SP,R0
016212  104415                          TRAP    C$PNTX
```

PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER

```
     016214  062706  000006                  ADD     #6,SP
2768 016220  000207                          RTS     PC              ;RETURN
2769
2770 016222     045     116     045  PRBMSG: .ASCIZ  '<N><A   BYTE #D2<A  EXPD: #O3<A  RECV: #O3<A  XOR: #O3'
2771 016307     045     116     045  PRBTOT: .ASCIZ  '<N><A NUMBER OF BYTES IN ERROR = #D2'
2772                                 .EVEN
2773 016354  000000                 PRBEXP: .WORD   0               ;EXPD
2774 016356  000000                 PRBREC: .WORD   0               ;RECV
2775
```

```
                                        .SBTTL  EXPREC  - PRINT EXPD/RECV WORD DATA
                                ;+
                                ;
                                ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
                                ;
                                ;-
                                        BGNMSG  EXPREC
                                EXPREC::
016360  004737  007500                  JSR     PC,PRIXOR       ;PRINT THE DATA
                                        ENDMSG
                                L10017:
016364  104423                          TRAP    C$MSG
```

```
2795                                            .SBTTL  EXPBREC - PRINT EXPD/RECV BYTE DATA
2796                                    ;+
2797                                    ;
2798                                    ;PRINT ROUTINE TO DISPLAY BYTE EXPD/RECV DATA
2799                                    ;
2800                                    ;
2801                                    ;INPUTS:
2802                                    ;
2803                                    ;       R1      RECEIVED DATA BYTE
2804                                    ;       R2      EXPECTED DATA BYTE
2805                                    ;
2806                                    ;-
2807
2808 016366                                     BGNMSG  EXPBREC
     016366                             EXPBREC::
2809 016366  004737  007350                     JSR     PC,PRIBXOR      ;PRINT THE DATA
2810 016372                                     ENDMSG
     016372                             L10020:
     016372  104423                             TRAP    C$MSG
2811
2812
2813
2814
2815                                            .SBTTL  RAMERR  - PRINT RAM AND PACKET DATA
2816                                    ;+
2817                                    ;
2818                                    ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
2819                                    ;
2820                                    ;INPUTS:
2821                                    ;
2822                                    ;       R4      POINTER TO COMMAND PACKET
2823                                    ;
2824                                    ;IMPLICIT INPUTS:
2825                                    ;
2826                                    ;       RAMDATA         DATA AS READ FROM THE RAM
2827                                    ;       RAMSIZ          NUMBER OF BYTES IN PACKET
2828                                    ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
2829                                    ;
2830                                    ;IMPLICIT OUTPUTS:
2831                                    ;
2832                                    ;       RAMSIZ  SET TO 0
2833                                    ;-
2834
2835 016374                                     BGNMSG  RAMERR
     016374                             RAMERR::
2836 016374  004737  013640                     JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
2837 016400                                     ENDMSG
     016400                             L10021:
     016400  104423                             TRAP    C$MSG
2838
2839
2840                                            .SBTTL  RAMTADD - PRINT TEST ADDRESS, RAM AND PACKET DATA
2841                                    ;+
2842                                    ;
2843                                    ;PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
2844                                    ;
2845                                    ;INPUTS:
```

```
                                ;
                                ;       R4      POINTER TO COMMAND PACKET
                                ;
                                ;IMPLICIT INPUTS:
                                ;
                                ;       RAMDATA         DATA AS READ FROM THE RAM
                                ;       RAMSIZ          NUMBER OF BYTES IN PACKET
                                ;                       IF RAMSIZ=0 THEN DEFAULT TO 8.
                                ;       ERRHI           HIGH ORDER TEST ADDRESS
                                ;       ERRLO           LOW ORDER TEST ADDRESS
                                ;
                                ;IMPLICIT OUTPUTS:
                                ;
                                ;       RAMSIZ  SET TO 0
                                ;-
                                
                                        BGNMSG  RAMTADD
                                RAMTADD::
016402  004737  010032                  JSR     PC,PRITADD      ;PRINT TEST ADDRESS
016406  004737  013640                  JSR     PC,PRAMPKT      ;PRINT RAM/PACKET DATA
                                        ENDMSG
                                L10022:
016412  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::
016414  042701  177400                  BIC     #^C<377>,R1     ;SAVE EXPD RAM DATA BYTE
016420  042702  177400                  BIC     #^C<377>,R2     ;SAVE EXPD RAM DATA BYTE
016424  004737  007624                  JSR     PC,PRIRAM       ;PRINT THE RAM ADDRESS
016430  004737  007500                  JSR     PC,PRIXOR       ;PRINT THE DATA
                                        ENDMSG
                                L10023:
016434  104423                          TRAP    C$MSG
                                
                                        .SBTTL  TIMEXP  - PRINT TIMER A,B AND EXP/REC
                                ;+
                                ;
                                ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
                                ;AND TIMER A,B HEADER MESSAGE
                                ;
                                ;INPUTS:
                                ;
                                ;       R1      RECEIVED DATA
                                ;       R2      EXPECTED DATA
```

F7


```
2897                                    ;-
2898
2899 016436                                     BGNMSG  TIMEXP
     016436                             TIMEXP::
2900 016436                                     PRINTX  #TIMSGO         ;PRINT HEADER
     016436  012746  016464                     MOV     #TIMSGO,-(SP)
     016442  012746  000001                     MOV     #1,-(SP)
     016446  010600                             MOV     SP,R0
     016450  104415                             TRAP    C$PNTX
     016452  062706  000004                     ADD     #4,SP
2901 016456  004737  007500                     JSR     PC,PRIXOR       ;PRINT THE DATA
2902 016462                                     ENDMSG
     016462                             L10024:
     016462  104423                             TRAP    C$MSG
2903
2904
2905 016464     045     116     045    TIMSGO: .ASCIZ  '<N><A TIMER A STATUS IS IN BIT 3<N><A TIMER B STATUS IS IN BIT 2'
2906                                    .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
016564          BADSSR::
016564  010246          MOV     R2,-(SP)        ;SAVE DATA TRANSFERRED
016566  042702  177400  BIC     #177400,R2      ;GET JUST ONE BYTE
016572          PRINTB  #XFERASC,R2
016572  010246          MOV     R2,-(SP)
016574  012746  016624  MOV     #XFERASC,-(SP)
016600  012746  000002  MOV     #2,-(SP)
016604  010600          MOV     SP,R0
016606  104414          TRAP    C$PNTB
016610  062706  000006  ADD     #6,SP
016614  012602          MOV     (SP)+,R2        ;RESTORE R2
016616  004737  005264  JSR     PC,PRITSSR      ;DECODE TSSR CONTENTS
016622                  ENDMSG
016622                  L10025:
016622  104423                  TRAP    C$MSG
016624    045   116   045 XFERASC:          .ASCIZ  '%N%A Data Transferred = %03'
```

```
                        .SBTTL  GLOBAL SUBROUTINES SECTION

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

```
                                        .SBTTL  SOFINIT - SOFT INITIALIZE OF CONTROLLER

                                ;+
                                ;
                                ;ROUTINE TO DO A SOFT INITIALIZE OF THE CONTROLLER
                                ;BY WRITING INTO THE TSSR REGISTER. AFTER THE INIT,
                                ;THE TSSR REGISTER IS TESTED FOR ERRORS. ANY ERRORS
                                ;DETECTED SHOULD BE TREATED AS DEVICE FATAL ERRORS.
                                ;
                                ;INPUTS:
                                ;
                                ;       R5      ADDRESS OF FIRST RECISTER
                                ;
                                ;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
                                ;
                                ;-

016660                          SOFINIT::
016660                                  SAVREG                  ; SAVE THE REGISTERS
016664  012765  000000  000000          MOV     #0,TSSR(R5)     ; DO THE INIT.
016672  004737  017134                  JSR     PC,WAITF        ; WAIT FOR SSR
016676  016500  000000                  MOV     TSSR(R5),R0     ;GET THE TSSR REGISTER
016702  010004                          MOV     R0,R4           ;START SETUP OF EXPECTED TSSR
016704  042704  176277                  BIC     #^C<HIADDR!OFL>,R4 ;CLEAR OUT UNUSED BITS
016710  052704  002200                  BIS     #SSR!NBA,R4     ;R4 HAS EXPECTED CONTENTS
016714  020400                          CMP     R4,R0           ;ONLY EXPECTED BITS SET ?
016716  001402                          BEQ     5$              ;BRANCH IF OKAY
016720  000241                          CLC                     ;CLEAR THE CARRY FOR ERROR
016722  000401                          BR      10$             ;GO TO EXIT
016724  000261                  5$:     SEC                     ;SET THE CARRY BIT
016726  000207                  10$:    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
                                ;
                                ;-

016730                          CHKAMB:
016730                                  SAVREG                  ;SAVE THE GENERAL REGISTERS
016734  010004                          MOV     R0,R4           ;CONTENTS OF TSSR
016736  032700  100000                  BIT     #SC,R0          ;IS BIT 15 SET ?
016742  001004                          BNE     5$              ;BRANCH IF YES
016744  032700  174077                  BIT     #^C<NBA!OFL!SSR!HIADDR>,R0      ;ANY OTHER BITS SET ?
016750  001023                          BNE     40$             ;MUST BE AN ERROR
016752  000424                          BR      45$             ;RETURN WITH SUCCESS
016754  032700  000200          5$:     BIT     #SSR,R0         ;IS READY BIT SET ?
016760  001011                          BNE     10$             ;BRANCH IF READY BIT IS SET.
016762  032700  000040                  BIT     #BIT5,R0        ;IS FATAL ERROR BIT SET ?
016766  001414                          BEQ     40$             ;ERROR IF NOT
016770  042704  177761                  BIC     #^CTERCLS,R4    ;CLEAR ALL BUT TERMINATION CODE
016774  020427  000016                  CMP     R4,#16          ;ALL THREE BITS MUST BE SET
017000  001007                          BNE     40$             ;ERROR IF NOT SET
017002  000410                          BR      45$             ;OK IF ALL ARE SET
017004  032700  000040          10$:    BIT     #BIT5,R0        ;IS FATAL ERROR BIT SET ?
017010  001405                          BEQ     45$             ;ERROR IF BIT IS SET WITH SSR
017012  032700  000006                  BIT     #BIT2!BIT1,R0   ;IS THIS A FUNCTION REJECT
017016  001002                          BNE     45$             ;BR, IF TSSR IS OK
017020  000241                  40$:    CLC                     ;AMBIGUOUS CONTENTS
017022  000401                          BR      50$
017024  000261                  45$:    SEC                     ;SHOW SUCCESS - NO AMBIGUITY
017026  000207                  50$:    RTS     PC              ;RETURN TO CALLER
```

ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS

```
3028                                            .SBTTL  ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS
3029                                    ;
3030                                    ; DEFAULT DISPLAY INTERRUPT HANDLERS.
3031                                    ; IF DISPLAY TIME-OUT, REPORT DEV FATAL, AND ABORT PASS.
3032                                    ; OTHERWISE, SAVE CPU REGISTERS AND DISMISS.
3033                                    ;
3034
3035                                    ; BIT DEFINITIONS FOR "INTMASK" AND "INTFLAG" BYTES:
3036                                    ;
3037            000200                          IOKCKIN=BIT7            ; DON'T CHECK FOR BAD INTERRUPTS -- TEST WILL.
3038            000001                          IOKSTP=BIT0             ; EXPECT "STOP" INTERRUPT.
3039                                    ;
3040                                    ;INTERRUPT MASK -- SAYS EXPECTING INTERRUPTS
3041 017030      000                   INTMASK:        .BYTE   0
3042                                    ;INTERRUPT FLAG -- SAYS WE GOT ONE (IF POSITIVE)
3043 017031      000                   INTFLAG:        .BYTE   0
3044
3045                                    ;SAVED INTERRUPT VECTOR:
3046 017032  000000                    INTVEC: .WORD   0
3047                                    ;SAVE CPU PC
3048 017034  000000                    INTCPC: .WORD   0
3049
3050                                    ;SUBROUTINE TO ENABLE INTERRUPTS:
3051 017036  010046                    ENAINT: MOV     R0,-(SP)        ;SAVE R0
3052 017040  013700  002156                    MOV     IVEC,R0         ;GET POINTER TO VECTORS
3053 017044  012720  017102                    MOV     @INTR,(R0)+     ;SET UP INTERRUPT VECTOR
3054 017050  012720  000340                    MOV     #PRI07,(R0)+
3055 017054  012600                            MOV     (SP)+,R0        ;RESTORE R0
3056 017056  011646                            MOV     (SP),-(SP)
3057 017060  012766  000000  000002            MOV     #0,2(SP)        ;SET CPU TO LEVEL 0
3058 017066  000002                            RTI
3059
3060                                    ;SUBROUTINE TO DISABLE INTERRUPTS (RAISE PRIORITY TO LEVEL 7)
3061 017070  011646                    DSBINT: MOV     (SP),-(SP)
3062 017072  012766  000340  000002            MOV     #PRI07,2(SP)
3063 017100  000002                            RTI
3064
```

```
                                                .SBTTL  INTR    - INTERRUPT HANDLERS
                                                BGNSRV  INTR                    ;DEFINE INTERRUPT ENTRY
                                        INTR::
                                                MOV     #1,INTRECV              ;SET FLAG TO SHOW INTERRUPT RECEIVED
                                                CLRB    INTFLAG                 ;CLEAR FLAG TO SAY WE GOT INTERRUPT
                                                BITB    #IOKSTP,INTMASK         ;EXPECTING STOP INTERRUPT?
                                                BNE     1$                      ;BR IF YES
                                                BISB    #IOKSTP,INTFLAG         ;NO. SET THE ERROR FLAG.

                                        ;SAVE REGISTERS, MSG BUFFER, ETC.
                                        1$:
                                                ENDSRV
                                        L10026:
                                                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
                ;
017134          WAITF:: BREAK                   ; DO A SUPVSR BREAK FIRST.
017134  104422          TRAP    C$BRK
017136  012746  177776  MOV     #177776,-(SP)   ;BIG MSEC TIMER
017142                  DELAY   1               ;DELAY 100US
017142  012727  000001  MOV     #1,(PC)+
017146  000000          .WORD   0
017150  013727  002116  MOV     L$DLY,(PC)+
017154  000000          .WORD   0
017156  005367  177772  DEC     -6(PC)
017162  001375          BNE     .-4
017164  005367  177756  DEC     -22(PC)
017170  001367          BNE     .-20
017172  016500  000000  2$:     MOV     TSSR(R5),R0     ;READ THE TSSR REGISTER
017176  105700          TSTB    R0              ;TEST FOR READY BIT SET
                ;
017200  100421          BMI     3$              ; EXIT ON STOP FLAG.
017202                  DELAY   1               ; WAIT 100 USEC
017202  012727  000001  MOV     #1,(PC)+
017206  000000          .WORD   0
017210  013727  002116  MOV     L$DLY,(PC)+
017214  000000          .WORD   0
017216  005367  177772  DEC     -6(PC)
017222  001375          BNE     .-4
017224  005367  177756  DEC     -22(PC)
017230  001367          BNE     .-20
017232                  BREAK                   ; DO A SUPVSR BREAK FIRST.
017232  104422          TRAP    C$BRK
017234  005316          DEC     (SP)            ;REDUCE DELAY COUNT
017236  001355          BNE     2$              ;RETRY UNTIL TIMER EXPIRES
017240  000241          CLC                     ; C = 0, CONTROLLER STILL RUNNING...
017242  000401          BR      4$              ;...OR HUNG-UP AFTER 300 MSEC.
017244  000261          SEC             3$:     ; C = 1, CONTROLLER IS STOPPED.
017246  005326          DEC     (SP)+   4$:     ;RESTORE STACK WITHOUT CHANGING CARRY BIT
017250  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
                                ;
                                ;-

017252                          CHKTSSR:
017252  004737  017134                JSR     PC,WAITF        ;WAIT FOR READY
017256  103014                      BCC     20$             ;BRANCH IF TIME OUT
017260  004737  016730              JSR     PC,CHKAMB       ;TSSR AMBIGOUS?
017264  103006                      BCC     10$             ;BR IF YES
017266  032700  100000              BIT     #SC,R0          ;SPECIAL CONDITION SET?
017272  001405                      BEQ     15$             ;BR IF NO
017274  032700  074000              BIT     #<SCE!BIE!RMR!NXM>,R0   ;ANY ERROR BITS SET?
017300  001402                      BEQ     15$             ;BR IF NO
017302  000241          10$:        CLC                     ;SET FAILURE
017304  000401                      BR      20$             ;
017306  000261          15$:        SEC                     ;SET SUCCESS
017310  000207          20$:        RTS     PC              ;RETURN TO CALLER
```

```
3145                                            .SBTTL  XNXM    - CHECK FOR NONEXISTENT MEMORY
3146                                    ;*
3147                                    ; ROUTINE TO TEST FOR A NEXM IN THE RANGE (R1) THRU (R2).
3148                                    ; ON RETURN, IF "C" = 1, (R1) = NEXM ADDRESS.
3149                                    ;               "C" = 0, ALL ADDRESSES OK.
3150                                    ;
3151                                    ;CALL:  MOV ADR1,R1
3152                                    ;       MOV ADR2,R2
3153                                    ;       JSR PC,NXM
3154                                    ;       RETURN                  ;TEST "C" AND PROCEED.
3155                                    ;
3156 017312  012737  017344  000004    XNXM:   MOV     #2$,@#4         ; SET BUSERR VECTOR.
3157 017320  012737  000200  000006            MOV     #PRI04,@#6
3158 017326  005003                            CLR     R3              ;FLAG.
3159 017330  005711                    1$:     TST     (R1)            ;TEST THE ADDRESS(ES).
3160                                                                    ;IF ANY TRAP, CONTINUE AT 2$.
3161 017332  020102                            CMP     R1,R2           ;OTHERWISE, CONTINUE HERE.
3162 017334  001407                            BEQ     3$              ;BR IF FINISHED (NO NEXM'S).
3163 017336  062701  000002                    ADD     #2,R1           ;SET NEXT ADDRESS...
3164 017342  000772                            BR      1$              ;...AND CONTINUE.
3165
3166 017344  005103                    2$:     COM     R3              ;GOT ONE, SET FLAG...
3167 017346  012716  017354                    MOV     #3$,(SP)
3168 017352  000002                            RTI                     ;...AND DISMISS INTERRUPT...
3169 017354                            3$:     CLRVEC  #4              ;...AND GIVE BACK THE VECTOR.
     017354  012700  000004                    MOV     #4,R0
     017360  104436                            TRAP    C$CVEC
3170 017362  005703                            TST     R3              ;DID WE CATCH ONE ??
3171 017364  001401                            BEQ     .+4             ;NO, "C" = 0, SKIP NEXT.
3172 017366  000261                            SEC                     ;YES, "C" = 1, (R1) = NEXM ADDR.
3173 017370  000207                            RTS     PC
3174
3175
3176
3177
3178                                            .SBTTL  TSTLOOP - CHECK ITERATION COUNT
3179                                    ;*
3180                                    ; SUBROUTINE TO EXECUTE TEST ITERATIONS.
3181                                    ; EXIT WITH "C" SET IF LOOPS ALLOWED AND LOOP COUNT NON-ZERO.
3182                                    ; LOOP COUNTER IS SET BY "BEGIN,TEST" MACRO.
3183                                    ;
3184                                    ; CALL: LOOPTO  ARG
3185                                    ;
3186 017372                            TSTLOOP::
3187 017372  005737  002136                    TST     NOITS           ; ITERATIONS INHIBITED?
3188 017376  001006                            BNE     1$              ; YES.
3189 017400  005737  002152                    TST     QVP             ; NO.
3190 017404  100403                            BMI     1$              ;LOOPS DISALLOWED IN QUICK PASS.
3191 017406  005337  002164                    DEC     LOOPCNT         ; BUMP LOOP COUNTER.
3192 017412  001002                            BNE     2$
3193 017414  000241                    1$:     CLC                     ;LOOP DISALLOWED, OR DONE.
3194 017416  000401                            BR      3$
3195 017420  000261                    2$:     SEC                     ;LOOP ENABLED.
3196 017422  000207                    3$:     RTS     PC
```

TSTLOOP - CHECK ITERATION COUNT

```
                        .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
                ;
                ;-

017424                  TSTSETUP::
017424  010046          MOV     R0,-(SP)        ;SAVE THE TEST ID MESSAGE
017426  005037  003106  CLR     SIFLAG          ; CLEAR "SOFT INIT" FLAG
017432  005037  017672  CLR     ERRK            ; CLEAR LOCAL ERROR COUNTER.
017436  005037  005232  CLR     EXTA            ; CLEAR ERROR EXTENSION FLAG.
017442  105037  017030  CLRB    INTMASK         ; CLEAR INTERRUPT MASK (CHECK ERROR)
017446  013700  002150  MOV     UNITN,R0        ; GET THE UNIT NUMBER,
017452  006300          ASL     R0              ; ... AND MAKE IT A WORD OFFSET.
017454  005737  003062  TST     NODEV           ; DID STARTUP FIND THE DEVICE?
017460  001430          BEQ     4$              ; BR IF YES
017462  100010          BPL     3$              ; BR IF NOT IDLE
017464  052760  160000  003130  BIS     #160000,ERTABL(R0) ; FLAG ERROR IN THE ERROR TABLE
017472                  ERRDF   1,NXR,NXRERR    ; NO DEVICE HERE -- PRINT IT
017472  104455          TRAP    C$ERDF
017474  000001          .WORD   1
017476  003636          .WORD   NXR
017500  005176          .WORD   NXRERR
017502  000407          BR      2$
017504  052760  160001  003130  3$:     BIS     #160001,ERTABL(R0) ; FLAG ERROR IN THE ERROR TABLE
017512                  ERRDF   2,NOINIT        ; DEVICE NOT IDLE
017512  104455          TRAP    C$ERDF
017514  000002          .WORD   2
017516  004233          .WORD   NOINIT
017520  000000          .WORD   0
017522  012737  177777  003060  2$:     MOV     #-1,DUFLG       ; DROP THE UNIT
017530                  DODU    UNITN
017530  013700  002150  MOV     UNITN,R0
017534  104451          TRAP    C$DODU
017536                  DOCLN                   ; ABORT THE PASS
```

```
     017536  104444                          TRAP    C$DCLN
3245 017540  000423                          BR      5$
3246
3247 017542                          4$:     RFLAGS  R0              ; GET THE OPERATOR FLAGS.
     017542  104421                          TRAP    C$RFLA
3248 017544  032700  001000                  BIT     #PNT,R0         ; PRINT THE TEST NUMBERS?
3249 017550  001412                          BEQ     1$              ; BR IF NO
3250 017552  011600                          MOV     (SP),R0         ;GET THE ID MESSAGE
3251 017554                                  PRINTF  #TNAM,R0        ;DISPLAY THE TEST ID
     017554  010046                          MOV     R0,-(SP)
     017556  012746  017620                  MOV     #TNAM,-(SP)
     017562  012746  000002                  MOV     #2,-(SP)
     017566  010600                          MOV     SP,R0
     017570  104417                          TRAP    C$PNTF
     017572  062706  000006                  ADD     #6,SP
3252 017576  005237  002162          1$:     INC     TSTCNT          ; BUMP TEST COUNTER.
3253 017602                                  SETPRI  IPRI            ;PRIORITY THAT OF DEVICE
     017602  013700  002160                  MOV     IPRI,R0
     017606  104441                          TRAP    C$SPRI
3254 017610  005726                  5$:     TST     (SP)+           ;FIX UP THE STACK
3255 017612  013705  002154                  MOV     CSRADDR,R5      ; ADDRESS OF TSV REGISTERS ON UNIBUS
3256 017616  000207                          RTS     PC
3257 017620     045     123     045  TNAM:   .ASCIZ  '%S%T%A Test'
3258                                         .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).
                                ;
017634                          TSTEND: RFLAGS  R0
017634  104421                         TRAP    C$RFLA
017636  030027  020000                 BIT     R0,#IER
017642  001412                         BEQ     1$                      ; BR IF "IER" NOT SET.
017644                                 PRINTF  #ESUM,ERRK              ; PRINT ERROR COUNT.
017644  013746  017672                 MOV     ERRK,-(SP)
017650  012746  017674                 MOV     #ESUM,-(SP)
017654  012746  000002                 MOV     #2,-(SP)
017660  010600                         MOV     SP,R0
017662  104417                         TRAP    C$PNTF
017664  062706  000006                 ADD     #6,SP
017670  000207                 1$:     RTS     PC

017672  000000                 ERRK:   0                               ; LOCAL ERROR COUNT.
017674     045     101     040 ESUM:   .ASCIZ  /%A %D%A ERRORS/
017713     105     122     122 EMAXDU: .ASCIZ  /ERROR LIMIT REACHED -- DROPPING UNIT/
                                        .EVEN

                                        .SBTTL  INCERK  - INCREMENT LOCAL ERROR COUNT
                                ;+
                                ; ROUTINES TO INCREMENT LOCAL ERROR COUNT AND CHECK FOR LIMIT:
                                ;-
017760  005237  017672          INCERK: INC     ERRK                    ; INCREMENT LOCAL ERROR COUNT
017764  010046                         MOV     R0,-(SP)                ; SAVE R0
017766  013700  002150                 MOV     UNITN,R0                ; GET UNIT NUMBER,
017772  006300                         ASL     R0                      ; ... AND MAKE IT A WORD OFFSET.
017774  062700  003130                 ADD     #ERTABL,R0              ; R0 GETS ADDRESS OF ERROR TABLE ENTRY.
020000  005210                         INC     (R0)                    ; INCREMENT THE DEVICE ERROR COUNT
020002  032710  007777                 BIT     #7777,(R0)              ; DID WE OVERFLOW THE FIELD?
020006  001001                         BNE     1$                      ; BR IF NO.
020010  005310                         DEC     (R0)                    ; YES -- BACK IT UP TO 7777.
020012  012600                 1$:     MOV     (SP)+,R0                ; RESTORE R0
020014  000207                         RTS     PC                      ; RETURN TO CALLER.

020016  010046                 CKEMAX: MOV     R0,-(SP)                ; SAVE R0
020020  013700  002150                 MOV     UNITN,R0                ; GET UNIT NUMBER
020024  006300                         ASL     R0                      ; ... AND MAKE IT A WORD OFFSET
020026  016000  003130                 MOV     ERTABL(R0),R0           ; GET ERROR TABLE ENTRY
020032  042700  170000                 BIC     #170000,R0              ; EXTRACT ERROR COUNT FIELD
020036  020037  002142                 CMP     R0,GERRMAX              ; IS GLOBAL LIMIT EXCEEDED FOR THIS UNIT?
020042  103004                         BHIS    1$                      ; BR IF YES
020044  023737  017672  002140         CMP     ERRK,LERRMAX            ; IS LOCAL LIMIT EXCEEDED FOR THIS TEST?
020052  103417                         BLO     2$                      ; BR IF NO
020054                          1$:     RFLAGS  R0                      ; GET OPERATOR FLAGS
020054  104421                         TRAP    C$RFLA
020056  032700  000040                 BIT     #IDU,R0                 ; IS DROPPING INHIBITED?
020062  001013                         BNE     2$                      ; BR IF YES.
020064  012737  177777  003060         MOV     #-1,DUFLG               ; NO -- DROP THE UNIT
020072                                 ERRDF   4,EMAXDU
020072  104455                         TRAP    C$ERDF
020074  000004                         .WORD   4
020076  017713                         .WORD   EMAXDU
```

```
     020100  000000                          .WORD   0
3306 020102                                  DODU    UNITN
     020102  013700  002150                  MOV     UNITN,R0
     020106  104451                          TRAP    C$DODU
3307 020110                                  DOCLN
     020110  104444                          TRAP    C$DCLN
3308 020112  012600                  2$:     MOV     (SP)+,R0        ; RESTORE R0
3309 020114  000207                          RTS     PC              ; RETURN TO CALLER
3310                                         .SBTTL  FATCHK - INC FATAL ERRORS AND CHECK FOR LIMIT
3311                                 ;+
3312                                 ;
3313                                 ;       CHECK FATAL COUNTER, AFTER INC, FOR MORE THAN 25
3314                                 ;       ERRORS AND IF OVER CALL UNIT DROP ROUTINE
3315                                 ;
3316                                 ;-
3317 020116                          FATCHK:
3318 020116                                  SAVREG                  ;BETTER SAVE THE REGISTERS
3319 020122  013701  002150                  MOV     UNITN,R1        ;PICK UP THE UNIT NUMBER
3320 020126  006301                          ASL     R1              ;MAKE IT INTO A BYTE OFFSET
3321 020130  062761  000001  003130          ADD     #1,ERTABL(R1)   ;ADD 1 TO THE PROPER UNIT'S ERROR COUNTER
3322 020136  005237  002170                  INC     FATFLG          ;BUMP FATAL ERROR COUNTER
3323 020142  023727  002170  000031          CMP     FATFLG,#25.     ;CHECK AGAINST 25
3324 020150  002406                          BLT     9$              ;BR, IF LESS THAN 25 ERRORS
3325 020152                                  RFLAGS  R0              ;READ THE FLAGS INTO R0
     020152  104421                          TRAP    C$RFLA
3326 020154  032700  040000                  BIT     #BIT14,R0       ;BR, IF LOOP ON ERROR IS SET
3327 020160  001002                          BNE     9$              ;OTHERWISE NEVER BE ABLE TO SCOPE ETC.
3328 020162  004737  020170                  JSR     PC,CKDROP       ;DROP UNIT IF ALLOWED
3329 020166  000207                  9$:     RTS     PC              ;RETURN ETC.
3330                                 ;
3331                                 ;
3332                                 ;
```

```
                                        .SBTTL  CKDROP  - CHECK IF UNIT SHOULD BE DROPPED
                                ;+
                                ; CHECK IF UNIT SHOULD BE DROPPED
                                ;-
020170  010046                 CKDROP: MOV     R0,-(SP)
020172                                  FORCERROR       1$,NOTSSR
020202                                  RFLAGS  R0
020202  104421                         TRAP    C$RFLA
020204  032700  000040                 BIT     #IDU,R0
020210  001010                         BNE     1$
020212  011600                         MOV     (SP),R0
020214  012737  177777  003060         MOV     #-1,DUFLG
020222                                  DODU    UNITN
020222  013700  002150                 MOV     UNITN,R0
020226  104451                         TRAP    C$DODU
020230                                  DOCLN                   ;ABORT THE PASS
020230  104444                         TRAP    C$DCLN
020232  012600                 1$:     MOV     (SP)+,R0
020234  000207                         RTS     PC


                                        .SBTTL  CONFIG  - DETERMINE CONFIGURATION OF SYSTEM
                                ;
                                ; SUBROUTINE - DETERMINE CONFIGURATION OF TK-25 SYSTEM.
                                ;
020236                          CONFIG:
020236  004737  016660                 JSR     PC,SOFINIT
020242  000207                         RTS     PC
```

```
3364                                            .SBTTL  KTON,KTOFF      - ENABLE/DISABLE MEMORY MANAGEMENT
3365                                    ;
3366                                    ; SUBROUTINE - ENABLE MEM MGT.
3367                                    ;
3368 020244  005737  003100            KTON:    TST     KTFLG           ; GOT KT?
3369 020250  001403                             BEQ     1$              ; NO.
3370 020252  012737  000001  177572             MOV     #1,SR0          ; YES. ENABLE KT11.
3371 020260  000207                     1$:     RTS     PC
3372
3373
3374
3375                                    ;
3376                                    ; SUBROUTINE - DISABLE MEM MGT.
3377                                    ;
3378 020262  005737  003100            KTOFF:   TST     KTFLG           ; GOT KT11?
3379 020266  001405                             BEQ     1$              ; NO.
3380 020270  000240                             NOP
3381 020272  000240                             NOP
3382 020274  012737  000000  177572             MOV     #0,SR0          ; DISABLE KT.
3383 020302  000207                     1$:     RTS     PC
3384
3385
```

```
                        .SBTTL  SETMAP  - SETUP PAR6 MAPPING

                ;*
                ;
                ;THIS ROUTINE SETS UP KERNEL PAR6 TP HANDLE
                ;AN 18 BIT ADDRESS. THE OFFSET INTO THE PAGE
                ;IS RETURNED BIASED TO PAR6.
                ;
                ;INPUTS:
                ;
                ;       R0      HIGH ORDER ADDRESS BITS
                ;       R1      LOW ORDER ADDRESS BITS
                ;
                ;OUTPUTS:
                ;
                ;       R0      OFFSET INTO BLOCK WITH PAR6 BIAS (I.E. THE ADDRESS)
                ;       CARRY   SET IF SUCCESS
                ;               CLR IF ERROR
                ;-
                SETMAP:
020304                  SAVREG                  ;SAVE R1-R4 UNTIL NEXT RETURN
020304 005737 003100    TST     KTFLG           ;SYSTEM HAVE ABOVE 28K?
020310 001433           BEQ     10$             ;BR IF NO
020314 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
020350 042701 000177    BIC     #177,R1         ;ALINE FOR LOWER 4K BOUNDARY
020354 020137 003100    CMP     R1,KTFLG        ;HIGHER THAN EXISTING MEMORY?
020360 103011           BHIS    10$             ;BR IF YES
020362 010137 172354    MOV     R1,@#KIPAR6     ;SETUP MAPPING REGISTER PAR6
020366 042702 160000    BIC     #160000,R2      ;SETUP DISPLACEMENT IN PAGE
020372 062702 140000    ADD     #140000,R2      ;ADD IN PAR6 BIAS
020376 010200           MOV     R2,R0           ;RETURN IN R0
020400 000261           SEC                     ;SET SUCCESS
020402 000401           BR      15$             ;
020404 000241   10$:     CLC                     ;SET FAILURE
020406 000207   15$:     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
                ;-
                ;
020410          FILLMEM:
                        SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
020410 004737 020262            JSR     PC,KTOFF        ;DISABLE KT.
020414 010003                   MOV     R0,R3           ;COPY TEST PATTERN
020420 013701 003072            MOV     FREE,R1         ;GET FIRST FREE LOCATION
020422 013702 003074            MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
020426 010321           10$:    MOV     R3,(R1)+        ;STORE A BACKGROUND WORD
020432 005302                   DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
020434 003375                   BGT     10$             ;BR IF NO
020436 005737 003100            TST     KTFLG           ; GOT KT?
020440 001452                   BEQ     55$             ; NO. GET OUT.
020442 004737 020244            JSR     PC,KTON         ; YES. ENABLE KT.
020446 005000                   CLR     R0              ;HIGH ORDER ADDRESS START
020450 013701 003104            MOV     PST32W,R1       ;GET >28K START ADDRESS (IN 32W BLOCKS)
000006                          .REPT   6
                                CLC                     ;CLEAR C BIT
                                ROL     R1              ;CONVERT BLOCKS TO WORDS
                                ROL     R0              ;MAKE IT DOUBLE PRECISION
                                .ENDR
020524 004737 020304            JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
020530 010320           30$:    MOV     R3,(R0)+        ;STORE TEST PATTERN IN >26K ADDRESS
020532 020027 160000            CMP     R0,#160000      ;END OF PAR6 MAPPING AREA?
020536 103774                   BLO     30$             ;BR IF NO
020540 162700 020000            SUB     #20000,R0       ;BACKUP INTO PAR6 MAPPING BEGIN
020544 062737 000200 172354     ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
020552 023737 172354 003100     CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
020560 001402                   BEQ     50$             ;BR IF YES
020562 000137 020530            JMP     30$             ;KEEP GOING ON ETC.
020566 004737 020262    50$:    JSR     PC,KTOFF        ; DISABLE KT.
020572 000207           55$:    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
                                ;-
020574                          CMPMEM:
020574                                  SAVREG                  ;SAVE R1-R5 UNTIL NEXT RETURN
020600  010003                          MOV     R0,R3           ;COPY TEST PATTERN
020602  004737  020262                  JSR     PC,KTOFF        ;DISABLE KT.
020606  013701  003072                  MOV     FREE,R1         ;GET FIRST FREE LOCATION
020612  013702  003074                  MOV     FRESIZ,R2       ;SIZE OF FREE SPACE BELOW 28K.
020616  020311                  10$:    CMP     R3,(R1)         ;FREE SPACE LOCATION EQUAL TO EXPD?
020620  001411                          BEQ     15$             ;BR IF YES
020622  010137  002204                  MOV     R1,ERRLO        ;SAVE ADDRESS IN ERROR
020626  005037  002202                  CLR     ERRHI           ;NO HIGH ADDRESS
020632  010337  002176                  MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
020636  011137  002200                  MOV     (R1),RECV       ;SAVE RECV FOR ERROR REPORT
020642  000474                          BR      50$             ;
020644  005721                  15$:    TST     (R1)+           ;POINT TO NEXT ADDRESS
020646  005302                          DEC     R2              ;DONE ALL MEMORY IN FREE SPACE?
020650  003362                          BGT     10$             ;BR IF NO
020652  005737  003100                  TST     KTFLG           ; GOT KT?
020656  001472                          BEQ     55$             ; NO. GET OUT.
020660  004737  020244                  JSR     PC,KTON         ; YES. ENABLE KT.
020664  005000                          CLR     R0              ;HIGH ORDER ADDRESS START
020666  013701  003104                  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
020722  042701  000177                  BIC     #177,R1         ;ALINE 4K BOUNDARY
020726  010046                          MOV     R0,-(SP)        ;SAVE HIGH ORDER
020730  010146                          MOV     R1,-(SP)        ;SAVE LOW ORDER
020732  004737  020304                  JSR     PC,SETMAP       ;SETUP PAR6 MAPPING REGISTER
020736  010004                          MOV     R0,R4           ;COPY ADDRESS BIASED TO PAR6
020740  012601                          MOV     (SP)+,R1        ;RESTORE LOW ORDER IN NON PAR6 FORMAT
020742  012600                          MOV     (SP)+,R0        ;RESTORE HIGH ORDER IN NON PAR6 FORMAT
020744  020314                  30$:    CMP     R3,(R4)         ;ABOVE 28K LOCATION EQUAL EXPD?
020746  001411                          BEQ     32$             ;BR IF YES
020750  010037  002202                  MOV     R0,ERRHI        ;SAVE HIGH ORDER IN ERROR
```

```
3533 020754  010137  002204            MOV     R1,ERRLO        ;SAVE LOW ORDER IN ERROR
3534 020760  010337  002176            MOV     R3,EXPD         ;SAVE EXPD FOR ERROR REPORT
3535 020764  011437  002200            MOV     (R4),RECV       ;SAVE RECV FOR ERROR REPORT
3536 020770  000421                    BR      50$             ;
3537 020772  062701  000002    32$:    ADD     #2,R1           ;UPDATE NON PAR6 ADDRESS
3538 020776  005500                    ADC     R0              ;MAKE IT DOUBLE PRECISION ADD
3539 021000  062704  000002            ADD     #2,R4           ;UPDATE PAR FORMAT ADDRESS
3540 021004  020427  160000            CMP     R4,#160000      ;END OF PAR6 MAPPING AREA?
3541 021010  103755                    BLO     30$             ;BR IF NO
3542 021012  162704  020000            SUB     #20000,R4       ;BACKUP INTO PAR6 MAPPING BEGIN
3543 021016  062737  000200  172354    ADD     #200,@#KIPAR6   ;POINT TO NEXT 4K BLOCK >28K.
3544 021024  023737  172354  003100    CMP     @#KIPAR6,KTFLG  ;END OF MEMORY?
3545 021032  101744                    BLOS    30$             ;BR IF NO
3546 021034  004737  020262    50$:    JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
3547 021040  000241                    CLC                     ;SET FAILURE
3548 021042  000403                    BR      60$             ;
3549 021044  004737  020262    55$:    JSR     PC,KTOFF        ;TURN OFF MEMORY MAPPING
3550 021050  000261                    SEC                     ;SET SUCCESS
3551 021052  000207            60$:    RTS     PC
3552
```

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

021054                          REGSAV:
                                        BREAK                   ;LOOK FOR CNTL C
021054  104422                         TRAP    C$BRK
021056  010446                         MOV     R4,-(SP)
021060  010346                         MOV     R3,-(SP)
021062  010246                         MOV     R2,-(SP)
021064  010146                         MOV     R1,-(SP)
021066  010546                         MOV     R5,-(SP)
021070  016605  000012                 MOV     10.(SP),R5
021074  004736                         JSR     PC,@(SP)+
021076  012601                         MOV     (SP)+,R1
021100  012602                         MOV     (SP)+,R2
021102  012603                         MOV     (SP)+,R3
021104  012604                         MOV     (SP)+,R4
021106  012605                         MOV     (SP)+,R5
021110                                  BREAK                   ;LOOK FOR CNTL C
021110  104422                         TRAP    C$BRK
021112  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
                                ;
                                ;-

021114                          GETPAT::
                                        SAVREG                          ;SAVE THE GENERAL REGISTERS
021114                          1$:     GMANID  DATASC,PATDAT,0,377,0,377,NO
021120  104443                          TRAP    C$GMAN
021122  000406                          BR      10000$
021124  021150                          .WORD   PATDAT
021126  000022                          .WORD   T$CODE
021130  021152                          .WORD   DATASC
021132  000377                          .WORD   377
021134  000000                          .WORD   T$LOLIM
021136  000377                          .WORD   T$HILIM
021140                          10000$:
021140                                  BNCOMPLETE      1$      ;RETRY IF ERROR
021140  103367                          BCC     1$
021142  013700  021150                  MOV     PATDAT,R0       ;DATA PATTERN FROM OPERATOR
021146  000207                          RTS     PC              ;RETURN TO CALLER

                                ;+
                                ;LOCAL DATA AREA
                                ;-

021150  000000                 PATDAT: .WORD   0               ;TEMPORARY STORAGE FOR DATA
021152  105  116  124           DATASC: .ASCIZ  'ENTER DATA PATTERN'
                                        .EVEN
```

```
3626                                            .SBTTL  GETSEL  - ISSUE MENU AND GET OPERATOR RESPONSE
3627                                    ;+
3628                                    ;ROUTINE TO ISSUE A MENU AND GET
3629                                    ;THE OPERATOR'S RESPONSE.
3630                                    ;INPUTS:
3631                                    ;
3632                                    ;       R0      ADDRESS OF ASCIZ STRING OF MENU
3633                                    ;       R1      MAXIMUM ALLOWABLE OPERATOR RESPONSE
3634                                    ;OUTPUTS:
3635                                    ;
3636                                    ;       R0      NUMBER OF THE OPERATOR'S SELECTION
3637                                    ;-
3638 021176                            GETSEL::
3639 021176                                    SAVREG                          ;SAVE GENERAL REGISTERS
3640 021202  010002                            MOV     R0,R2                   ;SAVE THE MENU ADDRESS
3641 021204  010203                    1$:     MOV     R2,R3                   ;START OF MENU STRING
3642 021206  005713                    2$:     TST     (R3)                    ;END OF ASCII ?
3643 021210  001412                            BEQ     3$                      ;BRANCH IF ALL LINES DISPLAYED
3644 021212                                    PRINTF  #SELASC,(R3)+           ;DISPLAY THE MENU
     021212  012346                            MOV     (R3)+,-(SP)
     021214  012746  021362                    MOV     #SELASC,-(SP)
     021220  012746  000002                    MOV     #2,-(SP)
     021224  010600                            MOV     SP,R0
     021226  104417                            TRAP    C$PNTF
     021230  062706  000006                    ADD     #6,SP
3645 021234  000764                            BR      2$
3646 021236                            3$:     GMANID  MENASC,MENRES,D,-1,0,-1,NO
     021236  104443                            TRAP    C$GMAN
     021240  000406                            BR      10001$
     021242  021416                            .WORD   MENRES
     021244  000042                            .WORD   T$CODE
     021246  021367                            .WORD   MENASC
     021250  177777                            .WORD   -1
     021252  000000                            .WORD   T$LOLIM
     021254  177777                            .WORD   T$HILIM
     021256                                 10001$:
3647 021256                                    BNCOMPLETE      1$              ;RETRY IF ERROR
     021256  103352                            BCC     1$
3648 021260  013700  021416                    MOV     MENRES,R0               ;GET THE OPERATOR'S REPLY
3649 021264  020001                            CMP     R0,R1                   ;COMPARE TO MAXIMUM ALLOWED
3650 021266  101411                            BLOS    5$                      ;BRANCH IF OK
3651 021270                                    PRINTF  #MENERR                 ;DISPLAY ERROR MESSAGE
     021270  012746  021314                    MOV     #MENERR,-(SP)
     021274  012746  000001                    MOV     #1,-(SP)
     021300  010600                            MOV     SP,R0
     021302  104417                            TRAP    C$PNTF
     021304  062706  000004                    ADD     #4,SP
3652 021310  000735                            BR      1$                      ;RETRY
3653 021312  000207                    5$:     RTS     PC                      ;RETURN TO CALLER
3654 021314     045     116     045    MENERR: .ASCIZ  '%NA *** Menu Selection Too Large ***'
3655 021362     045     116     045    SELASC: .ASCIZ  '%NT'
3656 021367     105     156     164    MENASC: .ASCIZ  'Enter Menu Selection: '
3657                                            .EVEN
3658 021416  000000                    MENRES: .WORD   0
```

```
3660                                            .SBTTL  CHKMAN  - CHECK MANUAL INTERVENTION LEGALITY
3661                                    ;+
3662                                    ;
3663                                    ;ROUTINE TO TEST FOR MANUAL INTERVENTION LEGALITY.
3664                                    ;
3665                                    ;INPUT:
3666                                    ;
3667                                    ;       NONE.
3668                                    ;
3669                                    ;OUTPUT:
3670                                    ;
3671                                    ;       CARRY   0       MANUAL INTERVENTION NOT ALLOWED
3672                                    ;               1       MANUAL INTERVENTION IS OK
3673                                    ;
3674                                    ;SIDE EFFECTS:
3675                                    ;
3676                                    ;       A MESSAGE IS DISPLAYED WARNING THAT TEST IS
3677                                    ;       NOT EXECUTED IF MANUAL INTERVENTION IS NOT
3678                                    ;       ALLOWED.
3679                                    ;
3680                                    ;-
3681
3682 021420                             CHKMAN::
3683 021420                                     SAVREG                  ;SAVE THE REGISTERS
3684 021424                                     MANUAL                  ;SEE IF MANUAL INTERVENTION OK
    021424  104450                              TRAP    C$MANI
3685 021426                                     BCOMPLETE 1$            ;BRANCH IF ALLOWED
    021426  103411                              BCS     1$
3686 021430                                     PRINTF  @NOMAN          ;PRINT THE WARNING MESSAGE
    021430  012746  021454                      MOV     @NOMAN,-(SP)
    021434  012746  000001                      MOV     #1,-(SP)
    021440  010600                              MOV     SP,R0
    021442  104417                              TRAP    C$PNTF
    021444  062706  000004                      ADD     #4,SP
3687 021450  000241                             CLC                     ;CLEAR CARRY FOR ERROR
3688 021452  000207                     1$:     RTS     PC              ;RETURN
3689
3690 021454     045     116     045     NOMAN:  .ASCIZ  '%NMA *** Manual Intervention not Allowed - Test Aborted ***'
3691                                             .even
```

```
3693                                                    .SBTTL  ENVIRN  - SETUP FREE DIAGNOSTIC SPACE
3694                                                    ;
3695                                                    ; SUBROUTINE TO SET-UP VARIOUS ENVIRONMENTAL PARAMETERS.
3696                                                    ;
3697 021550                                            ENVIRN: MEMORY  R0
     021550  104431                                            TRAP    C$MEM
3698 021552  010037  003072                                    MOV     R0,FREE         ; GET 1ST FREE ADDRESS...
3699 021556  062737  000002  003072                            ADD     #2,FREE
3700 021564  011037  003074                                    MOV     (R0),FRESIZ     ;...AND WORD COUNT.
3701 021570  162737  000004  003074                            SUB     #4,FRESIZ
3702 021576  013702  002012                                    MOV     L$UNIT,R2       ; GET NUMBER OF UNITS
3703 021602  162737  000007  003074  10$:                     SUB     #7,FRESIZ       ; TAKE AWAY 7 WORDS PER UNIT
3704 021610  005302                                            DEC     R2
3705 021612  001373                                            BNE     10$
3706 021614  013700  003072                                    MOV     FREE,R0         ;GET FIRST FREE ADDRESS
3707 021620  063700  003074                                    ADD     FRESIZ,R0       ;POINT TO LAST FREE ADDRESS
3708 021624  162700  000002                                    SUB     #2,R0           ;BACKUP 1 WORD
3709 021630  010037  003076                                    MOV     R0,FREEHI       ;STORE LAST FREE ADDRESS
3710 021634  000207                                            RTS     PC              ;RETURN
3711
```

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

021636                          KTINIT:
021636  005037  003100                  CLR     KTFLG           ; INIT >28K MEMORY FLAG
021642  005037  003102                  CLR     KTENABLE        ; INIT TEST >28K FLAG
021646  023727  002120  001577          CMP     L$HIME,#1577    ; GOT ENOUGH MEMORY (>28K)?
021654  101444                          BLOS    9$              ; NO.
021656  013700  000004                  MOV     @#ERRVEC,R0     ; SAVE OLD ERR VEC PTR.
021662  012737  021754  000004          MOV     #2$,@#ERRVEC    ; SET ERR VEC PTR.
021670  005737  177572                  TST     @#SR0           ; GOT KT11?
021674  000240                          NOP                     ;  (TRAP IF NO).
021676  013737  002120  003100          MOV     L$HIME,KTFLG    ; YES. SET KT FLAG.
021704  042737  000177  003100          BIC     #177,KTFLG      ;
021712  010037  000004                  MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
021716  005000                          CLR     R0              ; R0 = AR DATA.
021720  012701  172340                  MOV     #KIPAR0,R1      ; R1 = KI REGS PTR.
021724  012761  077406  177740  1$:     MOV     #77406,-40(R1)  ; SET DESCRIPTOR REG.
021732  010021                          MOV     R0,(R1)+        ; SET KIPAR REG.
021734  062700  000200                  ADD     #200,R0         ; BUMP AR DATA BY "4K".
021740  020027  002000                  CMP     R0,#2000        ; AT "I/O"?
021744  001367                          BNE     1$              ; NO.
021746  012741  177600                  MOV     #177600,-(R1)   ; YES. SET KTPAR7 FOR I/O.
021752  000405                          BR      9$
                                ;
021754  012716  021762          2$:     MOV     #6$,(SP)        ; SET UP RETURN
021760  000002                          RTI                     ; RTI TO NEXT LOCATION
                                ;
021762  010037  000004          6$:     MOV     R0,@#ERRVEC     ; RESTORE OLD ERR VEC PTR.
                                ;
021766  000207                  9$:     RTS     PC
```

F9


```
3765                                            .SBTTL  PROTECTION TABLE
3766 021770                                     BGNPROT
     021770                             L$PROT::
3767 021770  177777  177777  177777             .WORD   -1, -1, -1, -1  ;NO DEVICE PROTECTION REQUIRED.
3768 022000                                     ENDPROT
3769
```

```
3771                                            .SBTTL  INITIALIZE SECTION
3772
3773                                    ;++
3774                                    ;THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
3775                                    ;AT THE BEGINNING OF EACH PASS.
3776                                    ;
3777                                    ;IF "START" OR "RESTART", SET QUICK-PASS FLAG AND BUS-INIT.
3778                                    ;IF "CONTINUE", NOTHING IS REQUIRED.
3779                                    ;
3780                                    ;--
3781                                    ;+
3782                                    ;INSERT TEMPORARY JUMP TO ODT
3783                                    ;-
3784 022000                                     BGNINIT
     022000                             L$INIT::
3785 022000                             40$:
3786 022000  012737  005672  002146             MOV     #EPRT1,EPRTSW   ;SET UP PRIMARY MESSAGE FOR REPLACEMENT
3787 022006  005037  003106                     CLR     SIFLAG          ;CLEAR "SOFT INIT" FLAG
3788 022012  005037  003102                     CLR     KTENABLE        ;CLEAR TEST ABOVE 28K FLAG
3789 022016  005037  002246                     CLR     RAMSIZ          ;CLEAR RAM SIZE FOR RAMERR ROUTINE
3790 022022                                     READEF  #EF.CONTINUE
     022022  012700  000036                     MOV     #EF.CONTINUE,R(
     022026  104447                             TRAP    C$REFG
3791 022030                                     BNCOMPLETE 1$
     022030  103023                             BCC     1$
3792 022032  023737  002150  002012             CMP     UNITN,L$UNIT    ;UNIT IN RANGE?
3793 022040  103064                             BHIS    4$              ;BR IF NO.
3794 022042  005737  003060                     TST     DUFLG           ;DROPPED UNIT?
3795 022046  100466                             BMI     NXTU            ;BR IF YES
3796 022050  013701  002150                     MOV     UNITN,R1
3797 022054  006301                             ASL     R1
3798 022056  005761  003130                     TST     ERTABL(R1)
3799 022062  001512                             BEQ     SETU
3800 022064  032761  040000  003130             BIT     #BIT14,ERTABL(R1) ;DROPPED?
3801 022072  001054                             BNE     NXTU
3802 022074                                     EXIT    INIT            ;DO NOTHING IF "CONTINUE".
     022074  104432                             TRAP    C$EXIT
     022076  000412                             .WORD   L10030-.
3803 022100                             1$:     READEF  #EF.NEW
     022100  012700  000035                     MOV     #EF.NEW,R0
     022104  104447                             TRAP    C$REFG
3804 022106                                     BNCOMPLETE NXTU         ;TAKE NEXT UNIT IF NOT NEW PASS.
     022106  103046                             BCC     NXTU
3805 022110                                     READEF  #EF.START
     022110  012700  000040                     MOV     #EF.START,R0
     022114  104447                             TRAP    C$REFG
3806 022116                                     BCOMPLETE 2$
     022116  103404                             BCS     2$
3807 022120                                     READEF  #EF.RESTART
     022120  012700  000037                     MOV     #EF.RESTART,R0
     022124  104447                             TRAP    C$REFG
3808 022126                                     BNCOMPLETE 31$
     022126  103025                             BCC     31$
3809 022130                             2$:                             ;1ST PASS, BUS-INIT...
3810 022130                                     BRESET                  ;BUS RESET.
     022130  104433                             TRAP    C$RESET
3811 022132  005037  002162                     CLR     TSTCNT          ;NUMBER OF TESTS RUN IN PASS
```

```
3812 022136  005037  002170                    CLR     FATFLG          ;RESET FLAG TO ZERO "FATAL ERRORS"
3813 022142  005037  003332           19$:     CLR     SKIPT           ;CLEAR THE SUBTEST "SKIPPER"
3814 022146                           20$:
3815 022146  012737  177777  002152            MOV     #-1,QVP         ;...QUICK VERIFY...
3816 022154  004737  021550                    JSR     PC,ENVIRN       ;SET ENVIRONMENT.
3817 022160  004737  021636                    JSR     PC,KTINIT       ;INITIALIZE KT MEMORY MANAGEMENT
3818 022164  012700  003130                    MOV     #ERTABL,R0
3819 022170  005020                   30$:     CLR     (R0)+           ;CLEAR THE ERROR TABLE
3820 022172  020027  003330                    CMP     R0,#ERTABE
3821 022176  103774                           BLO     30$
3822 022200  000404                           BR      4$
3823 022202  005037  002152           31$:     CLR     QVP
3824 022206  000137  022256                    JMP     PASRPT          ;GO REPORT THE STATUS
3825
3826 022212                           4$:
3827 022212  012737  177777  002150   NEWPAS: MOV     #-1,UNITN       ;INIT UNIT NUMBER...
3828 022220  005037  002166                    CLR     DEVCNT          ;CLEAR COUNT OF DEVICES RUNNING
3829 022224                           NXTU:    BREAK
     022224  104422                           TRAP    C$BRK
3830 022226  005237  002150                    INC     UNITN           ;...AND SET NEXT UNIT NUMBER.
3831 022232  023737  002150  002012            CMP     UNITN,L$UNIT
3832 022240  103423                           BLO     SETU
3833 022242  012737  177777  003060            MOV     #-1,DUFLG
3834 022250  000401                           BR      11$
3835 022252                                    DOCLN                   ;ABORT, NO MORE UNITS.
     022252  104444                           TRAP    C$DCLN
3836 022254  000240                   11$:     NOP
3837 022256                           PASRPT:
3838 022256  023727  002012  000001            CMP     L$UNIT,#1       ;HOW MANY UNITS SELECTED?
3839 022264  101752                           BLOS    NEWPAS          ;BR IF ONLY 1
3840 022266  005737  002166                    TST     DEVCNT          ;ARE ANY STILL RUNNING?
3841 022272  001747                           BEQ     NEWPAS          ;BR IF NO
3842 022274                                    RFLAGS  R0
     022274  104421                           TRAP    C$RFLA
3843 022276  032700  000100                    BIT     #ISR,R0         ;SHOULD WE PRINT STATISTICS
3844 022302  001343                           BNE     NEWPAS          ;BR IF NO
3845
3846 022304                                    DORPT
     022304  104424                           TRAP    C$DRPT
3847 022306  000741                           BR      NEWPAS
3848 022310                           10$:
3849
3850 022310                           SETU:    GPHARD  UNITN,R0        ;GET UNIT N P-TABLE POINTER.
     022310  013700  002150                    MOV     UNITN,R0
     022314  104442                           TRAP    C$GPHRD
3851 022316                                    BNCOMPLETE NXTU         ;BR IF UNIT NOT AVAILABLE.
     022316  103342                           BCC     NXTU
3852 022320  005037  003060                    CLR     DUFLG           ;CLEAR "DROPPED" FLAG.
3853 022324  005237  002166                    INC     DEVCNT
3854 022330  012001                           MOV     (R0)+,R1        ;GET 1ST REGISTER ADDRESS.
3855 022332  010137  002154                    MOV     R1,CSRADDR      ;ADDRESS OF REGISTERS OF UNIT UNDER TEST
3856
3857 022336  012001                           MOV     (R0)+,R1        ;GET VECTOR ADDRESS.
3858 022340  011002                           MOV     (R0),R2         ;GET INTERRUPT PRIORITY
3859 022342  010237  002160                    MOV     R2,IPRI         ;SET INTERRUPT PRIORITY.
3860 022346  010137  002156                    MOV     R1,IVEC         ;SET INTERRUPT VECTOR POINTER...
3861 022352  012721  017102                    MOV     #INTR,(R1)+     ;...VECTOR...
```

```
3862 022356  010221                          MOV     R2,(R1)+        ;...AND PRIORITY.
3863
3864 022360                          1$:
3865                                 ;       TST     QVP             ;1ST PASS ??
3866                                 ;       BEQ     5$              ;NO, SKIP THE PASS 1 STUFF.
3867
3868                                 ;
3869                                 ;1ST PASS, CHECK THAT DEVICE ADDRESSES ARE VALID, AND
3870                                 ;THAT THE DISPLAY STATUS IS PROPERLY INITIALIZED.
3871                                 ;
3872 022360  013701  002150                  MOV     UNITN,R1
3873 022364  006301                          ASL     R1
3874 022366  052761  100000  003130          BIS     #BIT15,ERTABL(R1) ;SAY DEVICE RUNNING
3875 022374  005037  005232                  CLR     EXTA            ;CLEAR ERROR EXTENSION FLAG.
3876 022400  023727  002012  000001          CMP     L$UNIT,#1       ;ARE WE TESTING MULTIPLE UNITS?
3877 022406  101416                          BLOS    10$             ;BR IF NO.
3878 022410                                  RFLAGS  R0              ;YES -- GET OPERATOR FLAGS.
     022410  104421                          TRAP    C$RFLA
3879 022412  032700  001000                  BIT     #PNT,R0         ;SHOULD WE PRINT UNIT #?
3880 022416  001412                          BEQ     10$             ;BR IF NOT.
3881 022420                                  PRINTF  #PUNIT,UNITN    ;PRINT THE UNIT #
     022420  013746  002150                  MOV     UNITN,-(SP)
     022424  012746  022512                  MOV     #PUNIT,-(SP)
     022430  012746  000002                  MOV     #2,-(SP)
     022434  010600                          MOV     SP,R0
     022436  104417                          TRAP    C$PNTF
     022440  062706  000006                  ADD     #6,SP
3882 022444                          10$:
3883 022444  005037  003062                  CLR     NODEV
3884 022450  013701  002154                  MOV     CSRADDR,R1      ;ADDRESS OF FIRST REGISTER
3885 022454  010102                          MOV     R1,R2           ;START OF REGISTERS
3886 022456  062702  000000                  ADD     #TSSR,R2        ;ADDRESS OF TSSR REGISTER
3887 022462  004737  017312                  JSR     PC,XNXM         ;TEST BOTH CONTROLLER REGISTERS...
3888 022466  103005                          BCC     2$              ;...AND BR IF ALL OK.
3889 022470  010137  003062                  MOV     R1,NODEV        ;FLAG DEVICE AS NON-EXISTENT
3890 022474  012737  177777  003060          MOV     #-1,DUFLG       ;DROP THIS UNIT.
3891 022502                          2$:
3892                                 ;
3893                                 ;FINALLY, SET CPU PRIORITY AND WE'RE DONE.
3894                                 ;
3895 022502                          5$:     SETPRI  #PRI00          ;ENABLE INTERRUPTS.
     022502  012700  000000                  MOV     #PRI00,R0
     022506  104441                          TRAP    C$SPRI
3896 022510                                  ENDINIT
     022510                          L10030:
     022510  104411                          TRAP    C$INIT
3897
3898 022512     045     116     045  PUNIT:  .ASCIZ  /%N%N%A***** TESTING UNIT %D2%A *****/
3899                                          .EVEN
```

```
3901                                            .SBTTL  ADD AND DROP UNITS SECTIONS
3902
3903                                    ;++
3904                                    ; THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
3905                                    ; TO BE (A) ADDED TO THE TEST LIST FOR THE FIRST TIME,
3906                                    ;    OR (B) RE-INSERTED IF IT HAD BEEN PREVIOUSLY DROPPED.
3907                                    ;--
3908 022560                                     BGNAU
     022560                             L$AU::
3909 022560  010001                            MOV     R0,R1           ; GET UNIT TO BE ADDED (R0)
3910 022562  006301                            ASL     R1              ; MAKE IT A WORD INDEX
3911 022564  052761  100000  003130            BIS     #100000,ERTABL(R1) ; SET THE "ACTIVE" BIT
3912 022572  042761  040000  003130            BIC     #40000,ERTABL(R1)  ; CLEAR THE "DROPPED" BIT
3913 022600                                    PRINTF  #1$,R0
     022600  010046                            MOV     R0,-(SP)
     022602  012746  022626                    MOV     #1$,-(SP)
     022606  012746  000002                    MOV     #2,-(SP)
     022612  010600                            MOV     SP,R0
     022614  104417                            TRAP    C$PNTF
     022616  062706  000006                    ADD     #6,SP
3914 022622                                    EXIT    AU
     022622  000167                            .WORD   J$JMP
     022624  000026                            .WORD   L10031-2-.
3915 022626     045     116     045    1$:     .ASCIZ  /%N%A  UNIT %D%A ADDED/
3916                                            .EVEN
3917
3918 022654                                     ENDAU                   ; UNUSED.
     022654                             L10031:
     022654  104452                            TRAP    C$AU
3919                                    ;++
3920                                    ; THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
3921                                    ; TO BE REMOVED FROM THE TEST LIST.
3922                                    ;
3923                                    ; SUPVSR DOES THE "DROPPING".  THIS IS JUST TO TELL THE MAN.
3924                                    ; "DROPPED" UNITS ARE RE-SELECTED ON OPERATOR "STA" OR "ADD"
3925                                    ; COMMAND, OTHERWISE REMAIN INACTIVE.  THE "DISPLAY" COMMAND
3926                                    ; WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
3927                                    ; WHICH ARE STILL ACTIVE.
3928                                    ; UPON ENTRY, R0 CONTAINS THE UNIT TO BE DROPPED.
3929
3930 022656                                     BGNDU
     022656                             L$DU::
3931 022656  012737  177777  003060            MOV     #-1,DUFLG
3932 022664  010001                            MOV     R0,R1
3933 022666  006301                            ASL     R1
3934 022670  052761  140000  003130            BIS     #140000,ERTABL(R1)      ; SAY DROPPED
3935 022676  000240  000240  000240            240,240,240                     ; ?????????
3936 022704                                    PRINTF  #1$,R0
     022704  010046                            MOV     R0,-(SP)
     022706  012746  022732                    MOV     #1$,-(SP)
     022712  012746  000002                    MOV     #2,-(SP)
     022716  010600                            MOV     SP,R0
     022720  104417                            TRAP    C$PNTF
     022722  062706  000006                    ADD     #6,SP
3937 022726                                    EXIT    DU
     022726  000167                            .WORD   J$JMP
     022730  000030                            .WORD   L10032-2-.
```

```
3938 022732     045     116     045  1$:     .ASCIZ  /%N%A  UNIT %D%A DROPPED/
3939                                         .EVEN
3940 022762                                  ENDDU
     022762                             L10032:
     022762  104453                         TRAP    C$DU
3941                                 ;++
3942                                 ; AUTO-DROP CODE SECTION.
3943                                 ;--
3944 022764                                  BGNAUTO
     022764                             L$AUTO::
3945 022764  012703  000550                 MOV     #360.,R3        ;ENOUGH TIME FOR 2400' REEL TO REWIND
3946 022770  004737  017134             10$:    JSR     PC,WAITF        ;WAIT FOR SSR TO SET
3947 022774  103420                         BCS     20$             ;LEAVE WHEN SSR IS SET
3948 022776                                  DELAY   250.            ;WAIT FOR .25 SECONDS
     022776  012727  000372                 MOV     #250.,(PC)+
     023002  000000                         .WORD   0
     023004  013727  002116                 MOV     L$DLY,(PC)+
     023010  000000                         .WORD   0
     023012  005367  177772                 DEC     -6(PC)
     023016  001375                         BNE     .-4
     023020  005367  177756                 DEC     -22(PC)
     023024  001367                         BNE     .-20
3949 023026  005303                         DEC     R3              ;BUMP COUNTER DOWN
3950 023030  001357                         BNE     10$             ;KEEP GOING
3951 023032  004737  020170                 JSR     PC,CKDROP       ;TRY AND DROP UNIT
3952 023036                              20$:
3953 023036                                  ENDAUTO                 ; UNUSED.
     023036                             L10033:
     023036  104461                         TRAP    C$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.
                                ;--
023040                                  BGNCLN
023040                          L$CLEAN::
023040  005737  003060                   TST     DUFLG           ;"DROPPED" FLAG IS SET ON...
023044  100407                           BMI     1$              ;...AND GROSS CONTROLLER FAULT...
                                                                 ;...DON'T TRY TO XCT CLEANUP CODE.

023046  013705  002154                   MOV     CSRADDR,R5      ; ADDRESS OF TSV REGISTERS ON UNIBUS
023052  012765  000000  000000           MOV     #0,TSSR(R5)     ;DO SOFT INIT
023060  004737  017134                   JSR     PC,WAITF
023064                          1$:
023064                          2$:     ENDCLN
023064                          L10034:
023064  104412                          TRAP    C$CLEAN

                                ;++
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;--
023066                                  BGNRPT
023066                          L$RPT::
023066                                  PRINTS  #DEVSUM
023066  012746  023330                   MOV     #DEVSUM,-(SP)
023072  012746  000001                   MOV     #1,-(SP)
023076  010600                           MOV     SP,R0
023100  104416                           TRAP    C$PNTS
023102  062706  000004                   ADD     #4,SP
023106  010246                           MOV     R2,-(SP)
023110  010346                           MOV     R3,-(SP)
023112  010446                           MOV     R4,-(SP)
023114  012704  003130                   MOV     #ERTABL,R4      ; GET START OF ERROR TABLE.
023120  005003                           CLR     R3              ; CLEAR UNIT NUMBER
023122  011402                  1$:      MOV     (R4),R2         ; GET ERROR TABLE ENTRY & TEST IT.
023124  001467                           BEQ     4$              ; ZERO IF UNIT NOT RUN
023126  100066                           BPL     4$
023130  032702  040000                   BIT     #BIT14,R2       ; WAS UNIT DROPPED?
023134  001015                           BNE     2$              ; BR IF YES
023136  042702  170000                   BIC     #^C7777,R2      ; GET ERROR COUNT FIELD
023142                                   PRINTS  #DEVONL,R3,R2   ; PRINT
023142  010246                           MOV     R2,-(SP)
023144  010346                           MOV     R3,-(SP)
023146  012746  023365                   MOV     #DEVONL,-(SP)
023152  012746  000003                   MOV     #3,-(SP)
023156  010600                           MOV     SP,R0
023160  104416                           TRAP    C$PNTS
023162  062706  000010                   ADD     #10,SP
023166  000446                           BR      4$
023170  020227  160000          2$:      CMP     R2,#160000      ; WAS UNIT NON-EXISTENT?
023174  001012                           BNE     3$              ; BR IF NO
023176                                   PRINTS  #DEVNXR,R3
023176  010346                           MOV     R3,-(SP)
023200  012746  023435                   MOV     #DEVNXR,-(SP)
```

```
                023204  012746  000002                  MOV     #2,-(SP)
                023210  010600                          MOV     SP,R0
                023212  104416                          TRAP    C$PNTS
                023214  062706  000006                  ADD     #6,SP
3994            023220  000431                          BR      4$
3995            023222  020227  160001          3$:     CMP     R2,#160001      ; WAS UNIT NOT READY AT STARTUP?
3996            023226  001012                          BNE     30$             ; BR IF NO.
3997            023230                                  PRINTS  #DEVNRD,R3
                023230  010346                          MOV     R3,-(SP)
                023232  012746  023517                  MOV     #DEVNRD,-(SP)
                023236  012746  000002                  MOV     #2,-(SP)
                023242  010600                          MOV     SP,R0
                023244  104416                          TRAP    C$PNTS
                023246  062706  000006                  ADD     #6,SP
3998            023252  000414                          BR      4$
3999            023254  042702  170000          30$:    BIC     #^C7777,R2
4000            023260                                  PRINTS  #DEVDRO,R3,R2
                023260  010246                          MOV     R2,-(SP)
                023262  010346                          MOV     R3,-(SP)
                023264  012746  023600                  MOV     #DEVDRO,-(SP)
                023270  012746  000003                  MOV     #3,-(SP)
                023274  010600                          MOV     SP,R0
                023276  104416                          TRAP    C$PNTS
                023300  062706  000010                  ADD     #10,SP
4001            023304  062704  000002          4$:     ADD     #2,R4
4002            023310  005203                          INC     R3
4003            023312  020427  003330                  CMP     R4,#ERTABE
4004            023316  103701                          BLO     1$
4005            023320  012604                          MOV     (SP)+,R4
4006            023322  012603                          MOV     (SP)+,R3
4007            023324  012602                          MOV     (SP)+,R2
4008            023326                                  ENDRPT                  ; UNUSED.
                023326                          L10035:
                023326  104425                          TRAP    C$RPT
4009
4010
4011            023330      045     116     045 DEVSUM: .ASCIZ  /<N><A DEVICE STATUS SUMMARY:<N>/
4012            023365      045     101     040 DEVONL: .ASCIZ  /<A  UNIT <D3><A   ONLINE,  ERRORS = <D><N>/
4013            023435      045     101     040 DEVNXR: .ASCIZ  /<A  UNIT <D3><A   DROPPED, NON-EXISTENT REGISTER<N>/
4014            023517      045     101     040 DEVNRD: .ASCIZ  /<A  UNIT <D3><A   DROPPED, NOT READY AT STARTUP<N>/
4015            023600      045     101     040 DEVDRO: .ASCIZ  /<A  UNIT <D3><A   DROPPED, ERRORS = <D><N>/
4016                                                    .EVEN
4019
4026
4032
4040
```

```
                                        .SBTTL  TEST  1: SPACE RECORDS
                                ;+
                                ;
                                ;THIS TEST VERIFIES THAT THE SPACE RECORDS FORWARD AND SPACE
                                ;RECORDS REVERSE POSITION COMMANDS OPERATE PROPERLY WHEN SPACING
                                ;OVER NORMAL DATA RECORDS. OPERATION WHEN SPACING OVER TAPE MARKS
                                ;IS VERIFIED IN A SUBSEQUENT TEST. THE BASIC WRITE DATA TEST
                                ;SHOULD HAVE BEEN RUN SUCCESSFULLY FOR THIS TEST TO PRODUCE MEANINGFUL
                                ;RESULTS. THIS TEST CONSISTS OF A SERIES OF SUBTESTS. IN EACH
                                ;OF THE SUBTESTS, THE TAPE IS ENTIRELY WRITTEN WITH RECORDS
                                ;OF VARYING SIZES AND DATA CONTENT; THE FIRST 4 BYTES OF EACH
                                ;RECORD INDICATE THAT RECORD'S RELATIVE POSITION ON TAPE. AFTER
                                ;EACH SPACING OPERATION, THE TAPE POSITION IS VERIFIED BY READING
                                ;THE NEXT OR PREVIOUS RECORD AND COMPARING THE POSITION DATA WITH
                                ;THE EXPECTED RESULT.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 8 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
023650                                  BGNTST                                  T1::
4065 023650  005037  002170             CLR     FATFLG                  ;CLEAR FATAL ERROR FLAG
4066 023654  005037  003100             CLR     KTFLG           ;HOLD OFF KT11
4067 023660  012737  005771  002146     MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
4072 023666  004737  020262             JSR     PC,KTOFF                ;DON'T NEED LOTS OF MEMORY
4073 023672  012700  031462             MOV     #TST25ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
4074 023676  004737  017424             JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
4075 023702  012737  000002  002164     MOV     #2,LOOPCNT              ;PERFORM 2 ITERATIONS
                                ;+
                                ;
                                ;TEST 1, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A SPACE RECORDS FORWARD COMMAND WITH
                                ;THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF
                                ;THE VOLUME CHECK (VCK) FLAG IS SET.
                                ;
                                ;
                                ;-
                                T25LOOP:
                                        JGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
023710                                                                          T1.1:
023710  104402                                                                  TRAP    C$BSUB
4090 023712  004737  031500             JSR     PC,T25REST              ;SET COMMAND PACKET
4091 023716  005037  030270             CLR     T25CNT                  ;CLEAR THE RECORD COUNTER AREA
4092 023722  004737  031572             JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4093 023726  004737  031634             JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4094 023732  012737  176750  030272     MOV     #65000.,T25DLY          ;SET UP LOOP COUNTER
                                ;*******************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
```

```
                                        ;*****************************************************************
023740  004737  016660          5$:     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
023744  103427                          BCS     10$                     ;BR IF INIT WAS OK
023746                                  DELAY   250                     ;DELAY IF REQUIRED
023746  012727  000250                                                                  MOV     #250,(PC)+
023752  000000                                                                          .WORD   0
023754  013727  002116                                                                  MOV     L$DLY,(PC)+
023760  000000                                                                          .WORD   0
023762  005367  177772                                                                  DEC     -6(PC)
023766  001375                                                                          BNE     .-4
023770  005367  177756                                                                  DEC     -22(PC)
023774  001367                                                                          BNE     .-20
023776  005337  030272                  DEC     T25DLY                  ;DEC DELAY COUNTER
024002  001356                          BNE     5$                              ;BR, IF LOOP IS REQUIRED
024004  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
024010  016501  000000                  MOV     TSSR(R5),R1             ;CONTENTS OF TSSR REGISTER
024014                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
024014  104455                                                                          TRAP    C$ERDF
024016  000145                                                                          .WORD   101
024020  003550                                                                          .WORD   SFIERR
024022  011676                                                                          .WORD   SFIMSG
024024                          10$:

024024  012704  030110                  MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS


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

024030  004737  010342                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
024034  103407                          BCS     14$                     ;BR, IF COMMAND ISSUED OK
024036  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
024042  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
024044                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
024044  104456                                                                          TRAP    C$ERHRD
024046  000146                                                                          .WORD   102
024050  004754                                                                          .WORD   WRTMSG
024052  011676                                                                          .WORD   SFIMSG


                                        ;
                                        ;       CHECK FOR DRIVE OFF-LINE
                                        ;
024054  016501  000000          14$:    MOV     TSSR(R5),R1             ;READ THE TSSR
024060  032701  000100                  BIT     #OFL,R1                 ;CHECK FOR DRIVE OFF LINE
024064  001406                          BEQ     15$                     ;BR, IF DRIVE IS ON LINE (GOOD)
024066                                  ERRDF   ERRNO,T21OFL,EXPREC     ;"DRIVE IS OFF-LINE" (BAD)
024066  104455                                                                          TRAP    C$ERDF
024070  000147                                                                          .WORD   103
024072  030274                                                                          .WORD   T21OFL
024074  016360                                                                          .WORD   EXPREC
024076  004737  020170                  JSR     PC,CKDROP               ;TRY AND DROP UNIT


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

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

4150 024102  004737  010444    15$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4151 024106  103407             BCS     30$                     ;BR, IF NO PROBLEM
4152 024110  010001             MOV     R0,R1                   ;SAVE TSSR
4153 024112  004757  020116     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4157 024116                     ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     024116  104456                                                    TRAP    C$ERHRD
     024120  000150                                                    .WORD   104
     024122  031267                                                    .WORD   T25RWN
     024124  011710                                                    .WORD   PKTSSR
4158 024126                     30$:    CKLOOP                  ;LOOP IF SELECTED
     024126  104406                                                    TRAP    C$CLP1
4159
4160                            ;*************************************************************************
4161                            ;
4162                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4163                            ;
4164                            ;*************************************************************************
4165
4166 024130  013701  030136             MOV     T25BFR+6,R1             ;PICK UP XSTO
4167 024134  010102                     MOV     R1,R2                   ;SET UP EXPECTED
4168 024136  052702  000002             BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4169 024142  020102                     CMP     R1,R2                   ;DOES EXP = REC'D
4170 024144  001406                     BEQ     40$                     ;BR, IF EQUAL (OK)
4171 024146  004737  020116             JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4175 024152                             ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     024152  104456                                                            TRAP    C$ERHRD
     024154  000151                                                            .WORD   105
     024156  030457                                                            .WORD   T25BOT
     024160  016360                                                            .WORD   EXPREC
4176 024162                     40$:    CKLOOP                  ;LOOP IF SELECTED
     024162  104406                                                            TRAP    C$CLP1
4177 024164  012703  000400             MOV     #256.,R3                ;RECORD SIZE
4178 024170  013737  003072  030242     MOV     FREE,T25RB              ;STARTING WRITE BUFFER ADDRESS
4179
4180                            ;*************************************************************************
4181                            ;
4182                            ;WRITE DATA,ACK,CVC=1 COMMAND
4183                            ;
4184                            ;*************************************************************************
4185
4186 024176  012737  140005  030240     MOV     #140005,T25PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
4187 024204  012704  030240             MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4188 024210                     65$:
4189 024210  010337  030246             MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4190 024214  013777  030270  154650     MOV     T25CNT,@FREE            ;LOAD UP RECORD COUNTER IN WRT BUFFER
4191 024222  062737  000001  030270     ADD     #1,T25CNT               ;GET READY FOR NEXT RECORD
4192 024230  010465  177776             MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4193 024234  004737  017134             JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4194 024240  016501  000000             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4195 024244  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED
4196 024250  020102                     CMP     R1,R2                   ;ARE THEY EQUAL
4197 024252  001411                     BEQ     75'                     ;BR, IF OK
4198 024254  032701  000004             BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
```

```
4199 024260  001014                    BNE     120$                    ;BR, IF TSA IS SET (SUSPECT IS EOT)
4200 024262  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4204                                                                   ;SOFT ERROR GENERATED BECAUSE THE
4205                                                                   ;WRITE COMMAND IS NOT BEING CHECKED
4206                                                                   ;HERE. IT WAS CHECKED IN LEAH2
4207 024266                            ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     024266  104457                                                                    TRAP    C$ERSOFT
     024270  000152                                                                    .WORD   106
     024272  005011                                                                    .WORD   WRTERR
     024274  011710                                                                    .WORD   PKTSSR
4208 024276                        75$:    CKLOOP                          ;LOOP IF SELECTED
     024276  104406                                                                    TRAP    C$CLP1
4209 024300  005203                        INC     R3                      ;BUMP RECORD SIZE
4210 024302  022703  001000              CMP     #512.,R3                ;END OF RECORD YET
4211 024306  001340                      BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
4212 024310  000415                      BR      125$                    ;ENOUGH RECORDS
4213 024312                        120$:
4214                                   ;*************************************************************************
4215                                   ;
4216                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4217                                   ;
4218                                   ;*************************************************************************
4219
4220 024312  013701  030136            MOV     T25BFR+6,R1             ;QUICK CHECK FOR EOT SET
1221 024316  010102                      MOV     R1,R2                   ;SET UP EXPECTED
4222 024320  052702  000001              BIS     #BIT0,R2                ;SET THE EOT BIT XST0
4223 024324  020102                      CMP     R1,R2                   ;IS THE EOT BIT SET IN XST0
4224 024326  001406                      BEQ     125$                    ;BR, IF SET (GOOD)
4225 024330  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4229 024334                            ERRDF   ERRNO,T25NET,EXPREC     ;DEVICE FATAL NOT EOT FOUND ETC.
     024334  104455                                                                    TRAP    C$ERDF
     024336  000153                                                                    .WORD   107
     024340  030613                                                                    .WORD   T25NET
     024342  016360                                                                    .WORD   EXPREC
```

```
4231 024344                          125$:
4232                                 ;*************************************************************************
4233                                 ;
4234                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
4235                                 ;
4236                                 ;*************************************************************************
4237
4238 024344  004737  010444                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4239 024350  103407                         BCS     130$                    ;BR, IF NO PROBLEM
4240 024352  010001                         MOV     R0,R1                   ;SAVE TSSR
4241 024354  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4245 024360                                 ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      024360  104456                                                                TRAP    C$ERHRD
      024362  000154                                                                .WORD   108
      024364  031267                                                                .WORD   T25RWN
      024366  011710                                                                .WORD   PKTSSR
4246 024370                          130$:  CKLOOP                          ;LOOP IF SELECTED
      024370  104406                                                                TRAP    C$CLP1
4247 024372                                 ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      024372                                                                    L10037:
      024372  104403                                                                TRAP    C$ESUB
4248 024374  023727  002170  000031         CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
4249 024402  002402                         BLT     999$                            ;BR, IF LESS THAN 25
4250 024404  004737  020170                 JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4251 024410                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 1, SUBTEST 2
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE
                                        ;RECORD OFF BOT AND CAUSES BOT STATUS TO BE CLEARED.
                                        ;
                                        ;
                                        ;
                                        ;-
                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T1.2:
                                                                                                        TRAP    C$BSUB
                                                JSR     PC,T25REST              ;SET COMMAND PACKET
                                                JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
                                                JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

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

                                                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                                BCS     10$                     ;BR IF INIT WAS OK
                                                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
                                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                                                        TRAP    C$ERDF
                                                                                                        .WORD   109
                                                                                                        .WORD   SFIERR
                                                                                                        .WORD   SFIMSG
                                        10$:

                                                MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

                                                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
                                                BCS     15$                     ;BR, IF COMMAND ISSUED OK
                                                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
                                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
                                                                                                        TRAP    C$ERHRD
                                                                                                        .WORD   110
                                                                                                        .WORD   WRTMSG
                                                                                                        .WORD   SFIMSG

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

```
4306
4307 024502  004737  010444          15$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4308 024506  103407                          BCS     30$                     ;BR, IF NO PROBLEM
4309 024510  010001                          MOV     R0,R1                   ;SAVE TSSR
4310 024512  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4314 024516                                  ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     024516  104456                                                          TRAP    C$ERHRD
     024520  000157                                                          .WORD   111
     024522  031267                                                          .WORD   T25RWN
     024524  011710                                                          .WORD   PKTSSR
4315 024526                          30$:    CKLOOP                          ;LOOP IF SELECTED
     024526  104406                                                          TRAP    C$CLP1
4316
4317                                 ;*****************************************************************
4318                                 ;
4319                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4320                                 ;
4321                                 ;*****************************************************************
4322
4323 024530  013701  030136                  MOV     T25BFR+6,R1             ;PICK UP XSTO
4324 024534  010102                          MOV     R1,R2                   ;SET UP EXPECTED
4325 024536  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4326 024542  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
4327 024544  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
4328 024546  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4332 024552                                  ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     024552  104456                                                          TRAP    C$ERHRD
     024554  000160                                                          .WORD   112
     024556  030457                                                          .WORD   T25BOT
     024560  016360                                                          .WORD   EXPREC
4333 024562                          40$:    CKLOOP                          ;LOOP IF SELECTED
     024562  104406                                                          TRAP    C$CLP1
4334 024564  012737  000001  030242          MOV     #000001,T25R8           ;NUMBER OF RECORDS TO SPACE OVER
4335
4336                                 ;*****************************************************************
4337                                 ;
4338                                 ;SPACE FORWARD,ACK,CVC=1 COMMAND
4339                                 ;
4340                                 ;*****************************************************************
4341
4342 024572  012737  140010  030240          MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4343 024600  012704  030240                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4344 024604                          65$:
4345 024604  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4346 024610  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4347 024614  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4348 024620  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4349 024624  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4350 024626  001411                          BEQ     75$                     ;BR, IF OK
4351 024630  032701  000004                  BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4352 024634  001006                          BNE     75$                     ;BR, IF TSA IS SET (SUSPECT IS EOT)
4353 024636  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4357 024642                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     024642  104456                                                          TRAP    C$ERHRD
     024644  000161                                                          .WORD   113
     024646  030377                                                          .WORD   T25WDE
     024650  016360                                                          .WORD   EXPREC
```

```
4358 024652                          75$:    CKLOOP                          ;LOOP IF SELECTED
     024652  104406                                                                  TRAP    C$CLP1
4359 024654                          120$:
4360
4361                                 ;*************************************************************************
4362                                 ;
4363                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4364                                 ;
4365                                 ;*************************************************************************
4366
4367 024654  013701  030136                  MOV     T25BFR+6,R1             ;QUICK CHECK FOR BOT SET
4368 024660  010102                          MOV     R1,R2                   ;SET UP EXPECTED
4369 024662  042702  000002                  BIC     #BIT1,R2                ;CLEAR THE BOT BIT (XSTO)
4370 024666  020102                          CMP     R1,R2                   ;IS THE EOT BIT SET IN XSTO
4371 024670  001406                          BEQ     125$                    ;BR, IF SET (GOOD)
4372 024672  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4376 024676                                  ERRHRD  ERRNO,T25BNC,EXPREC     ;BOT NOT CLEARED AFTER SPACE FROM BOT
     024676  104456                                                                  TRAP    C$ERHRD
     024700  000162                                                                  .WORD   114
     024702  030752                                                                  .WORD   T25BNC
     024704  016360                                                                  .WORD   EXPREC
4377 024706  004737  031634          125$:   JSR     PC,T25RT3               ;CLEAN UP PACKET
4378 024712  012737  000401  030246          MOV     #257.,T25SZ             ;SET THE CORRECT SIZE UP
4379
4380                                 ;*************************************************************************
4381                                 ;
4382                                 ;READ DATA COMMAND IN PLACE
4383                                 ;
4384                                 ;*************************************************************************
4385
4386 024720  012737  140001  030240          MOV     #140001,T25PK3          ;READ DATA COMMAND IN PLACE
4387 024726  013737  003072  030242          MOV     FREE,T25RB              ;READ BUFFER ADDRESS TO PACKET
4388 024734  012704  030240                  MOV     #T25PK3,R4              ;R4 = POINTER TO PACKET
4389 024740  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4390 024744  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4391 024750  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4392 024754  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4393 024760  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4394 024762  001406                          BEQ     190$                    ;BR, IF OK ESP. FUNCTION REJECT
4395 024764  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4399 024770                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA CMD
     024770  104456                                                                  TRAP    C$ERHRD
     024772  000163                                                                  .WORD   115
     024774  005104                                                                  .WORD   RDERR
     024776  011710                                                                  .WORD   PKTSSR
4400 025000                          190$:   CKLOOP                          ;LOOP IF SELECTED
     025000  104406                                                                  TRAP    C$CLP1
4401 025002  017701  156064                  MOV     @FREE,R1                ;GET FIRST WORD FROM BUFFER
4402 025006  012702  000001                  MOV     #1,R2                   ;SET UP EXPECTED
4403 025012  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED 1
4404 025014  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
4405 025016  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4409 025022                                  ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     025022  104456                                                                  TRAP    C$ERHRD
     025024  000164                                                                  .WORD   116
     025026  030667                                                                  .WORD   T25WNG
     025030  016360                                                                  .WORD   EXPREC
```

```
4410 025032                                  200$:
4411 025032                                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     025032                                                                                  L10040:
     025032  104403                                                                                  TRAP    C$ESUB
4412 025034  023727  002170  000031                  CMP     FATFLG,#25,                     ;IS ERROR COUNT AT 25
4413 025042  002402                                  BLT     999$                            ;BR, IF LESS THAN 25
4414 025044  004737  020170                          JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
4415 025050                                  999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 1, SUBTEST 3
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE BACK
                                        ;OVER THE FIRST RECORD ON TAPE.
                                        ;
                                        ;
                                        ;-

025050                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
025050                                                                                  T1.3:
025050  104402                                                                                  TRAP    C$BSUB
025052  004737  031500                        JSR     PC,T25REST              ;SET COMMAND PACKET
025056  004737  031572                        JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
025062  004737  031634                        JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

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

025066  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
025072  103407                                BCS     20$                     ;BR IF INIT WAS OK
025074  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
025100  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
025102                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
025102  104455                                                                                  TRAP    C$ERDF
025104  000165                                                                                  .WORD   117
025106  003550                                                                                  .WORD   SFIERR
025110  011676                                                                                  .WORD   SFIMSG
025112                                  20$:

025112  012704  030110                        MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

025116  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
025122  103407                                BCS     25$                     ;BR, IF COMMAND ISSUED OK
025124  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
025130  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
025132                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
025132  104456                                                                                  TRAP    C$ERHRD
025134  000166                                                                                  .WORD   118
025136  004754                                                                                  .WORD   WRTMSG
025140  011676                                                                                  .WORD   SFIMSG
025142                                  25$:    CKLOOP                          ;LOOP IF SELECTED
025142  104406                                                                                  TRAP    C$CLP1

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

```
4469                                    ;
4470                                    ;*************************************************************************
4471
4472 025144  004737  010444                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
4473 025150  103407                            BCS     30$                     ;BR, IF NO PROBLEM
4474 025152  010001                            MOV     R0,R1                   ;SAVE TSSR
4475 025154  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4479 025160                                    ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      025160  104456                                                                    TRAP    C$ERHRD
      025162  000167                                                                    .WORD   119
      025164  031267                                                                    .WORD   T25RWN
      025166  011710                                                                    .WORD   PKTSSR
4480 025170                            30$:    CKLOOP                          ;LOOP IF SELECTED
      025170  104406                                                                    TRAP    C$CLP1
4481
4482                                    ;*************************************************************************
4483                                    ;
4484                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
4485                                    ;
4486                                    ;*************************************************************************
4487
4488 025172  013701  030136                    MOV     T25BFR+6,R1             ;PICK UP XST0
4489 025176  010102                            MOV     R1,R2                   ;SET UP EXPECTED
4490 025200  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
4491 025204  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
4492 025206  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
4493 025210  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4497 025214                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      025214  104456                                                                    TRAP    C$ERHRD
      025216  000170                                                                    .WORD   120
      025220  030457                                                                    .WORD   T25BOT
      025222  016360                                                                    .WORD   EXPREC
4498 025224                            40$:    CKLOOP                          ;LOOP IF SELECTED
      025224  104406                                                                    TRAP    C$CLP1
4499
4500                                    ;*************************************************************************
4501                                    ;
4502                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
4503                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
4504                                    ;
4505                                    ;*************************************************************************
4506
4507 025226  012703  000001                    MOV     #000001,R3              ;NUMBER OF RECORDS TO SPACE FORWARD
4508 025232  004737  010144                    JSR     PC,SPACE                ;CALL SPACE COMMAND
4509 025236  103410                            BCS     50$                     ;CHECK FOR ERROR
4510 025240  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4511 025244  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4515 025250                                    ERRHRD  ERRNO,T25WDE,SFFMSG     ;SPACE FORWARD FAILED
      025250  104456                                                                    TRAP    C$ERHRD
      025252  000171                                                                    .WORD   121
      025254  030377                                                                    .WORD   T25WDE
      025256  011756                                                                    .WORD   SFFMSG
4516 025260                            50$:    CKLOOP                          ;LOOP IF SELECTED
      025260  104406                                                                    TRAP    C$CLP1
4517 025262  012737  000001  030242            MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4518
4519                                    ;*************************************************************************
```

```
4520                                    ;
4521                                    ;SPACE REVERSE,ACK,CVC=1 COMMAND
4522                                    ;
4523                                    ;*************************************************************************
4524
4525 025270  012737  140410  030240          MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
4526 025276  012704  030240                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4527 025302                          65$:
4528 025302  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4529 025306  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4530 025312  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4531 025316  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4532 025322  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4533 025324  001406                          BEQ     75$                     ;BR, IF OK
4534 025326  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4538 025332                                  ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     025332  104456                                                                  TRAP    C$ERHRD
     025334  000172                                                                  .WORD   122
     025336  030377                                                                  .WORD   T25WDE
     025340  011710                                                                  .WORD   PKTSSR
4539 025342                          75$:    CKLOOP                          ;LOOP IF SELECTED
     025342  104406                                                                  TRAP    C$CLP1
4540 025344                          120$:
4541 025344  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
4542 025350  013737  003072  030242          MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4543
4544                                    ;*************************************************************************
4545                                    ;
4546                                    ;READ DATA,ACK,CVC=1 COMMAND
4547                                    ;
4548                                    ;*************************************************************************
4549
4550 025356  012737  140001  030240          MOV     #140001,T25PK3          ;READ DATA,ACK,CVC=1 COMMAND
4551 025364  012704  030240          165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4552 025370  010337  030246                  MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4553 025374  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4554 025400  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4555 025404  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4556 025410  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
4557 025414  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
4558 025416  001406                          BEQ     170$                    ;BR, IF OK
4559 025420  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4563 025424                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     025424  104456                                                                  TRAP    C$ERHRD
     025426  000173                                                                  .WORD   123
     025430  005104                                                                  .WORD   RDERR
     025432  011710                                                                  .WORD   PKTSSR
4564 025434                          170$:   CKLOOP                          ;LOOP IF SELECTED
     025434  104406                                                                  TRAP    C$CLP1
4565 025436  017701  155430                  MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4566 025442  012702  000000                  MOV     #0,R2                   ;SET UP EXPECTED
4567 025446  020102                          CMP     R1,R2                   ;WAS RECORD NUMBERED 1
4568 025450  001406                          BEQ     200$                    ;BR, IF CORRECT RECORD
4569 025452  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4573 025456                                  ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     025456  104456                                                                  TRAP    C$ERHRD
     025460  000174                                                                  .WORD   124
```

```
      025462  030667                                                                  .WORD   T25WNG
      025464  016360                                                                  .WORD   EXPREC
 4574 025466                          200$:
 4575 025466                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      025466                                                                          L10041:
      025466  104403                                                                  TRAP    C$ESUB
 4576 025470  023727  002170  000031          CMP     FATFLG,#25.                 ;IS ERROR COUNT AT 25
 4577 025476  002402                          BLT     999$                        ;BR, IF LESS THAN 25
 4578 025500  004737  020170                  JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
 4579 025504                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 1, SUBTEST 4
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE A
                                        ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
                                        ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE,
                                        ;WHICHEVER IS LESS.
                                        ;
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                        T1.4:
                                                                                                                TRAP    C$BSUB
                                                JSR     PC,T25REST              ;SET COMMAND PACKET
                                                JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
                                                JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
                                                MOV     T25CNT,T25CN2           ;HOLD NUMBER OF RECORDS
                                                SUB     #2,T25CN2               ;ACTUAL NUMBER OF RECORDS ON TAPE
                                                MOV     T25CNT,T25DLY           ;SET UP REWIND 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                     ;WAIT ABOUT .25 SECONDS
                                                                                                        MOV     #250,(PC)+
                                                                                                        .WORD   0
                                                                                                        MOV     L$DLY,(PC)+
                                                                                                        .WORD   0
                                                                                                        DEC     -6(PC)
                                                                                                        BNE     .-4
                                                                                                        DEC     -22(PC)
                                                                                                        BNE     .-20
                                                DEC     T25DLY                  ;DEC COUNTER
                                                BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
                                                MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
                                                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                                ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
                                                                                                        TRAP    C$ERDF
                                                                                                        .WORD   125
                                                                                                        .WORD   SFIERR
                                                                                                        .WORD   SFIMSG
                                        20$:

                                                MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

```
                                        ;*****************************************************************
025634  004737  010342                          JSR     PC,WRTCHR                   ;ISSUE WRITE CHARACTERISTICS
025640  103407                                  BCS     25$                         ;BR, IF COMMAND ISSUED OK
025642  004737  020116                          JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
025646  010001                                  MOV     R0,R1                       ;SAVE CONTENTS OF TSSR
025650                                          ERRHRD  ERRNO,WRTMSG,SFIMSG         ;WRITE CHARACTERISTISC FAILED
025650  104456                                                                                          TRAP    C$ERHRD
025652  000176                                                                                          .WORD   126
025654  004754                                                                                          .WORD   WRTMSG
025656  011676                                                                                          .WORD   SFIMSG
025660                                  25$:    CKLOOP                              ;LOOP IF SELECTED
025660  104406                                                                                          TRAP    C$CLP1

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

025662  004737  010444                          JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
025666  103407                                  BCS     30$                         ;BR, IF NO PROBLEM
025670  010001                                  MOV     R0,R1                       ;SAVE TSSR
025672  004737  020116                          JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
025676                                          ERRHRD  ERRNO,T25RWN,PKTSSR         ;REWIND NOT ACCEPTED
025676  104456                                                                                          TRAP    C$ERHRD
025700  000177                                                                                          .WORD   127
025702  031267                                                                                          .WORD   T25RWN
025704  011710                                                                                          .WORD   PKTSSR
025706                                  30$:    CKLOOP                              ;LOOP IF SELECTED
025706  104406                                                                                          TRAP    C$CLP1
025710  013701  030266                          MOV     T25CN2,R1                   ;NUMBER OF RECORDS ON TAPE
025714  012702  177776                          MOV     #65534.,R2                  ;MAX IT CAN SPACE OVER
025720  020201                                  CMP     R2,R1                       ;WHICH VALUE CAN WE USE
025722  003002                                  BGT     46$                         ;BR, IF # WRITTEN > 64K
025724  010103                                  MOV     R1,R3                       ;# WRITTEN CAN BE USED
025726  000401                                  BR      47$                         ;MOVE ON
025730  010203                          46$:    MOV     R2,R3                       ;USE MAX NUMBER
025732  162703  000001                  47$:    SUB     #1,R3                       ;DON'T GO ALL THE WAY YET
025736  010337  030242                          MOV     R3,T25RB                    ;NUMBER OF RECORDS TO SPACE OVER

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

025742  012737  140010  030240                  MOV     #140010,T25PK3              ;SPACE FORWARD,ACK,CVC=1 COMMAND
025750  012704  030240                          MOV     #T25PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
025754                                  65$:
025754  013737  030266  030272                  MOV     T25CN2,T25DLY               ;NUMBER OF RECORDS USED AS DELAY COUNTER
025762  010465  177776                          MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
025766  004737  017134                  67$:    JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
025772  016501  000000                          MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
025776  012702  000200                          MOV     #SSR,R2                     ;SET UP EXPECTED
026002  020102                                  CMP     R1,R2                       ;ARE THEY EQUAL
026004  001425                                  BEQ     75$                         ;BR, IF OK
```

```
4680 026006                                    DELAY   250                     ;DELAY .25 SECONDS
     026006  012727  000250                                                           MOV     #250,(PC)+
     026012  000000                                                                     .WORD   0
     026014  013727  002116                                                             MOV     L$DLY,(PC)+
     026020  000000                                                                     .WORD   0
     026022  005367  177772                                                             DEC     -6(PC)
     026026  001375                                                                     BNE     .-4
     026030  005367  177756                                                             DEC     -22(PC)
     026034  001367                                                                     BNE     .-20
4681 026036  005337  030272                    DEC     T25DLY                  ;BUMP DOWN COUNTER
4682 026042  001351                            BNE     67$                     ;BR, IF NOT AT END OF DELAY
4683 026044  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4687 026050                                    ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     026050  104456                                                                    TRAP    C$ERHRD
     026052  000200                                                                     .WORD   128
     026054  030377                                                                     .WORD   T25WDE
     026056  011710                                                                     .WORD   PKTSSR
4688 026060                            75$:    CKLOOP                          ;LOOP IF SELECTED
     026060  104406                                                                    TRAP    C$CLP1
4689 026062  012703  010000                    MOV     #4096.,R3               ;RECORD SIZE
4690 026066  013737  003072  030242            MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
4691
4692                                   ;*************************************************************************
4693                                   ;
4694                                   ;READ DATA,ACK COMMAND
4695                                   ;
4696                                   ;*************************************************************************
4697
4698 026074  012737  100001  030240            MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
4699 026102  012704  030240            165$:   MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4700 026106  010337  030246                    MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
4701 026112  010465  177776                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4702 026116  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4703 026122  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4704 026126  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
4705 026132  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
4706 026134  001411                            BEQ     170$                    ;BR, IF OK
4707 026136  032701  000004                    BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
4708 026142  001006                            BNE     170$                    ;IF SET ALL IS WELL
4709 026144  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4713 026150                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     026150  104456                                                                    TRAP    C$ERHRD
     026152  000201                                                                     .WORD   129
     026154  005104                                                                     .WORD   RDERR
     026156  011710                                                                     .WORD   PKTSSR
4714 026160                            170$:   CKLOOP                          ;LOOP IF SELECTED
     026160  104406                                                                    TRAP    C$CLP1
4715 026162  017701  154704                    MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
4716 026166  013702  030266                    MOV     T25CN2,R2                       ;SET UP EXPECTED
4717 026172  162702  000001                    SUB     #1,R2                   ;SHOULD BE LAST RECORD
4718 026176  020102                            CMP     R1,R2                   ;WAS RECORD NUMBERED R3
4719 026200  001406                            BEQ     200$                    ;BR, IF CORRECT RECORD
4720 026202  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4724 026206                                    ERRHRD  ERRNO,T25WNG,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
     026206  104456                                                                    TRAP    C$ERHRD
     026210  000202                                                                     .WORD   130
     026212  030667                                                                     .WORD   T25WNG
```

```
      026214  016360                                                                  .WORD   EXPREC
 4725 026216                          200$:
 4726 026216                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      026216                                                                  L10042:
      026216  104403                                                                  TRAP    C$ESUB
 4727 026220  023727  002170  000031          CMP     FATFLG,#25.             ;IS ERROR COUNT AT 25
 4728 026226  002402                          BLT     999$                    ;BR, IF LESS THAN 25
 4729 026230  004737  020170                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 4730 026234                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 1, SUBTEST 5
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE A
                                        ;MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
                                        ;MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE
                                        ;WHICH EVER IS LESS.
                                        ;
                                        ;
                                        ;
                                        ;-
4745 026234                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
     026234                                                                                     T1.5:
     026234  104402                                                                                 TRAP    C$BSUB
4746 026236  004737  031500                     JSR     PC,T25REST              ;SET COMMAND PACKET
4747 026242  013737  030270  030266             MOV     T25CNT,T25CN2           ;SET UP RECORD COUNTER
4748 026250  004737  031572                     JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
4749 026254  004737  031634                     JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET
4750 026260  013737  030270  030272             MOV     T25CNT,T25DLY           ;SET UP REWIND DELAY COUNTER
4751
4752                                    ;*************************************************************************
4753                                    ;
4754                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
4755                                    ;
4756                                    ;*************************************************************************
4757
4758 026266  004737  016660     10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
4759 026272  103427                     BCS     20$                     ;BR IF INIT WAS OK
4760 026274                             DELAY   250                     ;WAIT ABOUT .25 SECONDS
     026274  012727  000250                                                             MOV     #250,(PC)+
     026300  000000                                                                     .WORD   0
     026302  013727  002116                                                             MOV     L$DLY,(PC)+
     026306  000000                                                                     .WORD   0
     026310  005367  177772                                                             DEC     -6(PC)
     026314  001375                                                                     BNE     .-4
     026316  005367  177756                                                             DEC     -22(PC)
     026322  001367                                                                     BNE     .-20
4761 026324  005337  030272                     DEC     T25DLY                  ;DEC COUNTER
4762 026330  001356                             BNE     10$                     ;BR, IF MORE LOOPS REQUIRED
4763 026332  016501  000000                     MOV     TSSR(R5),R1                     ;CONTENTS OF TSSR REGISTER
4764 026336  004737  020116                     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4768 026342                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     026342  104455                                                                     TRAP    C$ERDF
     026344  000203                                                                     .WORD   131
     026346  003550                                                                     .WORD   SFIERR
     026350  011676                                                                     .WORD   SFIMSG
4769 026352                     20$:
4770
4771 026352  012704  030110                     MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
4772
4773                                    ;*************************************************************************
4774                                    ;
4775                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
4776                                    ;
4777                                    ;*************************************************************************
4778
```

```
 4779 026356  004737  010342                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 4780 026362  103407                        BCS     25$                     ;BR, IF COMMAND ISSUED OK
 4781 026364  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 4785 026370  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 4786 026372                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      026372  104456                                                                TRAP    C$ERHRD
      026374  000204                                                                .WORD   132
      026376  004754                                                                .WORD   WRTMSG
      026400  011676                                                                .WORD   SFIMSG
 4787 026402                        25$:    CKLOOP                          ;LOOP IF SELECTED
      026402  104406                                                                TRAP    C$CLP1
 4788
 4789                               ;*****************************************************************
 4790                               ;
 4791                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 4792                               ;
 4793                               ;*****************************************************************
 4794
 4795 026404  004737  010444                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 4796 026410  103407                        BCS     30$                     ;BR, IF NO PROBLEM
 4797 026412  010001                        MOV     R0,R1                   ;SAVE TSSR
 4798 026414  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 4802 026420                                ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
      026420  104456                                                                TRAP    C$ERHRD
      026422  000205                                                                .WORD   133
      026424  031267                                                                .WORD   T25RWN
      026426  011710                                                                .WORD   PKTSSR
 4803 026430                        30$:    CKLOOP                          ;LOOP IF SELECTED
      026430  104406                                                                TRAP    C$CLP1
 4804
 4805                               ;*****************************************************************
 4806                               ;
 4807                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 4808                               ;
 4809                               ;*****************************************************************
 4810
 4811 026432  013701  030136                MOV     T25BFR+6,R1             ;PICK UP XST0
 4812 026436  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 4813 026440  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 4814 026444  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 4815 026446  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
 4816 026450  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 4820 026454                                ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      026454  104456                                                                TRAP    C$ERHRD
      026456  000206                                                                .WORD   134
      026460  030457                                                                .WORD   T25BOT
      026462  016360                                                                .WORD   EXPREC
 4821 026464                        40$:    CKLOOP                          ;LOOP IF SELECTED
      026464  104406                                                                TRAP    C$CLP1
 4822 026466  013701  030266                MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
 4823 026472  012702  177776                MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
 4824 026476  020201                        CMP     R2,R1                   ;WHICH VALUE CAN WE USE
 4825 026500  003002                        BGT     46$                     ;BR, IF # WRITTEN > 64K
 4826 026502  010103                        MOV     R1,R3                   ;# WRITTEN CAN BE USED
 4827 026504  000401                        BR      47$                     ;MOVE ON
 4828 026506  010203                46$:    MOV     R2,R3                   ;USE MAX NUMBER
 4829 026510                        47$:
```

```
4830 026510  010337  030242                MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4831
4832                                ;*************************************************************************
4833                                ;
4834                                ;SPACE FORWARD,ACK,CVC=1 COMMAND
4835                                ;
4836                                ;*************************************************************************
4837
4838 026514  012737  140010  030240        MOV     #140010,T25PK3          ;SPACE FORWARD,ACK,CVC=1 COMMAND
4839 026522  012704  030240                MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4840 026526  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
4841 026532  013737  030266  030272        MOV     T25CN2,T25DLY           ;SET UP DELAY COUNTER
4842 026540  004737  017134        48$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4843 026544  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4844 026550  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
4845 026554  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
4846 026556  001425                        BEQ     50$                     ;BR, IF OK
4847 026560                                DELAY   250                     ;WAIT .25 SECONDS
     026560  012727  000250                                                        MOV     #250,(PC)+
     026564  000000                                                                .WORD   0
     026566  013727  002116                                                        MOV     L$DLY,(PC)+
     026572  000000                                                                .WORD   0
     026574  005367  177772                                                        DEC     -6(PC)
     026600  001375                                                                BNE     .-4
     026602  005367  177756                                                        DEC     -22(PC)
     026606  001367                                                                BNE     .-20
4848 026610  005337  030272                DEC     T25DLY                  ;DEC THE DELAY COUNTER
4849 026614  001351                        BNE     48$                     ;BR, IF COUNTER HASN'T EXPIRED
4850 026616  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
4854 026622                                ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     026622  104456                                                                TRAP    C$ERHRD
     026624  000207                                                                .WORD   135
     026626  030377                                                                .WORD   T25WDE
     026630  016360                                                                .WORD   EXPREC
4855 026632  013701  030266        50$:    MOV     T25CN2,R1               ;NUMBER OF RECORDS ON TAPE
4856 026636  012702  177776                MOV     #65534.,R2              ;MAX IT CAN SPACE OVER
4857 026642  020201                        CMP     R2,R1                   ;WHICH VALUE CAN WE USE
4858 026644  003002                        BGT     55$                     ;BR, IF # WRITTEN > 64K
4859 026646  010103                        MOV     R1,R3                   ;# WRITTEN CAN BE USED
4860 026650  000401                        BR      60$                     ;MOVE ON
4861 026652  010203        55$:    MOV     R2,R3                   ;USE MAX NUMBER
4862 026654  162703  000001        60$:    SUB     #1,R3                   ;DON'T GO ALL THE WAY YET
4863 026660  010337  030242                MOV     R3,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
4864
4865                                ;*************************************************************************
4866                                ;
4867                                ;SPACE REVERSE,ACK,CVC=1 COMMAND
4868                                ;
4869                                ;*************************************************************************
4870
4871 026664  012737  140410  030240        MOV     #140410,T25PK3          ;SPACE REVERSE,ACK,CVC=1 COMMAND
4872 026672  012704  030240                MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
4873 026676  010465  177776                MOV     R4 TSDB(R5)             ;ISSUE COMMAND
4874 026702  013737  030266  030272        MOV     T25CN2,T25DLY           ;SET UP COUNTER
4875 026710  004737  017134        70$:    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
4876 026714  0165C1  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
4877 026720  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
```

```
 4878 026724  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 4879 026726  001425                        BEQ     75$                     ;BR, IF OK
 4880 026730                                DELAY   250                     ;WAIT ABOUT .25 SECONDS
      026730  012727  000250                                                        MOV     #250.,(PC)+
      026734  000000                                                                .WORD   0
      026736  013727  002116                                                        MOV     L$DLY,(PC)+
      026742  000000                                                                .WORD   0
      026744  005367  177772                                                        DEC     -6(PC)
      026750  001375                                                                BNE     .-4
      026752  005367  177756                                                        DEC     -22(PC)
      026756  001367                                                                BNE     .-20
 4881 026760  005337  030272                        DEC     T25DLY                  ;BUMP COUNTER DOWN
 4882 026764  001351                        BNE     70$                     ;BR, IF COUNTER HASN'T EXPIRED
 4883 026766  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 4887 026772                                ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
      026772  104456                                                                TRAP    C$ERHRD
      026774  000210                                                                .WORD   136
      026776  030377                                                                .WORD   T25WDE
      027000  016360                                                                .WORD   EXPREC
 4888 027002                            75$:    CKLOOP                          ;LOOP IF SELECTED
      027002  104406                                                                TRAP    C$CLP1
 4889 027004  012703  010000                        MOV     #4096.,R3               ;RECORD SIZE
 4890 027010  013737  003072  030242                MOV     FREE,T25RB              ;STARTING READ BUFFER ADDRESS
 4891
 4892                                       ;*************************************************************************
 4893                                       ;
 4894                                       ;READ DATA,ACK COMMAND
 4895                                       ;
 4896                                       ;*************************************************************************
 4897
 4898 027016  012737  100001  030240            165$:   MOV     #100001,T25PK3          ;READ DATA,ACK COMMAND
 4899 027024  012704  030240                        MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 4900 027030  012700  177777                        MOV     #177777,R0              ;SET ALL ONES INTO CORRECT REGISTER
 4901 027034  004737  020410                        JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 4902 027040  010337  030246                        MOV     R3,T25SZ                ;SET UP RECORD SIZE IN PACKET
 4903 027044  010465  177776                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 4904 027050  004737  017134                        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 4905 027054  016501  000000                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 4906 027060  012702  000200                        MOV     #SSR,R2                 ;SET UP EXPECTED
 4907 027064  020102                                CMP     R1,R2                   ;ARE THEY EQUAL
 4908 027066  001411                                BEQ     170$                    ;BR, IF OK
 4909 027070  032701  000004                        BIT     #BIT2,R1                ;CHECK FOR TAPE STATUS ALERT
 4910 027074  001006                                BNE     170$                    ;BR, IF BIT SET
 4911 027076  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 4915 027102                                        ERRHRD  ERRNO,RDERR,EXPREC      ;TSSR INCORRECT AFTER READ DATA
      027102  104456                                                                TRAP    C$ERHRD
      027104  000211                                                                .WORD   137
      027106  005104                                                                .WORD   RDERR
      027110  016360                                                                .WORD   EXPREC
 4916 027112                            170$:   CKLOOP                          ;LOOP IF SELECTED
      027112  104406                                                                TRAP    C$CLP1
 4917 027114  017701  153752                        MOV     @FREE,R1                        ;GET FIRST WORD FROM BUFFER
 4918 027120  012702  000001                        MOV     #1,R2                   ;SET UP EXPECTED
 4919 027124  020102                                CMP     R1,R2                   ;WAS RECORD NUMBERED R3
 4920 027126  001406                                BEQ     200$                    ;BR, IF CORRECT RECORD
 4921 027130  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 4925 027134                                        ERRHRD  ERRNO,T25WNH,EXPREC     ;SHOULD HAVE BEEN RECORD NUMBER 1
```

```
        027134  104456                                                          TRAP    C$ERHRD
        027136  000212                                                          .WORD   138
        027140  031042                                                          .WORD   T25WNH
        027142  016360                                                          .WORD   EXPREC
  4926  027144                        200$:
  4927  027144                              ENDSUB                    ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
        027144                                                                  L10043:
        027144  104403                                                          TRAP    C$ESUB
  4928  027146  023727  002170  000031        CMP     FATFLG,#25.               ;IS ERROR COUNT AT 25
  4929  027154  002402                        BLT     999$                      ;BR, IF LESS THAN 25
  4930  027156  004737  020170              JSR     PC,CKDROP                 ;TRY TO DROP THE UNIT
  4931  027162                        999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 1, SUBTEST 6
                                        ;
                                        ;VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE THE
                                        ;TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
                                        ;WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
                                        ;
                                        ;
                                        ;-
027162                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
027162                                                                                  T1.6:
027162  104402                                                                          TRAP    C$BSUB
027164  004737  031500                        JSR     PC,T25REST              ;SET COMMAND PACKET
027170  004737  031572                        JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
027174  004737  031634                        JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

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

027200  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
027204  103407                                BCS     20$                     ;BR IF INIT WAS OK
027206  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
027212  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
027214                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
027214  104455                                                                          TRAP    C$ERDF
027216  000213                                                                          .WORD   139
027220  003550                                                                          .WORD   SFIERR
027222  011676                                                                          .WORD   SFIMSG
027224                                  20$:

027224  012704  030110                        MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

027230  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
027234  103407                                BCS     25$                     ;BR, IF COMMAND ISSUED OK
027236  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
027242  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
027244                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
027244  104456                                                                          TRAP    C$ERHRD
027246  000214                                                                          .WORD   140
027250  004754                                                                          .WORD   WRTMSG
027252  011676                                                                          .WORD   SFIMSG
027254                                  25$:    CKLOOP                          ;LOOP IF SELECTED
027254  104406                                                                          TRAP    C$CLP1

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

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

027256  004737  010444                        JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
027262  103407                                BCS     30$                     ;BR, IF NO PROBLEM
027264  010001                                MOV     R0,R1                   ;SAVE TSSR
027266  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
027272                                        ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
027272  104456                                                                        TRAP    C$ERHRD
027274  000215                                                                      .WORD   141
027276  031267                                                                      .WORD   T25RWN
027300  011710                                                                      .WORD   PKTSSR
027302                                  30$:    CKLOOP                          ;LOOP IF SELECTED
027302  104406                                                                      TRAP    C$CLP1

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

027304  013701  030136                        MOV     T25BFR+6,R1             ;PICK UP XSTO
027310  010102                                MOV     R1,R2                   ;SET UP EXPECTED
027312  052702  000002                        BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
027316  020102                                CMP     R1,R2                   ;DOES EXP = REC'D
027320  001406                                BEQ     40$                     ;BR, IF EQUAL (OK)
027322  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
027326                                        ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
027326  104456                                                                        TRAP    C$ERHRD
027330  000216                                                                      .WORD   142
027332  030457                                                                      .WORD   T25BOT
027334  016360                                                                      .WORD   EXPREC
027336                                  40$:    CKLOOP                          ;LOOP IF SELECTED
027336  104406                                                                      TRAP    C$CLP1
027340  012737  000001  030242                MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER

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

027346  012737  100410  030240                MOV     #100410,T25PK3          ;SPACE REVERSE,ACK COMMAND
027354  012704  030240                        MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
027360                                  65$:
027360  010465  177776                        MOV     R4,TSDB(R5)             ;ISSUE COMMAND
027364  004737  017134                        JSR     PC,WAITF                ;WAIT FOR SSR TO SET
027370  016501  000000                        MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
027374  012702  100206                        MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
027400  020102                                CMP     R1,R2                   ;ARE THEY EQUAL
027402  001406                                BEQ     75$                     ;BR, IF OK
027404  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
027410                                        ERRHRD  ERRNO,T25WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
027410  104456                                                                        TRAP    C$ERHRD
027412  000217                                                                      .WORD   143
027414  030377                                                                      .WORD   T25WDE
```

```
      027416  011710                                                        .WORD   PKTSSR
5038  027420                  75$:    CKLOOP  .                       ;LOOP IF SELECTED
      027420  104406                                                      TRAP    C$CLP1
5039
5040                          ;*************************************************************
5041                          ;
5042                          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
5043                          ;
5044                          ;*************************************************************
5045
5046  027422  013701  030136          MOV     T25BFR+6,R1             ;GET XSTO STATUS WORD
5047  027426  010102                  MOV     R1,R2                   ;SET UP EXPECTED
5048  027430  052702  002000          BIS     #BIT10,R2               ;SET THE NEF BIT
5049  027434  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
5050  027436  001406                  BEQ     170$                    ;BR, IF EQUAL (GOOD)
5051  027440  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5055  027444                          ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
      027444  104456                                                      TRAP    C$ERHRD
      027446  000220                                                      .WORD   144
      027450  031125                                                      .WORD   T25NEF
      027452  016360                                                      .WORD   EXPREC
5056  027454                  170$:
5057  027454                          ENDSUB
      027454                                                          L10044:
      027454  104403                                                      TRAP    C$ESUB
5058  027456  023727  002170  000031          CMP     FATFLG,#25.     ;IS ERROR COUNT AT 25
5059  027464  002402                  BLT     999$                    ;BR, IF LESS THAN 25
5060  027466  004737  020170          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
5061  027472                  999$:
```

```
                                ;*
                                ;
                                ;TEST 1, SUBTEST 7
                                ;
                                ;VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT
                                ;CUASES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT
                                ;INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT
                                ;TERMINATION AND SETS THE REVERSE INTO BOT (RIB)
                                ;STATUS BIT
                                ;
                                ;
                                ;-
027472                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
027472                                                                                      T1.7:
027472  104402                                                                                      TRAP    C$BSUB
027474  004737  031500                        JSR     PC,T25REST              ;SET COMMAND PACKET
027500  004737  031572                        JSR     PC,T25RT2               ;SET UP OTHER COMMAND PACKET
027504  004737  031634                        JSR     PC,T25RT3               ;SET UP OTHER COMMAND PACKET

                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************
027510  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
027514  103407                              BCS     20$                     ;BR IF INIT WAS OK
027516  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
027522  010001                              MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
027524                                      ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
027524  104455                                                                                    TRAP    C$ERDF
027526  000221                                                                                  .WORD   145
027530  003550                                                                                  .WORD   SFIERR
027532  011676                                                                                  .WORD   SFIMSG
027534                          20$:

027534  012704  030110                        MOV     #T25PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

                                ;*****************************************************************
                                ;
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                ;
                                ;*****************************************************************
027540  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
027544  103407                              BCS     25$                     ;BR, IF COMMAND ISSUED OK
027546  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
027552  010001                              MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
027554                                      ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
027554  104456                                                                                    TRAP    C$ERHRD
027556  000222                                                                                  .WORD   146
027560  004754                                                                                  .WORD   WRTMSG
027562  011676                                                                                  .WORD   SFIMSG
027564                          25$:    CKLOOP                          ;LOOP IF SELECTED
027564  104406                                                                                  TRAP    C$CLP1
```

```
5115                                    ;*****************************************************************
5116                                    ;
5117                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5118                                    ;
5119                                    ;*****************************************************************
5120
5121 027566  004737  010444                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5122 027572  103407                            BCS     30$                     ;BR, IF NO PROBLEM
5123 027574  010001                            MOV     R0,R1                   ;SAVE TSSR
5124 027576  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5128 027602                                    ERRHRD  ERRNO,T25RWN,PKTSSR     ;REWIND NOT ACCEPTED
     027602  104456                                                                    TRAP    C$ERHRD
     027604  000223                                                                    .WORD   147
     027606  031267                                                                    .WORD   T25RWN
     027610  011710                                                                    .WORD   PKTSSR
5129 027612                            30$:    CKLOOP                          ;LOOP IF SELECTED
     027612  104406                                                                    TRAP    C$CLP1
5130
5131                                    ;*****************************************************************
5132                                    ;
5133                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5134                                    ;
5135                                    ;*****************************************************************
5136
5137 027614  013701  030136                    MOV     T25BFR+6,R1             ;PICK UP XST0
5138 027620  010102                            MOV     R1,R2                   ;SET UP EXPECTED
5139 027622  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5140 027626  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
5141 027630  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
5142 027632  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5146 027636                                    ERRHRD  ERRNO,T25BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     027636  104456                                                                    TRAP    C$ERHRD
     027640  000224                                                                    .WORD   148
     027642  030457                                                                    .WORD   T25BOT
     027644  016360                                                                    .WORD   EXPREC
5147 027646  012737  000001  030242  40$:     MOV     #1,T25RB                ;NUMBER OF RECORDS TO SPACE OVER
5148
5149                                    ;*****************************************************************
5150                                    ;
5151                                    ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5152                                    ;
5153                                    ;*****************************************************************
5154
5155 027654  012737  140210  030240            MOV     #140210,T25PK3          ;SPACE FORWARD,IE,ACK,CVC=1 COMMAND
5156 027662  012704  030240                    MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5157 027666  010465  177776                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5158 027672  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5159 027676  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5160 027702  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
5161 027706  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5162 027710  001406                            BEQ     75$                     ;BR, IF OK
5163 027712  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5167 027716                                    ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     027716  104456                                                                    TRAP    C$ERHRD
     027720  000225                                                                    .WORD   149
     027722  030377                                                                    .WORD   T25WDE
     027724  016360                                                                    .WORD   EXPREC
```

```
5168 027726                          75$:    CKLOOP                          ;LOOP IF SELECTED
     027726  104406                                                                  TRAP    C$CLP1
5169 027730  012737  000020  030242          MOV     #20,T25RB               ;NUMBER OF RECORDS TO SPACE OVER
5170
5171                                 ;*****************************************************************
5172                                 ;
5173                                 ;SPACE REVERSE,IE,ACK COMMAND
5174                                 ;
5175                                 ;*****************************************************************
5176
5177 027736  012737  100610  030240          MOV     #100610,T25PK3          ;SPACE REVERSE,IE,ACK COMMAND
5178 027744  012704  030240                  MOV     #T25PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5179 027750  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5180 027754  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5181 027760  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5182 027764  012702  100204                  MOV     #SSR!BIT2!SC,R2         ;SET UP EXPECTED
5183 027770  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5184 027772  001406                          BEQ     175$                    ;BR, IF OK
5185 027774  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5189 030000                                  ERRHRD  ERRNO,T25WDE,EXPREC     ;TSSR INCORRECT AFTER READ DATA
     030000  104456                                                                  TRAP    C$ERHRD
     030002  000226                                                                  .WORD   150
     030004  030377                                                                  .WORD   T25WDE
     030006  016360                                                                  .WORD   EXPREC
5190 030010                          175$:   CKLOOP                          ;LOOP IF SELECTED
     030010  104406                                                                  TRAP    C$CLP1
5191 030012  013701  030144                  MOV     T25BFR+14,R1            ;GET XST3 STATUS WORD
5192 030016  010102                          MOV     R1,R2                   ;SET UP EXPECTED
5193 030020  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT
5194 030024  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5195 030026  001406                          BEQ     180$                    ;BR, IF EQUAL (GOOD)
5196 030030  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5200 030034                                  ERRHRD  ERRNO,T25NEF,EXPREC     ;NEF SHOULD BE SET
     030034  104456                                                                  TRAP    C$ERHRD
     030036  000227                                                                  .WORD   151
     030040  031125                                                                  .WORD   T25NEF
     030042  016360                                                                  .WORD   EXPREC
5201 030044                          180$:
5202 030044                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>
     030044                                                                       L10045:
     030044  104403                                                                  TRAP    C$ESUB
5203 030046  023727  002170  000031          CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
5204 030054  002402                          BLT     999$                            ;BR, IF LESS THAN 25
5205 030056  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5206 030062                          999$:
5207                                 ;
5208                                 ;
5209                                 ;
5210 030062  004737  017372                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
5211 030066  103002                          BCC     193$                    ;BR, IF NO LOOP REQUIRED
5212 030070  000137  023710                  JMP     T25LOOP                 ;EXECUTE AGAIN
5213 030074                          193$:
5214 030074                                  EXIT    TST                     ;ALL DONE THIS TEST
     030074  104432                                                                  TRAP    C$EXIT
     030076  001566                                                                  .WORD   L10036-.
```

```
5216
5217                                    ;+
5218                                    ;LOCAL STORAGE FOR THIS TEST
5220 030100                             ;-
5222 030110                                     .BLKB   10-<.-TUV2A&7>
5223 030110  100004                     T25PACKET:                      ;COMMAND PACKET FOR TEST
5224 030112  030120                             .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH  ACK
5225 030114  000000                             .WORD   T25DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
5226 030116  000010                             .WORD   0
5227 030120                                     .WORD   8.              ;STARTING VALUE OF BLOCK SIZE
5228 030120  030130                     T25DATA:                        ;CHARACTERISTICS DATA BLOCK
5229 030122  000000                             .WORD   T25BFR          ;ADDRESS OF MESSAGE BUFFER
5230 030124  000012                             .WORD   0
5231 030126  000000                             .WORD   10.             ;LENGTH OF MESSAGE BUFFER
5232 030130                                     .WORD   0
5233                                    T25BFR: .BLKW   25.             ;MESSAGE BUFFER
5234                                    ;
5235                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
5237 030212                             ;
5239 030220                                     .BLKB   10-<.-TUV2A&7>
5240 030220  100006                     T25PK2:
5241 030222  030250                             .WORD   100006          ;WRITE SUB SYS MEM COMMAND,  AND ACK
5242 030224  000000                             .WORD   T25BF2          ;ADDRESS OF SELECT BLOCK DATA
5243 030226  000006                             .WORD   0
5244                                            .WORD   6.              ;SIZE OF DATA PACKET
5246 030230                                     .BLKB   10-<.-TUV2A&7>
5248 030240                             T25PK3:
5249 030240  100005                             .WORD   100005          ;READ COMMAND, AND ACK
5250 030242                             T25RB:
5251 030242  003072                     T25WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
5252 030244  000000                             .WORD   0
5253 030246  000000                     T25SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
5254                                            .EVEN
5255                                    ;
5256                                    ;
5257                                    ;
5258 030250                             T25BF2:
5259 030250     010                     T25BS0: .BYTE   10              ;BSEL0 AREA
5260 030251     200                     T25BS1: .BYTE   200             ;BSEL1 AREA
5261 030252  000000                     T25S2:  .WORD   0               ;SEL 2 AREA
5262 030254  000000                     T25S3:  .WORD   0               ;DATA AREA
5263                                    ;
5264                                    ;
5265                                            .EVEN
5266                                    ;TAPE MOTION PACKET COMMAND VALUES
5267
5268 030256  100005                     T25RN:  .WORD   100005          ;READ DATA (NEXT)
5269 030260  100405                     T25WDR: .WORD   100405          ;READ DATA RETRY
5270 030262  102005                     T25CON: .WORD   102005          ;WRITE CONTINOUS
5271 030264  177777                             .WORD   177777          ;END OF DATA
5272
5273
```

```
5275 030266  000000                T25CN2: .WORD   0                       ;COUNTER FOR RECORDS
5276 030270  000000                T25CNT: .WORD   0                       ;COUNTER FOR RECORDS
5277 030272  000000                T25DLY: .WORD   0                       ;COUNTER FOR RECORDS
5278
5279                               ;+
5280                               ;LOCAL TEXT MESSAGES FOR TEST
5281                               ;-
5282
5283
5284 030274      104     122   111  T210FL: .ASCIZ  'DRIVE IS OFF-LINE'
5285 030316      127     122   111  T25SSR: .ASCIZ  'WRITE SUBSYSTEM Miscellaneous Read Status Failed'
5286 030377      124     123   123  T25WDE: .ASCIZ  'TSSR Not Correct After POSITION (SPACE) Command'
5287 030457      124     141   160  T25BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
5288 030524      124     123   123  T25TM:  .ASCIZ  'TSSR Not Correct After POSITION (Space Command) Reject'
5289 030613      127     162   151  T25NET: .ASCIZ  'Write Tape, Status Alert, But No EOT Sensed'
5290 030667      123     160   141  T25WNG: .ASCIZ  'Space Forward Failed To Position On Correct Record'
5291 030752      123     160   141  T25BNC: .ASCIZ  'Space Forward, From BOT, Failed To Clear BOT Indication'
5292 031042      123     160   141  T25WNH: .ASCIZ  'Space Reverse Failed To Position On Correct Record'
5293 031125      123     160   141  T25NEF: .ASCIZ  'Space Reverse, At BOT, Failed To Set NEF (XST0)'
5294 031205      123     160   141  T25RIB: .ASCIZ  'Space Reverse, Into BOT, Failed To Set RIB (XST3)'
5295 031267      122     145   167  T25RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
5296 031336      104     162   151  T250FL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
5297 031411      124     123   123  T25WDC: .ASCIZ  'TSSR Not Correct After READ DATA Command'
5298 031462      123     160   141  TST25ID:        .ASCIZ  'Space Records'
5299                                        .EVEN
5300                               ;+
5301                               ;
5302                               ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
5303                               ;WRITE SUBSYSTEM MEMORY COMMAND
5304                               ;
5305                               ;-
5306
5307 031500                        T25REST:
5308 031500                                SAVREG                          ;SAVE THE REGISTERS
5309 031504  012701  030110                MOV     #T25PACKE,R1            ;START OF THE PACKET
5310 031510  012721  100004                MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK
5311 031514  012721  030120                MOV     #T25DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
5312 031520  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
5313 031522  012721  000012                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
5314 031526  012721  030130                MOV     #T25BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
5315 031532  005021                        CLR     (R1)+
5316 031534  012721  000024                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
5317 031540  005021                        CLR     (R1)+
5318 031542  012711  000000                MOV     #0,(R1)                 ;SELECT DRIVE ZERO
5319 031546  012702  000030                MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
5320 031552  012762  177777  030130  64$:  MOV     #177777,T25BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
5321 031560  005742                        TST     -(R2)                   ;NEXT LOCATION
5322 031562  022702  000000                CMP     #0,R2                   ;IS R2 AT ZERO YET
5323 031566  001371                        BNE     64$                     ;KEEP GOING UNTIL DONE
5324 031570  000207                        RTS     PC                      ;RETURN
5325
5326 031572                        T25RT2:
5327 031572                                SAVREG                          ;SAVE THE REGISTERS
5328 031576  012701  030220                MOV     #T25PK2,R1              ;START OF THE PACKET
5329 031602  012721  100006                MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
5330 031606  012721  030250                MOV     #T25BF2,(R1)+           ;ADDRESS OF DATA BLOCK
5331 031612  005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
```

```
5332 031614  012721  000006                  MOV     #6.,(R1)+       ;SIZE OF DATA BLOCK IN BYTES
5333 031620  005021                          CLR     (R1)+
5334 031622  012701  030250                  MOV     #T25BF2,R1      ;POINT TO DATA SEL AREA
5335 031626  005021                          CLR     (R1)+
5336 031630  005011                          CLR     (R1)
5337 031632  000207                          RTS     PC              ;RETURN
5338 031634                          T25RT3:
5339 031634                                  SAVREG                  ;SAVE THE REGISTERS
5340 031640  012701  030240                  MOV     #T25PK3,R1      ;START OF THE PACKET
5341 031644  012721  000000                  MOV     #0,(R1)+        ;WRITE SUBSYSTEM MEM. WITH ACK,
5342 031650  012721  000000                  MOV     #0,(R1)+        ;ADDRESS OF DATA BLOCK
5343 031654  005021                          CLR     (R1)+           ;EXTENDED ADDRESS
5344 031656  012721  000000                  MOV     #0,(R1)+        ;SIZE OF DATA BLOCK IN BYTES
5345 031662  000207                          RTS     PC              ;RETURN
5346 031664                                  ENDTST
     031664                                                  L10036:
     031664  104401                                                  TRAP    C$ETST
```

```
                                        .SBTTL  TEST  2: REREADS
                                ;*
                                ;
                                ;THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT
                                ;COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN
                                ;DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY
                                ;SPACE IS AVAILIABLE), AND BYTE-SWAP (SWP) AND OPPOSITE (OPP)
                                ;CONRTOL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON
                                ;EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD
                                ;LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES,
                                ;AND DATA BUFFERS IN NONEXISTENT MEMORY.
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 15 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
031666                                  BGNTST
031666                                                                  T2::
031666  005037  002170                    CLR     FATFLG                  ;CLEAR FATAL ERROR FLAG
031672  005037  003100                    CLR     KTFLG           ;HOLD OFF KT11
031676  012737  005771  002146            MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
031704  004737  020262                    JSR     PC,KTOFF                ;DON'T NEED KT11
031710  012700  050637                    MOV     #TST26ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
031714  004737  017424                    JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
031720  012737  000001  002164            MOV     #1,LOOPCNT              ;PERFORM 1 ITERATIONS
031726  005037  046106                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
                                ;*
                                ;
                                ;TEST 2, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT THE REREAD PREVIOUS COMMAND
                                ;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.
                                ;
                                ;
                                ;-
031732                          T26LOOP:
031732                                  BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
031732                                                                          T2.1:
031732  104402                                                                  TRAP    C$BSUB
031734  004737  050650                    JSR     PC,T26REST              ;SET COMMAND PACKET
031740  004737  050742                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
031744  004737  051004                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
031750  012737  176750  046114            MOV     #65000.,T26DLY                  ;SET UP DELAY COUNTER
```

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

031756  004737  016660                  10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
031762  103426                                  BCS     20$                     ;BR IF INIT WAS OK
031764                                          DELAY   250                     ;DELAY FOR A REWIND TO FINISH
031764  012727  000250                                                                          MOV     #250,(PC)+
031770  000000                                                                                  .WORD   0
031772  013727  002116                                                                          MOV     L$DLY,(PC)+
031776  000000                                                                                  .WORD   0
032000  005367  177772                                                                          DEC     -6(PC)
032004  001375                                                                                  BNE     .-4
032006  005367  177756                                                                          DEC     -22(PC)
032012  001367                                                                                  BNE     .-20
032014  005337  046114                          DEC     T26DLY                  ;DEC COUNTER
032020  001356                                  BNE     10$                     ;BR, IF DELAY NOT READY
032022  004737  020116                          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
032026  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
032030                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
032030  104455                                                                                  TRAP    C$ERDF
032032  000311                                                                                  .WORD   201
032034  003550                                                                                  .WORD   SFIERR
032036  011676                                                                                  .WORD   SFIMSG
032040                                  20$:

032040  012704  045730                          MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

032044  004737  010342                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
032050  103407                                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
032052  004737  020116                          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
032056  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
032060                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
032060  104456                                                                                  TRAP    C$ERHRD
032062  000312                                                                                  .WORD   202
032064  004754                                                                                  .WORD   WRTMSG
032066  011676                                                                                  .WORD   SFIMSG
032070                                  26$:    CKLOOP                          ;LOOP IF SELECTED
032070  104406                                                                                  TRAP    C$CLP1

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

032072  004737  010444                          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
032076  103413                                  BCS     30$                     ;BR, IF NO PROBLEM
032100  016501  000000                          MOV     TSSR(R5),R1             ;GET TSSR
```

```
5452 032104  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5453 032110  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
5454 032112  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5458 032116                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     032116  104456                                                        TRAP    C$ERHRD
     032120  000313                                                        .WORD   203
     032122  047414                                                        .WORD   T26RWN
     032124  011710                                                        .WORD   PKTSSR
5459 032126                        30$:    CKLOOP                          ;LOOP IF SELECTED
     032126  104406                                                        TRAP    C$CLP1
5460
5461                               ;*****************************************************************
5462                               ;
5463                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5464                               ;
5465                               ;*****************************************************************
5466
5467 032130  013701  045756                MOV     T26BFR+6,R1             ;PICK UP XST0
5468 032134  010102                        MOV     R1,R2                   ;SET UP EXPECTED
5469 032136  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5470 032142  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
5471 032144  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
5472 032146  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5476 032152                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     032152  104456                                                        TRAP    C$ERHRD
     032154  000314                                                        .WORD   204
     032156  047125                                                        .WORD   T26BOT
     032160  016360                                                        .WORD   EXPREC
5477 032162                        40$:    CKLOOP                          ;LOOP IF SELECTED
     032162  104406                                                        TRAP    C$CLP1
5478 032164  012703  000400                MOV     #256.,R3                ;RECORD SIZE
5479 032170  013737  003072  046062        MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
5480
5481                               ;*****************************************************************
5482                               ;
5483                               ;WRITE DATA,ACK,CVC=1 COMMAND
5484                               ;
5485                               ;*****************************************************************
5486
5487 032176  012737  140005  046060        MOV     #140005,T26PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
5488 032204  012704  046060                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5489 032210                        65$:
5490 032210  010300                        MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
5491 032212  004737  020410                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
5492 032216  010337  046066                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5493 032222  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5494 032226  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5495 032232  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5496 032236  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
5497 032242  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5498 032244  001406                        BEQ     75$                     ;BR, IF OK
5499 032246  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5503                                                                       ;SOFT ERROR GENERATED BECAUSE THE
5504                                                                       ;WRITE COMMAND IS NOT BEING CHECKED
5505                                                                       ;HERE. IT WAS CHECKED IN LEAR2
5506 032252                                ERRSOFT ERRNO,WRTERR,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA
     032252  104457                                                        TRAP    C$ERSOFT
```

```
                                                                                .WORD   205
                                                                                .WORD   WRTERR
                                                                                .WORD   EXPREC
5507 032262                     75$:    CKLOOP                  ;LOOP IF SELECTED
     032262  104406                                                            TRAP    C$CLP1
5508 032264  005723             TST     (R3)+                   ;BUMP RECORD SIZE
5509 032266  022703  000414     CMP     #268.,R3                ;END OF RECORD YET
5510 032272  001346             BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
5511 032274                     80$:    CKLOOP                  ;LOOP IF SELECTED
     032274  104406                                                            TRAP    C$CLP1
5512 032276                     120$:
5513
5514                            ;*************************************************************************
5515                            ;
5516                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5517                            ;
5518                            ;*************************************************************************
5519
5520 032276  004737  010444             JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5521 032302  103413             BCS     130$                    ;BR, IF NO PROBLEM
5522 032304  016501  000000     MOV     TSSR(R5),R1             ;GET TSSR
5523 032310  012702  000200     MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5524 032314  010004             MOV     R0,R4                   ;PACKET ADDRESS SET UP
5525 032316  004737  020116     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5529 032322                     ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     032322  104456                                                            TRAP    C$ERHRD
     032324  000316                                                            .WORD   206
     032326  047414                                                            .WORD   T26RWN
     032330  011710                                                            .WORD   PKTSSR
5530 032332                     130$:   CKLOOP                  ;LOOP IF SELECTED
     032332  104406                                                            TRAP    C$CLP1
5531
5532                            ;*************************************************************************
5533                            ;
5534                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
5535                            ;
5536                            ;*************************************************************************
5537
5538 032334  013701  045756             MOV     T26BFR+6,R1             ;PICK UP XSTO
5539 032340  010102             MOV     R1,R2                   ;SET UP EXPECTED
5540 032342  052702  000002     BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5541 032346  020102             CMP     R1,R2                   ;DOES EXP = REC'D
5542 032350  001406             BEQ     140$                    ;BR, IF EQUAL (OK)
5543 032352  004737  020116             JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5547 032356                     ERRHRD  ERRNO,T26BOT,PKTSSR     ;TAPE NOT AT BOT AFTER REWIND
     032356  104456                                                            TRAP    C$ERHRD
     032360  000317                                                            .WORD   207
     032362  047125                                                            .WORD   T26BOT
     032364  011710                                                            .WORD   PKTSSR
5548 032366                     140$:   CKLOOP                  ;LOOP IF SELECTED
     032366  104406                                                            TRAP    C$CLP1
5549 032370  012737  000400  046112         MOV     #256.,T26RSZ            ;SET RECORD SIZE
5550
5551                            ;*************************************************************************
5552                            ;
5553                            ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5554                            ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
```

```
5555                                    ;
5556                                    ;*************************************************************************
5557
5558 032376  012703  000001            145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
5559 032402  004737  010144                    JSR     PC,SPACE                ;CALL SPACE ROUTINE
5560 032406  103412                            BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
5561 032410  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR
5562 032414  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5563 032420  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5567 032424                                    ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     032424  104456                                                                    TRAP    C$ERHRD
     032426  000320                                                                    .WORD   208
     032430  046527                                                                    .WORD   T26SC
     032432  016360                                                                    .WORD   EXPREC
5568 032434                            150$:
5569 032434  013703  046112                    MOV     T26RSZ,R3               ;RECORD SIZE
5570 032440  013737  003072  046062            MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5571
5572                                    ;*************************************************************************
5573                                    ;
5574                                    ;REPEREAD DATA,CVC=1,ACK COMMAND
5575                                    ;
5576                                    ;*************************************************************************
5577
5578 032446  012737  141001  046060            MOV     #141001,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
5579 032454  012704  046060            165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5580 032460  010337  046066                    MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5581 032464  010465  177776                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5582 032470  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5583 032474  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5584 032500  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
5585 032504  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
5586 032506  001406                            BEQ     170$                    ;BR, IF OK
5587 032510  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5591 032514                                    ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     032514  104456                                                                    TRAP    C$ERHRD
     032516  000321                                                                    .WORD   209
     032520  047750                                                                    .WORD   T26WDC
     032522  011710                                                                    .WORD   PKTSSR
5592 032524                            170$:   CKLOOP                          ;LOOP IF SELECTED
     032524  104406                                                                    TRAP    C$CLP1
5593 032526  013702  003072                    MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5594 032532  010304                            MOV     R3,R4                   ;CURRENT RECORD SIZE
5595 032534  162704  000400                    SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5596 032540  060204                    173$:   ADD     R2,R4                   ;SET UP POINTER
5597 032542  021403                            CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5598 032544  001410                            BEQ     180$                    ;BR, IF ALL IS WELL
5599 032546  011401                            MOV     (R4),R1                 ;RECD DATA
5600 032550  010302                            MOV     R3,R2                   ;EXPECTED DATA
5601 032552  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5605 032556                                    ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     032556  104456                                                                    TRAP    C$ERHRD
     032560  000322                                                                    .WORD   210
     032562  047172                                                                    .WORD   T26DTA
     032564  016360                                                                    .WORD   EXPREC
5606 032566                            180$:   CKLOOP                          ;LOOP IF SELECTED
     032566  104406                                                                    TRAP    C$CLP1
```

```
 5607 032570  005724                          TST     (R4)+              ;BUMP TO NEXT LOCATION
 5608 032572  160204                          SUB     R2,R4              ;CORRECT RECORDS SIZE VALUE
 5609 032574  020403                          CMP     R4,R3              ;END OF RECORD YET
 5610 032576  001360                          BNE     173$               ;BR, IF NOT AT END OF RECORD
 5611 032600  005723                          TST     (R3)+              ;BUMP RECORD SIZE
 5612 032602  010337  046112                  MOV     R3,T26RSZ          ;RESET RECORD SIZE
 5613 032606  022703  000412                  CMP     #266.,R3           ;END OF RECORD YET
 5614 032612  001271                          BNE     145$               ;BR, IF MORE RECORDS TO READ
 5615 032614                          190$:   CKLOOP                     ;LOOP IF SELECTED
      032614  104406                                                                  TRAP    C$CLP1
 5616 032616                                  ENDSUB                     ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      032616                                                                      L10047:
      032616  104403                                                              TRAP    C$ESUB
 5617 032620  023727  002170  000031          CMP     FATFLG,#25.                ;IS ERROR COUNT AT 25
 5618 032626  002402                          BLT     999$                       ;BR, IF LESS THAN 25
 5619 032630  004737  020170                  JSR     PC,CKDROP                  ;TRY TO DROP THE UNIT
 5620 032634                          999$:
```

```
                                ;*
                                ;
                                ;TEST 2, SUBTEST 2
                                ;
                                ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0
                                ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
                                ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
                                ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
                                ;SWAPPED BYTES.
                                ;
                                ;
                                ;
                                ;-
032634                                  BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                        T2.2:
032634  104402                                                                          TRAP    C$BSUB
032636  004737  050650                JSR     PC,T26REST              ;SET COMMAND PACKET
032642  004737  050742                JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
032646  004737  051004                JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

032652  004737  016660                JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
032656  103407                        BCS     20$                     ;BR IF INIT WAS OK
032660  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
032664  010001                        MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
032666                                  ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
032666  104455                                                                          TRAP    C$ERDF
032670  000323                                                                          .WORD   211
032672  003550                                                                          .WORD   SFIERR
032674  011676                                                                          .WORD   SFIMSG
032676                          20$:

032676  012704  045730                MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

032702  004737  010342                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
032706  103407                        BCS     26$                     ;BR. IF COMMAND ISSUED OK
032710  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
032714  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
032716                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
032716  104456                                                                          TRAP    C$ERHRD
032720  000324                                                                          .WORD   212
032722  004754                                                                          .WORD   WRTMSG
032724  011676                                                                          .WORD   SFIMSG
032726                          26$:    CKLOOP                          ;LOOP IF SELECTED
032726  104406                                                                          TRAP    C$CLP1

```

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

                                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
                                BCS     30$                     ;BR, IF NO PROBLEM
                                MOV     TSSR(R5),R1             ;GET TSSR
                                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
                                MOV     R0,R4                   ;PACKET ADDRESS SET UP
                                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                                                                                TRAP    C$ERHRD
                                                                                .WORD   213
                                                                                .WORD   T26RWN
                                                                                .WORD   PKTSSR
                        30$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1

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

                                MOV     T26BFR+6,R1             ;PICK UP XST0
                                MOV     R1,R2                   ;SET UP EXPECTED
                                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
                                CMP     R1,R2                   ;DOES EXP = REC'D
                                BEQ     40$                     ;BR, IF EQUAL (OK)
                                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                                                                                TRAP    C$ERHRD
                                                                                .WORD   214
                                                                                .WORD   T26BOT
                                                                                .WORD   EXPREC
                        40$:    CKLOOP                          ;LOOP IF SELECTED
                                                                                TRAP    C$CLP1
                                MOV     #256.,R3                ;RECORD SIZE
                                MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

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

                                MOV     #110005,T26PK3          ;WRITE DATA,ACK,SWB COMMAND)
                                MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
                        65$:
                                MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
                                JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
                                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
                                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
                                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
                                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
5727 033074  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
5728 033100  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
5729 033102  001406                        BEQ     75$                     ;BR, IF OK
5730 033104  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5734                                                                       ;SOFT ERROR GENERATED BECAUSE THE
5735                                                                       ;WRITE COMMAND IS NOT BEING CHECKED
5736                                                                       ;HERE, IT WAS CHECKED IN LEAH2
5737 033110                                ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     033110  104457                                                                TRAP    C$ERSOFT
     033112  000327                                                                .WORD   215
     033114  005011                                                                .WORD   WRTERR
     033116  011710                                                                .WORD   PKTSSR
5738 033120                        75$:    CKLOOP                          ;LOOP IF SELECTED
     033120  104406                                                                TRAP    C$CLP1
5739 033122  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
5740 033124  022703  000414                CMP     #268.,R3                ;END OF RECORD YET
5741 033130  001346                        BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
5742 033132                        80$:    CKLOOP                          ;LOOP IF SELECTED
     033132  104406                                                                TRAP    C$CLP1
5743 033134                        120$:
5744
5745                               ;*************************************************************************
5746                               ;
5747                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5748                               ;
5749                               ;*************************************************************************
5750
5751 033134  004737  010444                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5752 033140  103415                        BCS     130$                    ;BR, IF NO PROBLEM
5753 033142  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR
5754 033146  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5755 033152  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
5756 033154  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5760 033160                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     033160  104456                                                                TRAP    C$ERHRD
     033162  000330                                                                .WORD   216
     033164  047414                                                                .WORD   T26RWN
     033166  011710                                                                .WORD   PKTSSR
5761 033170                        130$:   CKLOOP                          ;LOOP IF SELECTED
     033170  104406                                                                TRAP    C$CLP1
5762
5763                               ;*************************************************************************
5764                               ;
5765                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5766                               ;
5767                               ;*************************************************************************
5768
5769 033172  013701  045756                MOV     T26BFR+6,R1             ;PICK UP XST0
5770 033176  010102                        MOV     R1,R2                   ;SET UP EXPECTED
5771 033200  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5772 033204  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
5773 033206  001406                        BEQ     140$                    ;BR, IF EQUAL (OK)
5774 033210  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5778 033214                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     033214  104456                                                                TRAP    C$ERHRD
     033216  000331                                                                .WORD   217
     033220  047125                                                                .WORD   T26BOT
```

```
                033222  016360                                                          .WORD   EXPREC
5779            033224                          140$:   CKLOOP                          ;LOOP IF SELECTED
                033224  104406                                                          TRAP    C$CLP1
5780            033226  012737  000400  046112          MOV     #256.,T26RSZ            ;SET UP RECORD SIZE
5781
5782                                                    ;*****************************************************************
5783                                                    ;
5784                                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5785                                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
5786                                                    ;
5787                                                    ;*****************************************************************
5788
5789            033234  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
5790            033240  004737  010144                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
5791            033244  103412                          BCS     150$                    ;BR. IF NO PROBLEM WITH SPACE COMMAND
5792            033246  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
5793            033252  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5794            033256  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5798            033262                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
                033262  104456                                                                  TRAP    C$ERHRD
                033264  000352                                                                  .WORD   218
                033266  046527                                                                  .WORD   T26SC
                033270  016360                                                                  .WORD   EXPREC
5799            033272                          150$:
5800            033272  013703  046112                  MOV     T26RSZ,R3               ;RECORD SIZE
5801            033276  013737  003072  046062          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
5802
5803                                                    ;*****************************************************************
5804                                                    ;
5805                                                    ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5806                                                    ;
5807                                                    ;*****************************************************************
5808
5809            033304  012737  151001  046060          MOV     #151001,T26PK3          ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5810            033312  012704  046060          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
5811            033316  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
5812            033322  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
5813            033326  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
5814            033332  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
5815            033336  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
5816            033342  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
5817            033344  001406                          BEQ     170$                    ;BR. IF OK
5818            033346  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5822            033352                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
                033352  104456                                                                  TRAP    C$ERHRD
                033354  000353                                                                  .WORD   219
                033356  047750                                                                  .WORD   T26WDC
                033360  011710                                                                  .WORD   PKTSSR
5823            033362                          170$:   CKLOOP                          ;LOOP IF SELECTED
                033362  104406                                                                  TRAP    C$CLP1
5824            033364  013702  003072                  MOV     FREE,R2                 ;CURRENT BUFFER ADDRESS TO R2
5825            033370  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
5826            033372  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
5827            033376  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
5828            033400  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
5829            033402  001410                          BEQ     180$                    ;BR. IF ALL IS WELL
5830            033404  011401                          MOV     (R4),R1                 ;RECD DATA
```

```
5831 033406  010302                        MOV     R3,R2                   ;EXPECTED DATA
5832 033410  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5836 033414                                ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     033414  104456                                                                TRAP    C$ERHRD
     033416  000334                                                                .WORD   220
     033420  047172                                                                .WORD   T26DTA
     033422  016360                                                                .WORD   EXPREC
5837 033424                          180$:  CKLOOP                          ;LOOP IF SELECTED
     033424  104406                                                                TRAP    C$CLP1
5838 033426  005724                        TST     (R4)+                   ;BUMP TO NEXT LOCATION
5839 033430  160204                        SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
5840 033432  020403                        CMP     R4,R3                   ;END OF RECORD YET
5841 033434  001360                        BNE     173$                    ;BR, IF NOT AT END OF RECORD
5842 033436  005723                        TST     (R3)+                   ;BUMP RECORD SIZE
5843 033440  010337  046112                MOV     R3,T26RSZ               ;STORE RECORD SIZE
5844 033444  022703  000412                CMP     #266.,R3                ;END OF RECORD YET
5845 033450  001271                        BNE     145$                    ;BR, IF MORE RECORDS TO READ
5846 033452                          190$:  CKLOOP                          ;LOOP IF SELECTED
     033452  104406                                                                TRAP    C$CLP1
5847 033454                                ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     033454                                                                     L10050:
     033454  104403                                                                TRAP    C$ESUB
5848 033456  023727  002170  000031        CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
5849 033464  002402                        BLT     999$                            ;BR, IF LESS THAN 25
5850 033466  004737  020170                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
5851 033472                          999$:
```

```
5853                    ;+
5854                    ;
5855                    ;TEST 2, SUBTEST 3
5856                    ;
5857                    ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
5858                    ;(READ REVERSE, SPACE FORWARD) AND SWB=0 OPERATES
5859                    ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
5860                    ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
5861                    ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
5862                    ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
5863                    ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
5864                    ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
5865                    ;
5866                    ;1.     THE REREAD PREVIOUS COMMAND WITH OPP=1 IS ISSUED
5867                    ;       AND THE RESULTS CHECKED
5868                    ;
5869                    ;2.     A READ FORWARD COMMAND IS THEN ISSUED AND THE
5870                    ;       DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
5871                    ;       POSITIONED PROPERLY AFTER THE REREAD PREVIOUS
5872                    ;       COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
5873                    ;       POSITIONED AT THE START OF THE TEST RECORD). THE
5874                    ;       READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
5875                    ;       PROPERLY AT THE START OF THE NEXT TEST RECORD.
5876                    ;
5877                    ;THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET
5878                    ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
5879                    ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
5880                    ;
5881                    ;
5882                    ;
5883                    ;
5884                    ;-
5885
5886 033472                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      033472                                                                      T2.3:
      033472  104402                                                                TRAP    C$BSUB
5887 033474  004737  050650              JSR     PC,T26REST        ;SET COMMAND PACKET
5888 033500  005037  046106              CLR     T26CNT            ;CLEAR TAPE RECORD COUNTER
5889 033504  004737  050742              JSR     PC,T26RT2         ;SET UP OTHER COMMAND PACKET
5890 033510  004737  051004              JSR     PC,T26RT3         ;SET UP OTHER COMMAND PACKET
5891
5892                    ;*****************************************************************
5893                    ;
5894                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
5895                    ;
5896                    ;*****************************************************************
5897
5898 033514  004737  016660              JSR     PC,SOFINIT        ;DO INITIALIZE ON CONTROLLER
5899 033520  103407                      BCS     20$               ;BR IF INIT WAS OK
5900 033522  004737  020116              JSR     PC,FATCHK         ;INC AND CHECK FOR MORE THAN 25 ERRORS
5904 033526  010001                      MOV     R0,R1             ;CONTENTS OF TSSR REGISTER
5905 033530                              ERRDF   ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
      033530  104455                                                                TRAP    C$ERDF
      033532  000335                                                                .WORD   221
      033534  003550                                                                .WORD   SFIERR
      033536  011676                                                                .WORD   SFIMSG
5906 033540                     20$:
```

```
5907
5908 033540  012704  045730                  MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
5909
5910                                 ;*************************************************************************
5911                                 ;
5912                                 ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5913                                 ;
5914                                 ;*************************************************************************
5915
5916 033544  004737  010342                  JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
5917 033550  103407                          BCS     26$                     ;BR, IF COMMAND ISSUED OK
5918 033552  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5922 033556  010001                          MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
5923 033560                                  ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     033560  104456                                                                  TRAP    C$ERHRD
     033562  000336                                                                  .WORD   222
     033564  004754                                                                  .WORD   WRTMSG
     033566  011676                                                                  .WORD   SFIMSG
5924 033570                          26$:    CKLOOP                          ;LOOP IF SELECTED
     033570  104406                                                                  TRAP    C$CLP1
5925
5926                                 ;*************************************************************************
5927                                 ;
5928                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5929                                 ;
5930                                 ;*************************************************************************
5931
5932 033572  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
5933 033576  103413                          BCS     30$                     ;BR, IF NO PROBLEM
5934 033600  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
5935 033604  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
5936 033610  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
5937 033612  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5941 033616                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     033616  104456                                                                  TRAP    C$ERHRD
     033620  000337                                                                  .WORD   223
     033622  047414                                                                  .WORD   T26RWN
     033624  011710                                                                  .WORD   PKTSSR
5942 033626                          30$:    CKLOOP                          ;LOOP IF SELECTED
     033626  104406                                                                  TRAP    C$CLP1
5943
5944                                 ;*************************************************************************
5945                                 ;
5946                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5947                                 ;
5948                                 ;*************************************************************************
5949
5950 033630  013701  045756                  MOV     T26BFR+6,R1             ;PICK UP XST0
5951 033634  010102                          MOV     R1,R2                   ;SET UP EXPECTED
5952 033636  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
5953 033642  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
5954 033644  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
5955 033646  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
5959 033652                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     033652  104456                                                                  TRAP    C$ERHRD
     033654  000340                                                                  .WORD   224
     033656  047125                                                                  .WORD   T26BOT
```

```
033660  016360                                                                                  .WORD   EXPREC
033662                                  40$:    CKLOOP                          ;LOOP IF SELECTED
033662  104406                                                                                  TRAP    C$CLP1
033664  012703  000400                          MOV     #256.,R3                ;RECORD SIZE
033670  013737  003072  046062                  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

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

033676  012737  140005  046060                  MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
033704  012704  046060                          MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
033710                                  65$:
033710  010300                                  MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
033712  004737  020410                          JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
033716  010337  046066                          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
033722  013777  046106  147142                  MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
033730  062737  000001  046106                  ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
033736  010465  177776                          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
033742  004737  017134                          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
033746  016501  000000                          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
033752  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED
033756  020102                                  CMP     R1,R2                   ;ARE THEY EQUAL
033760  001406                                  BEQ     75$                     ;BR, IF OK
033762  004737  020116                          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                                                                ;SOFT ERROR GENERATED BECAUSE THE
                                                                                ;WRITE COMMAND IS NOT BEING CHECKED
                                                                                ;HERE, IT WAS CHECKED IN LEAH2
033766                                          ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
033766  104457                                                                                  TRAP    C$ERSOFT
033770  000341                                                                                  .WORD   225
033772  005011                                                                                  .WORD   WRTERR
033774  011710                                                                                  .WORD   PKTSSR
033776                                  75$:    CKLOOP                          ;LOOP IF SELECTED
033776  104406                                                                                  TRAP    C$CLP1
034000  005723                                  TST     (R3)+                   ;BUMP THE RECORD SIZE
034002  022703  000414                          CMP     #268.,R3                ;MAXIMUM SIZE YET
034006  001401                                  BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
034010  000737                                  BR      65$                     ;WRITE MORE RECORDS
034012                                  120$:
034012  005037  046106                          CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO

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

034016  004737  010444                          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
034022  103413                                  BCS     130$                    ;BR, IF NO PROBLEM
034024  016501  000000                          MOV     TSSR(R5),R1             ;GET TSSR
034030  012702  000200                          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
034034  010004                                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
034036  004737  020116                          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
034042                                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
```

```
      034042  104456                                                    TRAP    C$ERHRD
      034044  000342                                                    .WORD   226
      034046  047414                                                    .WORD   T26RWN
      034050  011710                                                    .WORD   PKTSSR
 6016 034052                  130$:   CKLOOP                           ;LOOP IF SELECTED
      034052  104406                                                    TRAP    C$CLP1
 6017
 6018                         ;*****************************************************************
 6019                         ;
 6020                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 6021                         ;
 6022                         ;*****************************************************************
 6023
 6024 034054  013701  045756          MOV     T26BFR+6,R1             ;PICK UP XSTO
 6025 034060  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 6026 034062  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 6027 034066  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
 6028 034070  001406                  BEQ     140$                    ;BR. IF EQUAL (OK)
 6029 034072  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6033 034076                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      034076  104456                                                    TRAP    C$ERHRD
      034100  000343                                                    .WORD   227
      034102  047125                                                    .WORD   T26BOT
      034104  016360                                                    .WORD   EXPREC
 6034 034106                  140$:   CKLOOP                           ;LOOP IF SELECTED
      034106  104406                                                    TRAP    C$CLP1
 6035
 6036                         ;*****************************************************************
 6037                         ;
 6038                         ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 6039                         ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 6040                         ;
 6041                         ;*****************************************************************
 6042
 6043 034110  012703  000001          MOV     #1,R3                   ;SPACE 1 RECORD FORWARD
 6044 034114  004737  010144          JSR     PC,SPACE                ;SPACE CALL
 6045 034120  012703  000400          MOV     #256.,R3                ;RECORD SIZE
 6046 034124  013737  003072  046062  150$:   MOV     FREE,T26RB      ;STARTING READ BUFFER ADDRESS
 6047
 6048                         ;*****************************************************************
 6049                         ;
 6050                         ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6051                         ;
 6052                         ;*****************************************************************
 6053
 6054 034132  012737  161001  046060          MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
 6055 034140  012704  046060  165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6056 034144  010337  046066          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6057 034150  010465  177776          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6058 034154  004737  017134          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6059 034160  016501  000000          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6060 034164  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED
 6061 034170  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 6062 034172  001406                  BEQ     170$                    ;BR. IF OK
 6063 034174  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6067 034200                          ERRHRD  ERRNO,T26RRG,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      034200  104456                                                            TRAP    C$ERHRD
```

```
                034202  000344                                                          .WORD   228
                034204  046432                                                          .WORD   T26RRG
                034206  011710                                                          .WORD   PKTSSR
 6068           034210                          170$:   CKLOOP                          ;LOOP IF SELECTED
                034210  104406                                                          TRAP    C$CLP1
 6069           034212  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
 6070           034214  062737  000001  046106          ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
 6071
 6072                                                   ;*************************************************************************
 6073                                                   ;
 6074                                                   ;READ DATA, CVC=1, ACK COMMAND
 6075                                                   ;
 6076                                                   ;*************************************************************************
 6077
 6078           034222  012737  140001  046060          MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
 6079           034230  010337  046066                  MOV     R3,T26SZ                ;SET SIZE INTO PACKET
 6080           034234  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
 6081           034240  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR
 6082           034244  016501  000000                  MOV     TSSR(R5),R1             ;PICK UP THE TSSR
 6083           034250  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 6084           034254  020102                          CMP     R1,R2                   ;IS THE TSSR OK
 6085           034256  001406                          BEQ     195$                    ;BR, IF TSSR OK (GOOD)
 6086           034260  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6090           034264                                  ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
                034264  104456                                                          TRAP    C$ERHRD
                034266  000345                                                          .WORD   229
                034270  005104                                                          .WORD   RDERR
                034272  011710                                                          .WORD   PKTSSR
 6091           034274                          195$:   CKLOOP                          ;LOOP IF SELECTED
                034274  104406                                                          TRAP    C$CLP1
 6092           034276  017701  146570                  MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
 6093           034302  013702  046106                  MOV     T26CNT,R2               ;SET UP EXPECTED
 6094           034306  020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
 6095           034310  001406                          BEQ     197$                    ;KEEP GOING POSITION OK
 6096           034312  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6100           034316                                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
                034316  104456                                                          TRAP    C$ERHRD
                034320  000346                                                          .WORD   230
                034322  046116                                                          .WORD   T26WNG
                034324  016360                                                          .WORD   EXPREC
 6101           034326                          197$:   CKLOOP
                034326  104406                                                          TRAP    C$CLP.
 6102           034330  022703  000412                  CMP     #266.,R3                ;AT MAX SIZE YET
 6103           034334  001401                          BEQ     200$                    ;BR, IF AT END OF THE SUBTEST
 6104           034336  000672                          BR      150$                    ;KEEP GOING MORE RECORDS
 6105           034340                          200$:
 6106           034340                          ENDSUB                                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
                034340                                                                          L10051:
                034340  104403                                                          TRAP    C$ESUB
 6107           034342  023727  002170  000031          CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
 6108           034350  002402                          BLT     999$                            ;BR, IF LESS THAN 25
 6109           034352  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 6110           034356                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 4
                                        ;
                                        ;VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
                                        ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
                                        ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
                                        ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
                                        ;SWAPPED BYTES.
                                        ;
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                        T2.4:
034356  104402                                                                                                  TRAP    C$BSUB
034360  004737  050650                        JSR     PC,T26REST              ;SET COMMAND PACKET
034364  005037  046106                        CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
034370  004737  050742                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
034374  004737  051004                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

034400  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
034404  103407                                BCS     20$                     ;BR IF INIT WAS OK
034406  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
034412  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
034414                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
034414  104455                                                                                          TRAP    C$ERDF
034416  000347                                                                                          .WORD   231
034420  003550                                                                                          .WORD   SFIERR
034422  011676                                                                                          .WORD   SFIMSG
034424                                  20$:

034424  012704  045730                        MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

034430  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
034434  103407                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
034436  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
034442  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
034444                                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
034444  104456                                                                                          TRAP    C$ERHRD
034446  000350                                                                                          .WORD   232
034450  004754                                                                                          .WORD   WRTMSG
034452  011676                                                                                          .WORD   SFIMSG
```

```
6165 034454                          26$:    CKLOOP                          ;LOOP IF SELECTED
     034454  104406                                                                  TRAP    C$CLP1
6166
6167                                 ;*************************************************************
6168                                 ;
6169                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6170                                 ;
6171                                 ;*************************************************************
6172
6173 034456  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6174 034462  103413                          BCS     30$                     ;BR. IF NO PROBLEM
6175 034464  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
6176 034470  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6177 034474  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6178 034476  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6182 034502                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     034502  104456                                                                  TRAP    C$ERHRD
     034504  000351                                                                  .WORD   233
     034506  047414                                                                  .WORD   T26RWN
     034510  011710                                                                  .WORD   PKTSSR
6183 034512                          30$:    CKLOOP                          ;LOOP IF SELECTED
     034512  104406                                                                  TRAP    C$CLP1
6184
6185                                 ;*************************************************************
6186                                 ;
6187                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6188                                 ;
6189                                 ;*************************************************************
6190
6191 034514  013701  045756                  MOV     T26BFR+6,R1             ;PICK UP XST0
6192 034520  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6193 034522  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6194 034526  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6195 034530  001406                          BEQ     40$                     ;BR. IF EQUAL (OK)
6196 034532  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6200 034536                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     034536  104456                                                                  TRAP    C$ERHRD
     034540  000352                                                                  .WORD   234
     034542  047125                                                                  .WORD   T26BOT
     034544  016360                                                                  .WORD   EXPREC
6201 034546                          40$:    CKLOOP                          ;LOOP IF SELECTED
     034546  104406                                                                  TRAP    C$CLP1
6202 034550  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
6203 034554  013737  003072  046062          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
6204
6205                                 ;*************************************************************
6206                                 ;
6207                                 ;WRITE DATA,CVC=1,ACK COMMAND
6208                                 ;
6209                                 ;*************************************************************
6210
6211 034562  012737  140005  046060          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
6212 034570  012704  046060                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6213 034574                          65$:
6214 034574  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
6215 034576  004737  020410                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
6216 034602  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
```

```
6217 034606  013777  046106  146256          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
6218 034614  062737  000001  046106          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
6219 034622  010465  177776                  MOV     R4,1SDB(R5)             ;ISSUE COMMAND
6220 034626  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6221 034632  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6222 034636  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
6223 034642  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
6224 034644  001406                          BEQ     75$                     ;BR, IF OK
6225 034646  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6229                                                                        ;SOFT ERROR GENERATED BECAUSE THE
6230                                                                        ;WRITE COMMAND IS NOT BEING CHECKED
6231                                                                        ;HERE. IT WAS CHECKED IN LEAH2
6232 034652                                  ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     034652  104457                                                                  TRAP    C$ERSOFT
     034654  000353                                                                  .WORD   235
     034656  005011                                                                  .WORD   WRTERR
     034660  011710                                                                  .WORD   PKTSSR
6233 034662                          75$:    CKLOOP                          ;LOOP IF SELECTED
     034662  104406                                                                  TRAP    C$CLP1
6234 034664  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
6235 034666  022703  000412                  CMP     #266.,R3                ;MAXIMUM SIZE YET
6236 034672  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
6237 034674  000737                          BR      65$                     ;WRITE MORE RECORDS
6238 034676                          120$:
6239 034676  005037  046106                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
6240
6241                                         ;*************************************************************************
6242                                         ;
6243                                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6244                                         ;
6245                                         ;*************************************************************************
6246
6247 034702  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
6248 034706  103413                          BCS     130$                    ;BR, IF NO PROBLEM
6249 034710  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
6250 034714  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6251 034720  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
6252 034722  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6256 034726                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     034726  104456                                                                  TRAP    C$ERHRD
     034730  000354                                                                  .WORD   236
     034732  047414                                                                  .WORD   T26RWN
     034734  011710                                                                  .WORD   PKTSSR
6257 034736                          130$:   CKLOOP                          ;LOOP IF SELECTED
     034736  104406                                                                  TRAP    C$CLP1
6258
6259                                         ;*************************************************************************
6260                                         ;
6261                                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6262                                         ;
6263                                         ;*************************************************************************
6264
6265 034740  013701  045756                  MOV     T26BFR+6,R1             ;PICK UP XST0
6266 034744  010102                          MOV     R1,R2                   ;SET UP EXPECTED
6267 034746  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
6268 034752  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
6269 034754  001406                          BEQ     140$                    ;BR, IF EQUAL (OK)
```

```
6270 034756  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6274 034762                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     034762  104456                                                                TRAP    C$ERHRD
     034764  000355                                                                .WORD   237
     034766  047125                                                                .WORD   T26BOT
     034770  016360                                                                .WORD   EXPREC
6275 034772                         140$:   CKLOOP                          ;LOOP IF SELECTED
     034772  104406                                                                TRAP    C$CLP1
6276
6277                                ;*************************************************************
6278                                ;
6279                                ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
6280                                ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
6281                                ;
6282                                ;*************************************************************
6283
6284 034774  012703  000001                MOV     #1,R3                   ;SET UP SPACE FORWARD 1
6285 035000  004737  010144                JSR     PC,SPACE                ;ISSUE SPACE COMMAND
6286 035004  012703  000400                MOV     #256.,R3                ;RECORD SIZE
6287 035010  013737  003072  046062  150$:  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6288
6289                                ;*************************************************************
6290                                ;
6291                                ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6292                                ;
6293                                ;*************************************************************
6294
6295 035016  012737  171001  046060          MOV     #171001,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6296 035024  012704  046060          165$:  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6297 035030  010337  046066                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6298 035034  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6299 035040  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6300 035044  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6301 035050  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
6302 035054  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6303 035056  001406                        BEQ     170$                    ;BR, IF OK
6304 035060  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6308 035064                                ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     035064  104456                                                                TRAP    C$ERHRD
     035066  000356                                                                .WORD   238
     035070  046335                                                                .WORD   T26RRF
     035072  011710                                                                .WORD   PKTSSR
6309 035074                         170$:   CKLOOP                          ;LOOP IF SELECTED
     035074  104406                                                                TRAP    C$CLP1
6310 035076  017701  145770                MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
6311 035102  013702  046106                MOV     T26CNT,R2               ;SET UP EXPECTED
6312 035106  000302                        SWAB    R2                      ;SWAP BYTES IN EXPECTED
6313 035110  020102                        CMP     R1,R2                   ;IS TAPE POSITION CORRECT
6314 035112  001406                        BEQ     190$                    ;KEEP GOING POSITION OK
6315 035114  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6319 035120                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
     035120  104456                                                                TRAP    C$ERHRD
     035122  000357                                                                .WORD   239
     035124  046116                                                                .WORD   T26WNG
     035126  016360                                                                .WORD   EXPREC
6320 035130                         190$:   CKLOOP
     035130  104406                                                                TRAP    C$CLP1
```

```
 6321 035132  005723                        TST     (R3)+                   ;NEXT RECORD SIZE
 6322 035134  062737  000001  046106        ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
 6323
 6324                                ;*************************************************************************
 6325                                ;
 6326                                ;READ DATA, CVC=1, ACK COMMAND
 6327                                ;
 6328                                ;*************************************************************************
 6329
 6330 035142  012737  140001  046060        MOV     #140001,T26PK3          ;READ DATA, CVC=1, ACK COMMAND
 6331 035150  010337  046036                MOV     R3,T26SZ                ;SET SIZE INTO PACKET
 6332 035154  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
 6333 035160  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR
 6334 035164  013501  000000                MOV     TSSR(R5),R1             ;PICK UP THE TSSR
 6335 035170  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 6336 035174  020102                        CMP     R1,R2                   ;IS THE TSSR OK
 6337 035176  001406                        BEQ     215$                    ;BR, IF TSSR OK (GOOD)
 6338 035200  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6342 035204                                ERRHRD  ERRNO,T26RDF,PKTSSR     ;READ DATA COMMAND FAILED
      035204  104456                                                                TRAP    C$ERHRD
      035206  000360                                                                .WORD   240
      035210  046266                                                                .WORD   T26RDF
      035212  011710                                                                .WORD   PKTSSR
 6343 035214                        215$:   CKLOOP                          ;LOOP IF SELECTED
      035214  104406                                                                TRAP    C$CLP1
 6344 035216  017701  145650                MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
 6345 035222  013702  046106                MOV     T26CNT,R2               ;SET UP EXPECTED
 6346 035226  020102                        CMP     R1,R2                   ;IS TAPE POSITION CORRECT
 6347 035230  001406                        BEQ     217$                    ;KEEP GOING POSITION OK
 6348 035232  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6352 035236                                ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
      035236  104456                                                                TRAP    C$ERHRD
      035240  000361                                                                .WORD   241
      035242  046116                                                                .WORD   T26WNG
      035244  016360                                                                .WORD   EXPREC
 6353 035246                        217$:   CKLOOP
      035246  104406                                                                TRAP    C$CLP1
 6354 035250  022703  000410                CMP     #264.,R3                ;AT MAX SIZE YET
 6355 035254  001401                        BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
 6356 035256  000654                        BR      150$                    ;KEEP GOING MORE RECORDS
 6357 035260                        220$:
 6358 035260                        ENDSUB                                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      035260                                                                        L10052:
      035260  104403                                                                TRAP    C$ESUB
 6359 035262  023727  002170  000031        CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
 6360 035270  002402                        BLT     999$                            BR, IF LESS THAN 25
 6361 035272  004737  020170                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 6362 035276                        999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 5
                                        ;
                                        ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
                                        ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;
                                        ;-


035276                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
035276                                                                                  T2.5:
035276  104402                                                                          TRAP    C$BSUB
035300  004737  050650                        JSR     PC,T26REST              ;SET COMMAND PACKET
035304  004737  050742                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACK. T
035310  004737  051004                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

035314  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
035320  103407                                BCS     20$                     ;BR IF INIT WAS OK
035322  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
035326  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
035330                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
035330  104455                                                                          TRAP    C$ERDF
035332  000362                                                                          .WORD   242
035334  003550                                                                          .WORD   SFIERR
035336  011676                                                                          .WORD   SFIMSG
035340                                  20$:

035340  012704  045730                        MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

035344  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
035350  103407                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
035352  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
035356  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
035360                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
035360  104456                                                                          TRAP    C$ERHRD
035362  000363                                                                          .WORD   243
035364  004754                                                                          .WORD   WRTMSG
035366  011676                                                                          .WORD   SFIMSG
035370                                  26$:    CKLOOP                          ;LOOP IF SELECTED
```

```
035370  104406                                                                                  TRAP    C$CLP1

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

035372  004737  010444                          JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
035376  103413                                  BCS     30$                         ;BR, IF NO PROBLEM
035400  016501  000000                          MOV     TSSR(R5),R1                 ;GET TSSR
035404  012702  000200                          MOV     #SSR,R2                     ;SET UP EXPECTED TSSR
035410  010004                                  MOV     R0,R4                       ;PACKET ADDRESS SET UP
035412  004737  020116                          JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
035416                                          ERRHRD  ERRNO,T26RWN,PKTSSR         ;REWIND NOT ACCEPTED
035416  104456                                                                                  TRAP    C$ERHRD
035420  000364                                                                                  .WORD   244
035422  047414                                                                                  .WORD   T26RWN
035424  011710                                                                                  .WORD   PKTSSR
035426                                  30$:    CKLOOP                              ;LOOP IF SELECTED
035426  104406                                                                                  TRAP    C$CLP1

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

035430  013701  045756                          MOV     T26BFR+6,R1                 ;PICK UP XSTO
035434  010102                                  MOV     R1,R2                       ;SET UP EXPECTED
035436  052702  000002                          BIS     #BIT1,R2                    ;SET BOT BIT IN EXPECTED
035442  020102                                  CMP     R1,R2                       ;DOES EXP = REC'D
035444  001406                                  BEQ     40$                         ;BR, IF EQUAL (OK)
035446  004737  020116                          JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
035452                                          ERRHRD  ERRNO,T26BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
035452  104456                                                                                  TRAP    C$ERHRD
035454  000365                                                                                  .WORD   245
035456  047125                                                                                  .WORD   T26BOT
035460  016360                                                                                  .WORD   EXPREC
035462                                  40$:    CKLOOP                              ;LOOP IF SELECTED
035462  104406                                                                                  TRAP    C$CLP1
035464  012703  001000                          MOV     #512.,R3                    ;RECORD SIZE
035470  013737  003072  046062                  MOV     FREE,T26RB                  ;STARTING WRITE BUFFER ADDRESS

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

035476  012737  140005  046060                  MOV     #140005,T26PK3              ;WRITE DATA,CVC=1,ACK COMMAND
035504  012704  046060                          MOV     #T26PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
035510                                  65$:
035510  010337  046066                          MOV     R3,T26SZ                    ;SET UP RECORD SIZE IN PACKET
035514  010465  177776                          MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
035520  004737  017134                          JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
035524  016501  000000                          MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
```

```
6469 035530  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
6470 035534  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6471 035536  001406                      BEQ     75$                     ;BR, IF OK
6472 035540  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6476                                                                     ;SOFT ERROR GENERATED BECAUSE THE
6477                                                                     ;WRITE COMMAND IS NOT BEING CHECKED
6478                                                                     ;HERE. IT WAS CHECKED IN LEAH2
6479 035544                              ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     035544  104457                                                              TRAP    C$ERSOFT
     035546  000366                                                              .WORD   246
     035550  005011                                                              .WORD   WRTERR
     035552  011710                                                              .WORD   PKTSSR
6480 035554                      75$:    CKLOOP                          ;LOOP IF SELECTED
     035554  104406                                                              TRAP    C$CLP1
6481 035556  005303                      DEC     R3                      ;SET RECORD SIZE TO 511.
6482 035560  013737  003072  046062      MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6483
6484                             ;*****************************************************************
6485                             ;
6486                             ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6487                             ;
6488                             ;*****************************************************************
6489
6490 035566  012737  161001  046060      MOV     #161001,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6491 035574  012704  046060      165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6492 035600  010337  046066              MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6493 035604  010465  177776              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6494 035610  004737  017134              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6495 035614  016501  000000              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6496 035620  012702  100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6497 035624  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6498 035626  001406                      BEQ     170$                    ;BR, IF OK
6499 035630  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6503 035634                              ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DAT\
     035634  104456                                                              TRAP    C$ERHRD
     035636  000367                                                              .WORD   247
     035640  000472                                                              .WORD   T26TRL
     035642  011710                                                              .WORD   PKTSSR
6504 035644                      170$:   CKLOOP                          ;LOOP IF SELECTED
     035644  104406                                                              TRAP    C$CLP1
6505
6506                             ;*****************************************************************
6507                             ;
6508                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6509                             ;
6510                             ;*****************************************************************
6511
6512 035646  013701  045756              MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6513 035652  010102                      MOV     R1,R2                   ;SET UP EXPECTED
6514 035654  052702  010000              BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
6515 035660  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
6516 035662  001406                      BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6517 035664  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6521 035670                              ERRHRD  ERRNO,T26LUN,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     035670  104456                                                              TRAP    C$ERHRD
     035672  000370                                                              .WORD   248
     035674  050240                                                              .WORD   T26LUN
```

```
                035676  016360                                                          .WORD   EXPREC
6522            035700
                035700  104406                                                          TRAP    C$CLP1
6523            035702  012703  000777          180$:   CKLOOP                  ;LOOP IF SELECTED
6524            035706  013737  003072  046062          MOV     #511.,R3        ;SET RECORD SIZE
6525                                                    MOV     FREE,T26RB      ;STARTING READ BUFFER ADDRESS
6526                                            ;*****************************************************************
6527                                            ;
6528                                            ;REREAD DATA,CVC=1,ACK COMMAND
6529                                            ;
6530                                            ;*****************************************************************
6531
6532 035714  012737  141001  046060                  MOV     #141001,T26PK3  ;REREAD DATA,CVC=1,ACK COMMAND
6533 035722  012704  046060          365$:   MOV     #T26PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
6534 035726  010337  046066                  MOV     R3,T26SZ        ;SET UP RECORD SIZE IN PACKET
6535 035732  010465  177776                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
6536 035736  004737  017134                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
6537 035742  016501  000000                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
6538 035746  012702  100204                  MOV     #SSR!SC!BIT2,R2 ;SET UP EXPECTED
6539 035752  020102                          CMP     R1,R2           ;ARE THEY EQUAL
6540 035754  001406                          BEQ     370$            ;BR, IF OK
6541 035756  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
6545 035762                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
                035762  104456                                                          TRAP    C$ERHRD
                035764  000371                                                          .WORD   249
                035766  050472                                                          .WORD   T26TRL
                035770  011710                                                          .WORD   PKTSSR
6546 035772                     370$:   CKLOOP                  ;LOOP IF SELECTED
                035772  104406                                                          TRAP    C$CLP1
6547
6548                                            ;*****************************************************************
6549                                            ;
6550                                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6551                                            ;
6552                                            ;*****************************************************************
6553
6554 035774  013701  045756                          MOV     T26BFR+6,R1     ;GET MESSAGE BUFFER
6555 036000  010102                                  MOV     R1,R2           ;SET UP EXPECTED
6556 036002  052702  010000                          BIS     #BIT12,R2       ;SET THE RLL BIT IN EXPECTED
6557 036006  020102                                  CMP     R1,R2           ;ARE THEY EQUAL
6558 036010  001406                                  BEQ     380$            ;BR, IF EQUAL (ALL IS WELL)
6559 036012  004737  020116                          JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
6563 036016                                          ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
                036016  104456                                                                  TRAP    C$ERHRD
                036020  000372                                                                  .WORD   250
                036022  050240                                                                  .WORD   T26LON
                036024  016360                                                                  .WORD   EXPREC
6564 036026                     380$:
6565 036026                                  ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                036026                                                          L10053:
                036026  104403                                                                  TRAP    C$ESUB
6566 036030  023727  002170  000031                  CMP     FATFLG,#25.             ;IS ERROR COUNT AT 25
6567 036036  002402                                  BLT     999$                    ;BR, IF LESS THAN 25
6568 036040  004737  020170                          JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
6569 036044                     999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 6
                                        ;
                                        ;VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
                                        ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
                                        ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
                                        ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
                                        ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
                                        ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;-
036044                                          BGNSUB                  ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
036044                                                                          T2.6:
036044  104402                                                                  TRAP    C$BSUB
036046  004737  050650                    JSR     PC,T26REST              ;SET COMMAND PACKET
036052  004737  050742                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
036056  004737  051004                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

036062  004737  016660                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
036066  103407                            BCS     20$                     ;BR IF INIT WAS OK
036070  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
036074  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
036076                                      ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
036076  104455                                                                  TRAP    C$ERDF
036100  000373                                                                  .WORD   251
036102  003550                                                                  .WORD   SFIERR
036104  011676                                                                  .WORD   SFIMSG
036106                                  20$:

036106  012704  045730                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

036112  004737  010342                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
036116  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
036120  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
036124  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
036126                                      ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
036126  104456                                                                  TRAP    C$ERHRD
036130  000374                                                                  .WORD   252
036132  004754                                                                  .WORD   WRTMSG
```

```
036134  011676                                                                                  .WORD   SFIMSG
036136                          26$:    CKLOOP                          ;LOOP IF SELECTED
036136  104406                                                                                  TRAP    C$CLP1

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

036140  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
036144  103413                          BCS     30$                     ;BR, IF NO PROBLEM
036146  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
036152  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
036156  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
036160  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
036164                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
036164  104456                                                                                  TRAP    C$ERHRD
036166  000375                                                                                  .WORD   253
036170  047414                                                                                  .WORD   T26RWN
036172  011710                                                                                  .WORD   PKTSSR
036174                          30$:    CKLOOP                          ;LOOP IF SELECTED
036174  104406                                                                                  TRAP    C$CLP1

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

036176  013701  045756                  MOV     T26BFR+6,R1             ;PICK UP XSTO
036202  010102                          MOV     R1,R2                   ;SET UP EXPECTED
036204  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
036210  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
036212  001406                          BEQ     40$                     ;BR, IF EQUAL (OK)
036214  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
036220                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
036220  104456                                                                                  TRAP    C$ERHRD
036222  000376                                                                                  .WORD   254
036224  047125                                                                                  .WORD   T26BOT
036226  016360                                                                                  .WORD   EXPREC
036230                          40$:    CKLOOP                          ;LOOP IF SELECTED
036230  104406                                                                                  TRAP    C$CLP1
036232  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
036236  013737  003072  046062          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

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

036244  012737  140005  046060          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
036252  012704  046060                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
036256                          65$:
036256  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
036262  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
```

```
6676 036266  004737  017134                JSR     PC,WAITF                ;WAIT F/ . SSR TO SET
6677 036272  016501  000000                MOV     TSSR(R5),R1             ;GET TSSF CONTENTS
6678 036276  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
6679 036302  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6680 036304  001406                        BEQ     75$                     ;BR, IF OK
6681 036306  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6685                                                                       ;SOFT ERROR GENERATED BECAUSE THE
6686                                                                       ;WRITE COMMAND IS NOT BEING CHECKED
6687                                                                       ;HERE. IT WAS CHECKED IN LEAH2
6688 036312                                ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     036312  104457                                                                TRAP    C$ERSOFT
     036314  000377                                                                .WORD   255
     036316  005011                                                                .WORD   WRTERR
     036320  011710                                                                .WORD   PKTSSR
6689 036322                        75$:    CKLOOP                          ;LOOP IF SELECTED
     036322  104406                                                                TRAP    C$CLP1
6690 036324  012703  001000                MOV     #512.,R3                ;RECORD SIZE
6691 036330  013737  003072  046062        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6692
6693                               ;*************************************************************************
6694                               ;
6695                               ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
6696                               ;
6697                               ;*************************************************************************
6698
6699 036336  012737  161001  046060        MOV     #161001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=1
6700 036344  012704  046060        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6701 036350  010337  046066                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6702 036354  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6703 036360  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
6704 036364  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
6705 036370  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
6706 036374  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6707 036376  001406                        BEQ     170$                    ;BR, IF OK
6708 036400  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6712 036404                                ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     036404  104456                                                                TRAP    C$ERHRD
     036406  000400                                                                .WORD   256
     036410  050472                                                                .WORD   T26TRL
     036412  011710                                                                .WORD   PKTSSR
6713 036414                        170$:   CKLOOP                          ;LOOP IF SELECTED
     036414  104406                                                                TRAP    C$CLP1
6714
6715                               ;*************************************************************************
6716                               ;
6717                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6718                               ;
6719                               ;*************************************************************************
6720
6721 036416  013701  045756                MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
6722 036422  010102                        MOV     R1,R2                   ;SET UP EXPECTED
6723 036424  052702  040000                BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
6724 036430  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
6725 036432  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
6726 036434  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6730 036440                                ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     036440  104456                                                                TRAP    C$ERHRD
```

```
      036442  000401                                                          .WORD   257
      036444  050322                                                          .WORD   T26LOP
      036446  016360                                                          .WORD   EXPREC
 6731 036450                  180$:
 6732 036450  013701  045754          MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
 6733 036454  012702  000400          MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
 6734 036460  020102                  CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
 6735 036462  001406                  BEQ     190$                    ;BR. IF CORRECT
 6736 036464  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6740 036470                          ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
      036470  104456                                                          TRAP    C$ERHRD
      036472  000402                                                          .WORD   258
      036474  050404                                                          .WORD   T26PBP
      036476  016360                                                          .WORD   EXPREC
 6741 036500                  190$:   CKLOOP                          ;LOOP IF SELECTED
      036500  104406                                                          TRAP    C$CLP1
 6742 036502  012703  001000          MOV     #512.,R3                ;RECORD SIZE
 6743 036506  013737  003072  046062  MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
 6744
 6745                         ;*************************************************************************
 6746                         ;
 6747                         ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
 6748                         ;
 6749                         ;*************************************************************************
 6750
 6751 036514  012737  141001  046060  MOV     #141001,T26PK3          ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
 6752 036522  012704  046060          MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 6753 036526  010337  046066          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 6754 036532  010465  177776          MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 6755 036536  004737  017134          JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 6756 036542  016501  000000          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 6757 036546  012702  100204          MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 6758 036552  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 6759 036554  001406                  BEQ     270$                    ;BR. IF OK
 6760 036556  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6764 036562                          ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      036562  104456                                                          TRAP    C$ERHRD
      036564  000403                                                          .WORD   259
      036566  050472                                                          .WORD   T26TRL
      036570  011710                                                          .WORD   PKTSSR
 6765 036572                  270$:   CKLOOP                          ;LOOP IF SELECTED
      036572  104406                                                          TRAP    C$CLP1
 6766
 6767                         ;*************************************************************************
 6768                         ;
 6769                         ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 6770                         ;
 6771                         ;*************************************************************************
 6772
 6773 036574  013701  045756          MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
 6774 036600  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 6775 036602  052702  040000          BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
 6776 036606  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
 6777 036610  001406                  BEQ     280$                    ;BR. IF EQUAL (ALL IS WELL)
 6778 036612  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6782 036616                          ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      036616  104456                                                          TRAP    C$ERHRD
```

```
      036620  000403                                                          .WORD   260
      036622  050322                                                          .WORD   T26LOP
      036624  016360                                                          .WORD   EXPREC
 6783 036626                  280$:
 6784 036626  013701  045754          MOV     T26BFR+4,R1         ;PICK UP RESIDUAL BYTE COUNTER
 6785 036632  012702  000400          MOV     #256.,R2            ;THIS SHOULD BE THE DIFFERENCE
 6786 036636  020102                  CMP     R1,R2               ;IS THE DIFFERENCE CORRECT
 6787 036640  001405                  BEQ     290$                ;BR, IF CORRECT
 6791 036644                          ERRHRD  ERRNO,T26PBP,EXPREC ;RBPCR NOT CORRECT
      036644  104456                                                          TRAP    C$ERHRD
      036646  000404                                                          .WORD   260
      036650  050404                                                          .WORD   T26PBP
      036652  016360                                                          .WORD   EXPREC
 6792 036654                  290$:   CKLOOP                      ;LOOP IF SELECTED
      036654  104406                                                          TRAP    C$CLP1
 6793 036656                          ENDSUB                      ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      036656                                                                  L10054:
      036656  104403                                                          TRAP    C$ESUB
 6794 036660  023727  002170  000031          CMP     FATFLG,#25.         ;IS ERROR COUNT AT 25
 6795 036666  002402                          BLT     999$                ;BR, IF LESS THAN 25
 6796 036670  004737  020170                  JSR     PC,CKDROP           ;TRY TO DROP THE UNIT
 6797 036674                  999$:
```

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

6819 036674                                     BGNSUB                  ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     036674                                                                     T2.7:
     036674  104402                                                                TRAP    C$BSUB
6820 036676  004737  050650                     JSR     PC,T26REST      ;SET COMMAND PACKET
6821 036702  004737  050742                     JSR     PC,T26RT2       ;SET UP OTHER COMMAND PACKET
6822 036706  004737  051004                     JSR     PC,T26RT3       ;SET UP OTHER COMMAND PACKET
6823
6824                                    ;*************************************************************************
6825                                    ;
6826                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
6827                                    ;
6828                                    ;*************************************************************************
6829
6830 036712  004737  016660                     JSR     PC,SOFINIT      ;DO INITIALIZE ON CONTROLLER
6831 036716  103407                             BCS     20$             ;BR IF INIT WAS OK
6832 036720  004737  020116                     JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
6836 036724  010001                             MOV     R0,R1           ;CONTENTS OF TSSR REGISTER
6837 036726                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     036726  104455                                                                TRAP    C$ERDF
     036730  000405                                                                .WORD   261
     036732  003550                                                                .WORD   SFIERR
     036734  011676                                                                .WORD   SFIMSG
6838 036736                                     20$:
6839
6840 036736  012704  045730                     MOV     #T26PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
6841
6842                                    ;*************************************************************************
6843                                    ;
6844                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
6845                                    ;
6846                                    ;*************************************************************************
6847
6848 036742  004737  010342                     JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
6849 036746  103407                             BCS     26$             ;BR, IF COMMAND ISSUED OK
6850 036750  004737  020116                     JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
6854 036754  010001                             MOV     R0,R1           ;SAVE CONTENTS OF TSSR
6855 036756                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
```

```
        036756  104456                                                          TRAP    C$ERHRD
        036760  000406                                                          .WORD   262
        036762  004754                                                          .WORD   WRTMSG
        036764  011676                                                          .WORD   SFIMSG
 6856   036766                  26$:    CKLOOP                  ;LOOP IF SELECTED
        036766  104406                                                          TRAP    C$CLP1
 6857
 6858                           ;*************************************************************************
 6859                           ;
 6860                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 6861                           ;
 6862                           ;*************************************************************************
 6863
 6864   036770  004737  010444          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 6865   036774  103413                  BCS     30$                     ;BR, IF NO PROBLEM
 6866   036776  016501  000000          MOV     TSSR(R5),R1             ;GET TSSR
 6867   037002  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 6868   037006  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
 6869   037010  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6873   037014                          ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
        037014  104456                                                          TRAP    C$ERHRD
        037016  000407                                                          .WORD   263
        037020  047414                                                          .WORD   T26RWN
        037022  011710                                                          .WORD   PKTSSR
 6874   037024                  30$:    CKLOOP                  ;LOOP IF SELECTED
        037024  104406                                                          TRAP    C$CLP1
 6875
 6876                           ;*************************************************************************
 6877                           ;
 6878                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 6879                           ;
 6880                           ;*************************************************************************
 6881
 6882   037026  013701  045756          MOV     T26BFR+6,R1             ;PICK UP XST0
 6883   037032  010102                  MOV     R1,R2                   ;SET UP EXPECTED
 6884   037034  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 6885   037040  020102                  CMP     R1,R2                   ;DOES EXP - REC'D
 6886   037042  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
 6887   037044  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 6891   037050                          ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        037050  104456                                                          TRAP    C$ERHRD
        037052  000410                                                          .WORD   264
        037054  047125                                                          .WORD   T26BOT
        037056  016360                                                          .WORD   EXPREC
 6892   037060                  40$:    CKLOOP                  ;LOOP IF SELECTED
        037060  104406                                                          TRAP    C$CLP1
 6893   037062  012703  000400          MOV     #256.,R3                ;RECORD SIZE
 6894   037066  013737  003072  046062  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
 6895
 6896                           ;*************************************************************************
 6897                           ;
 6898                           ;WRITE DATA,CVC=1,ACK COMMAND
 6899                           ;
 6900                           ;*************************************************************************
 6901
 6902   037074  012737  140005  046060  MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 6903   037102  012704  046060          MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
```

```
037106                          65$:
037106  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
037110  004737  020410                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
037114  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
037120  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
037124  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
037130  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
037134  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
037140  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
037142  001406                          BEQ     75$                     ;BR, IF OK
037144  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                                                        ;SOFT ERROR GENERATED BECAUSE THE
                                                                        ;WRITE COMMAND IS NOT BEING CHECKED
                                                                        ;HERE, IT WAS CHECKED IN LEAH2
037150                                  ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
037150  104457                                                                          TRAP    C$ERSOFT
037152  000411                                                                          .WORD   265
037154  005011                                                                          .WORD   WRTERR
037156  011710                                                                          .WORD   PKTSSR
037160                          75$:    CKLOOP                          ;LOOP IF SELECTED
037160  104406                                                                          TRAP    C$CLP1
037162  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
037164  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
037170  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
037172                          80$:    CKLOOP                          ;LOOP IF SELECTED
037172  104406                                                                          TRAP    C$CLP1
037174                          120$:

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

037174  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
037200  103413                          BCS     130$                    ;BR, IF NO PROBLEM
037202  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
037206  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
037212  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
037214  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
037220                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
037220  104456                                                                          TRAP    C$ERHRD
037222  000412                                                                          .WORD   266
037224  047414                                                                          .WORD   T26RWN
037226  011710                                                                          .WORD   PKTSSR
037230                          130$:   CKLOOP                          ;LOOP IF SELECTED
037230  104406                                                                          TRAP    C$CLP1

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

037232  013701  045756                  MOV     T26BFR+6,R1             ;PICK UP XSTO
037236  010102                          MOV     R1,R2                   ;SET UP EXPECTED
037240  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
```

```
6956 037244  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
6957 037246  001406                    BEQ     140$                    ;BR, IF EQUAL (OK)
6958 037250  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6962 037254                            ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     037254  104456                                                                    TRAP    C$ERHRD
     037256  000413                                                                    .WORD   267
     037260  047125                                                                    .WORD   T26BOT
     037262  016360                                                                    .WORD   EXPREC
6963 037264                    140$:   CKLOOP                          ;LOOP IF SELECTED
     037264  104406                                                                    TRAP    C$CLP1
6964 037266  012737  000400  046112            MOV     #256.,T26RSZ    ;STORE START RECORD SIZE
6965 037274  000420                    BR      150$                    ;SKIP THE SAPCE THIS TIME
6966
6967                           ;*****************************************************************
6968                           ;
6969                           ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
6970                           ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
6971                           ;
6972                           ;*****************************************************************
6973
6974 037276  012703  000001    145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
6975 037302  004737  010144            JSR     PC,SPACE                ;CALL SPACE ROUTINE
6976 037306  103413                    BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
6977 037310  016501  000000            MOV     TSSR(R5),R1             ;GET TSSR
6978 037314  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
6979 037320  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
6980 037322  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
6984 037326                            ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     037326  104456                                                                    TRAP    C$ERHRD
     037330  000414                                                                    .WORD   268
     037332  046527                                                                    .WORD   T26SC
     037334  016360                                                                    .WORD   EXPREC
6985 037336                    150$:
6986 037336  013703  046112            MOV     T26RSZ,R3               ;RECORD SIZE
6987 037342  013737  003072  046062    MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
6988
6989                           ;*****************************************************************
6990                           ;
6991                           ;REREREAD DATA,CVC=1,ACK COMMAND
6992                           ;
6993                           ;*****************************************************************
6994
6995 037350  012737  141401  046060    MOV     #141401,T26PK3          ;REREREAD DATA,CVC=1,ACK COMMAND
6996 037356  012704  046060    165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
6997 037362  010337  046066            MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
6998 037366  010465  177776            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
6999 037372  004737  017134            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7000 037376  016501  000000            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7001 037402  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
7002 037406  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
7003 037410  001406                    BEQ     170$                    ;BR, IF OK
7004 037412  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7008 037416                            ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     037416  104456                                                                    TRAP    C$ERHRD
     037420  000415                                                                    .WORD   269
     037422  047750                                                                    .WORD   T26WDC
     037424  011710                                                                    .WORD   PKTSSR
```

N14


```
7009 037426                          170$:   CKLOOP                          ;LOOP IF SELECTED
     037426  104406                                                                  TRAP    C$CLP1
7010 037430  013702  003072                  MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
7011 037434  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
7012 037436  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
7013 037442  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
7014 037444  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
7015 037446  001410                          BEQ     180$                    ;BR, IF ALL IS WELL
7016 037450  011401                          MOV     (R4),R1                 ;RECD DATA
7017 037452  010302                          MOV     R3,R2                   ;EXPECTED DATA
7018 037454  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7022 037460                                  ERRHRD  ERRNO,T26DTA,EXPREC     ;DATA READ NOT = WRITTEN
     037460  104456                                                                  TRAP    C$ERHRD
     037462  000416                                                                  .WORD   270
     037464  047172                                                                  .WORD   T26DTA
     037466  016360                                                                  .WORD   EXPREC
7023 037470                          180$:   CKLOOP                          ;LOOP IF SELECTED
     037470  104406                                                                  TRAP    C$CLP1
7024 037472  005724                          TST     (R4)+                   ;BUMP TO NEXT LOCATION
7025 037474  160204                          SUB     R2,R4                   ;CORRECT RECORDS SIZE VALUE
7026 037476  020403                          CMP     R4,R3                   ;END OF RECORD YET
7027 037500  001360                          BNE     173$                    ;BR, IF NOT AT END OF RECORD
7028 037502  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
7029 037504  010337  046112                  MOV     R3,T26RSZ               ;STORE PRESENT RECORD SIZE
7030 037510  022703  000410                  CMP     #264.,R3                ;END OF RECORD YET
7031 037514  001270                          BNE     145$                    ;BR, IF MORE RECORDS TO READ
7032 037516                          190$:   CKLOOP                          ;LOOP IF SELECTED
     037516  104406                                                                  TRAP    C$CLP1
7033 037520                                  ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     037520                                                                  L10055:
     037520  104403                                                                  TRAP    C$ESUB
7034 037522  023727  002170  000031          CMP     FATFLG,#25.             ;IS ERROR COUNT AT 25
7035 037530  002402                          BLT     999$                    ;BR, IF LESS THAN 25
7036 037532  004737  020170                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
7037 037536                          999$:
```

```
7039                                    ;+
7040                                    ;
7041                                    ;TEST 2, SUBTEST 8
7042                                    ;
7043                                    ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0
7044                                    ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
7045                                    ;THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS
7046                                    ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
7047                                    ;SWAPPED BYTES.
7048                                    ;
7049                                    ;
7050                                    ;
7051                                    ;-
7052 037536                                     BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      037536                                                                                T2.8:
      037536  104402                                                                          TRAP    C$BSUB
7053 037540  004737  050650                     JSR     PC,T26REST              ;SET COMMAND PACKET
7054 037544  004737  050742                     JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
7055 037550  004737  051004                     JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
7056
7057                                    ;*************************************************************
7058                                    ;
7059                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
7060                                    ;
7061                                    ;*************************************************************
7062
7063 037554  004737  016660                     JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
7064 037560  103407                             BCS     20$                     ;BR IF INIT WAS OK
7065 037562  004737  020116                     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7069 037565  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
7070 037570                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      037570  104455                                                                       TRAP    C$ERDF
      037572  000417                                                                       .WORD   271
      037574  003550                                                                       .WORD   SFIERR
      037576  011676                                                                       .WORD   SFIMSG
7071 037600                             20$:
7072
7073 037600  012704  045730                     MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7074
7075                                    ;*************************************************************
7076                                    ;
7077                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7078                                    ;
7079                                    ;*************************************************************
7080
7081 037604  004737  010342                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7082 037610  103407                             BCS     26$                     ;BR, IF COMMAND ISSUED OK
7083 037612  004737  020116                     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7087 037616  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7088 037620                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      037620  104456                                                                       TRAP    C$ERHRD
      037622  000420                                                                       .WORD   272
      037624  004754                                                                       .WORD   WRTMSG
      037626  011676                                                                       .WORD   SFIMSG
7089 037630                             26$:    CKLOOP                          ;LOOP IF SELECTED
      037630  104406                                                                       TRAP    C$CLP1
7090
```

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

037632  004737  010444                          JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
037636  103413                                  BCS     30$                         ;BR. IF NO PROBLEM
037640  016501  000000                          MOV     TSSR(R5),R1                 ;GET TSSR
037644  012702  000200                          MOV     #SSR,R2                     ;SET UP EXPECTED TSSR
037650  010004                                  MOV     R0,R4                       ;PACKET ADDRESS SET UP
037652  004737  020116                          JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
037656                                          ERRHRD  ERRNO,T26RWN,PKTSSR         ;REWIND NOT ACCEPTED
037656  104456                                                                                      TRAP    C$ERHRD
037660  000421                                                                                      .WORD   273
037662  047414                                                                                      .WORD   T26RWN
037664  011710                                                                                      .WORD   PKTSSR
037666                                  30$:    CKLOOP                              ;LOOP IF SELECTED
037666  104406                                                                                      TRAP    C$CLP1

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

037670  013701  045756                          MOV     T26BFR+6,R1                 ;PICK UP XSTO
037674  010102                                  MOV     R1,R2                       ;SET UP EXPECTED
037676  052702  000002                          BIS     #BIT1,R2                    ;SET BOT BIT IN EXPECTED
037702  020102                                  CMP     R1,R2                       ;DOES EXP = REC'D
037704  001406                                  BEQ     40$                         ;BR. IF EQUAL (OK)
037706  004737  020116                          JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
037712                                          ERRHRD  ERRNO,T26BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
037712  104456                                                                                      TRAP    C$ERHRD
037714  000422                                                                                      .WORD   274
037716  047125                                                                                      .WORD   T26BOT
037720  016360                                                                                      .WORD   EXPREC
037722                                  40$:    CKLOOP                              ;LOOP IF SELECTED
037722  104406                                                                                      TRAP    C$CLP1
037724  012703  000400                          MOV     #256.,R3                    ;RECORD SIZE
037730  013737  003072  046062                  MOV     FREE,T26RB                  ;STARTING WRITE BUFFER ADDRESS

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

037736  012737  150005  046060                  MOV     #150005,T26PK3              ;WRITE DATA,CVC=1,ACK,SWB COMMAND
037744  012704  046060                          MOV     #T26PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
037750                                  65$:
037750  010300                                  MOV     R3,R0                       ;SET PATTERN IN CORRECT REGISTER
037752  004737  020410                          JSR     PC,FILLMEM                  ;FILL MEMORY WITH RECORD SIZE
037756  010337  046066                          MOV     R3,T26SZ                    ;SET UP RECORD SIZE IN PACKET
037762  010465  177776                          MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
037766  004737  017134                          JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
037772  016501  000000                          MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
```

```
037776  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
040002  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
040004  001406                          BEQ     75$                     ;BR, IF OK
040006  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                                                        ;SOFT ERROR GENERATED BECAUSE THE
                                                                        ;WRITE COMMAND IS NOT BEING CHECKED
                                                                        ;HERE, IT WAS CHECKED IN LEAH2
040012                                  ERRSOFT ERRNC,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
040012  104457                                                                                  TRAP    C$ERSOFT
040014  000423                                                                                  .WORD   275
040016  005011                                                                                  .WORD   WRTERR
040020  011710                                                                                  .WORD   PKTSSR
040022                          75$:    CKLOOP                          ;LOOP IF SELECTED
040022  104406                                                                                  TRAP    C$CLP1
040024  005723                          TST     (R3)+                   ;BUMP RECORD SIZE
040026  022703  000414                  CMP     #268.,R3                ;END OF RECORD YET
040032  001346                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
040034                          80$:    CKLOOP                          ;LOOP IF SELECTED
040034  104406                                                                                  TRAP    C$CLP1
040036                          120$:

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

040036  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
040042  103413                          BCS     130$                    ;BR, IF NO PROBLEM
040044  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
040050  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
040054  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
040056  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
040062                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
040062  104456                                                                                  TRAP    C$ERHRD
040064  000424                                                                                  .WORD   276
040066  047414                                                                                  .WORD   T26RWN
040070  011710                                                                                  .WORD   PKTSSR
040072                          130$:   CKLOOP                          ;LOOP IF SELECTED
040072  104406                                                                                  TRAP    C$CLP1

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

040074  013701  045756                  MOV     T26BFR+6,R1             ;PICK UP XSTO
040100  010102                          MOV     R1,R2                   ;SET UP EXPECTED
040102  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
040106  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
040110  001406                          BEQ     140$                    ;BR, IF EQUAL (OK)
040112  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
040116                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
040116  104456                                                                                  TRAP    C$ERHRD
040120  000425                                                                                  .WORD   277
040122  047125                                                                                  .WORD   T26BOT
```

```
     040124  016360                                                                                  .WORD   EXPREC
     040126                          140$:   CKLOOP                          ;LOOP IF SELECTED
     040126  104406                                                                                  TRAP    C$CLP1
     040130  012737  000400  046112          MOV     #256.,T26RSZ            ;START RECORD SIZE
     040136  000420                          BR      150$                    ;SKIP SAPCE THIS TIME

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

     040140  012703  000001          145$:   MOV     #1,R3                   ;SPACE ONE RECORD PARAMETER
     040144  004737  010144                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
     040150  103413                          BCS     150$                    ;BR, IF NO PROBLEM WITH SPACE COMMAND
     040152  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
     040156  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
     040162  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
     040164  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
     040170                                  ERRHRD  ERRNO,T26SC,EXPREC      ;POSITION (SPACE RECORDS) FAILED
     040170  104456                                                                                  TRAP    C$ERHRD
     040172  000426                                                                                  .WORD   278
     040174  046527                                                                                  .WORD   T26SC
     040176  016360                                                                                  .WORD   EXPREC
     040200                          150$:
     040200  013703  046112                  MOV     T26RSZ,R3               ;RECORD SIZE
     040204  013737  003072  046062          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS

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

     040212  012737  151401  046060          MOV     #151401,T26PK3          ;REREAD DATA,ACK,CVC=1,SWB COMMAND
     040220  012704  046060          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
     040224  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
     040230  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
     040234  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
     040240  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
     040244  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
     040250  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
     040252  001406                          BEQ     170$                    ;BR, IF OK
     040254  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
     040260                                  ERRHRD  ERRNO,T26WDC,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     040260  104456                                                                                  TRAP    C$ERHRD
     040262  000427                                                                                  .WORD   279
     040264  047750                                                                                  .WORD   T26WDC
     040266  011710                                                                                  .WORD   PKTSSR
     040270                          170$:   CKLOOP                          ;LOOP IF SELECTED
     040270  104406                                                                                  TRAP    C$CLP1
     040272  013702  003072                  MOV     FREE,R2         ;CURRENT BUFFER ADDRESS TO R2
     040276  010304                          MOV     R3,R4                   ;CURRENT RECORD SIZE
     040300  162704  000400                  SUB     #256.,R4                ;FIRST LOCATION IN BUFFER
     040304  060204                  173$:   ADD     R2,R4                   ;SET UP POINTER
     040306  021403                          CMP     (R4),R3                 ;CHECK DATA READ (R3=DATA ALSO)
```

```
7248 040310  001410                        BEQ     180$                ;BR, IF ALL IS WELL
7249 040312  011401                        MOV     (R4),R1             ;RECD DATA
7250 040314  010302                        MOV     R3,R2               ;EXPECTED DATA
7251 040316  004737  020116                JSR     PC,FATCHK           ;INC AND CHECK FOR MORE THAN 25 ERRORS
7255 040322                                ERRHRD  ERRNO,T26DTA,EXPREC ;DATA READ NOT = WRITTEN
     040322  104456                                                                TRAP    C$ERHRD
     040324  000430                                                                .WORD   280
     040326  047172                                                                .WORD   T26DTA
     040330  016360                                                                .WORD   EXPREC
7256 040332                        180$:   CKLOOP                      ;LOOP IF SELECTED
     040332  104406                                                                TRAP    C$CLP1
7257 040334  005724                        TST     (R4)+               ;BUMP TO NEXT LOCATION
7258 040336  160204                        SUB     R2,R4               ;CORRECT RECORDS SIZE VALUE
7259 040340  020403                        CMP     R4,R3               ;END OF RECORD YET
7260 040342  001360                        BNE     173$                ;BR, IF NOT AT END OF RECORD
7261 040344  005723                        TST     (R3)+               ;BUMP RECORD SIZE
7262 040346  010337  046112                MOV     R3,T26RSZ           ;STORE RECORD SIZE
7263 040352  022703  000410                CMP     #264.,R3            ;END OF RECORD YET
7264 040356  001270                        BNE     145$                ;BR, IF MORE RECORDS TO WRITE
7265 040360                        190$:   CKLOOP                      ;LOOP IF SELECTED
     040360  104406                                                                TRAP    C$CLP1
7266 040362                        ENDSUB                              ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     040362                                                                     L10056:
     040362  104403                                                                TRAP    C$ESUB
7267 040364  023727  002170  000031        CMP     FATALG,#25.                 ;IS ERROR COUNT AT 25
7269 040372  002402                        BLT     999$                        ;BR, IF LESS THAN 25
7269 040374  004737  020170                JSR     PC,CKDROP                   ;TRY TO DROP THE UNIT
7270 040400                        999$:
```

```
                        ;*
                        ;
                        ;TEST 2, SUBTEST 9
                        ;
                        ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1
                        ;(READ FORWARD, SPACE REVERSE) AND SWB=0 OPERATES
                        ;PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN
                        ;WITH A SERIES OF TEST RECORDS VARYING IN LENGTH AND
                        ;DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD
                        ;CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON
                        ;TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH
                        ;TEST RECORD, THE FOLLOWING SEQUENCE IS EXECUTED.
                        ;
                        ;1.      THE REREAD NEXT COMMAND IS ISSUED
                        ;        AND THE RESULTS CHECKED
                        ;
                        ;2.      A READ FORWARD COMMAND IS THEN ISSUED AND THE
                        ;        DATA IS CHECKED TO VERIFY THAT THE TAPE WAS
                        ;        POSITIONED PROPERLY AFTER THE REREAD NEXT
                        ;        COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT
                        ;        POSITIONED AT THE START OF THE TEST RECORD). THE
                        ;        READ FORWARD COMMAND LEAVES THE TAPE POSITIONED
                        ;        PROPERLY AT THE START OF THE NEXT TEST RECORD.
                        ;
                        ;THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET
                        ;TO THE LENGTH OF THE EXPECTED RECORD, SO NO
                        ;EXCEPTIONAL CONDITIONS SHOULD OCCUR.
                        ;
                        ;
                        ;
                        ;-
040400                          BGNSUB                          ; >>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
040400                                                                  T2.9:
040400  104402                                                                  TRAP    C$BSUB
040402  004737  050650          JSR     PC,T26REST              ;SET COMMAND PACKET
040406  005037  046106          CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
040412  004737  050742          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
040416  004737  051004          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

040422  004737  016660          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
040426  103407                  BCS     20$                     ;BR IF INIT WAS OK
040430  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
040434  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
040436                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
040436  104455                                                                  TRAP    C$ERDF
040440  000431                                                                  .WORD   281
040442  003550                                                                  .WORD   SFIERR
040444  011676                                                                  .WORD   SFIMSG
040446                  20$:
```

```
7326
7327 040446  012704  045730                MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
7328
7329                                ;*************************************************************************
7330                                ;
7331                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7332                                ;
7333                                ;*************************************************************************
7334
7335 040452  004737  010342                JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
7336 040456  103407                        BCS     26$                     ;BR, IF COMMAND ISSUED OK
7337 040460  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7341 040464  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
7342 040466                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     040466  104456                                                                TRAP    C$ERHRD
     040470  000432                                                                .WORD   282
     040472  004754                                                                .WORD   WRTMSG
     040474  011676                                                                .WORD   SFIMSG
7343 040476                        26$:    CKLOOP                          ;LOOP IF SELECTED
     040476  104406                                                                TRAP    C$CLP1
7344
7345                                ;*************************************************************************
7346                                ;
7347                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7348                                ;
7349                                ;*************************************************************************
7350
7351 040500  004737  010444                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7352 040504  103413                        BCS     30$                     ;BR, IF NO PROBLEM
7353 040506  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR
7354 040512  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7355 040516  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
7356 040520  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7360 040524                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     040524  104456                                                                TRAP    C$ERHRD
     040526  000433                                                                .WORD   283
     040530  047414                                                                .WORD   T26RWN
     040532  011710                                                                .WORD   PKTSSR
7361 040534                        30$:    CKLOOP                          ;LOOP IF SELECTED
     040534  104406                                                                TRAP    C$CLP1
7362
7363                                ;*************************************************************************
7364                                ;
7365                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7366                                ;
7367                                ;*************************************************************************
7368
7369 040536  013701  045756                MOV     T26BFR+6,R1             ;PICK UP XST0
7370 040542  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7371 040544  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7372 040550  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7373 040552  001406                        BEQ     40$                     ;BR, IF EQUAL (OK)
7374 040554  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7378 040560                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     040560  104456                                                                TRAP    C$ERHRD
     040562  000434                                                                .WORD   284
     040564  047125                                                                .WORD   T26BOT
```

```
040566  016360                                                                                  .WORD   EXPREC
040570                          40$:    CKLOOP                          ;LOOP IF SELECTED
040570  104406                                                                                  TRAP    C$CLP1
040572  012703  000400                  MOV     #256.,R3                ;RECORD SIZE
040576  013737  003072  046062          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS

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

040604  012737  140005  046060          MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
040612  012704  046060                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
040616                          65$:
040616  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
040622  013777  046106  142242          MOV     T26CNT,@FREE            ;MOVE TAPE RECORD NUMBER TO BUFFER
040630  062737  000001  046106          ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
040636  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
040642  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
040646  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
040652  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
040656  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
040660  001406                          BEQ     75$                     ;BR, IF OK
040662  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                                                        ;SOFT ERROR GENERATED BECAUSE THE
                                                                        ;WRITE COMMAND IS NOT BEING CHECKED
                                                                        ;HERE, IT WAS CHECKED IN LEAH2
040666                                  ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
040666  104457                                                                                  TRAP    C$ERSOFT
040670  000435                                                                                  .WORD   285
040672  005011                                                                                  .WORD   WRTERR
040674  011710                                                                                  .WORD   PKTSSR
040676                          75$:    CKLOOP                          ;LOOP IF SELECTED
040676  104406                                                                                  TRAP    C$CLP1
040700  005723                          TST     (R3)+                   ;BUMP THE RECORD SIZE
040702  022703  000414                  CMP     #268.,R3                ;MAXIMUM SIZE YET
040706  001401                          BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
040710  000742                          BR      65$                     ;WRITE MORE RECORDS
040712                          120$:
040712  005037  046106                  CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO

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

040716  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
040722  103411                          BCS     130$                    ;BR, IF NO PROBLEM
040724  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
040730  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
040732  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
040736                                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
040736  104456                                                                                  TRAP    C$ERHRD
040740  000436                                                                                  .WORD   286
040742  047414                                                                                  .WORD   T26RWN
```

```
040744  011710                                                                                  .WORD   PKTSSR
040746                          130$:   CKLOOP                          ;LOOP IF SELECTED
040746  104406                                                                                  TRAP    C$CLP1

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

040750  013701  045756                  MOV     T26BFR+6,R1             ;PICK UP XSTO
040754  010102                          MOV     R1,R2                   ;SET UP EXPECTED
040756  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
040762  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
040764  001406                          BEQ     135$                    ;BR, IF EQUAL (OK)
040766  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
040772                                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
040772  104456                                                                                  TRAP    C$ERHRD
040774  000437                                                                                  .WORD   287
040776  047125                                                                                  .WORD   T26BOT
041000  016360                                                                                  .WORD   EXPREC
041002                          135$:   CKLOOP                                  ;LOOP IF SELECTED
041002  104406                                                                                  TRAP    C$CLP1
041004  012737  000400  046112          MOV     #256.,T26RSZ            ;STARTING RECORD SIZE
041012  000420                          BR      140$                    ;SKIP OVER THE SAPCE THIS TIME

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

041014  012703  000001          132$:   MOV     #000001,R3              ;SET UP SPACE COMMAND (1 FORWARD)
041020  004737  010144                  JSR     PC,SPACE                ;CALL SPACE ROUTINE
041024  103413                          BCS     140$                    ;BR, IF NO TROUBLE
041026  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
041032  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
041036  010004                          MOV     R0,R4                   ;PACKET ADDRESS SET UP
041040  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
041044                                  ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
041044  104456                                                                                  TRAP    C$ERHRD
041046  000440                                                                                  .WORD   288
041050  046527                                                                                  .WORD   T26SC
041052  011710                                                                                  .WORD   PKTSSR
041054                          140$:   CKLOOP                          ;LOOP IF SELECTED
041054  104406                                                                                  TRAP    C$CLP1
041056  013703  046112                  MOV     T26RSZ,R3               ;RECORD SIZE
041062  013737  003072  046062  150$:   MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS

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

041070  012737  161401  046060          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK, OPP COMMAND
```

```
 7483 041076  012704  046060          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 7484 041102  010537  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
 7485 041106  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 7486 041112  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 7487 041116  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 7488 041122  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 7489 041126  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 7490 041130  001406                          BEQ     170$                    ;BR, IF OK
 7491 041132  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 7495 041136                                  ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      041136  104456                                                                      TRAP    C$ERHRD
      041140  000441                                                                      .WORD   289
      041142  046335                                                                      .WORD   T26RRF
      041144  011710                                                                      .WORD   PKTSSR
 7496 041146                          170$:   CKLOOP                          ;LOOP IF SELECTED
      041146  104406                                                                      TRAP    C$CLP1
 7497 041150  017701  141716                  MOV     @FREE,R1                        ;FIRST WORD FROM READ BUFFER
 7498 041154  013702  046106                  MOV     T26CNT,R2               ;SET UP EXPECTED
 7499 041160  020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
 7500 041162  001406                          BEQ     190$                    ;KEEP GOING POSITION OK
 7501 041164  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 7505 041170                                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
      041170  104456                                                                      TRAP    C$ERHRD
      041172  000442                                                                      .WORD   290
      041174  046116                                                                      .WORD   T26WNG
      041176  016360                                                                      .WORD   EXPREC
 7506 041200                          190$:   CKLOOP
      041200  104406                                                                      TRAP    C$CLP1
 7507 041202  062737  000001  046106          ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
 7508 041210  005723                          TST     (R3)+                   ;NEXT RECORD SIZE
 7509 041212  010337  046112                  MOV     R3,T26RSZ               ;STORE RECORD SIZE
 7510 041216  022703  000412                  CMP     #266.,R3                ;AT MAX SIZE YET
 7511 041222  001402                          BEQ     200$                    ;BR, IF AT END OF THE SUBTEST
 7512 041224  000137  041014                  JMP     132$                    ;KEEP GOING MORE RECORDS
 7513 041230                          200$:
 7514 041230                          ENDSUB                                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
      041230                                                                          L10057:
      041230  104403                                                                      TRAP    C$ESUB
 7515 041232  023727  002170  000031          CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
 7516 041240  002402                          BLT     999$                            ;BR, IF LESS THAN 25
 7517 041242  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 7518 041246                          999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 2, SUBTEST 10
                                        ;
                                        ;VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1
                                        ;AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
                                        ;THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
                                        ;VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
                                        ;SWAPPED BYTES.
                                        ;
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T2.10:
041246                                                                                                  TRAP    C$BSUB
041246
041246  104402
041250  004737  050650                        JSR     PC,T26REST              ;SET COMMAND PACKET
041254  005037  046106                        CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
041260  004737  050742                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
041264  004737  051004                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

041270  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
041274  103407                                BCS     20$                     ;BR IF INIT WAS OK
041276  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
041302  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
041304                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
041304  104455                                                                                    TRAP    C$ERDF
041306  000443                                                                                    .WORD   291
041310  003550                                                                                    .WORD   SFIERR
041312  011676                                                                                    .WORD   SFIMSG
041314                                  20$:

041314  012704  045730                        MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

041320  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
041324  103407                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
041326  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
041332  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
041334                                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
041334  104456                                                                                  TRAP    C$ERHRD
041336  000444                                                                                  .WORD   292
041340  004754                                                                                  .WORD   WRTMSG
041342  011676                                                                                  .WORD   SFIMSG
```

```
7573 041344                    26$:    CKLOOP                          ;LOOP IF SELECTED
     041344  104406                                                                    TRAP    C$CLP1
7574
7575                           ;*****************************************************************
7576                           ;
7577                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7578                           ;
7579                           ;*****************************************************************
7580
7581 041346  004737  010444            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7582 041352  016501  000000            MOV     TSSR(R5),R1             ;GET TSSR
7583 041356  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7584 041362  103407                    BCS     30$                     ;BR, IF NO PROBLEM
7585 041364  010004                    MOV     R0,R4                   ;PACKET ADDRESS SET UP
7586 041366  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MOR.. THAN 25 ERRORS
7590 041372                    ERRHRD  ERRNO,T26RWN,PKTSSR             ;REWIND NOT ACCEPTED
     041372  104456                                                                    TRAP    C$ERHRD
     041374  000445                                                                    .WORD   293
     041376  047414                                                                    .WORD   T26RWN
     041400  011710                                                                    .WORD   PKTSSR
7591 041402                    30$:    CKLOOP                          ;LOOP IF SELECTED
     041402  104406                                                                    TRAP    C$CLP1
7592
7593                           ;*****************************************************************
7594                           ;
7595                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7596                           ;
7597                           ;*****************************************************************
7598
7599 041404  013701  045756            MOV     T26BFR+6,R1             ;PICK UP XSTO
7600 041410  010102                    MOV     R1,R2                   ;SET UP EXPECTED
7601 041412  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7602 041416  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
7603 041420  001406                    BEQ     40$                     ;BR, IF EQUAL (OK)
7604 041422  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7608 041426                    ERRHRD  ERRNO,T26BOT,EXPREC             ;TAPE NOT AT BOT AFTER REWIND
     041426  104456                                                                    TRAP    C$ERHRD
     041430  000446                                                                    .WORD   294
     041432  047125                                                                    .WORD   T26BOT
     041434  016360                                                                    .WORD   EXPREC
7609 041436                    40$:    CKLOOP                          ;LOOP IF SELECTED
     041436  104406                                                                    TRAP    C$CLP1
7610 041440  012705  000400            MOV     #256.,R5                ;RECORD SIZE
7611 041444  013737  003072  046062    MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
7612
7613                           ;*****************************************************************
7614                           ;
7615                           ;WRITE DATA,CVC=1,ACK COMMAND
7616                           ;
7617                           ;*****************************************************************
7618
7619 041452  012737  140005  046060    MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
7620 041460  012704  046060            MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7621 041464                    65$:
7622 041464  010537  046066            MOV     R5,T26SZ                ;SET UP RECORD SIZE IN PACKET
7623 041470  013777  046106  141374    MOV     T26CNT,@#REE            ;MOVE TAPE RECORD NUMBER TO BUFFER
7624 041476  062737  000001  046106    ADD     #1,T26CNT               ;NUMBER READY FOR NEXT RECORD
```

```
7625 041504  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7626 041510  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7627 041514  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7628 041520  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
7629 041524  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
7630 041526  001406                        BEQ     75$                     ;BR, IF OK
7631 041530  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7635                                                                       ;SOFT ERROR GENERATED BECAUSE THE
7636                                                                       ;WRITE COMMAND IS NOT BEING CHECKED
7637                                                                       ;HERE, IT WAS CHECKED IN LEAH2
7638 041534                                ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     041534  104457                                                                TRAP    C$ERSOFT
     041536  000447                                                                .WORD   295
     041540  005011                                                                .WORD   WRTERR
     041542  011710                                                                .WORD   PKTSSR
7639 041544                        75$:    CKLOOP                          ;LOOP IF SELECTED
     041544  104406                                                                TRAP    C$CLP1
7640 041546  005723                        TST     (R3)+                   ;BUMP THE RECORD SIZE
7641 041550  022703  000414                CMP     #268.,R3                ;MAXIMUM SIZE YET
7642 041554  001401                        BEQ     120$                    ;BR, IF AT END OF WRITE SEQUENCE
7643 041556  000742                        BR      65$                     ;WRITE MORE RECORDS
7644 041560                        120$:
7645 041560  005037  046106                CLR     T26CNT                  ;SET RECORD COUNTER BACK TO ZERO
7646
7647                                       ;*************************************************************************
7648                                       ;
7649                                       ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7650                                       ;
7651                                       ;*************************************************************************
7652
7653 041564  004737  010444                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7654 041570  103411                        BCS     130$                    ;BR, IF NO PROBLEM
7655 041572  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR
7656 041576  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
7657 041600  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7661 041604                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     041604  104456                                                                TRAP    C$ERHRD
     041606  000450                                                                .WORD   296
     041610  047414                                                                .WORD   T26RWN
     041612  011710                                                                .WORD   PKTSSR
7662 041614                        130$:   CKLOOP                          ;LOOP IF SELECTED
     041614  104406                                                                TRAP    C$CLP1
7663
7664                                       ;*************************************************************************
7665                                       ;
7666                                       ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7667                                       ;
7668                                       ;*************************************************************************
7669
7670 041616  013701  045756                MOV     T26BFR+6,R1             ;PICK UP XSTO
7671 041622  010102                        MOV     R1,R2                   ;SET UP EXPECTED
7672 041624  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7673 041630  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
7674 041632  001406                        BEQ     135$                    ;BR, IF EQUAL (OK)
7675 041634  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7679 041640                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     041640  104456                                                                TRAP    C$ERHRD
```

```
        041642  000451                                                          .WORD   297
        041644  047125                                                          .WORD   T26BDT
        041646  016360                                                          .WORD   EXPREC
7680    041650                          135$:   CKLOOP                  ;LOOP IF SELECTED
        041650  104406                                                          TRAP    C$CLP1
7681    041652  012737  000400  046112          MOV     #256.,T26RSZ    ;START RECORD SIZE
7682    041660  000420                  BR      140$                    ;SKIP OVER SPACE
7683
7684                                    ;*****************************************************************
7685                                    ;
7686                                    ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7687                                    ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
7688                                    ;
7689                                    ;*****************************************************************
7690
7691    041662  012703  000001          136$:   MOV     #000001,R3      ;SET UP SPACE COMMAND (1 FORWARD)
7692    041666  004737  010144                  JSR     PC,SPACE        ;CALL SPACE ROUTINE
7693    041672  103413                  BCS     140$                    ;BR. IF NO TROUBLE
7694    041674  016501  000000                  MOV     TSSR(R5),R1     ;GET TSSR
7695    041700  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED TSSR
7696    041704  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
7697    041706  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
7701    041712                          ERRHRD  ERRNO,T26SC,PKTSSR      ;SPACE (FORWARD) FAILED
        041712  104456                                                          TRAP    C$ERHRD
        041714  000452                                                          .WORD   298
        041716  046527                                                          .WORD   T26SC
        041720  011710                                                          .WORD   PKTSSR
7702    041722                          140$:   CKLOOP                  ;LOOP IF SELECTED
        041722  104406                                                          TRAP    C$CLP1
7703    041724  013703  046112                  MOV     T26RSZ,R3       ;RECORD SIZE
7704    041730  013737  003072  046062  150$:   MOV     FREE,T26RB      ;STARTING READ BUFFER ADDRESS
7705
7706                                    ;*****************************************************************
7707                                    ;
7708                                    ;REREAD DATA,CVC-1,ACK, OPP COMMAND
7709                                    ;
7710                                    ;*****************************************************************
7711
7712    041736  012737  161401  046060          MOV     #161401,T26PK3  ;REREAD DATA,CVC-1,ACK, OPP COMMAND
7713    041744  012704  046060          165$:   MOV     #T26PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
7714    041750  010337  046066                  MOV     R3,T26SZ        ;SET UP RECORD SIZE IN PACKET
7715    041754  010465  177776                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
7716    041760  004737  017134                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
7717    041764  016501  000000                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
7718    041770  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
7719    041774  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
7720    041776  001406                  BEQ     170$                    ;BR. IF OK
7721    042000  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
7725    042004                          ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
        042004  104456                                                          TRAP    C$ERHRD
        042006  000453                                                          .WORD   299
        042010  046335                                                          .WORD   T26RRF
        042012  011710                                                          .WORD   PKTSSR
7726    042014                          170$:   CKLOOP                  ;LOOP IF SELECTED
        042014  104406                                                          TRAP    C$CLP1
7727    042016  017701  141050                  MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
7728    042022  013702  046106                  MOV     T26CNT,R2       ;SET UP EXPECTED
```

```
042026  020102                          CMP     R1,R2                   ;IS TAPE POSITION CORRECT
042030  001406                          BEQ     190$                    ;KEEP GOING POSITION OK
042032  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
042036                                  ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
042036  104456                                                                          TRAP    C$ERHRD
042040  000454                                                                          .WORD   300
042042  046116                                                                          .WORD   T26WNG
042044  016360                                                                          .WORD   EXPREC
042046                          190$:   CKLOOP
042046  104406                                                                          TRAP    C$CLP1
042050  062737  000001  046106          ADD     #1,T26CNT               ;BUMP TAPE RECORD COUNTER
042056  005723                          TST     (R3)+                   ;NEXT RECORD SIZE
042060  010337  046112                  MOV     R3,T26RSZ               ;STORE RECORD SIZE
042064  022703  000412                  CMP     #266.,R3                ;AT MAX SIZE YET
042070  001402                          BEQ     220$                    ;BR, IF AT END OF THE SUBTEST
042072  000137  041662                  JMP     136$                    ;KEEP GOING MORE RECORDS
042076                          220$:
042076                                  ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
042076                                                                                  L10060:
042076  104403                                                                          TRAP    C$ESUB
042100  023727  002170  000031          CMP     FATFLG,#25,                     ;IS ERROR COUNT AT 25
042106  002402                          BLT     999$                            ;BR, IF LESS THAN 25
042110  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
042114                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 11
                                        ;
                                        ;VERIFIES THAT A REREAD NEXT COMMAND READING A
                                        ;RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;
                                        ;-

                                                BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T2.11:
042114                                                                                                  TRAP    C$BSUB
042114  104402
042116  004737  050650                        JSR     PC,T26REST              ;SET COMMAND PACKET
042122  004737  050742                        JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
042126  004737  051004                        JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET

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

042132  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
042136  103407                                BCS     20$                     ;BR IF INIT WAS OK
042140  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
042144  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
042146                                        ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
042146  104455                                                                                    TRAP    C$ERDF
042150  000455                                                                                    .WORD   301
042152  003550                                                                                    .WORD   SFIERR
042154  011676                                                                                    .WORD   SFIMSG
042156                                  20$:

042156  012704  045730                        MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

042162  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
042166  103407                                BCS     26$                     ;BR, IF COMMAND ISSUED OK
042170  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
042174  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
042176                                        ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
042176  104456                                                                                    TRAP    C$ERHRD
042200  000456                                                                                    .WORD   302
042202  004754                                                                                    .WORD   WRTMSG
042204  011676                                                                                    .WORD   SFIMSG
042206                                  26$:    CKLOOP                          ;LOOP IF SELECTED
```

```
042206  104406                                                                                  TRAP    C$CLP1

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

042210  004737  010444                  JSR     PC,REWIND                   ;CALL TAPE REWIND COMMAND
042214  016501  000000                  MOV     TSSR(R5),R1                 ;GET TSSR
042220  012702  000200                  MOV     #SSR,R2                     ;SET UP EXPECTED TSSR
042224  103407                          BCS     30$                         ;BR, IF NO PROBLEM
042226  010004                          MOV     R0,R4                       ;PACKET ADDRESS SET UP
042230  004737  020116                  JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
042234                                  ERRHRD  ERRNO,T26RWN,PKTSSR         ;REWIND NOT ACCEPTED
042234  104456                                                                                  TRAP    C$ERHRD
042236  000457                                                                                  .WORD   303
042240  047414                                                                                  .WORD   T26RWN
042242  011710                                                                                  .WORD   PKTSSR
042244                          30$:    CKLOOP                              ;LOOP IF SELECTED
042244  104406                                                                                  TRAP    C$CLP1

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

042246  013701  045756                  MOV     T26BFR+6,R1                 ;PICK UP XSTO
042252  010102                          MOV     R1,R2                       ;SET UP EXPECTED
042254  052702  000002                  BIS     #BIT1,R2                    ;SET BOT BIT IN EXPECTED
042260  020102                          CMP     R1,R2                       ;DOES EXP = REC'D
042262  001406                          BEQ     40$                         ;BR, IF EQUAL (OK)
042264  004737  020116                  JSR     PC,FATCHK                   ;INC AND CHECK FOR MORE THAN 25 ERRORS
042270                                  ERRHRD  ERRNO,T26BOT,EXPREC         ;TAPE NOT AT BOT AFTER REWIND
042270  104456                                                                                  TRAP    C$ERHRD
042272  000460                                                                                  .WORD   304
042274  047125                                                                                  .WORD   T26BOT
042276  016360                                                                                  .WORD   EXPREC
042300                          40$:    CKLOOP                              ;LOOP IF SELECTED
042300  104406                                                                                  TRAP    C$CLP1
042302  012703  001000                  MOV     #512.,R3                    ;RECORD SIZE
042306  013737  003072  046062          MOV     FREE,T26RB                  ;STARTING WRITE BUFFER ADDRESS

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

042314  012737  140005  046060          MOV     #140005,T26PK3              ;WRITE DATA,CVC=1,ACK COMMAND
042322  012704  046060                  MOV     #T26PK3,R4                  ;SET UP R4 WITH PACKET ADDRESS
042326                          65$:
042326  010337  046066                  MOV     R3,T26SZ                    ;SET UP RECORD SIZE IN PACKET
042332  010465  177776                  MOV     R4,TSDB(R5)                 ;ISSUE COMMAND
042336  004737  017134                  JSR     PC,WAITF                    ;WAIT FOR SSR TO SET
042342  016501  000000                  MOV     TSSR(R5),R1                 ;GET TSSR CONTENTS
```

```
7855 042346  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED
7856 042352  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
7857 042354  001406                      BEQ     75$                     ;BR, IF OK
7858 042356  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7862                                                                     ;SOFT ERROR GENERATED BECAUSE THE
7863                                                                     ;WRITE COMMAND IS NOT BEING CHECKED
7864                                                                     ;HERE. IT WAS CHECKED IN LEAH2
7865 042362                              ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     042362  104457                                                                  TRAP    C$ERSOFT
     042364  000461                                                                  .WORD   305
     042366  005011                                                                  .WORD   WRTERR
     042370  011710                                                                  .WORD   PKTSSR
7866 042372                      75$:    CKLOOP                          ;LOOP IF SELECTED
     042372  104406                                                                  TRAP    C$CLP1
7867
7868                             ;*************************************************************
7869                             ;
7870                             ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7871                             ;
7872                             ;*************************************************************
7873
7874 042374  004737  010444              JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
7875 042400  016501  000000              MOV     TSSR(R5),R1             ;GET TSSR
7876 042404  012702  000200              MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
7877 042410  103407                      BCS     130$                    ;BR, IF NO PROBLEM
7878 042412  010004                      MOV     R0,R4                   ;PACKET ADDRESS SET UP
7879 042414  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7883 042420                              ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     042420  104456                                                                  TRAP    C$ERHRD
     042422  000462                                                                  .WORD   306
     042424  047414                                                                  .WORD   T26RWN
     042426  011710                                                                  .WORD   PKTSSR
7884 042430                      130$:   CKLOOP                          ;LOOP IF SELECTED
     042430  104406                                                                  TRAP    C$CLP1
7885
7886                             ;*************************************************************
7887                             ;
7888                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7889                             ;
7890                             ;*************************************************************
7891
7892 042432  013701  045756              MOV     T26BFR+6,R1             ;PICK UP XSTO
7893 042436  010102                      MOV     R1,R2                   ;SET UP EXPECTED
7894 042440  052702  000002              BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
7895 042444  020102                      CMP     R1,R2                   ;DOES EXP = REC'D
7896 042446  001406                      BEQ     140$                    ;BR, IF EQUAL (OK)
7897 042450  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7901 042454                              ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     042454  104456                                                                  TRAP    C$ERHRD
     042456  000463                                                                  .WORD   307
     042460  047125                                                                  .WORD   T26BOT
     042462  016560                                                                  .WORD   EXPREC
7902 042464                      140$:   CKLOOP                          ;LOOP IF SELECTED
     042464  104406                                                                  TRAP    C$CLP1
7903 042466  005303                      DEC     R3                      ;SET RECORD SIZE TO 511.
7904 042470  013737  003072  046062      MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7905
```

```
7906                                    ;*************************************************************************
7907                                    ;
7908                                    ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
7909                                    ;
7910                                    ;*************************************************************************
7911
7912 042476  012737  161401  046060          MOV     #161401,T26PK3          ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
7913 042504  012704  046060          165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7914 042510  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7915 042514  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7916 042520  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7917 042524  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
7918 042530  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
7919 042534  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7920 042536  001406                          BEQ     170$                    ;BR. IF OK
7921 042540  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7925 042544                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     042544  104456                                                                  TRAP    C$ERHRD
     042546  000464                                                                  .WORD   308
     042550  050472                                                                  .WORD   T26TRL
     042552  011710                                                                  .WORD   PKTSSR
7926 042554                          170$:   CKLOOP                          ;LOOP IF SELECTED
     042554  104406                                                                  TRAP    C$CLP1
7927
7928                                    ;*************************************************************************
7929                                    ;
7930                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7931                                    ;
7932                                    ;*************************************************************************
7933
7934 042556  013701  045756                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
7935 042562  010102                          MOV     R1,R2                   ;SET UP EXPECTED
7936 042564  052702  010000                  BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
7937 042570  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
7938 042572  001406                          BEQ     180$                    ;BR. IF EQUAL (ALL IS WELL)
7939 042574  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
7943 042600                                  ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     042600  104456                                                                  TRAP    C$ERHRD
     042602  000465                                                                  .WORD   309
     042604  050240                                                                  .WORD   T26LON
     042606  016360                                                                  .WORD   EXPREC
7944 042610                          180$:
7945 042610  012703  000777                  MOV     #511.,R3                ;SET UP SIZE OF RECORD
7946 042614  013737  003072  046062          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
7947
7948                                    ;*************************  ***************************************
7949                                    ;
7950                                    ;REREAD DATA,CVC=1,ACK COMMAND
7951                                    ;
7952                                    ;*************************************************************************
7953
7954 042622  012737  141401  046060          MOV     #141401,T26PK3          ;REREAD DATA,CVC=1,ACK COMMAND
7955 042630  012704  046060          365$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
7956 042634  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
7957 042640  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
7958 042644  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
7959 042650  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

```
 7960 042654  012702  100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
 7961 042660  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
 7962 042662  001406                      BEQ     370$                    ;BR, IF OK
 7963 042664  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 7967 042670                              ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
      042670  104456                                                              TRAP    C$ERHRD
      042672  000466                                                              .WORD   310
      042674  050472                                                              .WORD   T26TRL
      042676  011710                                                              .WORD   PKTSSR
 7968 042700                      370$:   CKLOOP                          ;LOOP IF SELECTED
      042700  104406                                                              TRAP    C$CLP1
 7969
 7970                             ;*****************************************************************
 7971                             ;
 7972                             ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 7973                             ;
 7974                             ;*****************************************************************
 7975
 7976 042702  013701  045756              MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
 7977 042706  010102                      MOV     R1,R2                   ;SET UP EXPECTED
 7978 042710  052702  010000              BIS     #BIT12,R2               ;SET THE RLL BIT IN EXPECTED
 7979 042714  020102                      CMP     R1,R2                   ;ARE THEY EQUAL
 7980 042716  001406                      BEQ     380$                    ;BR, IF EQUAL (ALL IS WELL)
 7981 042720  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 7985 042724                              ERRHRD  ERRNO,T26LON,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
      042724  104456                                                              TRAP    C$ERHRD
      042726  000467                                                              .WORD   311
      042730  050240                                                              .WORD   T26LON
      042732  016360                                                              .WORD   EXPREC
 7986 042734                      380$:
 7987 042734                              ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      042734                                                                  10061:
      042734  104403                                                              TRAP    C$ESUB
 7988 042736  023727  002170  000031              CMP     FATFLG,#25.             ;IS ERROR COUNT AT 25
 7989 042744  002402                              BLT     999$                    ;BR, IF LESS THAN 25
 7990 042746  004737  020170                      JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 7991 042752                      999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 2, SUBTEST 12
                                        ;
                                        ;VERIFIES THAT A REREAD NEXT COMMAND READING A
                                        ;RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
                                        ;TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
                                        ;SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
                                        ;RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
                                        ;CONTAINS THE PROPER NONZERO VALUE (E.G., THE
                                        ;DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
                                        ;ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
                                        ;STATES OF OPP (0 AND 1).
                                        ;
                                        ;
                                        ;-
042752                                          BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
042752                                                                                  T2.12:
042752  104402                                                                                  TRAP    C$BSUB
042754  004737  050650                          JSR     PC,T26REST              ;SET COMMAND PACKET
042760  004737  050742                          JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
042764  004737  051004                          JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
                                        ;
                                        ;*************************************************************************
                                        ;
                                        ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                        ;
                                        ;*************************************************************************
042770  004737  016660                          JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
042774  103407                                  BCS     20$                     ;BR IF INIT WAS OK
042776  004737  020116                          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
043002  010001                                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
043004                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
043004  104455                                                                                  TRAP    C$ERDF
043006  000470                                                                                  .WORD   312
043010  003550                                                                                  .WORD   SFIERR
043012  011676                                                                                  .WORD   SFIMSG
043014                                  20$:
                                        ;
043014  012704  045730                          MOV     @T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
                                        ;
                                        ;*************************************************************************
                                        ;
                                        ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                        ;
                                        ;*************************************************************************
043020  004737  010342                          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
043024  103407                                  BCS     26$                     ;BR, IF COMMAND ISSUED OK
043026  004737  020116                          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
043032  010001                                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
043034                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
043034  104456                                                                                  TRAP    C$ERHRD
043036  000471                                                                                  .WORD   313
043040  004754                                                                                  .WORD   WRTMSG
```

```
                043042  011676                                                          .WORD   SFIMSG
8047            043044                  26$:    CKLOOP                  ;LOOP IF SELECTED
                043044  104406                                                          TRAP    C$CLP1
8048
8049                                    ;*************************************************************
8050                                    ;
8051                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8052                                    ;
8053                                    ;*************************************************************
8054
8055            043046  004737  010444          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8056            043052  016501  000000          MOV     TSSR(R5),R1             ;GET TSSR
8057            043056  012702  000200          MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8058            043062  103407                  BCS     30$                     ;BR, IF NO PROBLEM
8059            043064  010004                  MOV     R0,R4                   ;PACKET ADDRESS SET UP
8060            043066  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8064            043072                  ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
                043072  104456                                                          TRAP    C$ERHRD
                043074  000472                                                          .WORD   314
                043076  047414                                                          .WORD   T26RWN
                043100  011710                                                          .WORD   PKTSSR
8065            043102                  30$:    CKLOOP                  ;LOOP IF SELECTED
                043102  104406                                                          TRAP    C$CLP1
8066
8067                                    ;*************************************************************
8068                                    ;
8069                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8070                                    ;
8071                                    ;*************************************************************
8072
8073            043104  013701  045756          MOV     T26BFR+6,R1             ;PICK UP XST0
8074            043110  010102                  MOV     R1,R2                   ;SET UP EXPECTED
8075            043112  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8076            043116  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
8077            043120  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
8078            043122  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8082            043126                  ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                043126  104456                                                          TRAP    C$ERHRD
                043130  000473                                                          .WORD   315
                043132  047125                                                          .WORD   T26BOT
                043134  016360                                                          .WORD   EXPREC
8083            043136          40$:    CKLOOP                  ;LOOP IF SELECTED
                043136  104406                                                          TRAP    C$CLP1
8084            043140  012703  000400          MOV     #256.,R3                ;RECORD SIZE
8085            043144  013737  003072  046062  MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8086
8087                                    ;*************************************************************
8088                                    ;
8089                                    ;WRITE DATA,CVC=1,ACK COMMAND
8090                                    ;
8091                                    ;*************************************************************
8092
8093            043152  012737  140005  046060  MOV     #140005,T26PK3          ;WRITE DATA,CVC=1,ACK COMMAND
8094            043160  012704  046060          MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8095            043164                  65$:
8096            043164  010337  046066          MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8097            043170  010465  177776          MOV     R4,T5D8(R5)             ;ISSUE COMMAND
```

```
 8098 043174  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 8099 043200  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 8100 043204  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 8101 043210  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
 8102 043212  001406                        BEQ     75$                     ;BR, IF OK
 8103 043214  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 8107                                                                       ;SOFT ERROR GENERATED BECAUSE THE
 8108                                                                       ;WRITE COMMAND IS NOT BEING CHECKED
 8109                                                                       ;HERE. IT WAS CHECKED IN LEAH2
 8110 043220                                ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      043220  104457                                                                TRAP    C$ERSOFT
      043222  000474                                                                .WORD   316
      043224  005011                                                                .WORD   WRTERR
      043226  011710                                                                .WORD   PKTSSR
 8111 043230                        75$:    CKLOOP                          ;LOOP IF SELECTED
      043230  104406                                                                TRAP    C$CLP1
 8112 043232                        120$:
 8113
 8114                               ;******************************************************************************
 8115                               ;
 8116                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 8117                               ;
 8118                               ;******************************************************************************
 8119
 8120 043232  004737  010444                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 8121 043236  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR
 8122 043242  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
 8123 043246  103407                        BCS     130$                    ;BR, IF NO PROBLEM
 8124 043250  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
 8125 043252  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 8129 043256                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      043256  104456                                                                TRAP    C$ERHRD
      043260  000475                                                                .WORD   317
      043262  047414                                                                .WORD   T26RWN
      043264  011710                                                                .WORD   PKTSSR
 8130 043266                        130$:   CKLOOP                          ;LOOP IF SELECTED
      043266  104406                                                                TRAP    C$CLP1
 8131
 8132                               ;******************************************************************************
 8133                               ;
 8134                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8135                               ;
 8136                               ;******************************************************************************
 8137
 8138 043270  013701  045756                MOV     T26BFR+6,R1             ;PICK UP XST0
 8139 043274  010102                        MOV     R1,R2                   ;SET UP EXPECTED
 8140 043276  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 8141 043302  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
 8142 043304  001406                        BEQ     135$                    ;BR, IF EQUAL (OK)
 8143 043306  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 8147 043312                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      043312  104456                                                                TRAP    C$ERHRD
      043314  000476                                                                .WORD   318
      043316  047125                                                                .WORD   T26BOT
      043320  016350                                                                .WORD   EXPREC
 8148 043322                        135$:   CKLOOP                          ;LOOP IF SELECTED
      043322  104406                                                                TRAP    C$CLP1
```

```
8149 043324  012703  001000                MOV     #512.,R3                ;RECORD SIZE
8150 043330  013737  003072  046062        MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
8151
8152                                ;*************************************************************
8153                                ;
8154                                ;REREAD NEXT,ACK,CVC=1,OPP=1
8155                                ;
8156                                ;*************************************************************
8157
8158 043336  012757  161401  046060        MOV     #161401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=1
8159 043344  012704  046060        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8160 043350  010337  046066                MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8161 043354  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8162 043360  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8163 043364  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8164 043370  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8165 043374  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
8166 043376  001406                        BEQ     170$                    ;BR, IF OK
8167 043400  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8171 043404                                ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043404  104456                                                                TRAP    C$ERHRD
     043406  000477                                                                .WORD   319
     043410  050472                                                                .WORD   T26TRL
     043412  011710                                                                .WORD   PKTSSR
8172 043414                        170$:   CKLOOP                          ;LOOP IF SELECTED
     043414  104406                                                                TRAP    C$CLP1
8173
8174                                ;*************************************************************
8175                                ;
8176                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8177                                ;
8178                                ;*************************************************************
8179
8180 043416  013701  045756                MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8181 043422  010102                        MOV     R1,R2                   ;SET UP EXPECTED
8182 043424  052702  040000                BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8183 043430  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
8184 043432  001406                        BEQ     180$                    ;BR, IF EQUAL (ALL IS WELL)
8185 043434  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8189 043440                                ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     043440  104456                                                                TRAP    C$ERHRD
     043442  000500                                                                .WORD   320
     043444  050322                                                                .WORD   T26LOP
     043446  016360                                                                .WORD   EXPREC
8190 043450                        180$:
8191 043450  013701  045754                MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8192 043454  012702  000400                MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8193 043460  020102                        CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8194 043462  001405                        BEQ     190$                    ;BR, IF CORRECT
8198 043466                                ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     043466  104456                                                                TRAP    C$ERHRD
     043470  000500                                                                .WORD   320
     043472  050404                                                                .WORD   T26PBP
     043474  016360                                                                .WORD   EXPREC
8199 043476                        190$:   CKLOOP                          ;LOOP IF SELECTED
     043476  104406                                                                TRAP    C$CLP1
8200 043500  012703  001000                MOV     #512.,R3                ;RECORD SIZE
```

```
8201 043504  013737  003072  046062          MOV     FREE,T26RB              ;STARTING READ BUFFER ADDRESS
8202
8203                                 ;*************************************************************************
8204                                 ;
8205                                 ;REREAD NEXT,ACK,CVC=1,OPP=0
8206                                 ;
8207                                 ;*************************************************************************
8208
8209 043512  012737  141401  046060          MOV     #141401,T26PK3          ;REREAD NEXT,ACK,CVC=1,OPP=0
8210 043520  012704  046060                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8211 043524  010337  046066                  MOV     R3,T26SZ                ;SET UP RECORD SIZE IN PACKET
8212 043530  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8213 043534  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8214 043540  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8215 043544  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
8216 043550  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8217 043552  001406                          BEQ     270$                    ;BR, IF OK
8218 043554  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8222 043560                                  ERRHRD  ERRNO,T26TRL,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     043560  104456                                                                  TRAP    C$ERHRD
     043562  000501                                                                  .WORD   321
     043564  050472                                                                  .WORD   T26TRL
     043566  011710                                                                  .WORD   PKTSSR
8223 043570                          270$:   CKLOOP                          ;LOOP IF SELECTED
     043570  104406                                                                  TRAP    C$CLP1
8224
8225                                 ;*************************************************************************
8226                                 ;
8227                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8228                                 ;
8229                                 ;*************************************************************************
8230
8231 043572  013701  045756                  MOV     T26BFR+6,R1             ;GET MESSAGE BUFFER
8232 043576  010102                          MOV     R1,R2                   ;SET IT EXPECTED
8233 043600  052702  040000                  BIS     #BIT14,R2               ;SET THE RLS BIT IN EXPECTED
8234 043604  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8235 043606  001406                          BEQ     280$                    ;BR, IF EQUAL (ALL IS WELL)
8236 043610  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8240 043614                                  ERRHRD  ERRNO,T26LOP,EXPREC     ;THE RLL BIT WAS NOT SET IN XST0
     043614  104456                                                                  TRAP    C$ERHRD
     043616  000502                                                                  .WORD   322
     043620  050322                                                                  .WORD   T26LOP
     043622  016360                                                                  .WORD   EXPREC
8241 043624                          280$:
8242 043624  013701  045754                  MOV     T26BFR+4,R1             ;PICK UP RESIDUAL BYTE COUNTER
8243 043630  012702  000400                  MOV     #256.,R2                ;THIS SHOULD BE THE DIFFERENCE
8244 043634  020102                          CMP     R1,R2                   ;IS THE DIFFERENCE CORRECT
8245 043636  001405                          BEQ     290$                    ;BR, IF CORRECT
8249 043642                                  ERRHRD  ERRNO,T26PBP,EXPREC     ;RBPCR NOT CORRECT
     043642  104456                                                                  TRAP    C$ERHRD
     043644  000502                                                                  .WORD   322
     043646  050404                                                                  .WORD   T26PBP
     043650  016360                                                                  .WORD   EXPREC
8250 043652                          290$:   CKLOOP                          ;LOOP IF SELECTED
     043652  104406                                                                  TRAP    C$CLP1
8251 043654                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     043654                                                                  L10062:
```

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

USER DOCUMENTATION B2
USER DOCUMENTATION C2
USER DOCUMENTATION D2
USER DOCUMENTATION E2
USER DOCUMENTATION F2
USER DOCUMENTATION G2
USER DOCUMENTATION H2
PROGRAM HEADER I2
PROGRAM HEADER J2
DEFAULT HARDWARE P-T....K2
SOFTWARE P-TABLE L2
SOFTWARE P-TABLE M2
GLOBAL EQUATES SECTI....N2

MEMORY MANAGEMENT DE....B3
MEMORY MANAGEMENT DE....C3
TK-25 REGISTER AND P....D3
TK-25 REGISTER AND P....E3
TK-25 REGISTER AND P....F3
TK-25 REGISTER AND P....G3
TK-25 REGISTER AND P....H3
TK-25 REGISTER AND P....I3
TK-25 REGISTER AND P....J3
SPECIAL MACROS AND D....K3
SPECIAL MACROS AND D....L3
GLOBAL DATA SECTION M3
TSTBLK - TEST DATA N3

GLOBAL ENVIRONMENT S....B4
GLOBAL TEXT MESSAGES....C4
GLOBAL TEXT MESSAGES....D4
GLOBAL ERROR REPORT E4
PRITSSR - PRINT TSSR....F4
PRITSSR - PRINT TSSR....G4
PRITSSR - PRINT TSSR....H4
PRIPKT - PRINT THE I4
PRIPKT - PRINT THE J4
PRIBXOR - PRINT EXPD....K4
PRIXOR - PRINT EXPD....L4
PRIEQU - PRINT BIT M4
PRIADD - PRINT MEMO....N4

SPACE - SPACE RECO....B5
SPACE - SPACE RECO....C5
SPACE - SPACE RECO....D5
WRTCHR - WRITE CHAR....E5
REWIND - POSITION T....F5
CKRAM - COMPARE RA....G5
RAMER - READ AND DIS....H5
RAMER - READ AND DIS....I5
CKRAM2 - COMPARE RA....J5
CKMSG - COMPARE WR....K5
CKMSG2 - COMPARE EX....L5
CKMSG2 - COMPARE EX....M5
CKMSG2 - COMPARE EX....N5

CKMSG2 - COMPARE EX... B6
ADDSSR - PRINT TEST....C6
FIFEXP - PRINT FIFO....D6
MSGSTAT - PRINT STAT....E6
MSGLOOP - PRINT LOOP....F6
MSGSUB - PRINT WRITE....G6
PRAMPKT - PRINT RAM H6
PRMESS - PRINT CONT....I6
PRMESS - PRINT CONT....J6
PRMESS - PRINT CONT....K6
PRMSGEXP - PRINT EXP....L6
PRMSGEXP - PRINT EXP....M6
PRBYTEXP - PRINT ERR....N6

PRBYTEXP - PRINT ERR....B7
EXPREC - PRINT EXPD....C7
EXPBREC - PRINT EXPD....D7
RAMTADD - PRINT TEST....E7
TIMEXP - PRINT TIME....F7
BADSSR - PRINT TSSR G7
GLOBAL SUBRCUTINES S....H7
SOFINIT - SOFT INITI....I7
CHKAMB - CHECK TSSR....J7
ENAINT,DSBINT - ENAB....K7
INTR - INTERRUPT L7
WAIT - WAIT FOR S....M7
CHKTSSR - CHECK TSSR....N7

XNXM - CHECK FOR B8
TSTLOOP - CHECK ITER....C8
TSTSETUP - PRINT TES....D8
TSTEND - PRINT ERRO....E8
INCERR - INCREMENT ...F8
CKDROP - CHECK IF U....G8
KTON,KTOFF - EN....H8
SETMAP - SETUP PAR&....I8
FILLMEM - FILL MEMOR....J8
CMPMEM - COMPARE ME....K8
CMPMEM - COMPARE ME....L8
REGSAV - SAVE R1-R5....M8
GETPAT - GET 8 BIT N8

GETSEL - ISSUE MENU....B9
CHKMAN - CHECK MANU....C9
ENVIRN - SETUP FREE....D9
KTINIT - SETUP KT11....E9
PROTECTION TABLE F9
INITIALIZE SECTION G9
INITIALIZE SECTION H9
INITIALIZE SECTION I9
ADD AND DROP UNITS S....J9
ADD AND DROP UNITS S....K9
CLEAN-UP AND REPORT L9
CLEAN-UP AND REPORT M9
TEST 1: SPACE RECOR....N9

TEST 1: SPACE RECOR....B10
TEST 1: SPACE RECOR....C10
TEST 1: SPACE RECOR....D10
TEST 1: SPACE RECOR....E10
TEST 1: SPACE RECOR....F10
TEST 1: SPACE RECOR....G10
TEST 1: SPACE RECOR....H10
TEST 1: SPACE RECOR....I10
TEST 1: SPACE RECOR....J10
TEST 1: SPACE RECOR....K10
TEST 1: SPACE RECOR....L10
TEST 1: SPACE RECOR....M10
TEST 1: SPACE RECOR....N10

TEST 1: SPACE RECOR....B11
TEST 1: SPACE RECOR....C11
TEST 1: SPACE RECOR....D11
TEST 1: SPACE RECOR....E11
TEST 1: SPACE RECOR....F11
TEST 1: SPACE RECOR....G11
TEST 1: SPACE RECOR....H11
TEST 1: SPACE RECOR....I11
TEST 1: SPACE RECOR....J11
TEST 1: SPACE RECOR....K11
TEST 1: SPACE RECOR....L11
TEST 1: SPACE RECOR....M11
TEST 1: SPACE RECOR....N11

TEST 1: SPACE RECOR....B12
TEST 1: SPACE RECOR....C12
TEST 1: SPACE RECOR....D12
TEST 1: SPACE RECOR....E12
TEST 2: REREADS F12
TEST 2: REREADS G12
TEST 2: REREADS H12
TEST 2. REREADS I12
TEST 2: REREADS J12
TEST 2: REREADS K12
TEST 2: REREADS L12
TEST 2: REREADS M12
TEST 2: REREADS N12

TEST 2: REREADS B13
TEST 2: REREADS C13
TEST 2: REREADS D13
TEST 2: REREADS E13
TEST 2: REREADS F13
TEST 2: REREADS G13
TEST 2: REREADS H13
TEST 2: REREADS I13
TEST 2: REREADS J13
TEST 2: REREADS K13
TEST 2: REREADS L13
TEST 2: REREADS M13
TEST 2: REREADS N13

TEST 2: REREADS B14
TEST 2: REREADS C14
TEST 2: REREADS D14
TEST 2: REREADS E14
TEST 2: REREADS F14
TEST 2: REREADS G14
TEST 2: REREADS H14
TEST 2: REREADS I14
TEST 2: REREADS J14
TEST 2: REREADS K14
TEST 2: REREADS L14
TEST 2: REREADS M14
TEST 2: REREADS N14

TEST 2: REREADS B15
TEST 2: REREADS C15
TEST 2: REREADS D15
TEST 2: REREADS E15
TEST 2: REREADS F15
TEST 2: REREADS G15
TEST 2: REREADS H15
TEST 2: REREADS I15
TEST 2: REREADS J15
TEST 2: REREADS K15
TEST 2: REREADS L15
TEST 2: REREADS M15
TEST 2: REREADS N15

TEST 2: REREADS B16
TEST 2: REREADS C16
TEST 2: REREADS D16
TEST 2: REREADS E16
TEST 2: REREADS F16
TEST 2: REREADS G16
TEST 2: REREADS H16
TEST 2: REREADS I16
TEST 2: REREADS J16
TEST 2: REREADS K16
TEST 2: REREADS L16
TEST 2: REREADS M16

```
                045616  047053                                                          .WORD   T26WDE
                045620  011710                                                          .WORD   PKTSSR
8851            045622                          180$:   CKLOOP                  ;LOOP IF SELECTED
                045622  104406                                                          TRAP    C$CLP1
8852            045624  013701  045764                  MOV     T26BFR+14,R1    ;GET XST3 STATUS WORD
8853            045630  010102                          MOV     R1,R2           ;SET UP EXPECTED
8854            045632  052702  000001                  BIS     #BIT0,R2        ;SET THE NEF BIT
8855            045636  020102                          CMP     R1,R2           ;ARE THEY EQUAL
8856            045640  001406                          BEQ     190$            ;BR. IF EQUAL (GOOD)
8857            045642  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
8861            045646                                  ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
                045646  104456                                                          TRAP    C$ERHRD
                045650  000534                                                          .WORD   348
                045652  046204                                                          .WORD   T26NEF
                045654  016360                                                          .WORD   EXPREC
8862            045656                          190$:
8863            045656  005137  046110                  COM     T26CNU          ;SET SWITCH THE OTHER WAY
8864            045662  001226                          BNE     26$             ;BR. IF FIRST TIME THROUGH
8865            045664                                  ENDSUB                  ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                045664                                                                  L10065:
                045664  104403                                                          TRAP    C$ESUB
8866            045666  023727  002170  000031          CMP     FATFLG,#25.             ;IS ERROR COUNT AT 25
8867            045674  002402                          BLT     999$                    ;BR. IF LESS THAN 25
8868            045676  004737  020170                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
8869            045702                          999$:
8870                                            ;
8871                                            ;
8872                                            ;
8873            045702  004737  017372                  JSR     PC,TSTLOOP      ;DO WE NEED TO ITERATE TEST
8874            045706  103002                          BCC     163$            ;BR. IF NO LOOP REQUIRED
8875            045710  000137  031732                  JMP     T26LOOP         ;EXECUTE AGAIN
8876            045714                          163$:
8877            045714                                  EXIT    TST             ;ALL DONE THIS TEST
                045714  104432                                                          TRAP    C$EXIT
                045716  003116                                                          .WORD   L10046-.
```

```
8257                                    ;*
8258                                    ;
8259                                    ;TEST 2, SUBTEST 13
8260                                    ;
8261                                    ;VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING
8262                                    ;NONEXISTENT MEMORY CAUSES RECOVERABLE ERROR
8263                                    ;TERMINATION (TC=4 OR 5) WITH NXM=1 AND THAT THE TAPE
8264                                    ;IS ULTIMATELY POSITIONED PROPERLY. ALL COMBINATIONS
8265                                    ;OF REREAD PREVIOUS/NEXT AND OPP=0/1 ARE TESTED.
8266                                    ;
8267                                    ;
8268                                    ;
8269                                    ;
8270                                    ;-
8271
8272 043672                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      043672                                                                                    T2.13:
      043672  104402                                                                                    TRAP    C$BSUB
8273 043674  005737  003100          9$:       TST     KTFLG                   ;CHECK FOR KT11
8274                                    ;       BEQ     10$                     ;BR, IF NO KT11
8275                                    ;
8276                                    ;       DIALOG NXM PATCH
8277                                    ;
8278 043700  000240                            NOP                             ;NXM PATCH
8279 043702  000137  044652                    JMP     20$                     ;SKIP TEST IF KT11
8280 043706  004737  050650          10$:      JSR     PC,T26REST              ;SET COMMAND PACKET
8281 043712  005037  046106                    CLR     T26CNT                  ;CLEAR TAPE RECORD COUNTER
8282 043716  004737  050742                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8283 043722  004737  051004                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8284
8285                                    ;*****************************************************************
8286                                    ;
8287                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8288                                    ;
8289                                    ;*****************************************************************
8290
8291 043726  004737  016660                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8292 043732  103407                            BCS     20$                     ;BR IF INIT WAS OK
8293 043734  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8297 043740  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8298 043742                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      043742  104455                                                                                    TRAP    C$ERDF
      043744  000503                                                                                    .WORD   323
      043746  003550                                                                                    .WORD   SFIERR
      043750  011676                                                                                    .WORD   SFIMSG
8299 043752                             20$:
8300
8301 043752  012704  045730                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8302
8303                                    ;*****************************************************************
8304                                    ;
8305                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8306                                    ;
8307                                    ;*****************************************************************
8308
8309 043756  004737  010342                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8310 043762  103407                            BCS     26$                     ;BR, IF COMMAND ISSUED OK
```

```
8311 043764  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8315 043770  010001                        MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8316 043772                                ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
     043772  104456                                                        TRAP    C$ERHRD
     043774  000504                                                        .WORD   324
     043776  004754                                                        .WORD   WRTMSG
     044000  011676                                                        .WORD   SFIMSG
8317 044002                        26$:    CKLOOP                          ;LOOP IF SELECTED
     044002  104406                                                        TRAP    C$CLP1
8318
8319                               ;*****************************************************************
8320                               ;
8321                               ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8322                               ;
8323                               ;*****************************************************************
8324
8325 044004  004737  010444                JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8326 044010  103411                        BCS     30$                     ;BR. IF NO PROBLEM
8327 044012  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR
8328 044016  010004                        MOV     R0,R4                   ;PACKET ADDRESS SET UP
8329 044020  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8333 044024                                ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     044024  104456                                                        TRAP    C$ERHRD
     044026  000505                                                        .WORD   325
     044030  047414                                                        .WORD   T26RWN
     044032  011710                                                        .WORD   PKTSSR
8334 044034                        30$:    CKLOOP                          ;LOOP IF SELECTED
     044034  104406                                                        TRAP    C$CLP1
8335
8336                               ;*****************************************************************
8337                               ;
8338                               ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8339                               ;
8340                               ;*****************************************************************
8341
8342 044036  013701  045756                MOV     T26BFR+6,R1             ;PICK UP XST0
8343 044042  010102                        MOV     R1,R2                   ;SET UP EXPECTED
8344 044044  052702  000002                BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8345 044050  020102                        CMP     R1,R2                   ;DOES EXP = REC'D
8346 044052  001406                        BEQ     40$                     ;BR. IF EQUAL (OK)
8347 044054  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8351 044060                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     044060  104456                                                        TRAP    C$ERHRD
     044062  000506                                                        .WORD   326
     044064  047125                                                        .WORD   T26BOT
     044066  016360                                                        .WORD   EXPREC
8352 044070                        40$:    CKLOOP                          ;LOOP IF SELECTED
     044070  104406                                                        TRAP    C$CLP1
8353 044072  013737  003072  046062          MOV     FREE,T26RB              ;STARTING WRITE BUFFER ADDRESS
8354
8355                               ;*****************************************************************
8356                               ;
8357                               ;WRITE DATA,CVC=1,ACK COMMAND
8358                               ;
8359                               ;*****************************************************************
8360
8361 044100  012737  140005  046060          MOV     #140005,T26PKT          ;WRITE DATA,CVC=1,ACK COMMAND
```

SYMBOL TABLE

```
KIPDR7= 172316          L$SOFT  065620 G        L10061  042734          NXRX    003675          PRMESS  014072
KTENAB  003102 G        L$SPC   002056 G        L10062  043654          NXTU    022224          PRMNO   002264 G
KTFLG   003100 G        L$SPCP  002020 G        L10063  044652          OFL   = 000100          PRMSGE  015436 G
KTINIT  021636          L$SPTP  002024 G        L10064  045222          ONEFIL= 000000          PRMSG0  015616
KTOFF   020262          L$STA   002030 G        L10065  045664          O$APTS= 000000          PRMSG1  015663
KTON    020244          L$SW    002134 G        L10066  061032          O$AU  = 000001          PRMSG2  015721
LERRMA  002140 G        L$TEST  002114 G        L10067  051456          O$BGNR= 000001          PROASC  014730
LISTAL= 000001          L$TIML  002014 G        L10070  052230          O$BGNS= 000001          PR1ASC  014775
LOE   = 040000 G        L$UNIT  002012 G        L10071  053044          O$DU  = 000001          PST32W  003104 G
LOOPCN  002164 G        L10000  002132          L10072  053740          O$ERRT= 000000          PUNIT   022512
LOOPCO  012770          L10001  002144          L10073  055456          O$GNSW= 000001          PW.D11= 000021
LOOPFL  003114 G        L10002  005226          L10074  065454          O$POIN= 000001          PW.D13= 000022
LOT   = 000010 G        L10003  011706          L10075  063150          O$SETU= 000001          PW.D22= 000020
L$ACP   002110 G        L10004  011736          L10076  065512          PASRPT  022256          PW.NOP= 000000
L$APT   002036 G        L10005  011754          L10077  065634          PATCH   006022 G        PW.NO1= 000023
L$AU    022560 G        L10006  011762          L10100  066032          PATDAT  021150          PW.RDE= 000024
L$AUT   002070 G        L10007  012000          L10102  066040          PC.ERA= 002400          PW.RDR= 000001
L$AUTO  022764 G        L10010  012016          MEMADD  013616 G        PC.IER= 002000          PW.RDS= 000005
L$CCP   002106 G        L10011  012030          MENASC  021367          PC.NOO= 001000          PW.RFI= 000003
L$CLEA  023040 G        L10012  012102          MENERR  021314          PC.REL= 000000          PW.WCT= 000006
L$CO    002032 G        L10013  012252          MENRES  021416          PC.REW= 000400          PW.WFI= 000004
L$DEPO  002011 G        L10014  012766          MESBFA  002716 G        PKBCNT= 000006          PW.WFM= 000007
L$DESC  003342 G        L10015  013614          MESBFN  014650          PKHI  = 000004          PW.WMI= 000010
L$DESP  002076 G        L10016  013636          MESHEA  015033          PKLOW = 000002          PW.WNP= 000011
L$DEVP  002060 G        L10017  016364          MMVEC = 000250          PKTADD  007302          PW.WTR= 000002
L$DISP  006012 G        L10020  016372          MPR   = 174406          PKTFRM  007244          P.ACK = 100000
L$DLY   002116 G        L10021  016400          MSA.FR= 000006          PKTGET  011740 G        P.CMD = 000037
L$DTP   002040 G        L10022  016412          MSA.NO= 000000          PKTMES  011764 G        P.CONT= 000012
L$DTYP  002034 G        L10023  016434          MSA.NR= 000004          PKTNEW  007337          P.CVC = 040000
L$DU    022656 G        L10024  016462          MSA.VO= 000002          PKTRAM  004643 G        P.FMT = 000140
L$DUT   002072 G        L10025  016622          MSGEXP  012020 G        PKTSSR  011710 G        P.FORM= 000011
L$DVTY  003334 G        L10026  017132          MSGLOO  012726 G        PNT   = 001000 G        P.GETS= 000017
L$EF    002052 G        L10030  022510          MSGSTA  012212 G        PRAMPK  013640          P.IE  = 000200
L$ENVI  002044 G        L10031  022654          MSGSUB  013604 G        PRBEXP  016354          P.INIT= 000013
L$ETP   002102 G        L10032  022762          MS.ATT= 000006          PRBMSG  016222          P.MODE= 007400
L$EXP1  002046 G        L10033  023036          MS.EXT= 000200          PRBREC  016356          P.OPP = 020000
L$EXP4  002064 G        L10034  023064          MS.RSD= 000001          PRBTOT  016307          P.POSI= 000010
L$EXP5  002066 G        L10035  023326          MS.RSF= 000020          PRBYTE  016006 G        P.READ= 000001
L$HARD  065460 G        L10036  031664          MS.RST= 000010          PRI   = 002000 G        P.SWB = 010000
L$HIME  002120 G        L10037  024372          NBA   = 002000          PRIADD  007716          P.WRIT= 000005
L$HPCP  002016 G        L10040  025032          NEWPAS  022212          PRIAO   007766          P.WRTC= 000004
L$HPTP  002022 G        L10041  025466          NODEV   003062 G        PRIBXO  007350 G        P.WRTS= 000006
L$HW    002124 G        L10042  026216          NOINIT  004233          PRIEQU  007616          QVP     002152 G
L$ICP   002104 G        L10043  027144          NOINTR  004117          PRIPKT  007076 G        RAMASC  014006
L$INIT  022000 G        L10044  027454          NOITS   002136 G        PRIRAM  007624          RAMDAT  002206 G
L$LADP  002026 G        L10045  030044          NOMAN   021454          PRITAD  010032          RAMER   010646 G
L$LAST  066026 G        L10046  051034          NP.IR = 000200          PRITSS  005264          RAMERR  016374 G
L$LOAD  002100 G        L10047  032616          NP.LOO= 000040          PRITO   010102          RAMEXP  016414 G
L$LUN   002074 G        L10050  033454          NP.OUT= 000100          PRIXOR  007500 G        RAMFHR  014552
L$MREV  002050 G        L10051  034340          NP.WRP= 000020          PRI00 = 000000 G        RAMFOR  007654
L$NAME  002000 G        L10052  035260          NSI     004050          PRI01 = 000040 G        RAMHLD  011030
L$PRIO  002042 G        L10053  036026          NSINIT  004305          PRI02 = 000100 G        RAMIOP  011034
L$PROT  021770 G        L10054  036656          NUL     004425          PRI03 = 000140 G        RAMPD   011105
L$PRT   002112 G        L10055  037520          NULCR   004426          PRI04 = 000200 G        RAMR5H  011032
L$REPP  002062 G        L10056  040362          NXM   = 004000          PRI05 = 000240 G        RAMSIZ  002246 G
L$REV   002010 G        L10057  041230          NXR     003636          PRI06 = 000300 G        RAMTAD  016402 G
L$RPT   023066 G        L10060  042076          NXRERR  005176 G        PRI07 = 000340 G        RBPCRA  015145
```

```
8415 044264  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8419 044270                                ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     044270  104456                                                                TRAP    C$ERHRD
     044272  000511                                                                .WORD   329
     044274  047125                                                                .WORD   T26BOT
     044276  016360                                                                .WORD   EXPREC
8420 044300                        140$:   CKLOOP                          ;LOOP IF SELECTED
     044300  104406                                                                TRAP    C$CLP1
8421 044302  012703  046076                MOV     #T26RN,R3               ;COMMAND BUFFER ADDRESS
8422 044306  012737  177376  046062  150$:  MOV     #177376,T26RB           ;STARTING READ BUFFER ADDRESS
8423 044314  012737  000077  046064        MOV     #000077,T26RB+2         ;SET UP HIGH ORDER ADDRESS BITS
8424
8425                               ;*************************************************************************
8426                               ;
8427                               ;REREAD DATA,IE,ACK, OPP COMMAND
8428                               ;
8429                               ;*************************************************************************
8430
8431 044322  011337  046060                MOV     (R3),T26PK3             ;REREAD DATA,IE,ACK, OPP COMMAND
8432 044326  012704  046060        165$:   MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
8433 044332  012737  000400  046066        MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8434 044340  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
8435 044344  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
8436 044350  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
8437 044354  012702  104210                MOV     #SSR!NXM!SC!BIT3,R2     ;SET UP EXPECTED
8438 044360  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
8439 044362  001414                        BEQ     170$                    ;BR, IF OK
8440 044364  031327  001000                BIT     (R3),#BIT9              ;CHECK FOR A READ COMMAND
8441 044370  001403                        BEQ     168$                    ;BR, IF IT WAS A READ COMMAND
8442 044372  030127  000002                BIT     R1,#BIT1                ;WAS BIT1 SET
8443 044376  001006                        BNE     170$                    ;BR, IF REREAD AND BIT1 SET
8444 044400                        168$:
8445 044400  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8449 044404                                ERRHRD  ERRNO,T26RRF,PKTSSR     ;TSSR INCORRECT AFTER REREAD DATA
     044404  104456                                                                TRAP    C$ERHRD
     044406  000512                                                                .WORD   330
     044410  046335                                                                .WORD   T26RRF
     044412  011710                                                                .WORD   PKTSSR
8450 044414                        170$:   CKLOOP                          ;LOOP IF SELECTED
     044414  104406                                                                TRAP    C$CLP1
8451
8452                               ;*************************************************************************
8453                               ;
8454                               ;READ DATA, ACK,CVC=1 COMMAND
8455                               ;
8456                               ;*************************************************************************
8457
8458 044416  012737  140001  046060        MOV     #140001,T26PK3          ;READ DATA, ACK,CVC=1 COMMAND
8459 044424  012737  000400  046066        MOV     #256.,T26SZ             ;SET SIZE INTO PACKET
8460 044432  005037  046064                CLR     T26RB+2                 ;CLEAR OUT HIGH ADDRESS BITS
8461 044436  013737  003072  046062        MOV     FREE,T26RB              ;GIVE READ A GOOD BUFFER
8462 044444  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE READ DATA COMMAND
8463 044450  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR
8464 044454  016501  000000                MOV     TSSR(R5),R1             ;PICK UP THE TSSR
8465 044460  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
8466 044464  020102                        CMP     R1,R2                   ;IS THE TSSR OK
8467 044466  001406                        BEQ     180$                    ;BR, IF TSSR OK (GOOD)
```

```
 8468 044470  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 8472 044474                                 ERRHRD  ERRNO,RDERR,PKTSSR      ;READ DATA COMMAND FAILED
      044474  104456                                                         TRAP    C$ERHRD
      044476  000513                                                         .WORD   331
      044500  005104                                                         .WORD   RDERR
      044502  011710                                                         .WORD   PKTSSR
 8473 044504                         180$:   CKLOOP                          ;LOOP IF SELECTED
      044504  104406                                                         TRAP    C$CLP1
 8474 044506  017701  136360                 MOV     @FREE,R1                ;FIRST WORD FROM READ BUFFER
 8475 044512  012702  000001                 MOV     #1,R2                   ;SET UP EXPECTED
 8476 044516  020102                         CMP     R1,R2                   ;IS TAPE POSITION CORRECT
 8477 044520  001406                         BEQ     190$                    ;KEEP GOING POSITION OK
 8478 044522  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 8482 044526                                 ERRHRD  ERRNO,T26WNG,EXPREC     ;TAPE POSITION INCORRECT
      044526  104456                                                         TRAP    C$ERHRD
      044530  000514                                                         .WORD   332
      044532  046116                                                         .WORD   T26WNG
      044534  016360                                                         .WORD   EXPREC
 8483 044536                         190$:   CKLOOP
      044536  104406                                                         TRAP    C$CLP1
 8484
 8485                                ;*************************************************************************
 8486                                ;
 8487                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 8488                                ;
 8489                                ;*************************************************************************
 8490
 8491 044540  004737  010444                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 8492 044544  103411                         BCS     194$                    ;BR, IF NO PROBLEM
 8493 044546  016501  000000                 MOV     TSSR(R5),R1             ;GET TSSR
 8494 044552  010004                         MOV     R0,R4                   ;PACKET ADDRESS SET UP
 8495 044554  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 8499 044560                                 ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
      044560  104456                                                         TRAP    C$ERHRD
      044562  000515                                                         .WORD   333
      044564  047414                                                         .WORD   T26RWN
      044566  011710                                                         .WORD   PKTSSR
 8500 044570                         194$:   CKLOOP                          ;LOOP IF SELECTED
      044570  104406                                                         TRAP    C$CLP1
 8501
 8502                                ;*************************************************************************
 8503                                ;
 8504                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 8505                                ;
 8506                                ;*************************************************************************
 8507
 8508 044572  013701  045756                 MOV     T26BFR+6,R1             ;PICK UP XST0
 8509 044576  010102                         MOV     R1,R2                   ;SET UP EXPECTED
 8510 044600  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 8511 044604  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
 8512 044606  001406                         BEQ     196$                    ;BR, IF EQUAL (OK)
 8513 044610  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 8517 044614                                 ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      044614  104456                                                         TRAP    C$ERHRD
      044616  000516                                                         .WORD   334
      044620  047125                                                         .WORD   T26BOT
      044622  016360                                                         .WORD   EXPREC
```

```
8518 044624                          196$:   CKLOOP                          ;LOOP IF SELECTED
     044624  104406                                                                  TRAP    C$CLP1
8519 044626  010302                          MOV     R3,R2                   ;SAVE R3 FOR A MOMENT
8520
8521                                 ;*************************************************************************
8522                                 ;
8523                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
8524                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
8525                                 ;
8526                                 ;*************************************************************************
8527
8528 044630  012703  000001                MOV     #1,R3                   ;SPACE ONE RECORD
8529 044634  004737  010144                JSR     PC,SPACE                        ;CALL SPACE ROUTINE
8530 044640  010203                        MOV     R2,R3                           ;RESTORE R3
8531 044642  005723                        TST     (R3)+                   ;BUMP COUNTER
8532 044644  021327  177777                CMP     (R3),#177777            ;END OF COMMAND BUFFER YET
8533 044650  001216                        BNE     150$                    ;MORE COMMANDS KEEP GOING
8534 044652                          200$:
8535 044652                                 ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>>
     044652                                                                         L10063:
     044652  104403                                                                  TRAP    C$ESUB
8536 044654  023727  002170  000031        CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
8537 044662  002402                        BLT     999$                            ;BR, IF LESS THAN 25
8538 044664  004737  020170                JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
8539 044670                          999$:
```

```
 10907 063174  000137  061100            JMP     T28LOOP             ;EXECUTE AGAIN
 10908 063200                      163$:
 10909 063200                            EXIT    TST                 ;ALL DONE THIS TEST
       063200  104432                                                       TRAP    C$EXIT
       063202  002252                                                       .WORD   L10074-.
```

```
8593
8594                            ;*****************************************************************
8595                            ;
8596                            ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8597                            ;
8598                            ;*****************************************************************
8599
8600 044766  004737  010444     26$:    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
8601 044772  016501  000000             MOV     TSSR(R5),R1             ;GET TSSR
8602 044776  012702  000200             MOV     #SSR,R2                 ;SET UP EXPECTED TSSR
8603 045002  103407                     BCS     30$                     ;BR, IF NO PROBLEM
8604 045004  010004                     MOV     R0,R4                   ;PACKET ADDRESS SET UP
8605 045006  004737  020116             JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8609 045012                             ERRHRD  ERRNO,T26RWN,PKTSSR     ;REWIND NOT ACCEPTED
     045012  104456                                                                 TRAP    C$ERHRD
     045014  000521                                                                 .WORD   337
     045016  047414                                                                 .WORD   T26RWN
     045020  011710                                                                 .WORD   PKTSSR
8610 045022                     30$:    CKLOOP                          ;LOOP IF SELECTED
     045022  104406                                                                 TRAP    C$CLP1
8611
8612                            ;*****************************************************************
8613                            ;
8614                            ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8615                            ;
8616                            ;*****************************************************************
8617
8618 045024  013701  045756             MOV     T26BFR+6,R1             ;PICK UP XST0
8619 045030  010102                     MOV     R1,R2                   ;SET UP EXPECTED
8620 045032  052702  000002             BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
8621 045036  020102                     CMP     R1,R2                   ;DOES EXP - REC'D
8622 045040  001406                     BEQ     40$                     ;BR, IF EQUAL (OK)
8623 045042  004737  020116             JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8627 045046                             ERRHRD  ERRNO,T26BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     045046  104456                                                                 TRAP    C$ERHRD
     045050  000522                                                                 .WORD   338
     045052  047125                                                                 .WORD   T26BOT
     045054  016360                                                                 .WORD   EXPREC
8628 045056                     40$:    CKLOOP                          ;LOOP IF SELECTED
     045056  104406                                                                 TRAP    C$CLP1
8629 045060  012737  000400  046066     MOV     #256.,T26SZ             ;SET UP RECORD SIZE IN PACKET
8630 045066  013737  003072  046062     MOV     FREE,T26RB              ;ADDRESS OF READ BUFFER
8631 045074  005703                     TST     R3                      ;CHECK NUMBER OF TIMES THROUGH HERE
8632 045076  001404                     BEQ     50$                     ;BR, IF FIRST TIME THROUGH HERE
8633
8634                            ;*****************************************************************
8635                            ;
8636                            ;REREAD,CVC=1,ACK COMMAND
8637                            ;
8638                            ;*****************************************************************
8639
8640 045100  012737  161001  046060     MOV     #161001,T26PK3          ;REREAD,CVC=1,ACK COMMAND
8641 045106  000403                     BR      55$                     ;SKIP NEXT COMMAND
8642
8643                            ;*****************************************************************
8644                            ;
8645                            ;REREAD,ACK COMMAND
```

```
10974 063376  000000                T28CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10975 063400  000000                T28CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10976 063402  000000                T28DLY: .WORD   0               ;DELAY COUNTER
10977                                       .EVEN
10978
```

```
8691                                    ;*
8692                                    ;
8693                                    ;TEST 2, SUBTEST 15
8694                                    ;
8695                                    ;VERIFIES THAT REREAD PREVIOUS WITH OPP=1 (SPACE
8696                                    ;REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1
8697                                    ;(READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE
8698                                    ;POSITIONED JUST BEFORE THE FIRST RECORD ON TAPE (BUT
8699                                    ;NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION WITH
8700                                    ;THE REVERSE INTO BOT (RIB) STATUS BIT SET.
8701                                    ;
8702                                    ;
8703                                    ;
8704                                    ;-
8705 045240                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      045240                                                                            T2.15:
      045240  104402                                                                        TRAP    C$BSUB
8706 045242  005037  046110                    CLR     T26CNU                  ;CLEAR OUT COUNTER
8707 045246  004737  050650                    JSR     PC,T26REST              ;SET COMMAND PACKET
8708 045252  004737  050742                    JSR     PC,T26RT2               ;SET UP OTHER COMMAND PACKET
8709 045256  004737  051004                    JSR     PC,T26RT3               ;SET UP OTHER COMMAND PACKET
8710
8711                                    ;*****************************************************************
8712                                    ;
8713                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
8714                                    ;
8715                                    ;*****************************************************************
8716
8717 045262  004737  016660                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
8718 045266  103407                            BCS     20$                     ;BR IF INIT WAS OK
8719 045270  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8723 045274  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
8724 045276                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      045276  104457                                                                   TRAP    C$ERDF
      045300  000522                                                                   .WORD   341
      045302  003550                                                                   .WORD   SFIERR
      045304  011676                                                                   .WORD   SFIMSG
8725 045306                                    20$:
8726
8727 045306  012704  045730                    MOV     #T26PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
8728
8729                                    ;*****************************************************************
8730                                    ;
8731                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8732                                    ;
8733                                    ;*****************************************************************
8734
8735 045312  004737  010342                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
8736 045316  103407                            BCS     25$                     ;BR, IF COMMAND ISSUED OK
8737 045320  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8741 045324  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
8742 045326                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      045326  104456                                                                   TRAP    C$ERHRD
      045330  000526                                                                   .WORD   342
      045332  004754                                                                   .WORD   WRTMSG
      045334  011676                                                                   .WORD   SFIMSG
8743 045336                                    25$:    CKLOOP                  ;LOOP IF SELECTED
```

```
11037 065400  012721  100006                  MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
11038 065404  012721  063350                  MOV     #T28BF2,(R1)+           ;ADDRESS OF DATA BLOCK
11039 065410  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
11040 065412  012721  000006                  MOV     #6 ,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
11041 065416  005021                          CLR     (R1)+
11042 065420  012701  063350                  MOV     #T28BF2,R1              ;POINT TO DATA SEL AREA
11043 065424  005021                          CLR     (R1)+
11044 065426  005011                          CLR     (R1)
11045 065430  000207                          RTS     PC                      ;RETURN
11046 065432                        T28RT3:
11047 065432                                  SAVREG
11048 065436  012701  063340                  MOV     #T28PK3,R1              ;GET PACKET ADDRESS
11049 065442  005021                          CLR     (R1)+                   ;CLEAR COMMAND AREA
11050 065444  005021                          CLR     (R1)+                   ;CLEAR ADDRESS AREA
11051 065446  005021                          CLR     (R1)+                   ;CLEAR EXTENDED ADDRESS AREA
11052 065450  005011                          CLR     (R1)                    ;SIZE OF DATA TRANSFER
11053 065452  000207                          RTS     PC                              ;RETURN
11054 065454                                  ENDTST
      065454                                                          L10074:
      065454  104401                                                          TRAP    C$ETST
11060
11065
11071
11072
11073
11074                                         .SBTTL  HARDWARE PARAMETER CODING SECTION
11075
11076                                 ;++
11077                                 ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
11078                                 ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
11079                                 ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
11080                                 ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
11081                                 ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
11082                                 ; WITH THE OPERATOR.
11083                                 ;--
11084 065456                                  BGNHRD
      065456  000015                          .WORD L10076-L$HARD/2
      065460                        L$HARD::
11085
11086 065460                                  GPRMA   HPM1,0,0,160000,177776,YES      ;GET TSBA/TSDB REGISTER ADDRESS.
      065460  000031                          .WORD   T$CODE
      065462  065512                          .WORD   HPM1
      065464  160000                          .WORD   T$LOLIM
      065466  177776                          .WORD   T$HILIM
11087 065470                                  GPRMA   HPM2,2,0,0,776,YES              ;GET VECTOR ADDRESS.
      065470  001031                          .WORD   T$CODE
      065472  065541                          .WORD   HPM2
      065474  000000                          .WORD   T$LOLIM
      065476  000776                          .WORD   T$HILIM
11088 065500                                  GPRMD   HPM3,4,0,340,0,7,YES            ;GET INTERRUPT PRIORITY.
      065500  002032                          .WORD   T$CODE
      065502  065565                          .WORD   HPM3
      065504  000340                          .WORD   340
      065506  000000                          .WORD   T$LOLIM
      065510  000007                          .WORD   T$HILIM
11089 065512                                  ENDHRD
                                              .EVEN
```

```
045460  047053                                                                                  .WORD   T26WDE
045462  011710                                                                                  .WORD   PKTSSR
045464                          75$:    CKLOOP                          ;LOOP IF SELECTED
045464  104406                                                                                  TRAP    C$CLP1

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

045466  012703  100001                  MOV     #100001,R3              ;SET SPACE REVERSE 1 RECORD
045472  004737  010144                  JSR     PC,SPACE                ;ISSUE COMMAND
045476  103411                          BCS     175$                    ;GO ON IF ALL IS WELL
045500  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
045504  010004                          MOV     R0,R4                   ;SET UP EXPECTED (PACKET CONTENTS)
045506  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
045512                                  ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
045512  104456                                                                                  TRAP    C$ERHRD
045514  000532                                                                                  .WORD   346
045516  047053                                                                                  .WORD   T26WDE
045520  011710                                                                                  .WORD   PKTSSR
045522                          175$:   CKLOOP                          ;LOOP IF SELECTED
045522  104406                                                                                  TRAP    C$CLP1
045524  013737  003072  046062          MOV     FREE,T26RB              ;ADDRESS OF BUFFER
045532  005737  046110                  TST     T26CNU                  ;CHECK FOR TIMES THROUGH HERE
045536  001404                          BEQ     176$                    ;BR, IF FIRST TIME THROUGH

                                ;*******************************************************************
                                ;
                                ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
                                ;
                                ;*******************************************************************

045540  012737  161001  046060          MOV     #161001,T26PK3          ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
045546  000403                          BR      178$                    ;SKIP NEXT COMMAND

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

045550  012737  141001  046060  176$:   MOV     #141001,T26PK3          ;REREAD ,ACK,OPP=1 COMMAND
045556                          178$:
045556  012704  046060                  MOV     #T26PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
045562  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
045566  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
045572  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
045576  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
045602  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
045604  001406                          BEQ     180$                    ;BR, IF OK
045606  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
045612                                  ERRHRD  ERRNO,T26WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
045612  104456                                                                                  TRAP    C$ERHRD
045614  000533                                                                                  .WORD   347
```

```
                045616  047053                                                          .WORD   T26WDE
                045620  011710                                                          .WORD   PKTSSR
8851            045622                          180$:   CKLOOP                          ;LOOP IF SELECTED
                045622  104406                                                          TRAP    C$CLP1
8852            045624  013701  045764                  MOV     T26BFR+14,R1            ;GET XST3 STATUS WORD
8853            045630  010102                          MOV     R1,R2                   ;SET UP EXPECTED
8854            045632  052702  000001                  BIS     #BIT0,R2                ;SET THE NEF BIT
8855            045636  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
8856            045640  001406                          BEQ     190$                    ;BR, IF EQUAL (GOOD)
8857            045642  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
8861            045646                                  ERRHRD  ERRNO,T26NEF,EXPREC     ;NEF SHOULD BE SET
                045646  104456                                                          TRAP    C$ERHRD
                045650  000534                                                          .WORD   348
                045652  046204                                                          .WORD   T26NEF
                045654  016360                                                          .WORD   EXPREC
8862            045656                          190$:
8863            045656  005137  046110                  COM     T26CNU                  ;SET SWITCH THE OTHER WAY
8864            045662  001226                          BNE     26$                     ;BR, IF FIRST TIME THROUGH
8865            045664                                  ENDSUB                          ;>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
                045664                                                                          L10065:
                045664  104403                                                          TRAP    C$ESUB
8866            045666  023727  002170  000031          CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
8867            045674  002402                          BLT     999$                            ;BR, IF LESS THAN 25
8868            045676  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
8869            045702                          999$:
8870                                                    ;
8871                                                    ;
8872                                                    ;
8873            045702  004737  017372                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
8874            045706  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
8875            045710  000137  031732                  JMP     T26LOOP                 ;EXECUTE AGAIN
8876            045714                          163$:
8877            045714                                  EXIT    TST                     ;ALL DONE THIS TEST
                045714  104432                                                                  TRAP    C$EXIT
                045716  003116                                                                  .WORD   L10046-.
```

```
8879                                    ;*
8880                                    ;LOCAL STURAGE FOR THIS TEST
8881                                    ;-
8883 045720                                     .BLKB   10-<.-TUV2A67>
8885 045730                             T26PACKET:
8886 045730  014004                             .WORD   14004                   ;COMMAND PACKET FOR TEST
8887 045732  045740                             .WORD   T26DATA                 ;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
8888 045734  000000                             .WORD   0                       ;ADDRESS OF CHARACTERISTICS BLOCK
8889 045736  000012                             .WORD   10.                     ;STARTING VALUE OF BLOCK SIZE
8890 045740                             T26DATA:                                ;CHARACTERISTICS DATA BLOCK
8891 045740  045750                             .WORD   T26BFR                  ;ADDRESS OF MESSAGE BUFFER
8892 045742  000000                             .WORD   0
8893 045744  000024                             .WORD   20.                     ;LENGTH OF MESSAGE BUFFER
8894 045746  000000                             .WORD   0
8895 045750                             T26BFR: .BLKW   25.                     ;MESSAGE BUFFER
8896                                    ;
8897                                    ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
8898                                    ;
8900 046032                                     .BLKB   10-<.-TUV2A67>
8902 046040                             T26PK2:
8903 046040  100006                             .WORD   100006                  ;WRITE SUB SYS MEM COMMAND, AND ACK
8904 046042  046070                             .WORD   T26BF2                  ;ADDRESS OF SELECT BLOCK DATA
8905 046044  000000                             .WORD   0
8906 046046  000006                             .WORD   6.                      ;SIZE OF DATA PACKET
8908 046050                                     .BLKB   10-<.-TUV2A67>
8910 046060                             T26PK3:
8911 046060  140005                             .WORD   140005                  ;REREAD COMMAND, CVC=1 AND ACK
8912 046062                             T26RB:
8913 046062  003072                     T26WB:  .WORD   FREE                    ;ADDRESS OF WRITE BUFFER
8914 046064  000000                             .WORD   0
8915 046066  000000                     T26SZ:  .WORD   0                       ;SIZE OF BUFFER (EXTENT)
8916                                             .EVEN
8917                                    ;
8918 046070                             T26BF2:
8919 046070     010                     T26BS0: .BYTE   10                      ;BSEL0 AREA
8920 046071     200                     T26BS1: .BYTE   200                     ;BSEL1 AREA
8921 046072  000000                     T26S2:  .WORD   0                       ;SEL 2 AREA
8922 046074  000000                     T26S3:  .WORD   0                       ;DATA AREA
8923                                    ;
8924                                            .EVEN
8925                                    ;TAPE MOTION PACKET COMMAND VALUES
8926
8927 046076  140001                     T26RN:  .WORD   140001                  ;READ DATA
8928 046100  141401                             .WORD   141401                  ;REREAD NEXT OPP=0
8929 046102  161401                             .WORD   161401                  ;REREAD NEXT OPP=1
8930 046104  177777                             .WORD   177777                  ;END OF DATA
8931                                    ;
8932 046106  000000                     T26CNT: .WORD   0                       ;TAPE RECORD COUNTER STORAGE AREA
8933 046110  000000                     T26CNU: .WORD   0                       ;TAPE RECORD COUNTER STORAGE AREA
8934 046112  000000                     T26RSZ: .WORD   0                       ;RECORD STORAGE SIZE  AREA
8935 046114  000000                     T26DLY: .WORD   0                       ;DELAY COUNTER AREA
```

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


046116     124     141     160  T26WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
046204     122     105     122  T26NEF: .ASCIZ  'REREAD PREVIOUS, At BOT, Failed To Set NEF (XSTO)'
046266     124     123     123  T26RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
046335     122     105     122  T26RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
046432     122     105     122  T26RRG: .ASCIZ  'REREAD Previous (Read Reverse, Space Forward) Command Failed'
046527     120     117     123  T26SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
046611     122     111     102  T26LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
046661     124     123     123  T26WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
046736     111     154     154  T26LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
047017     122     105     122  T26SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
047053     124     123     123  T26WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
047125     124     141     160  T26BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
047172     104     141     164  T26DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
047260     122     105     122  T26EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
047337     124     123     123  T26TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
047414     122     145     167  T26RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
047463     122     101     115  T26RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
047536     124     123     123  T26AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
047605     104     162     151  T26OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
047660     124     123     123  T26WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
047750     124     123     123  T26WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
050023     103     126     103  T26VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
050076     124     123     102  T26BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
050151     127     122     111  T26WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
050240     122     145     141  T26LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
050322     122     145     141  T26LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
050404     122     145     163  T26PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
050472     122     145     141  T26TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
050560     104     141     164  T26NEQ: .ASCIZ  'Data REREAD From Tape Not Correct, After SWB=1'
050637     122     145     162  TST26ID:        .ASCIZ  'Rereads'
                                        .EVEN
                                        ;+
                                        ;
                                        ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
                                        ;WRITE SUBSYSTEM MEMORY COMMAND
                                        ;
                                        ;-

050650                                  T26REST:
050650                                          SAVREG                          ;SAVE THE REGISTERS
050654  012701  045730                          MOV     #T26PACKET,R1           ;START OF THE PACKET
050660  012721  140004                          MOV     #140004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK, CVC=1
050664  012721  045740                          MOV     #T26DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
050670  005021                                  CLR     (R1)+                   ;EXTENDED ADDRESS
050672  012721  000012                          MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
050676  012721  045750                          MOV     #T26BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
050702  005021                                  CLR     (R1)+
050704  012721  000024                          MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
050710  005021                                  CLR     (R1)+
050712  012711  000000                          MOV     #0,(R1)                 ;SELECT DRIVE ZERO (0)
050716  012702  000030                          MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
```

E2


```
 8994 050722  012762  177777  045750  64$:    MOV     #177777,T26BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
 8995 050730  005742                          TST     -(R2)                   ;NEXT LOCATION
 8996 050732  020227  000000                  CMP     R2,#0                   ;CHECK FOR END OF LOOP
 8997 050736  001371                          BNE     64$                     ;KEEP GOING UNTIL DONE
 8998 050740  000207                          RTS     PC                      ;RETURN
 8999
 9000
 9001 050742                          T26RT2:
 9002 050742                                  SAVREG                          ;SAVE THE REGISTERS
 9003 050746  012701  046040                  MOV     #T26PK2,R1              ;START OF THE PACKET
 9004 050752  012721  140006                  MOV     #140006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,CVC=1,
 9005 050756  012721  046070                  MOV     #T26BF2,(R1)+           ;ADDRESS OF DATA BLOCK
 9006 050762  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 9007 050764  012721  000006                  MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
 9008 050770  005021                          CLR     (R1)+
 9009 050772  012701  046070                  MOV     #T26BF2,R1              ;POINT TO DATA SEL AREA
 9010 050776  005021                          CLR     (R1)+
 9011 051000  005011                          CLR     (R1)
 9012 051002  000207                          RTS     PC                      ;RETURN
 9013 051004                          T26RT3:
 9014 051004                                  SAVREG                          ;SAVE THE REGISTERS
 9015 051010  012701  046060                  MOV     #T26PK3,R1              ;START OF THE PACKET
 9016 051014  012721  000000                  MOV     #0,(R1)+                ;WRITE SUBSYSTEM MEM. WITH ACK,
 9017 051020  012721  000000                  MOV     #0,(R1)+                ;ADDRESS OF DATA BLOCK
 9018 051024  005021                          CLR     (R1)+                   ;EXTENDED ADDRESS
 9019 051026  012711  000000                  MOV     #0,(R1)         ;SIZE OF DATA BLOCK IN BYTES
 9020 051032  000207                          RTS     PC                      ;RETURN
 9021 051034                                  ENDTST
      051034
      051034  104401                                                  L10046:
                                                                              TRAP    C$ETST
```

F2


```
                                        .SBTTL  TEST  3: WRITE DATA RETRY
                                ;*
                                ;
                                ;THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY
                                ;COMMAND (SPACE REVERSE, ERASE, WRITE DATA)
                                ;
                                ;
                                ;THE TEST CONSISTS OF THE FOLLOWING 5 SUBTESTS
                                ;
                                ;
                                ;
                                ;-
                                        BGNTST
                                                                                T3::
                                        CLR     FATFLG                  ;CLEAR FATAL ERROR FLAG
                                        CLR     KTFLG           ;HOLD OFF KT11
                                        MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
                                        CLR     KTENABLE                ;TURN OFF KT11
                                        JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
                                        MOV     #TST27ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
                                        JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
                                        MOV     #1,LOOPCNT              ;PERFORM 1 ITERATIONS
                                        CLR     T27CNT                  ;CLEAR TAPE RECORD COUNTER
                                ;*
                                ;
                                ;TEST 3, SUBTEST 1
                                ;
                                ;
                                ;VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE
                                ;THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT
                                ;TERMINATION, WITH THE NON-EXECUTABLE FUNCTION (NEF)
                                ;ERROR BIT SET.
                                ;
                                ;
                                ;-
                                T27LOOP:
                                        BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                                                                                T3.1:
                                                                                        TRAP    C$BSUB
                                        JSR     PC,T27REST              ;SET COMMAND PACKET
                                        JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
                                        JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
                                        MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
                                        CLR     T27CNT                  ;CLEAR COUNTER
                                ;
                                ;*****************************************************************
                                ;
                                ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
                                ;
                                ;*****************************************************************
                                ;
                                10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
                                        BCS     20$                     ;BR IF INIT WAS OK
                                        DELAY   250                     ;DELAY ABOUT .25 SEC
                                                                                        MOV     #250.,(PC)+
                                                                                        .WORD   0
```

```
        051152  013727  002116                                                  MOV     L$DLY,(PC)+
        051156  000000                                                          .WORD   0
        051160  005367  177772                                                  DEC     -6(PC)
        051164  001375                                                          BNE     .-4
        051166  005367  177756                                                  DEC     -22(PC)
        051172  001367                                                          BNE     .-20
 9079   051174  005337  055702          DEC     T27DLY                  ;BUMP COUNTER
 9080   051200  001356                  BNE     10$                     ;BR. IF COUNTER NOT DONE
 9081   051202  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9085   051206  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 9086   051210                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        051210  104455                                                          TRAP    C$ERDF
        051212  000455                                                          .WORD   301
        051214  003550                                                          .WORD   SFIERR
        051216  011676                                                          .WORD   SFIMSG
 9087   051220                  20$:
 9088   051220  012704  055520          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 9089
 9090                           ;*************************************************************
 9091                           ;
 9092                           ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 9093                           ;
 9094                           ;*************************************************************
 9095
 9096   051224  004737  010342          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 9097   051230  103407                  BCS     25$                     ;BR. IF COMMAND ISSUED OK
 9098   051232  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9102   051236  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 9103   051240                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        051240  104456                                                          TRAP    C$ERHRD
        051242  000456                                                          .WORD   302
        051244  004754                                                          .WORD   WRTMSG
        051246  011676                                                          .WORD   SFIMSG
 9104   051250                  25$:    CKLOOP                          ;LOOP IF SELECTED
        051250  104406                                                          TRAP    C$CLP1
 9105
 9106                           ;*************************************************************
 9107                           ;
 9108                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9109                           ;
 9110                           ;*************************************************************
 9111
 9112   051252  004737  010444          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9113   051256  103407                  BCS     30$                     ;BR. IF NO PROBLEM
 9114   051260  010004                  MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9115   051262  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9119   051266                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
        051266  104456                                                          TRAP    C$ERHRD
        051270  000457                                                          .WORD   303
        051272  057055                                                          .WORD   T27RWN
        051274  011710                                                          .WORD   PKTSSR
 9120   051276                  30$:    CKLOOP                          ;LOOP IF SELECTED
        051276  104406                                                          TRAP    C$CLP1
 9121
 9122                           ;*************************************************************
 9123                           ;
 9124                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
```

H2


```
9125                                    ;
9126                                    ;*************************************************************************
9127
9128 051300  013701  055546                    MOV     T27BFR+6,R1             ;PICK UP XSTO
9129 051304  010102                            MOV     R1,R2                   ;SET UP EXPECTED
9130 051306  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9131 051312  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
9132 051314  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
9133 051316  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9137 051322                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     051322  104456                                                                    TRAP    C$ERHRD
     051324  000460                                                                    .WORD   304
     051326  056551                                                                    .WORD   T27BOT
     051330  016360                                                                    .WORD   EXPREC
9138 051332                            40$:    CKLOOP                          ;LOOP IF SELECTED
     051332  104406                                                                    TRAP    C$CLP1
9139 051334  012737  000400  055656                MOV     #256.,T27SZ             ;SET UP RECORD SIZE
9140 051342  013737  003072  055652                MOV     FREE,T27WB              ;ADDRESS OF WRITE BUFFER
9141
9142                                    ;*************************************************************************
9143                                    ;
9144                                    ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
9145                                    ;
9146                                    ;*************************************************************************
9147
9148 051350  012737  141005  055650            MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
9149 051356  012704  055650                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9150 051362  010465  177776                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9151 051366  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9152 051372  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9153 051376  012702  100206                    MOV     #SSR!SC!BIT1!BIT2,R2    ;SET UP EXPECTED
9154 051402  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9155 051404  001406                            BEQ     75$                     ;BR, IF OK
9156 051406  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9160 051412                                    ERRHRD  ERRNO,T27WDE,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
     051412  104456                                                                    TRAP    C$ERHRD
     051414  000461                                                                    .WORD   305
     051416  056462                                                                    .WORD   T27WDE
     051420  011710                                                                    .WORD   PKTSSR
9161 051422                            75$:    CKLOOP                          ;LOOP IF SELECTED
     051422  104406                                                                    TRAP    C$CLP1
9162
9163                                    ;*************************************************************************
9164                                    ;
9165                                    ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9166                                    ;
9167                                    ;*************************************************************************
9168
9169 051424  013701  055546                    MOV     T27BFR+6,R1             ;GET XSTO STATUS WORD
9170 051430  010102                            MOV     R1,R2                   ;SET UP EXPECTED
9171 051432  052702  002000                    BIS     #BIT10,R2               ;SET THE NEF BIT
9172 051436  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9173 051440  001406                            BEQ     170$                    ;BR, IF EQUAL (GOOD)
9174 051442  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9178 051446                                    ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
     051446  104456                                                                    TRAP    C$ERHRD
     051450  000462                                                                    .WORD   306
```

```
      051452  060221                                                    .WORD   T27NEF
      051454  016360                                                    .WORD   EXPREC
 9179 051456                          170$:
 9180 051456                                ENDSUB
      051456                                                        L10067:
      051456  104403                                                       TRAP    C$ESUB
 9181 051460  023727  002170  000031        CMP     FATFLG,#25.     ;IS ERROR COUNT AT 25
 9182 051466  002402                        BLT     999$            ;BR, IF LESS THAN 25
 9183 051470  004737  020170                JSR     PC,CKDROP       ;TRY TO DROP THE UNIT
 9184 051474                          999$:
```

```
                                        ;+
                                        ;
                                        ;TEST 3, 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.
                                        ;
                                        ;
                                        ;
                                        ;-
051474                                          BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
                                                                                                T3.2:
051474  104402                                                                                    TRAP    C$BSUB
051476  004737  060654                        JSR     PC,T27REST              ;SET COMMAND PACKET
051502  004737  060746                        JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
051506  004737  061010                        JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET

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

051512  004737  016660                        JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
051516  103407                                BCS     20$                     ;BR IF INIT WAS OK
051520  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
051524  010001                                MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
051526                                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
051526  104455                                                                                  TRAP    C$ERDF
051530  000463                                                                                  .WORD   307
051532  003550                                                                                  .WORD   SFIERR
051534  011676                                                                                  .WORD   SFIMSG
051536                                  20$:
051536  012704  055520                        MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS

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

051542  004737  010342                        JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
051546  103407                                BCS     25$                     ;BR, IF COMMAND ISSUED OK
051550  004737  020116                        JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
051554  010001                                MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
051556                                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
051556  104456                                                                                  TRAP    C$ERHRD
051560  000464                                                                                  .WORD   308
051562  004754                                                                                  .WORD   WRTMSG
051564  011676                                                                                  .WORD   SFIMSG
051566                                  25$:    CMLOOP                          ;LOOP IF SELECTED
051566  104406                                                                                  TRAP    C$CLP1

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

```
9238                                    ;
9239                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9240                                    ;
9241                                    ;*****************************************************************
9242
9243 051570  004737  010444                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9244 051574  103411                            BCS     26$                     ;BR. IF NO PROBLEM
9245 051576  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
9246 051600  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9247 051604  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9251 051610                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
     051610  104456                                                                    TRAP    C$ERHRD
     051612  000465                                                                    .WORD   309
     051614  057055                                                                    .WORD   T27RWN
     051616  011710                                                                    .WORD   PKTSSR
9252 051620                            26$:    CKLOOP                          ;LOOP IF SELECTED
     051620  104406                                                                    TRAP    C$CLP1
9253 051622  012703  000400                    MOV     #256.,R3                        ;STARTING RECORD SIZE
9254 051626  013737  003072  055652            MOV     FREE,T27W8              ;STARTING WRITE BUFFER ADDRESS
9255
9256                                    ;*****************************************************************
9257                                    ;
9258                                    ;WRITE DATA,CVC=1,ACK COMMAND
9259                                    ;
9260                                    ;*****************************************************************
9261
9262 051634  012737  140005  055650            MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
9263 051642  012704  055650                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9264 051646  010337  055656                    MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9265 051652  010465  177776                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9266 051656  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9267 051662  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9268 051666  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9269 051672  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9270 051674  001406                            BEQ     28$                     ;BR. IF OK
9271 051676  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9275                                                                           ;SOFT ERROR GENERATED BECAUSE THE
9276                                                                           ;WRITE COMMAND IS NOT BEING CHECKED
9277                                                                           ;HERE. IT WAS CHECKED IN LEAH2
9278 051702                                    ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
     051702  104457                                                                    TRAP    C$ERSOFT
     051704  000466                                                                    .WORD   310
     051706  005011                                                                    .WORD   WRTERR
     051710  011710                                                                    .WORD   PKTSSR
9279 051712                            28$:    CKLOOP                          ;LOOP IF SELECTED
     051712  104406                                                                    TRAP    C$CLP1
9280
9281                                    ;*****************************************************************
9282                                    ;
9283                                    ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9284                                    ;
9285                                    ;*****************************************************************
9286
9287 051714  004737  010444                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
9288 051720  103411                            BCS     30$                     ;BR. IF NO PROBLEM
9289 051722  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9290 051726  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
```

```
 9291 051730  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9295 051734                                 ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      051734  104456                                                                TRAP    C$ERHRD
      051736  000467                                                                .WORD   311
      051740  057055                                                                .WORD   T27RWN
      051742  011710                                                                .WORD   PKTSSR
 9296 051744                         30$:    CKLOOP                          ;LOOP IF SELECTED
      051744  104406                                                                TRAP    C$CLP1
 9297
 9298                                 ;*****************************************************************
 9299                                 ;
 9300                                 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9301                                 ;
 9302                                 ;*****************************************************************
 9303
 9304 051746  013701  055546                 MOV     T27BFR+6,R1             ;PICK UP XST0
 9305 051752  010102                         MOV     R1,R2                   ;SET UP EXPECTED
 9306 051754  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9307 051760  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
 9308 051762  001406                         BEQ     40$                     ;BR, IF EQUAL (OK)
 9309 051764  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9313 051770                                 ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      051770  104456                                                                TRAP    C$ERHRD
      051772  000470                                                                .WORD   312
      051774  056551                                                                .WORD   T27BOT
      051776  016360                                                                .WORD   EXPREC
 9314 052000                         40$:    CKLOOP                          ;LOOP IF SELECTED
      052000  104406                                                                TRAP    C$CLP1
 9315
 9316                                 ;*****************************************************************
 9317                                 ;
 9318                                 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 9319                                 ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 9320                                 ;
 9321                                 ;*****************************************************************
 9322
 9323 052002  012703  000001                 MOV     #1,R3                   ;PARAMETER SPACE FORWARD 1 RECORD
 9324 052006  004737  010144                 JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
 9325 052012  103413                         BCS     50$                     ;BR, IF NO ERRORS
 9326 052014  016501  000000                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9327 052020  012702  000200                 MOV     #SSR,R2                 ;SET UP EXPECTED
 9328 052024  010004                         MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9329 052026  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9333 052032                                 ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
      052032  104456                                                                TRAP    C$ERHRD
      052034  000471                                                                .WORD   313
      052036  060317                                                                .WORD   T27SCF
      052040  011710                                                                .WORD   PKTSSR
 9334 052042                         50$:    CKLOOP                          ;LOOP IF SELECTED
      052042  104406                                                                TRAP    C$CLP1
```

```
 9336                                   ;*****************************************************************
 9337                                   ;
 9338                                   ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
 9339                                   ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
 9340                                   ;
 9341                                   ;*****************************************************************
 9342
 9343 052044  012703  100001                MOV     #100001,R3              ;PARAMETER SPACE REVERSE 1 RECORD
 9344 052050  004737  010144                JSR     PC,SPACE                ;CALL SPACE RECORDS ROUTINE
 9345 052054  103413                        BCS     60$                     ;BR. IF NO ERRORS
 9346 052056  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9347 052062  012702  000200                MOV     #SSR,R2                 ;SET UP EXPECTED
 9348 052066  010004                        MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9349 052070  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9353 052074                                ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE RECORDS COMMAND FAILED
      052074  104456                                                                TRAP    C$ERHRD
      052076  000472                                                                .WORD   314
      052100  060317                                                                .WORD   T27SCF
      052102  011710                                                                .WORD   PKTSSR
 9354 052104                            60$:    CKLOOP                          ;LOOP IF SELECTED
      052104  104406                                                                TRAP    C$CLP1
 9355 052106  013737  003072  055652            MOV     FREE,T27RB              ;ADDRESS OF BUFFER
```

```
 9357                                   ;*************************************************************************
 9358                                   ;
 9359                                   ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9360                                   ;
 9361                                   ;*************************************************************************
 9362
 9363 052114  012737  141005  055650          MOV     #141005,T27PK3          ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
 9364 052122  012737  000400  055656          MOV     #256.,T27SZ             ;SET UP THE SIZE OF RECORD
 9365 052130  012704  055650                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9366 052134  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9367 052140  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9368 052144  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9369 052150  012702  100204                  MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED TAPE STATUS ALERT
 9370 052154  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9371 052156  001406                          BEQ     180$                    ;BR, IF OK
 9372 052160  004737  020 16                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9376 052164                                  ERRHRD  ERRNO,T27TSA,PKTSSR     ;TSSR INCORRECT AFTER READ DATA
      052164  104456                                                                  TRAP    C$ERHRD
      052166  000473                                                                  .WORD   315
      052170  060374                                                                  .WORD   T27TSA
      052172  011710                                                                  .WORD   PKTSSR
 9377 052174                          180$:   CKLOOP                          ;LOOP IF SELECTED
      052174  104406                                                                  TRAP    C$CLP1
 9378 052176  013701  055554                  MOV     T27BFR+14,R1            ;GET XST3 STATUS WORD
 9379 052202  010102                          MOV     R1,R2                   ;SET UP EXPECTED
 9380 052204  052702  000001                  BIS     #BIT0,R2                ;SET THE RIB BIT
 9381 052210  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9382 052212  001406                          BEQ     190$                    ;BR, IF EQUAL (GOOD)
 9383 052214  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9387 052220                                  ERRHRD  ERRNO,T27NEF,EXPREC     ;NEF SHOULD BE SET
      052220  104456                                                                  TRAP    C$ERHRD
      052222  000474                                                                  .WORD   316
      052224  060221                                                                  .WORD   T27NEF
      052226  016360                                                                  .WORD   EXPREC
 9388 052230                          190$:
 9389 052230                          ENDSUB                                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      052230                                                                       L10070:
      052230  104403                                                                  TRAP    C$ESUB
 9390 052232  023727  002170  000031          CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
 9391 052240  002402                          BLT     999$                            ;BR, IF LESS THAN 25
 9392 052242  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
 9393 052246                          999$:
```

```
 9395                                   ;++
 9396                                   ;
 9397                                   ;TEST 3, SUBTEST 3
 9398                                   ;
 9399                                   ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB-0
 9400                                   ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
 9401                                   ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
 9402                                   ;BYTE COUNTS AND DATA PATTERNS ARE USED.
 9403                                   ;
 9404                                   ;
 9405                                   ;
 9406                                   ;-
 9407 052246                                    BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
      052246                                                                                    T3.3:
      052246  104402                                                                              TRAP    C$BSUB
 9408 052250  004737  060654                    JSR     PC,T27REST              ;SET COMMAND PACKET
 9409 052254  004737  060746                    JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
 9410 052260  004737  061010                    JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
 9411
 9412                                   ;*************************************************************************
 9413                                   ;
 9414                                   ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
 9415                                   ;
 9416                                   ;*************************************************************************
 9417
 9418 052264  004737  016660                    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
 9419 052270  103407                            BCS     20$                     ;BR IF INIT WAS OK
 9420 052272  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9424 052276  010001                            MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
 9425 052300                                    ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
      052300  104455                                                                           TRAP    C$ERDF
      052302  000475                                                                           .WORD   317
      052304  003550                                                                           .WORD   SFIERR
      052306  011676                                                                           .WORD   SFIMSG
 9426 052310                                20$:
 9427 052310  012704  055520                    MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
 9428
 9429                                   ;*************************************************************************
 9430                                   ;
 9431                                   ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
 9432                                   ;
 9433                                   ;*************************************************************************
 9434
 9435 052314  004737  010342                    JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
 9436 052320  103407                            BCS     23$                     ;BR, IF COMMAND ISSUED OK
 9437 052322  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9441 052326  010001                            MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 9442 052330                                    ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      052330  104456                                                                           TRAP    C$ERHRD
      052332  000476                                                                           .WORD   318
      052334  004754                                                                           .WORD   WRTMSG
      052336  011676                                                                           .WORD   SFIMSG
 9443 052340                                23$:    CKLOOP                          ;LOOP IF SELECTED
      052340  104406                                                                           TRAP    C$CLP1
 9444
 9445                                   ;*************************************************************************
 9446                                   ;
```

```
 9447                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9448                                   ;
 9449                                   ;*****************************************************************
 9450
 9451 052342  004737  010444                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9452 052346  103407                            BCS     30$                     ;BR, IF NO PROBLEM
 9453 052350  010004                            MOV     R0,R4                   ;SET UP REWIND PACKET ADDRESS
 9454 052352  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9458 052356                                    ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      052356  104456                                                                    TRAP    C$ERHRD
      052360  000477                                                                    .WORD   319
      052362  057055                                                                    .WORD   T27RWN
      052364  011710                                                                    .WORD   PKTSSR
 9459 052366                            30$:    CKLOOP                          ;LOOP IF SELECTED
      052366  104406                                                                    TRAP    C$CLP1
 9460
 9461                                   ;*****************************************************************
 9462                                   ;
 9463                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9464                                   ;
 9465                                   ;*****************************************************************
 9466
 9467 052370  013701  055546                    MOV     T27BFR+6,R1             ;PICK UP XST0
 9468 052374  010102                            MOV     R1,R2                   ;SET UP EXPECTED
 9469 052376  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9470 052402  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
 9471 052404  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
 9472 052406  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9476 052412                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      052412  104456                                                                    TRAP    C$ERHRD
      052414  000500                                                                    .WORD   320
      052416  056551                                                                    .WORD   T27BOT
      052420  016360                                                                    .WORD   EXPREC
 9477 052422                            40$:    CKLOOP                          ;LOOP IF SELECTED
      052422  104406                                                                    TRAP    C$CLP1
 9478 052424  012703  000024                    MOV     #20.,R3                 ;STARTING RECORD SIZE
 9479 052430  013737  003072  055652            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 9480
 9481                                   ;*****************************************************************
 9482                                   ;
 9483                                   ;WRITE DATA,CVC=1,ACK COMMAND
 9484                                   ;
 9485                                   ;*****************************************************************
 9486
 9487 052436  012737  140005  055650  65$:    MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
 9488 052444  012704  055650                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9489 052450  010300                            MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 9490 052452  004737  020410                    JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 9491 052456  010337  055656                    MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9492 052462  010465  177776                    MOV     R4,TSD8(R5)             ;ISSUE COMMAND
 9493 052466  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9494 052472  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9495 052476  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
 9496 052502  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
 9497 052504  001406                            BEQ     80$                     ;BR, IF OK
 9498 052506  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9502                                                                           ;SOFT ERROR GENERATED BECAUSE THE
```

```
9503                                                    ;WRITE COMMAND IS NOT BEING CHECKED
9504                                                    ;HERE. IT WAS CHECKED IN LEAH2
9505 052512                        ERRSOFT ERRNO,WRTERR,PKTSSR  ;TSSR INCORRECT AFTER WRITE DATA
     052512  104457                                                TRAP    C$ERSOFT
     052514  000501                                                .WORD   321
     052516  005011                                                .WORD   WRTERR
     052520  011710                                                .WORD   PKTSSR
9506 052522                 80$:   CKLOOP                       ;LOOP IF SELECTED
     052522  104406                                                TRAP    C$CLP1
9507
9508                        ;*****************************************************************
9509                        ;
9510                        ;WRITE DATA RETRY,CVC=1,ACK COMMAND
9511                        ;
9512                        ;*****************************************************************
9513
9514 052524  012737  141005  055650        MOV     #141005,T27PK3      ;WRITE DATA RETRY,CVC=1,ACK COMMAND
9515 052532  010465  177776               MOV     R4,TSDB(R5)         ;ISSUE COMMAND
9516 052536  004737  017134               JSR     PC,WAITF            ;WAIT FOR SSR TO SET
9517 052542  016501  000000               MOV     TSSR(R5),R1         ;GET TSSR CONTENTS
9518 052546  012702  000200               MOV     #SSR,R2             ;SET UP EXPECTED
9519 052552  020102                       CMP     R1,R2               ;ARE THEY EQUAL
9520 052554  001406                       BEQ     90$                 ;BR, IF OK
9521 052556  004737  020116               JSR     PC,FATCHK           ;INC AND CHECK FOR MORE THAN 25 ERRORS
9525 052562                               ERRHRD  ERRNO,T27WRF,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA RETRY
     052562  104456                                                TRAP    C$ERHRD
     052564  000502                                                .WORD   322
     052566  060456                                                .WORD   T27WRF
     052570  011710                                                .WORD   PKTSSR
9526 052572                 90$:   CKLOOP                       ;LOOP IF SELECTED
     052572  104406                                                TRAP    C$CLP1
9527 052574  005723                       TST     (R3)+               ;BUMP RECORD SIZE COUNTER
9528 052576  020327  000050               CMP     R3,#40.             ;AT 40 SIZE YET
9529 052602  001315                       BNE     65$                 ;BR, IF MORE RECORDS TO WRITE
9530
9531                        ;*****************************************************************
9532                        ;
9533                        ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9534                        ;
9535                        ;*****************************************************************
9536
9537 052604  004737  010444               JSR     PC,REWIND           ;CALL TAPE REWIND COMMAND
9538 052610  103407                       BCS     230$                ;BR, IF NO PROBLEM
9539 052612  010001                       MOV     R0,R1               ;SAVE TSSR
9540 052614  004737  020116               JSR     PC,FATCHK           ;INC AND CHECK FOR MORE THAN 25 ERRORS
9544 052620                               ERRHRD  ERRNO,T27RWN,EXPREC ;REWIND NOT ACCEPTED
     052620  104456                                                TRAP    C$ERHRD
     052622  000503                                                .WORD   323
     052624  057055                                                .WORD   T27RWN
     052626  016360                                                .WORD   EXPREC
9545 052630                 230$:  CKLOOP                       ;LOOP IF SELECTED
     052630  104406                                                TRAP    C$CLP1
9546
9547                        ;*****************************************************************
9548                        ;
9549                        ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9550                        ;
```

```
9551                                    ;*****************************************************************
9552
9553 052632  013701  055546                    MOV     T27BFR+6,R1             ;PICK UP XSTO
9554 052636  010102                            MOV     R1,R2                   ;SET UP EXPECTED
9555 052640  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
9556 052644  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
9557 052646  001406                            BEQ     240$                    ;BR, IF EQUAL (OK)
9558 052650  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9562 052654                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
     052654  104456                                                                    TRAP    C$ERHRD
     052656  000504                                                                    .WORD   324
     052660  056551                                                                    .WORD   T27BOT
     052662  016360                                                                    .WORD   EXPREC
9563 052664                            240$:   CKLOOP                          ;LOOP IF SELECTED
     052664  104406                                                                    TRAP    C$CLP1
9564 052666  012703  000024                    MOV     #20.,R3                 ;STARTING RECORD SIZE
9565 052672  013737  003072  055652            MOV     FREE,T27RB              ;STARTING READ BUFFER ADDRESS
9566
9567                                    ;*****************************************************************
9568                                    ;
9569                                    ;READ DATA,ACK COMMAND
9570                                    ;
9571                                    ;*****************************************************************
9572
9573 052700  012737  100001  055650    265$:   MOV     #100001,T27PK3          ;READ DATA,ACK COMMAND
9574 052706  012704  055650                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
9575 052712  010337  055656                    MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
9576 052716  010465  177776                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
9577 052722  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
9578 052726  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
9579 052732  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
9580 052736  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
9581 052740  001406                            BEQ     280$                    ;BR, IF OK
9582 052742  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9586 052746                                    ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
     052746  104456                                                                    TRAP    C$ERHRD
     052750  000505                                                                    .WORD   325
     052752  005104                                                                    .WORD   RDERR
     052754  011710                                                                    .WORD   PKTSSR
9587 052756                            280$:   CKLOOP                          ;LOOP IF SELECTED
     052756  104406                                                                    TRAP    C$CLP1
9588 052760  013702  003072                    MOV     FREE,R2                 ;GET BUFFER ADDRESS
9589 052764  010304                            MOV     R3,R4                   ;GET RECORD SIZE
9590 052766  162704  000024                    SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
9591 052772  060204                    285$:   ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
9592 052774  021403                            CMP     (R4),R3                 ;DATA WRITTEN = READ
9593 052776  001410                            BEQ     290$                    ;BR, IF DATA OK (GOOD)
9594 053000  011401                            MOV     (R4),R1                 ;PICK UP BAD DATA
9595 053002  010302                            MOV     R3,R2                   ;SET UP EXPECTED
9596 053004  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9600 053010                                    ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
     053010  104456                                                                    TRAP    C$ERHRD
     053012  000506                                                                    .WORD   326
     053014  060536                                                                    .WORD   T27DTA
     053016  016360                                                                    .WORD   EXPREC
9601 053020                            290$:   CKLOOP                          ;LOOP IF SELECTED
     053020  104406                                                                    TRAP    C$CLP1
```

F3


```
 9602 053022  005724                          TST     (R4)+           ;BUMP TO NEXT ADDRESS
 9603 053024  160204                          SUB     R2,R4           ;BACK TO RECORD SIZE
 9604 053026  020403                          CMP     R4,R3           ;AT END OF RECORD YET
 9605 053030  001360                          BNE     285$            ;BR, IF MORE DATA TO CHECK
 9606 053032  005723                          TST     (R3)+           ;BUMP RECORD SIZE
 9607 053034  020327  000050                  CMP     R3,#40.         ;DONE YET
 9608 053040  001317                          BNE     265$            ;BR, IF NOT DONE YET (MORE READS)
 9609 053042                          300$:   CKLOOP                  ;LOOP IF SELECTED
      053042  104406                                                              TRAP    C$CLP1
 9610 053044                          330$:
 9611 053044                          ENDSUB                          ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      053044                                                                  L10071:
      053044  104403                                                              TRAP    C$ESUB
 9612 053046  023727  002170  000031          CMP     FATFLG,#25.             ;IS ERROR COUNT AT 25
 9613 053054  002402                          BLT     999$                    ;BR, IF LESS THAN 25
 9614 053056  004737  020170                  JSR     PC,CKDROP               ;TRY TO DROP THE UNIT
 9615 053062                          999$:
```

```
                                        ;*
                                        ;
                                        ;TEST 3, SUBTEST 4
                                        ;
                                        ;VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=1
                                        ;TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE
                                        ;(THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS
                                        ;BYTE COUNTS AND DATA PATTERNS ARE USED.
                                        ;
                                        ;
                                        ;
                                        ;-
9629 053062                                     BGNSUB                          ;>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>
     053062                                                                                     T3.4:
     053062  104402                                                                                    TRAP    C$BSUB
9630 053064  004737  060654                     JSR     PC,T27REST              ;SET COMMAND PACKET
9631 053070  004737  060746                     JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
9632 053074  004737  061010                     JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
9633 053100  012737  176750  055702            MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
9634
9635                                    ;*************************************************************************
9636                                    ;
9637                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9638                                    ;
9639                                    ;*************************************************************************
9640
9641 053106  004737  016660     10$:    JSR     PC,SOFINIT              ;DO INITIALIZE ON CONTROLLER
9642 053112  103426                     BCS     20$                     ;BR IF INIT WAS OK
9643 053114                             DELAY   250                     ;DELAY ABOUT .25 SEC
     053114  012727  000250                                                             MOV     #250.,(PC)+
     053120  000000                                                                     .WORD   0
     053122  013727  002116                                                             MOV     L$DLY,(PC)+
     053126  000000                                                                     .WORD   0
     053130  005367  177772                                                             DEC     -6(PC)
     053134  001375                                                                     BNE     .-4
     053136  005367  177756                                                             DEC     -22(PC)
     053142  001367                                                                     BNE     .-20
9644 053144  005337  055702                     DEC     T27DLY                  ;BUMP COUNTER
9645 053150  001356                     BNE     10$                     ;BR, IF COUNTER NOT DONE
9646 053152  004737  020116                     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9650 053156  010001                     MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
9651 053160                             ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
     053160  104455                                                                     TRAP    C$ERDF
     053162  000507                                                                     .WORD   327
     053164  003550                                                                     .WORD   SFIERR
     053166  011676                                                                     .WORD   SFIMSG
9652 053170                     20$:
9653 053170  012704  055520                     MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
9654
9655                                    ;*************************************************************************
9656                                    ;
9657                                    ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
9658                                    ;
9659                                    ;*************************************************************************
9660
9661 053174  004737  010342                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
9662 053200  103407                     BCS     23$                     ;BR, IF COMMAND ISSUED OK
```

```
 9663 053202  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9667 053206  010001                         MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
 9668 053210                                 ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
      053210  104456                                                                TRAP    C$ERHRD
      053212  000510                                                              .WORD   328
      053214  004754                                                              .WORD   WRTMSG
      053216  011676                                                              .WORD   SFIMSG
 9669 053220                         23$:    CKLOOP                          ;LOOP IF SELECTED
      053220  104406                                                            TRAP    C$CLP1
 9670
 9671                                ;**************************************************************************
 9672                                ;
 9673                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9674                                ;
 9675                                ;**************************************************************************
 9676
 9677 053222  004737  010444                 JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9678 053226  103411                         BCS     30$                     ;BR, IF NO PROBLEM
 9679 053230  016501  000000                 MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9680 053234  010004                         MOV     R0,R4                   ;GET PACKET ADDRESS
 9681 053236  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9685 053242                                 ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      053242  104456                                                                TRAP    C$ERHRD
      053244  000511                                                              .WORD   329
      053246  057055                                                              .WORD   T27RWN
      053250  011710                                                              .WORD   PKTSSR
 9686 053252                         30$:    CKLOOP                          ;LOOP IF SELECTED
      053252  104406                                                            TRAP    C$CLP1
 9687
 9688                                ;**************************************************************************
 9689                                ;
 9690                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9691                                ;
 9692                                ;**************************************************************************
 9693
 9694 053254  013701  055546                 MOV     T27BFR+6,R1             ;PICK UP XST0
 9695 053260  010102                         MOV     R1,R2                   ;SET UP EXPECTED
 9696 053262  052702  000002                 BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9697 053266  020102                         CMP     R1,R2                   ;DOES EXP = REC'D
 9698 053270  001406                         BEQ     40$                     ;BR, IF EQUAL (OK)
 9699 053272  004737  020116                 JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9703 053276                                 ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      053276  104456                                                                TRAP    C$ERHRD
      053300  000512                                                              .WORD   330
      053302  056551                                                              .WORD   T27BOT
      053304  016360                                                              .WORD   EXPREC
 9704 053306                         40$:    CKLOOP                          ;LOOP IF SELECTED
      053306  104406                                                            TRAP    C$CLP1
 9705 053310  012703  000024                 MOV     #20.,R3                 ;STARTING RECORD SIZE
 9706 053314  013737  003072  055652         MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 9707
 9708                                ;**************************************************************************
 9709                                ;
 9710                                ;WRITE DATA,CYC=1,ACK COMMAND
 9711                                ;
 9712                                ;**************************************************************************
 9713
```

```
 9714 053322  012737  140005  055650  65$:    MOV     #140005,T27PK3          ;WRITE DATA,CVC-1,ACK COMMAND
 9715 053330  012704  055650                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9716 053334  010300                          MOV     R3,R0                   ;SET PATTERN IN CORRECT REGISTER
 9717 053336  004737  020410                  JSR     PC,FILLMEM              ;FILL MEMORY WITH RECORD SIZE
 9718 053342  010337  055656                  MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9719 053346  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9720 053352  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9721 053356  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9722 053362  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9723 053366  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9724 053370  001406                          BEQ     80$                     ;BR, IF OK
 9725 053372  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9729                                                                         ;SOFT ERROR GENERATED BECAUSE THE
 9730                                                                         ;WRITE COMMAND IS NOT BEING CHECKED
 9731                                                                         ;HERE, IT WAS CHECKED IN LEAH2
 9732 053376                                  ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      053376  104457                                                                 TRAP    C$ERSOFT
      053400  000513                                                                 .WORD   331
      053402  005011                                                                 .WORD   WRTERR
      053404  011710                                                                 .WORD   PKTSSR
 9733 053406                          80$:    CKLOOP                          ;LOOP IF SELECTED
      053406  104406                                                                 TRAP    C$CLP1
 9734
 9735                                 ;*****************************************************************
 9736                                 ;
 9737                                 ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 9738                                 ;
 9739                                 ;*****************************************************************
 9740
 9741 053410  012737  111005  055650          MOV     #111005,T27PK3          ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
 9742 053416  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9743 053422  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9744 053426  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9745 053432  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
 9746 053436  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
 9747 053440  001406                          BEQ     90$                     ;BR, IF OK
 9748 053442  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9752 053446                                  ERRHRD  ERRNO,T27WRF,EXPREC     ;TSSR INCORRECT AFTER WRITE DATA RETRY
      053446  104456                                                                 TRAP    C$ERHRD
      053450  000514                                                                 .WORD   332
      053452  060456                                                                 .WORD   T27WRF
      053454  016360                                                                 .WORD   EXPREC
 9753 053456                          90$:    CKLOOP                          ;LOOP IF SELECTED
      053456  104406                                                                 TRAP    C$CLP1
 9754 053460  005723                          TST     (R3)+                   ;BUMP RECORD SIZE COUNTER
 9755 053462  020327  000050                  CMP     R3,#40.                 ;AT 40 SIZE YET
 9756 053466  001315                          BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 9757
 9758                                 ;*****************************************************************
 9759                                 ;
 9760                                 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9761                                 ;
 9762                                 ;*****************************************************************
 9763
 9764 053470  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
 9765 053474  103411                          BCS     230$                    ;BR, IF NO PROBLEM
 9766 053476  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
```

J3


```
 9767 053502  010004                    MOV     R0,R4                   ;GET PACKET ADDRESS
 9768 053504  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9772 053510                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      053510  104456                                                                    TRAP    C$ERHRD
      053512  000515                                                                    .WORD   333
      053514  057055                                                                    .WORD   T27RWN
      053516  011710                                                                    .WORD   PKTSSR
 9773 053520                    230$:   CKLOOP                          ;LOOP IF SELECTED
      053520  104406                                                                    TRAP    C$CLP1
 9774
 9775                           ;*************************************************************
 9776                           ;
 9777                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
 9778                           ;
 9779                           ;*************************************************************
 9780
 9781 053522  013701  055546            MOV     T27BFR+6,R1             ;PICK UP XST0
 9782 053526  010102                    MOV     R1,R2                   ;SET UP EXPECTED
 9783 053530  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9784 053534  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
 9785 053536  001406                    BEQ     240$                    ;BR, IF EQUAL (OK)
 9786 053540  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9790 053544                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      053544  104456                                                                    TRAP    C$ERHRD
      053546  000516                                                                    .WORD   334
      053550  056551                                                                    .WORD   T27BOT
      053552  016360                                                                    .WORD   EXPREC
 9791 053554                    240$:   CKLOOP                          ;LOOP IF SELECTED
      053554  104406                                                                    TRAP    C$CLP1
 9792 053556  012703  000024            MOV     #20.,R3                 ;STARTING R  ORD SIZE
 9793 053562  013737  003072  055652    MOV     FREE,T27RB              ;STARTING READ BUFFER ADDRESS
 9794
 9795                           ;*************************************************************
 9796                           ;
 9797                           ;READ DATA,ACK COMMAND
 9798                           ;
 9799                           ;*************************************************************
 9800
 9801 053570  012737  100001  055650 265$:   MOV     #100001,T27PK3          ;READ DATA,ACK COMMAND
 9802 053576  012704  055650            MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9803 053602  010337  055656            MOV     R3,T27SZ                ;SET UP RECORD SIZE IN PACKET
 9804 053606  010465  177776            MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9805 053612  004737  017134            JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9806 053616  016501  000000            MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9807 053622  012702  000200            MOV     #SSR,R2                 ;SET UP EXPECTED
 9808 053626  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
 9809 053630  001406                    BEQ     280$                    ;BR, IF OK
 9810 053632  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9814 053636                            ERRHRD  ERRNO,RDERR,PKTSSR      ;TSSR INCORRECT AFTER READ DATA
      053636  104456                                                                    TRAP    C$ERHRD
      053640  000517                                                                    .WORD   335
      053642  005104                                                                    .WORD   RDERR
      053644  011710                                                                    .WORD   PKTSSR
 9815 053646                    280$:   CKLOOP                          ;LOOP IF SELECTED
      053646  104406                                                                    TRAP    C$CLP1
 9816 053650  013702  003072            MOV     FREE,R2                 ;GET BUFFER ADDRESS
 9817 053654  010304                    MOV     R3,R4                   ;GET RECORD SIZE
```

K3


```
9818 053656  162704  000024            SUB     #20.,R4                 ;POINT BACK TO 1ST RECORD
9819 053662  060204              285$:  ADD     R2,R4                   ;POINT TO 1ST LOC IN BUFFER
9820 053664  000303                     SWAB    R3                      ;SWAP BYTES SWB-1 ETC.
9821 053666  021403                     CMP     (R4),R3                 ;DATA WRITTEN = READ
9822 053670  001410                     BEQ     290$                    ;BR, IF DATA OK (GOOD)
9823 053672  011401                     MOV     (R4),R1                 ;PICK UP BAD DATA
9824 053674  010302                     MOV     R3,R2                   ;SET UP EXPECTED
9825 053676  004737  020116             JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
9829 053702                             ERRHRD  ERRNO,T27DTA,EXPREC     ;DATA IN BUFFER NOT CORRECT
     053702  104456                                                                 TRAP    C$ERHRD
     053704  000520                                                                 .WORD   336
     053706  060536                                                                 .WORD   T27DTA
     053710  016360                                                                 .WORD   EXPREC
9830 053712                      290$:  CKLOOP                          ;LOOP IF SELECTED
     053712  104406                                                                TRAP    C$CLP1
9831 053714  005724                     TST     (R4)+                   ;BUMP TO NEXT ADDRESS
9832 053716  160204                     SUB     R2,R4                   ;BACK TO RECORD SIZE
9833 053720  000303                     SWAB    R3                      ;PUT R3 BACK INTO SHAPE
9834 053722  020403                     CMP     R4,R3                   ;AT END OF RECORD YET
9835 053724  001356                     BNE     285$                    ;BR, IF MORE DATA TO CHECK
9836 053726  005723                     TST     (R3)+                   ;BUMP RECORD SIZE
9837 053730  020327  000046             CMP     R3,#38.                 ;DONE YET
9838 053734  001315                     BNE     265$                    ;BR, IF NOT DONE YET (MORE READS)
9839 053736                      300$:  CKLOOP                          ;LOOP IF SELECTED
     053736  104406                                                                TRAP    C$CLP1
9840 053740                             ENDSUB                  ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
     053740                                                                 L10072:
     053740  104403                                                                TRAP    C$ESUB
9841 053742  023727  002170  000031     CMP     FATFLG,#25.                     ;IS ERROR COUNT AT 25
9842 053750  002402                     BLT     999$                            ;BR, IF LESS THAN 25
9843 053752  004737  020170             JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
9844 053756                      999$:
9845
```

```
9847                                    ;
9848                                    ;TEST 3, SUBTEST 5
9849                                    ;
9850                                    ;VERIFIES THAT A WRITE DATA RETRY COMMAND IS
9351                                    ;PERFORMING THE "ERASE" PART OF THE OPERATION BY
9852                                    ;PERFORMING THE FOLLOWING SERIES OF STEPS.
9853                                    ;
9854                                    ;1.     THE TAPE IS REWOUND AND A SERIES OF RECORDS ARE
9855                                    ;       WRITTEN WITH THE NORMAL WRITE DATA COMMAND. THIS
9856                                    ;       SHOULD RESULT IN RECORDS SEPARATED BY THE
9857                                    ;       STANDARD INTERRECORD GAP.
9858                                    ;
9859                                    ;2.     A PROGRAM TIMING VALUE IS CALIBRATED BY REWINDING
9860                                    ;       THE TAPE AND THEN COUTING THE NUMBER OF CYCLES
9861                                    ;       THROUGH A PROGRAMMED LOOP REQUIRED TO SPACE OVER
9862                                    ;       THE SERIES OF RECORDS WRITTEN IN PREVIOUS
9863                                    ;       STEP
9864                                    ;
9865                                    ;3.     THE TAPE IS AGAIN REWOUND AND THE SAME SERIES OF
9866                                    ;       RECORDS WRITTEN AGAIN, THIS TIME USING THE WRITE
9867                                    ;       DATA RETRY COMMAND. THIS SHOULD RESULT IN
9868                                    ;       RECORDS SEPARATED BY A LONG INTERRECORD GAP.
9869                                    ;
9870                                    ;4.     THE TAPE IS AGAIN REWOUND, THE SPACING COMMAND
9871                                    ;       ISSUED, AND THE NUMBER OF TIMMING LOOP CYCLES
9872                                    ;       COUNTED TO COMPLETE THE OPERATION.
9873                                    ;
9874                                    ;5.     THE TWO LOOP COUNTS ARE COMPARED, CHECKING TO SEE
9875                                    ;       THAT THEY DIFFER BY A SIGNIFICANT AMOUNT.
9876                                    ;
9877                                    ;
9878                                    ;
9879                                    ;
9880                                    ;
9881                                    ;-
9882 053756                                     BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
      053756                                                                                    T3.5:
      053756  104402                                                                              TRAP    C$BSUB
9883 053760  005037  002172                     CLR     INTRECV                 ;INTERRUPT INDICATOR
9884 053764  005037  055676                     CLR     T27CNT                  ;TIMER FOR WRITE DATA SPACING
9885 053770  005037  055700                     CLR     T27CNU                  ;TIMER FOR WRITE DATA RETRY SPACING
9886 053774  004737  060654                     JSR     PC,T27REST              ;SET COMMAND PACKET
9887 054000  004737  060746                     JSR     PC,T27RT2               ;SET UP OTHER COMMAND PACKET
9888 054004  004737  061010                     JSR     PC,T27RT3               ;SET UP OTHER COMMAND PACKET
9889 054010  012737  176750  055702             MOV     #65000.,T27DLY          ;SET UP DELAY COUNTER
9890
9891                                    ;*****************************************************************
9892                                    ;
9893                                    ;ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
9894                                    ;
9895                                    ;*****************************************************************
9896
9897 054016  004737  016660             10$:    JSR     PC,$OFINIT              ;DO INITIALIZE ON CONTROLLER
9898 054022  103426                             BCS     20$                     ;BR IF INIT WAS OK
9899 054024                                     DELAY   250                     ;DELAY ABOUT .25 SEC
      054024  012727  000250                                                                    MOV     #250,(PC)+
      054030  000000                                                                            .WORD   0
```

```
        054032  013727  002116                                                  MOV     L$DLY,(PC)+
        054036  000000                                                          .WORD   0
        054040  005367  177772                                                  DEC     -6(PC)
        054044  001375                                                          BNE     .-4
        054046  005367  177756                                                  DEC     -22(PC)
        054052  001367                                                          BNE     .-20
  9900  054054  005337  055702          DEC     T27DLY                  ;BUMP COUNTER
  9901  054060  001356                  BNE     10$                     ;BR, IF COUNTER NOT DONE
  9902  054062  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
  9906  054066  010001                  MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
  9907  054070                          ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
        054070  104455                                                          TRAP    C$ERDF
        054072  000521                                                          .WORD   337
        054074  003550                                                          .WORD   SFIERR
        054076  011676                                                          .WORD   SFIMSG
  9908  054100                  20$:
  9909
  9910  054100  012704  055520          MOV     #T27PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
  9911
  9912                          ;*****************************************************************
  9913                          ;
  9914                          ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
  9915                          ;
  9916                          ;*****************************************************************
  9917
  9918  054104  004737  010342          JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
  9919  054110  103407                  BCS     23$                     ;BR, IF COMMAND ISSUED OK
  9920  054112  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
  9924  054116  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
  9925  054120                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        054120  104456                                                          TRAP    C$ERHRD
        054122  000522                                                          .WORD   338
        054124  004754                                                          .WORD   WRTMSG
        054126  011676                                                          .WORD   SFIMSG
  9926  054130                  23$:    CKLOOP                          ;LOOP IF SELECTED
        054130  104406                                                          TRAP    C$CLP1
  9927
  9928                          ;*****************************************************************
  9929                          ;
  9930                          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
  9931                          ;
  9932                          ;*****************************************************************
  9933
  9934  054132  004737  010444          JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
  9935  054136  103411                  BCS     30$                     ;BR, IF NO PROBLEM
  9936  054140  016501  000000          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
  9937  054144  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
  9938  054146  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
  9942  054152                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
        054152  104456                                                          TRAP    C$ERHRD
        054154  000523                                                          .WORD   339
        054156  057055                                                          .WORD   T27RWN
        054160  011710                                                          .WORD   PKTSSR
  9943  054162                  30$:    CKLOOP                          ;LOOP IF SELECTED
        054162  104406                                                          TRAP    C$CLP1
  9944
  9945                          ;*****************************************************************
```

```
 9946                                   ;
 9947                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
 9948                                   ;
 9949                                   ;*************************************************************************
 9950
 9951 054164  013701  055546                    MOV     T27BFR+6,R1             ;PICK UP XSTO
 9952 054170  010102                            MOV     R1,R2                   ;SET UP EXPECTED
 9953 054172  052702  000002                    BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
 9954 054176  020102                            CMP     R1,R2                   ;DOES EXP = REC'D
 9955 054200  001406                            BEQ     40$                     ;BR, IF EQUAL (OK)
 9956 054202  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9960 054206                                    ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      054206  104456                                                                    TRAP    C$ERHRD
      054210  000524                                                                    .WORD   340
      054212  056551                                                                    .WORD   T27BOT
      054214  016360                                                                    .WORD   EXPREC
 9961 054216                            40$:    CKLOOP                          ;LOOP IF SELECTED
      054216  104466                                                                    TRAP    C$CLP1
 9962 054220  012703  000144                    MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
 9963 054224  013737  003072  055652            MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
 9964
 9965                                   ;*************************************************************************
 9966                                   ;
 9967                                   ;WRITE DATA,ACK,CVC=1 COMMAND
 9968                                   ;
 9969                                   ;*************************************************************************
 9970
 9971 054232  012737  140005  055650  65$:    MOV     #140005,T27PK3          ;WRITE DATA,ACK,CVC=1 COMMAND
 9972 054240  012704  055650                    MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
 9973 054244  012737  000024  055656            MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
 9974 054252  010465  177776                    MOV     R4,TSDB(R5)             ;ISSUE COMMAND
 9975 054256  004737  017134                    JSR     PC,WAITF                ;WAIT FOR SSR TO SET
 9976 054262  016501  000000                    MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
 9977 054266  012702  000200                    MOV     #SSR,R2                 ;SET UP EXPECTED
 9978 054272  020102                            CMP     R1,R2                   ;ARE THEY EQUAL
 9979 054274  001406                            BEQ     70$                     ;BR, IF OK
 9980 054276  004737  020116                    JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
 9984                                                                           ;SOFT ERROR GENERATED BECAUSE THE
 9985                                                                           ;WRITE COMMAND IS NOT BEING CHECKED
 9986                                                                           ;HERE. IT WAS CHECKED IN LEAH2
 9987 054302                                    ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      054302  104457                                                                    TRAP    C$ERSOFT
      054304  000525                                                                    .WORD   341
      054306  005011                                                                    .WORD   WRTERR
      054310  011710                                                                    .WORD   PKTSSR
 9988 054312                            70$:    CKLOOP                          ;LOOP IF SELECTED
      054312  104406                                                                    TRAP    C$CLP1
 9989 054314  005303                            DEC     R3                      ;DEC RECORD COUNTER
 9990 054316  001345                            BNE     65$                     ;BR, IF MORE RECORDS TO WRITE
 9991
 9992                                   ;*************************************************************************
 9993                                   ;
 9994                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
 9995                                   ;
 9996                                   ;*************************************************************************
 9997
 9998 054320  004737  010444                    JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
```

```
 9999 054324  103411                    BCS     1301                    ;BR. IF NO PROBLEM
10000 054326  016501  000000             MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10001 054332  010004                     MOV     R0,R4                   ;GET PACKET ADDRESS
10002 054334  004737  020116             JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10006 054340                             ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      054340  104456                                                                     TRAP    C$ERHRD
      054342  000526                                                                     .WORD   342
      054344  057055                                                                     .WORD   T27RWN
      054346  011710                                                                     .WORD   PKTSSR
10007 054350                       1301:  CKLOOP                          ;LOOP IF SELECTED
      054350  104406                                                                     TRAP    C$CLP1
10008
10009                              ;*****************************************************************
10010                              ;
10011                              ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10012                              ;
10013                              ;*****************************************************************
10014
10015 054352  013701  055546               MOV     T27BFR+6,R1             ;PICK UP XST0
10016 054356  010102                       MOV     R1,R2                   ;SET UP EXPECTED
10017 054360  052702  000002               BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10018 054364  020102                       CMP     R1,R2                   ;DOES EXP = REC'D
10019 054366  001406                       BEQ     1401                    ;BR. IF EQUAL (OK)
10020 054370  004737  020116               JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10024 054374                               ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      054374  104456                                                                     TRAP    C$ERHRD
      054376  000527                                                                     .WORD   343
      054400  056551                                                                     .WORD   T27BOT
      054402  016360                                                                     .WORD   EXPREC
10025 054404                       1401:  CKLOOP                          ;LOOP IF SELECTED
      054404  104406                                                                     TRAP    C$CLP1
10026 054406  012704  055650               MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10027 054412  012737  000010  055652       MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10028
10029                              ;*****************************************************************
10030                              ;
10031                              ;ACK,CVC=1,SPACE FORWARD COMMAND
10032                              ;
10033                              ;*****************************************************************
10034
10035 054420  012737  140010  055650       MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10036 054426  010465  177776       1501:  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10037 054432  005237  055676       1521:  INC     T27CNT                  ;BUMP TIMER
10038 054436                               DELAY   1                       ;DELAY ABOUT 100US
      054436  012727  000001                                                           MOV     #1,(PC)+
      054442  000000                                                                   .WORD   0
      054444  013727  002116                                                           MOV     L$DLY,(PC)+
      054450  000000                                                                   .WORD   0
      054452  005367  177772                                                           DEC     -6(PC)
      054456  001375                                                                   BNE     .-4
      054460  005367  177756                                                           DEC     -22(PC)
      054464  001367                                                                   BNE     .-20
10039 054466  016501  000000               MOV     TSSR(R5),R1             ;GET TSSR
10040 054472  032701  000200               BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10041 054476  001755                       BEQ     1521                    ;KEEP COUNTING UNTIL SET
10042 054500  016501  000000               MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10043 054504  012702  000200               MOV     #SSR,R2                 ;SET UP EXPECTED
```

```
10044 054510  020201                    CMP     R2,R1                   ;WAS EVERYTHING OK
10045 054512  001406                    BEQ     160$                    ;BR, IF ALL IS WELL
10046 054514  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10050 054520                            ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
      054520  104456                                                            TRAP    C$ERHRD
      054522  000530                                                            .WORD   344
      054524  060317                                                            .WORD   T27SCF
      054526  011710                                                            .WORD   PKTSSR
10051 054530                    160$:   CKLOOP                          ;LOOP IF SELECTED
      054530  104406                                                            TRAP    C$CLP1
10052
10053                           ;*************************************************************
10054                           ;
10055                           ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10056                           ;
10057                           ;*************************************************************
10058
10059 054532  004737  010444            JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10060 054536  004737  017252            JSR     PC,CHKTSSR              ;SEE HOW TSSR IS
10061 054542  103407                    BCS     170$                    ;BR, IF NO PROBLEM
10062 054544  010001                    MOV     R0,R1                   ;SAVE TSSR
10063 054546  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10067 054552                            ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
      054552  104456                                                            TRAP    C$ERHRD
      054554  000531                                                            .WORD   345
      054556  057055                                                            .WORD   T27RWN
      054560  011710                                                            .WORD   PKTSSR
10068 054562                    170$:   CKLOOP                          ;LOOP IF SELECTED
      054562  104406                                                            TRAP    C$CLP1
10069
10070                           ;*************************************************************
10071                           ;
10072                           ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
10073                           ;
10074                           ;*************************************************************
10075
10076 054564  013701  055546            MOV     T27BFR+6,R1             ;PICK UP XST0
10077 054570  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10078 054572  052702  000002            BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10079 054576  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10080 054600  001406                    BEQ     175$                    ;BR, IF EQUAL (OK)
10081 054602  004737  020116            JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10085 054606                            ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      054606  104456                                                            TRAP    C$ERHRD
      054610  000532                                                            .WORD   346
      054612  056551                                                            .WORD   T27BOT
      054614  016360                                                            .WORD   EXPREC
10086 054616                    175$:   CKLOOP                          ;LOOP IF SELECTED
      054616  104406                                                            TRAP    C$CLP1
10087 054620  012703  000144            MOV     #100.,R3                ;STARTING RECORD SIZE
10088 054624  013737  003072  055652    177$:   MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10089
10090                           ;*************************************************************
10091                           ;
10092                           ;WRITE DATA,CVC=1,ACK COMMAND
10093                           ;
10094                           ;*************************************************************
```

```
10095
10096 054632  012737  140005  055650          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10097 054640  012704  055650                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10098 054644  012737  000024  055656          MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10099 054652  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10100 054656  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10101 054662  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10102 054666  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10103 054672  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10104 054674  001406                          BEQ     180$                    ;BR, IF OK
10105 054676  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10109                                                                         ;SOFT ERROR GENERATED BECAUSE THE
10110                                                                         ;WRITE COMMAND IS NOT BEING CHECKED
10111                                                                         ;HERE, IT WAS CHECKED IN LEAH2
10112 054702                                  ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      054702  104457                                                                    TRAP    C$ERSOFT
      054704  000533                                                                    .WORD   347
      054706  005011                                                                    .WORD   WRTERR
      054710  011710                                                                    .WORD   PKTSSR
10113 054712                          180$:   CKLOOP                          ;LOOP IF SELECTED
      054712  104406                                                                    TRAP    C$CLP1
10114 054714  005303                          DEC     R3                      ;COUNT NUMBER OF RECORDS
10115 054716  001342                          BNE     177$                    ;BR, IF MORE RECORDS TO WRITE
10116
10117                                         ;*********************************************************************
10118                                         ;
10119                                         ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10120                                         ;
10121                                         ;*********************************************************************
10122
10123 054720  004737  010444                  JSR     PC,REWIND               ;ISSUE REWIND
10124 054724  103411                          BCS     182$                    ;BR, IF ALL IS WELL
10125 054726  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
10126 054730  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10127 054734  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10131 054740                                  ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND FAILED
      054740  104456                                                                    TRAP    C$ERHRD
      054742  000534                                                                    .WORD   348
      054744  057055                                                                    .WORD   T27RWN
      054746  011710                                                                    .WORD   PKTSSR
10132 054750                          182$:   CKLOOP                          ;SELECT LOOP MAYBE
      054750  104406                                                                    TRAP    C$CLP1
10135
10136                                         ;*********************************************************************
10137                                         ;
10138                                         ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
10139                                         ;BIT 15 SETS DIRECTION - 0=FORWARD    1=REVERSE
10140                                         ;
10141                                         ;*********************************************************************
10142 054752  012703  000001                  MOV     #1.,R3                  ;SPACE 1 RECORD FORWARD
10143 054756  004737  010144                  JSR     PC,SPACE                ;ISSUE SPACE COMMAND
10144 054762  103411                          BCS     185$                    ;BR, IF COMMAND OK
10145 054764  010004                          MOV     R0,R4                   ;GET PACKET ADDRESS
10146 054766  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR STATUS
10147 054772  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10150 054776                                  ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD COMMAND FAILED
```

```
        054776  104456                                                          TRAP    C$ERHRD
        055000  000535                                                          .WORD   349
        055002  060317                                                          .WORD   T27SCF
        055004  011710                                                          .WORD   PKTSSR
10151   055006                          185$:   CKLOOP                          ;LOOP IF SELECTED
        055006  104406                                                          TRAP    C$CLP1
10152   055010  012703  000144                  MOV     #100.,R3                ;NUMBER OF RECORDS TO BE WRITTEN
10153   055014  013737  003072  055652          MOV     FREE,T27WB              ;STARTING WRITE BUFFER ADDRESS
10154
10155                           ;*****************************************************************
10156                           ;
10157                           ;WRITE DATA RETRY,ACK COMMAND
10158                           ;
10159                           ;*****************************************************************
10160
10161   055022  012737  101005  055650  190$:   MOV     #101005,T27PK3          ;WRITE DATA RETRY,ACK COMMAND
10162   055030  012704  055650                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10163   055034  012737  000024  055656          MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10164   055042  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10165   055046  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10166   055052  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10167   055056  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10168   055062  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10169   055064  001406                          BEQ     200$                    ;BR, IF OK
10170   055066  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10174   055072                                  ERRHRD  ERRNO,T27WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        055072  104456                                                          TRAP    C$ERHRD
        055074  000536                                                          .WORD   350
        055076  057411                                                          .WORD   T27WDC
        055100  011710                                                          .WORD   PKTSSR
10175   055102                          200$:   CKLOOP                          ;LOOP IF SELECTED
        055102  104406                                                          TRAP    C$CLP1
10176   055104  013737  003072  055652          MOV     FREE,T27WB              ;STARTING WRTTE BUFFER ADDRESS
10177
10178                           ;*****************************************************************
10179                           ;
10180                           ;WRITE DATA,CVC=1,ACK COMMAND
10181                           ;
10182                           ;*****************************************************************
10183
10184   055112  012737  140005  055650          MOV     #140005,T27PK3          ;WRITE DATA,CVC=1,ACK COMMAND
10185   055120  012704  055650                  MOV     #T27PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10186   055124  012737  000024  055656          MOV     #20.,T27SZ              ;SET UP RECORD SIZE IN PACKET
10187   055132  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10188   055136  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10189   055142  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10190   055146  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10191   055152  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10192   055154  001406                          BEQ     210$                    ;BR, IF OK
10193   055156  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10197                                                                           ;SOFT ERROR GENERATED BECAUSE THE
10198                                                                           ;WRITE COMMAND IS NOT BEING CHECKED
10199                                                                           ;HERE. IT WAS CHECKED IN LEAH2
10200   055162                                  ERRSOFT ERRNO,WRTERR,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
        055162  104457                                                          TRAP    C$ERSOFT
        055164  000537                                                          .WORD   351
        055166  005011                                                          .WORD   WRTERR
```

```
        055170  011710                                                          .WORD   PKTSSR
10201   055172                  210$:   CKLOOP                          ;LOOP IF SELECTED
        055172  104406                                                          TRAP    C$CLP1
10202   055174  005303                  DEC     R3                      ;BUMP DOWN RECORD COUNTER
10203   055176  001311                  BNE     190$                    ;BR, IF MORE RECORDS TO WRITE RETRY
10204
10205                                   ;*************************************************************************
10206                                   ;
10207                                   ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
10208                                   ;
10209                                   ;*************************************************************************
10210
10211   055200  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10212   055204  103411                  BCS     230$                    ;BR, IF NO PROBLEM
10213   055206  016501  000000          MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10214   055212  010004                  MOV     R0,R4                   ;GET PACKET ADDRESS
10215   055214  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10219   055220                          ERRHRD  ERRNO,T27RWN,PKTSSR     ;REWIND NOT ACCEPTED
        055220  104456                                                          TRAP    C$ERHRD
        055222  000540                                                          .WORD   352
        055224  057055                                                          .WORD   T27RWN
        055226  011710                                                          .WORD   PKTSSR
10220   055230                  230$:   CKLOOP                          ;LOOP IF SELECTED
        055230  104406                                                          TRAP    C$CLP1
10221
10222                                   ;*************************************************************************
10223                                   ;
10224                                   ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
10225                                   ;
10226                                   ;*************************************************************************
10227
10228   055232  013701  055546                  MOV     T27BFR+6,R1             ;PICK UP XSTO
10229   055236  010102                  MOV     R1,R2                   ;SET UP EXPECTED
10230   055240  052702  000002          BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10231   055244  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
10232   055246  001406                  BEQ     240$                    ;BR, IF EQUAL (OK)
10233   055250  004737  020116          JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10237   055254                          ERRHRD  ERRNO,T27BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        055254  104456                                                          TRAP    C$ERHRD
        055256  000541                                                          .WORD   353
        055260  056551                                                          .WORD   T27BOT
        055262  016360                                                          .WORD   EXPREC
10238   055264                  240$:   CKLOOP                          ;LOOP IF SELECTED
        055264  104406                                                          TRAP    C$CLP1
10239   055266  012704  055650                  MOV     #T27PK3,R4              ;SET UP PACKET ADDRESS
10240   055272  012737  000010  055652          MOV     #10,T27RB               ;SET UP RECORDS TO SPACE OVER
10241
10242                                   ;*************************************************************************
10243                                   ;
10244                                   ;ACK,CVC=1,SPACE FORWARD COMMAND
10245                                   ;
10246                                   ;*************************************************************************
10247
10248   055300  012737  140010  055650          MOV     #140010,T27PK3          ;ACK,CVC=1,SPACE FORWARD COMMAND
10252   055306  010465  177776  252$:   MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10250   055312  005237  055700          INC     T27CNU                  ;BUMP TIMER
10251   055316                          DELAY   1                       ;DELAY ABOUT 100US
```

```
        055316  012727  000001                                                  MOV     #1,(PC)+
        055322  000000                                                          .WORD   0
        055324  013727  002116                                                  MOV     L$DLY,(PC)+
        055330  000000                                                          .WORD   0
        055332  005367  177772                                                  DEC     -6(PC)
        055336  001375                                                          BNE     .-4
        055340  005367  177756                                                  DEC     -22(PC)
        055344  001367                                                          BNE     .-20
10252   055346  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
10253   055352  032701  000200                  BIT     #BIT7,R1                ;CHECK FOR TSSR'S SSR SET
10254   055356  001755                          BEQ     252$                    ;KEEP COUNTING UNTIL SET
10255   055360  016501  000000                  MOV     TSSR(R5),R1             ;GET STATUS FROM TSSR
10256   055364  012702  000200                  MOV     #SSR,R2                 ;SET UP EXPECTED
10257   055370  020201                          CMP     R2,R1                   ;WAS EVERYTHING OK
10258   055372  001406                          BEQ     260$                    ;BR, IF ALL IS WELL
10259   055374  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10263   055400                                  ERRHRD  ERRNO,T27SCF,PKTSSR     ;SPACE FORWARD DIDN'T WORK OUT
        055400  104456                                                          TRAP    C$ERHRD
        055402  000542                                                          .WORD   354
        055404  060317                                                          .WORD   T27SCF
        055406  011710                                                          .WORD   PKTSSR
10264   055410                          260$:   CKLOOP                          ;LOOP IF SELECTED
        055412  104406                                                          TRAP    C$CLP1
10265   055412  013701  055676                  MOV     T27CNT,R1               ;TIME FOR WRITE SPACING
10266   055416  013702  055700                  MOV     T27CNU,R2               ;TIME FOR WRITE RETRY SPACING
10267   055422  160102                          SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10268   055424  160102                          SUB     R1,R2                   ;GET'EM PRETTY CLOSE
10269   055426  042702  007777                  BIC     #7777,R2                ;CLEAR LOW 12 BITS
10270   055432  005702                          TST     R2                      ;R2 SHOULD BE ZERO
10271   055434  001407                          BEQ     300$                    ;BR, IF GOOD   CHECK
10272   055436  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10273   055442  005001                          CLR     R1                      ;READY FOR PRINTOUT
10277   055444                                  ERRHRD  ERRNO,T27TIM,EXPREC     ;TIME WAS NOT DIFFERENT ENOUGH
        055444  104456                                                          TRAP    C$ERHRD
        055446  000543                                                          .WORD   355
        055450  056644                                                          .WORD   T27TIM
        055452  016360                                                          .WORD   EXPREC
10278   055454                          300$:   CKLOOP                          ;LOOP IF SELECTED
        055454  104406                                                          TRAP    C$CLP1
10279   055456                                  ENDSUB                          ;<<<<<<<<<<<< END SUBTEST >>>>>>>>>>>>
        055456                                                                  L10073:
        055456  104403                                                          TRAP    C$ESUB
10280   055460  003727  002170  000031          CMP     FATFLG,#25,                     ;IS ERROR COUNT AT 25
10281   055466  002402                          BLT     999$                            ;BR, IF LESS THAN 25
10282   055470  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
10283   055474                          999$:
10284   055474  004737  017372                  JSR     PC,TSTLOOP              ;DO WE NEED TO ITERATE TEST
10285   055500  103002                          BCC     163$                    ;BR, IF NO LOOP REQUIRED
10286   055502  000137  051106                  JMP     T27LOOP                 ;EXECUTE AGAIN
10287   055506                          163$:
10288   055506                                  EXIT    TST                     ;ALL DONE THIS TEST
        055506  104432                                                          TRAP    C$EXIT
        055510  003322                                                          .WORD   L10066-.
```

```
10290                                   ;+
10291                                   ;LOCAL STORAGE FOR THIS TEST
10292                                   ;-
10294 055512                                    .BLKB   10-<.-TUV2A&7>
10296 055520                            T27PACKET:                      ;COMMAND PACKET FOR TEST
10297 055520  100004                            .WORD   100004          ;WRITE CHARACTERISTICS COMMAND, WITH , ACK
10298 055522  055530                            .WORD   T27DATA         ;ADDRESS OF CHARACTERISTICS BLOCK
10299 055524  000000                            .WORD   0
10300 055526  000012                            .WORD   10.             ;STARTING VALUE OF BLOCK SIZE
10301 055530                            T27DATA:                        ;CHARACTERISTICS DATA BLOCK
10302 055530  055540                            .WORD   T27BFR          ;ADDRESS OF MESSAGE BUFFER
10303 055532  000000                            .WORD   0
10304 055534  000024                            .WORD   20.             ;LENGTH OF MESSAGE BUFFER
10305 055536  000000                            .WORD   0
10306 055540                            T27BFR: .BLKW   25.             ;MESSAGE BUFFER
10307                                   ;
10308                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
10309                                   ;
10311 055622                                    .BLKB   10-<.-TUV2A&7>
10313 055660                            T27PK2:
10314 055660  100006                            .WORD   100006          ;WRITE SUB SYS MEM COMMAND,  AND ACK
10315 055662  055660                            .WORD   T27BF2          ;ADDRESS OF SELECT BLOCK DATA
10316 055664  000000                            .WORD   0
10317 055666  000006                            .WORD   6.              ;SIZE OF DATA PACKET
10318
10320 055640                                    .BLKB   10-<.-TUV2A&7>
10322 055650                            T27PK3:
10323 055650  100005                            .WORD   100005          ;REREAD COMMAND, AND ACK
10324 055652                            T27RB:
10325 055652  003072                    T27WB:  .WORD   FREE            ;ADDRESS OF WRITE BUFFER
10326 055654  000000                            .WORD   0
10327 055656  000000                    T27SZ:  .WORD   0               ;SIZE OF BUFFER (EXTENT)
10328                                           .EVEN
10329 055660                            T27BF2:
10330 055660     010                    T27BS0: .BYTE   10              ;BSEL0 AREA
10331 055661     200                    T27BS1: .BYTE   200             ;BSEL1 AREA
10332 055662  000000                    T27S2:  .WORD   0               ;SEL 2 AREA
10333 055664  000000                    T27S3:  .WORD   0               ;DATA AREA
10334                                           .EVEN
10335                                   ;TAPE MOTION PACKET COMMAND VALUES
10336
10337 055666  100205                    T27RN:  .WORD   100205          ;REREAD DATA (NEXT)
10338 055670  100605                    T27RR:  .WORD   100605          ;REREAD DATA RETRY
10339 055672  102205                    T27CON: .WORD   102205          ;WRITE CONTINOUS
10340 055674  177777                            .WORD   177777          ;END OF DATA
10341 055676  000000                    T27CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10342 055700  000000                    T27CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10343 055702  000000                    T27DLY: .WORD   0               ;DELAY COUNTER
```

```
10345
10346                                   ;+
10347                                   ;LOCAL TEXT MESSAGES FOR TEST
10348                                   ;-
10349
10350
10351 055704     124     141     160  T27WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
10352 055777     124     123     123  T27RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
10353 056041     122     105     122  T27RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
10354 056136     120     117     123  T27SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
10355 056220     122     111     102  T27LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
10356 056270     124     123     123  T27WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
10357 056345     111     154     154  T27LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
10358 056426     122     105     122  T27SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
10359 056462     124     123     123  T27WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command,At BOT'
10360 056551     124     141     160  T27EOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XSTO)'
10361 056644     127     122     111  T27TIM: .ASCIZ  'WRITE DATA RETRY''S Erase Tape Not Long Enough'
10362 056731     122     105     122  T27EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
10363 057000     124     123     123  T27TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
10364 057055     122     145     167  T27RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
10365 057124     122     101     115  T27RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
10366 057177     124     123     123  T27AM3: .ASCIZ  'TSSR Init, Failed After REREAD COMMAND'
10367 057246     104     162     151  T27OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
10368 057331     124     123     123  T27WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
10369 057411     124     123     123  T27WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
10370 057464     103     126     103  T27VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
10371 057557     124     123     102  T27BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
10372 057612     127     122     111  T27...  .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
10373 057701     122     145     141  T2...   .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XSTO'
10374 057763     122     145     141  T2...   .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XSTO'
10375 060035     122     145     163  T2...   .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
10376 060133     122     145     141  T27TRL: .ASCIZ  'Reading Long Record  Failed To Give Tape Status Alert'
10377 060221     127     122     111  T27NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
10378 060317     124     123     123  T27SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
10379 060374     124     123     123  T27TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
10380 060456     124     123     123  T27WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
10381 060536     104     141     164  T27DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
10382 060633     127     162     151  TST27ID:        .ASCIZ  'Write Data Retry'
10383                                           .EVEN
10384                                   ;+
10385                                   ;
10386                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
10387                                   ;WRITE SUBSYSTEM MEMORY COMMAND
10388                                   ;
10389                                   ;-
10390
10391 060654                           T27REST:
10392 060664                                   SAVREG                          ;SAVE THE REGISTERS
10393 060670     012701  055520                MOV     #T27PACKET,R1           ;START OF THE PACKET
10394 060674     012721  100004                MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
10395 060700     012721  055530                MOV     #T27DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
10396 060704     005021                        CLR     (R1)+                   ;EXTENDED ADDRESS
10397 060706     012721  000012                MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
10398 060712     012721  055540                MOV     #T27BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
10399 060716     005021                        CLR     (R1)+
10400 060720     012721  000024                MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
10401 060724     005021                        CLR     (R1)+
```

J4


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10    060716  012711  000000                    MOV     #0,(R1)                 ;SELECT DRIVE ZERO
10403 060722  012702  000030                    MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
10404 060726  012762  177777  055540  64$:      MOV     #177777,T27BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
10405 060732  005742                            TST     -(R2)                   ;NEXT LOCATION
10406 060736  022702  000000                    CMP     #0,R2                   ;AT END OF LOOP YET
10407 060742  001371                            BNE     64$                     ;KEEP GOING UNTIL DONE
10408 060744  000207                            RTS     PC                      ;RETURN
10409
10410
10411 060746                            T27RT2:
10412 060746                                    SAVREG                          ;SAVE THE REGISTERS
10413 060752  012701  055630                    MOV     #T27PK2,R1              ;START OF THE PACKET
10414 060756  012721  100006                    MOV     #100006,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK,
10415 060762  012721  055660                    MOV     #T27BF2,(R1)+           ;ADDRESS OF DATA BLOCK
10416 060766  005021                            CLR     (R1)+                   ;EXTENDED ADDRESS
10417 060770  012721  000006                    MOV     #6.,(R1)+               ;SIZE OF DATA BLOCK IN BYTES
10418 060774  005021                            CLR     (R1)+
10419 060776  012701  055660                    MOV     #T27BF2,R1              ;POINT TO DATA SEL AREA
10420 061002  005021                            CLR     (R1)+
10421 061004  005011                            CLR     (R1)
10422 061006  000207                            RTS     PC                      ;RETURN
10423 061010                            T27RT3:
10424 061010                                    SAVREG                          ;SAVE REGISTERS
10425 061014  012701  055650                    MOV     #T27PK3,R1              ;SET UP POINTER ADDRESS
10426 061020  005021                            CLR     (R1)+                   ;COMMAND SPACE
10427 061022  005021                            CLR     (R1)+                   ;ADDRESS OF DATA BLOCK
10428 061024  005021                            CLR     (R1)+                   ;EXTENDED ADDRESS
10429 061026  005011                            CLR     (R1)                    ;SIZE OF DATA TRANSFER BLOCK
10430 061030  000207                            RTS     PC                      ;RETURN
10431 061032                            ENDTST
      061032
      061032  104401                                            L10066:
                                                                        TRAP    C$ETST
```

```
10433                                           .SBTTL  TEST  4: WRITE/READ TAPE MARK
10434                                   ;+
10435                                   ;
10436                                   ;THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES
10437                                   ;PROPERLY.  IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE
10438                                   ;BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE
10439                                   ;TAPE MARK.  IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST
10440                                   ;SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED
10441                                   ;THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT
10442                                   ;FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.
10443                                   ;
10444                                   ;
10445                                   ;THE TEST CONSISTS OF THE FOLLOWING 3 SUBTESTS
10446                                   ;
10447                                   ;
10448                                   ;
10449                                   ;-
10450 061034                                   BGNTST
       061034                                                                   T4::
10451 061034  005037  002170                    CLR     FATFLG                  ;CLEAR FATAL ERROR FLAG
10452 061040  005037  003100                    CLR     KTFLG           ;HOLD OFF KT11
10453 061044  012737  005771  002146            MOV     #EPRT2,EPRTSW           ;SECONDARY ERROR MESSAGE
10454 061052  005037  003102                    CLR     KTENABLE                ;TURN KT11 OFF
10455 061056  004737  020262                    JSR     PC,KTOFF                ;TURN KT11 BACK OFF IF THERE
10460 061062  012700  065251                    MOV     #TST28ID,R0             ;ASCII MESSAGE TO IDENTIFY TEST
10461 061066  004737  017424                    JSR     PC,TSTSETUP             ;DO INITIAL TEST SETUP
10462 061072  012737  000001  002164            MOV     #1,LOOPCNT              ;PERFORM 1 ITERATIONS
10463 061100                          T28LOOP:
```

```
10465                           ;*
10466                           ;
10467                           ;TEST 4, SUBTEST 1
10468                           ;
10469                           ;VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE
10470                           ;PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED
10471                           ;TO DETECT THE WRITTEN TAPE MARKS TERMINATE WITH TAPE
10472                           ;STATUS ALERT WITH THE TAPE MARK DETECTED (TMK) STATUS
10473                           ;BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED.
10474                           ;
10475                           ;1.     THE CONTROLLER IS INITIALIZED AND TAPE REWOUND.
10476                           ;       THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
10477                           ;
10478                           ;2.     A WRITE TAPE MARK COMMAND WITH CVC=1 IS ISSUED
10479                           ;       AND PROPER TERMINATION AND STATUS IS VERIFIED
10480                           ;       (I.E. VCK=0 AND TMK=1).
10481                           ;
10482                           ;3.     SEVERAL MORE WRITE TAPE MARK COMMANDS. THESE WITH
10483                           ;       CVC=0 ARE ISSUED AND PROPER TERMINATION (NORMAL)
10484                           ;       AND STATUS (TMK) VERIFIED.
10485                           ;
10486                           ;4.     A READ REVERSE COMMAND IS ISSUED AND PROPER
10487                           ;       TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK)
10488                           ;       VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS
10489                           ;       TRANSFERRED INTO MEMORY.
10490                           ;
10491                           ;5.     A SPACE RECORDS REVERSE COMMAND IS ISSUED AND
10492                           ;       PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS
10493                           ;       (TMK) VERIFIED.
10494                           ;
10495                           ;6.     THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS
10496                           ;       ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT)
10497                           ;       AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED
10498                           ;       THAT NO DATA IS TRANSFERRED INTO MEMORY.
10499                           ;
10500                           ;7.     A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A
10501                           ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10502                           ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
10503                           ;       OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL
10504                           ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
10505                           ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
10506                           ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
10507                           ;       TO BE PREMATURELY TERMINATED. THIS SHOULD LEAVE
10508                           ;       THE POSITION JUST BEFORE THE FIRST RECORD ON
10509                           ;       TAPE.
10510                           ;
10511                           ;8.     TAPE POSITION IS VERIFIED BY ISSUING ANOTHER
10512                           ;       SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT
10513                           ;       TAPE STATUS ALERT TERMINATION OCCURS, WITH THE
10514                           ;       REVERSE INTO BOT (RIB) STATUS ERROR BIT SET.
10515                           ;
10516                           ;9.     A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A
10517                           ;       RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
10518                           ;       VERIFIED THAT TAPE STATUS ALERT TERMINATION
10519                           ;       OCCURED, TMK=1, AND THAT RBPCR (RESIDUAL
10520                           ;       BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
10521                           ;       VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
```

```
10522                                   ;       THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
10523                                   ;       TO BE PREMATURELY TERMINATED.
10524                                   ;
10525                                   ;
10526                                   ;
10527                                   ;
10528                                   ;
10529                                   ;
10530                                   ;-
10531 061100                                    BGNSUB                          ;>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
       061100                                                                                T4.1:
       061100  104402                                                                          TRAP    C$BSUB
10532 061102  004737  065276                     JSR     PC,T28REST              ;SET COMMAND PACKET
10533 061106  004737  065370                     JSR     PC,T28RT2               ;SET UP OTHER COMMAND PACKET
10534 061112  004737  065432                     JSR     PC,T28RT3               ;SET UP OTHER COMMAND PACKET
10535 061116  012737  023420  063402             MOV     #10000.,T28DLY          ;SET UP DELAY ROUTINE
10536 061124  004737  016660              10$:   JSR     PC,$OFINIT              ;DO INITIALIZE ON CONTROLLER
10537 061130  103426                             BCS     20$                     ;BR IF INIT WAS OK
10538 061132                                     DELAY   250                     ;DELAY ABOUT .25 SECONDS
       061132  012727  000250                                                          MOV     #250,(PC)+
       061136  000000                                                                   .WORD   0
       061140  013727  002116                                                          MOV     L$DLY,(PC)+
       061144  000000                                                                   .WORD   0
       061146  005367  177772                                                          DEC     -6(PC)
       061152  001375                                                                   BNE     .-4
       061154  005367  177756                                                          DEC     -22(PC)
       061160  001367                                                                   BNE     .-20
10539 061162  005337  063402                     DEC     T28DLY                  ;BUMP DELAY ROUTINE DOWN
10540 061166  001356                             BNE     10$                     ;BR, IF MORE DELAY TIME LEFT
10541 061170  004737  020116                     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10545 061174  010001                             MOV     R0,R1                   ;CONTENTS OF TSSR REGISTER
10546 061176                                     ERRDF   ERRNO,SFIERR,SFIMSG     ;FATAL ERROR TSSR WAS NOT OK
       061176  104455                                                                   TRAP    C$ERDF
       061200  000621                                                                   .WORD   401
       061202  003550                                                                   .WORD   SFIERR
       061204  011676                                                                   .WORD   SFIMSG
10547 061206                             20$:
10548 061206  012704  063210                     MOV     #T28PACKET,R4           ;SUBROUTINE NEEDS PACKET ADDRESS
10549 061212  004737  010342                     JSR     PC,WRTCHR               ;ISSUE WRITE CHARACTERISTICS
10550 061216  103407                             BCS     23$                     ;BR, IF COMMAND ISSUED OK
10551 061220  004737  020116                     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10555 061224  010001                             MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10556 061226                                     ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
       061226  104456                                                                   TRAP    C$ERHRD
       061230  000622                                                                   .WORD   402
       061232  004754                                                                   .WORD   WRTMSG
       061234  011676                                                                   .WORD   SFIMSG
10557 061236                             23$:    CKLOOP                          ;LOOP IF SELECTED
       061236  104406                                                                   TRAP    C$CLP1
10558 061240  004737  010444                     JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10559 061244  103411                             BCS     30$                     ;BR, IF NO PROBLEM
10560 061246  016501  000000                     MOV     TSSR(R5),R1             ;GET TSSR
10561 061252  010004                             MOV     R0,R4                   ;SAVE PACKET ADDRESS
10562 061254  004737  020116                     JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10566 061260                                     ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
       061260  104456                                                                   TRAP    C$ERHRD
       061262  000623                                                                   .WORD   403
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        061264  064331                                                  .WORD   T28RWN
        061266  011710                                                  .WORD   PKTSSR
10567   061270                          30$:    CKLOOP                  ;LOOP IF SELECTED
        061270  104406                                                  TRAP    C$CLP1
10568   061272  013701  063236                  MOV     T28BFR+6,R1     ;PICK UP XSTO
10569   061276  010102                  MOV     R1,R2                   ;SET UP EXPECTED
10570   061300  052702  000002                  BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
10571   061304  020102                  CMP     R1,R2                   ;DOES EXP = REC'D
10572   061306  001406                  BEQ     40$                     ;BR, IF EQUAL (OK)
10573   061310  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10577   061314                          ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
        061314  104456                                                  TRAP    C$ERHRD
        061316  000624                                                  .WORD   404
        061320  064207                                                  .WORD   T28BOT
        061322  016360                                                  .WORD   EXPREC
10578   061324                          40$:    CKLOOP                  ;LOOP IF SELECTED
        061324  104406                                                  TRAP    C$CLP1
10579   061326  012704  063210                  MOV     #T28PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
10580   061332  004737  010342                  JSR     PC,WRTCHR       ;ISSUE WRITE CHARACTERISTICS
10581   061336  103407                  BCS     68$                     ;BR, IF COMMAND ISSUED OK
10582   061340  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10586   061344  010001                  MOV     R0,R1                   ;SAVE CONTENTS OF TSSR
10587   061346                          ERRHRD  ERRNO,WRTMSG,SFIMSG     ;WRITE CHARACTERISTISC FAILED
        061346  104456                                                  TRAP    C$ERHRD
        061350  000625                                                  .WORD   405
        061352  004754                                                  .WORD   WRTMSG
        061354  011676                                                  .WORD   SFIMSG
10588   061356                          68$:    CKLOOP                  ;LOOP IF SELECTED
        061356  104406                                                  TRAP    C$CLP1
10589   061360  012737  140011  063340          MOV     #140011,T28PK3  ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
10590   061366  012704  063340                  MOV     #T28PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
10591   061372  010465  177776                  MOV     R4,TSDB(R5)     ;ISSUE COMMAND
10592   061376  004737  017134                  JSR     PC,WAITF        ;WAIT FOR SSR TO SET
10593   061402  016501  000000                  MOV     TSSR(R5),R1     ;GET TSSR CONTENTS
10594   061406  012702  000200                  MOV     #SSR,R2         ;SET UP EXPECTED
10595   061412  020102                  CMP     R1,R2                   ;ARE THEY EQUAL
10596   061414  001406                  BEQ     70$                     ;BR, IF OK
10597   061416  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10601   061422                          ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR INCORRECT AFTER WRITE TAPE MARK
        061422  104456                                                  TRAP    C$ERHRD
        061424  000626                                                  .WORD   406
        061426  064453                                                  .WORD   T28WDC
        061430  011710                                                  .WORD   PKTSSR
10602   061432                          70$:    CKLOOP                  ;LOOP IF SELECTED
        061432  104406                                                  TRAP    C$CLP1
10603   061434  013701  06323?                  MOV     T28BFR+6,R1     ;PICK UP XSTO (VCK CHECK)
10604   061440  010102                  MOV     R1,R2                   ;SET UP EXPECTED
10605   061442  042702  000020                  BIC     #BIT4,R2        ;VCK SHOULD BE 0
10606   061446  020102                  CMP     R1,R2                   ;IS VCK SET CORRECTLY
10607   061450  001406                  BEQ     80$                     ;BR, IF VCK IS CLEAR
10608   061452  004737  020116                  JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10612   061456                          ERRHRD  ERRNO,T28VCK,EXPREC     ;VCK WAS NOT CLEAR AFTER CVC=1
        061456  104456                                                  TRAP    C$ERHRD
        061460  000627                                                  .WORD   407
        061462  064532                                                  .WORD   T28VCK
        061464  016360                                                  .WORD   EXPREC
10613   061466                          80?:    CKLOOP                  ;LOOP IF SELECTED
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                061466  104406                                                          TRAP    C$CLP1
10614           061470  013701  063236          MOV     T28BFR+6,R1     ;PICK UP XSTO (CHECK TMK)
10615           061474  010102                  MOV     R1,R2           ;SET UP EXPECTED
10616           061476  052702  100000          BIS     #BIT15,R2       ;TMK SHOULD BE SET
10617           061502  020102                  CMP     R1,R2           ;WAS TMK SET
10618           061504  001406                  BEQ     90$             ;BR, IF TMK WAS SET
10619           061506  004737  020116          JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10623           061512                          ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK WAS NOT SET AFTER WRT TAPE MARK
                061512  104456                                                          TRAP    C$ERHRD
                061514  000630                                                          .WORD   408
                061516  064605                                                          .WORD   T28TMK
                061520  016360                                                          .WORD   EXPREC
10624           061522                  90$:    CKLOOP                  ;LOOP IF SELECTED
                061522  104406                                                          TRAP    C$CLP1
10625           061524  004737  010444          JSR     PC,REWIND       ;CALL TAPE REWIND COMMAND
10626           061530  103411                  BCS     130$            ;BR, IF NO PROBLEM
10627           061532  010004                  MOV     R0,R4           ;SAVE PACKET ADDRESS
10628           061534  016501  000000          MOV     TSSR(R5),R1     ;GET TSSR STATUS
10629           061540  004737  020116          JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10633           061544                          ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
                061544  104456                                                          TRAP    C$ERHRD
                061546  000631                                                          .WORD   409
                061550  064331                                                          .WORD   T28RWN
                061552  011710                                                          .WORD   PKTSSR
10634           061554                  130$:   CKLOOP                  ;LOOP IF SELECTED
                061554  104406                                                          TRAP    C$CLP1
10635           061556  013701  063236          MOV     T28BFR+6,R1     ;PICK UP XSTO
10636           061562  010102                  MOV     R1,R2           ;SET UP EXPECTED
10637           061564  052702  000002          BIS     #BIT1,R2        ;SET BOT BIT IN EXPECTED
10638           061570  020102                  CMP     R1,R2           ;DOES EXP = REC'D
10639           061572  001406                  BEQ     140$            ;BR, IF EQUAL (OK)
10640           061574  004737  020116          JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10644           061600                          ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
                061600  104456                                                          TRAP    C$ERHRD
                061602  000632                                                          .WORD   410
                061604  064207                                                          .WORD   T28BOT
                061606  016360                                                          .WORD   EXPREC
10645           061610                  140$:   CKLOOP                  ;LOOP IF SELECTED
                061610  104406                                                          TRAP    C$CLP1
10646           061612  012703  000012          MOV     #10.,R3         ;NUMBER OF RECORDS TO WRITE TM
10647           061616  012737  140011  063340  MOV     #140011,T28PK3  ;WRITE TAPE MARK,ACK,CVC=1 COMMAND
10648           061624  012704  063340          MOV     #T28PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
10649           061630  010465  177776  155$:   MOV     R4,TSDB(R5)     ;ISSUE COMMAND
10650           061634  004737  017134          JSR     PC,WAITF        ;WAIT FOR SSR TO SET
10651           061640  016501  000000          MOV     TSSR(R5),R1     ;PICK UP TSSR
10652           061644  012702  000200          MOV     #SSR,R2         ;SET UP EXPECTED (SSR ONLY)
10653           061650  020102                  CMP     R1,R2           ;WAS STATUS GOOD
10654           061652  001406                  BEQ     165$            ;BR, IF TERMINATION WAS GOOD
10655           061654  004737  020116          JSR     PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
10659           061660                          ERRHRD  ERRNO,T28WDC,PKTSSR     ;TSSR NOT CORRECT AFTER WRT TAPE M.
                061660  104456                                                          TRAP    C$ERHRD
                061662  000633                                                          .WORD   411
                061664  064453                                                          .WORD   T28WDC
                061666  011710                                                          .WORD   PKTSSR
10660           061670                  165$:   CKLOOP                  ;LOOP IF SELECTED
                061670  104406                                                          TRAP    C$CLP1
10661           061672  013701  063236          MOV     T28BFR+6,R1     ;PICK UP XSTO
```

```
10662 061676  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10663 061700  052702  100000              BIS     #BIT15,R2               ;SET TMK BIT IN EXPECTED
10664 061704  020102                    CMP     R1,R2                   ;DOES EXP = REC'D
10665 061706  001406                    BEQ     180$                    ;BR, IF EQUAL (OK)
10666 061710  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10670 061714                            ERRHRD  ERRNO,T28TMK,EXPREC     ;TMK NOT SET AFTER WRT TAPE MARK
      061714  104456                                                                    TRAP    C$ERHRD
      061716  000634                                                                    .WORD   412
      061720  064605                                                                    .WORD   T28TMK
      061722  016360                                                                    .WORD   EXPREC
10671 061724                    180$:   CKLOOP                          ;LOOP IF SELECTED
      061724  104406                                                                    TRAP    C$CLP1
10672 061726  005303                    DEC     R3                      ;BUMP COUNTER DOWN
10673 061730  001337                    BNE     155$                    ;BR, IF LESS THAN 10 TAPE MARKS
10674 061732  012700  177777              MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
10675 061736  004737  020410              JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
10676 061742  013737  003072  063342      MOV     FREE,T28WB              ;STARTING READ BUFFER ADDRESS
10677 061750  012737  140401  063340      MOV     #140401,T28PK3          ;READ REVERSE,ACK, COMMAND
10678 061756  012704  063340              MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10679 061762  013737  000024  063346      MOV     20.,T28SZ               ;SET UP RECORD SIZE IN PACKET
10680 061770  010465  177776              MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10681 061774  004737  017134              JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10682 062000  016501  000000              MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10683 062004  012702  100204              MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10684 062010  020102                    CMP     R1,R2                   ;ARE THEY EQUAL
10685 062012  001406                    BEQ     200$                    ;BR, IF OK
10686 062014  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10690 062020                            ERRHRD  ERRNO,T28RDF,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      062020  104456                                                                    TRAP    C$ERHRD
      062022  000635                                                                    .WORD   413
      062024  063544                                                                    .WORD   T28RDF
      062026  011710                                                                    .WORD   PKTSSR
10691 062030                    200$:   CKLOOP                          ;LOOP IF SELECTED
      062030  104406                                                                    TRAP    C$CLP1
10692 062032  013701  063236              MOV     T28BFR+6,R1             ;PICK UP XSTO
10693 062036  010102                    MOV     R1,R2                   ;SET UP EXPECTED
10694 062040  052702  100000              BIS     #BIT15,R2               ;TMK SHOULD BE SET
10695 062044  020102                    CMP     R1,R2                   ;IS TMK SET
10696 062046  001406                    BEQ     210$                    ;BR, IF TMK WAS SET (GOOD)
10697 062050  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10701 062054                            ERRHRD  ERRNO,T28RRM,EXPREC     ;TMK NOT SET AFTER READ REV
      062054  104456                                                                    TRAP    C$ERHRD
      062056  000636                                                                    .WORD   414
      062060  064657                                                                    .WORD   T28RRM
      062062  016360                                                                    .WORD   EXPREC
10702 062064                    210$:   CKLOOP                          ;LOOP IF SELECTED
      062064  104406                                                                    TRAP    C$CLP1
10703 062066  017701  121000              MOV     @FREE,R1                ;FIRST LOC IN READ BUFFER
10704 062072  012702  177777              MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
10705 062076  020102                    CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
10706 062100  001406                    BEQ     220$                    ;BR, IF NO DATA TRANS (GOOD)
10707 062102  004737  020116              JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10711 062106                            ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
      062106  104456                                                                    TRAP    C$ERHRD
      062110  000637                                                                    .WORD   415
      062112  065072                                                                    .WORD   T28DTR
      062114  016360                                                                    .WORD   EXPREC
```

```
10712 062116                          220$:   CKLOOP                          ;LOOP IF SELECTED
      062116  104406                                                                  TRAP    C$CLP1
10713 062120  012737  100410  063340          MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
10714 062126  012737  000001  063342          MOV     #1,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
10715 062134  012704  063340                  MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10716 062140  010465  177776                  MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10717 062144  004737  017134                  JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10718 062150  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10719 062154  012702  100204                  MOV     #SSR!SC!BIT2 R2         ;SET UP EXPECTED
10720 062160  020102                          CMP     R1,R2                   ;ARE THEY EQUAL
10721 062162  001406                          BEQ     222$                    ;BR, IF OK
10722 062164  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10726 062170                                  ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE CMD.
      062170  104456                                                                  TRAP    C$ERHRD
      062172  000640                                                                  .WORD   416
      062174  063625                                                                  .WORD   T28RDG
      062176  011710                                                                  .WORD   PKTSSR
10727 062200                          222$:   CKLOOP                          ;LOOP IF SELECTED
      062200  104406                                                                  TRAP    C$CLP1
10728 062202  013701  063236                  MOV     T28BFR+6,R1             ;PICK UP XSTO
10729 062206  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10730 062210  052702  100000                  BIS     #BIT15,R2               ;TMK SHOULD BE SET
10731 062214  020102                          CMP     R1,R2                   ;IS TMK SET
10732 062216  001406                          BEQ     226$                    ;BR, IF TMK WAS SET (GOOD)
10733 062220  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10737 062224                                  ERRHRD  ERRNO,T28RRN,EXPREC     ;TMK NOT SET AFTER SPACE REV
      062224  104456                                                                  TRAP    C$ERHRD
      062226  000641                                                                  .WORD   417
      062230  064735                                                                  .WORD   T28RRN
      062232  016360                                                                  .WORD   EXPREC
10738 062234                          226$:   CKLOOP                          ;LOOP IF SELECTED
      062234  104406                                                                  TRAP    C$CLP1
10739 062236  004737  010444                  JSR     PC,REWIND               ;CALL TAPE REWIND COMMAND
10740 062242  103411                          BCS     230$                    ;BR, IF NO PROBLEM
10741 062244  010004                          MOV     R0,R4                   ;SAVE PACKET ADDRESS
10742 062246  016501  000000                  MOV     TSSR(R5),R1             ;GET TSSR
10743 062252  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10747 062256                                  ERRHRD  ERRNO,T28RWN,PKTSSR     ;REWIND NOT ACCEPTED
      062256  104456                                                                  TRAP    C$ERHRD
      062260  000642                                                                  .WORD   418
      062262  064331                                                                  .WORD   T28RWN
      062264  011710                                                                  .WORD   PKTSSR
10748 062266                          230$:   CKLOOP                          ;LOOP IF SELECTED
      062266  104406                                                                  TRAP    C$CLP1
10749 062270  013701  063236                  MOV     T28BFR+6,R1             ;PICK UP XSTO
10750 062274  010102                          MOV     R1,R2                   ;SET UP EXPECTED
10751 062276  052702  000002                  BIS     #BIT1,R2                ;SET BOT BIT IN EXPECTED
10752 062302  020102                          CMP     R1,R2                   ;DOES EXP = REC'D
10753 062304  001406                          BEQ     240$                    ;BR, IF EQUAL (OK)
10754 062306  004737  020116                  JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10758 062312                                  ERRHRD  ERRNO,T28BOT,EXPREC     ;TAPE NOT AT BOT AFTER REWIND
      062312  104456                                                                  TRAP    C$ERHRD
      062314  000643                                                                  .WORD   419
      062316  064207                                                                  .WORD   T28BOT
      062320  016360                                                                  .WORD   EXPREC
10759 062322                          240$:   CKLOOP                          ;LOOP IF SELECTED
      062322  104406                                                                  TRAP    C$CLP1
```

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10760 062324  012700  177777                MOV     #177777,R0              ;VALUE TO WRITTEN TO MEMORY
10761 062330  004737  020410                JSR     PC,FILLMEM              ;FILL MEM WITH ALL ONES
10762 062334  013737  003072  063342        MOV     FREE,T28RB              ;STARTING READ BUFFER ADDRESS
10763 062342  012737  100001  063340        MOV     #100001,T28PK3          ;READ FORWARD,ACK, COMMAND
10764 062350  012704  063340                MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10765 062354  013737  000024  063346        MOV     20.,T28SZ               ;SET UP RECORD SIZE IN PACKET
10766 062362  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10767 062366  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10768 062372  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10769 062376  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10770 062402  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10771 062404  001406                        BEQ     245$                    ;BR, IF OK
10772 062406  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10776 062412                                ERRHRD  ERRNO,T28WDE,PKTSSR     ;TSSR INCORRECT AFTER WRITE DATA
      062412  104456                                                                TRAP    C$ERHRD
      062414  000644                                                                .WORD   420
      062416  064116                                                                .WORD   T28WDE
      062420  011710                                                                .WORD   PKTSSR
10777 062422                        245$:   CKLOOP                          ;LOOP IF SELECTED
      062422  104406                                                                TRAP    C$CLP1
10778 062424  013701  063236                MOV     T28BFR+6,R1             ;PICK UP XSTO
10779 062430  010102                        MOV     R1,R2                   ;SET UP EXPECTED
10780 062432  052702  100000                BIS     #BIT15,R2               ;TMK SHOULD BE SET
10781 062436  020102                        CMP     R1,R2                   ;IS TMK SET
10782 062440  001406                        BEQ     247$                    ;BR, IF TMK WAS SET (GOOD)
10783 062442  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10787 062446                                ERRHRD  ERRNO,T28RRP,EXPREC     ;TMK NOT SET AFTER READ REV
      062446  104456                                                                TRAP    C$ERHRD
      062450  000645                                                                .WORD   421
      062452  065014                                                                .WORD   T28RRP
      062454  016360                                                                .WORD   EXPREC
10788 062456                        247$:   CKLOOP                          ;LOOP IF SELECTED
      062456  104406                                                                TRAP    C$CLP1
10789 062460  017701  120406                MOV     @FREE,R1                        ;FIRST LOC IN READ BUFFER
10790 062464  012702  177777                MOV     #177777,R2              ;EXPECTED IF NO DATA TRANS.
10791 062470  020102                        CMP     R1,R2                   ;DID ANY DATA GET TRANSFERRED
10792 062472  001406                        BEQ     250$                    ;BR, IF NO DATA TRANS (GOOD)
10793 062474  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10797 062500                                ERRHRD  ERRNO,T28DTR,EXPREC     ;DATA TRANSFERRED ON READ TAPE MARK
      062500  104456                                                                TRAP    C$ERHRD
      062502  000646                                                                .WORD   422
      062504  065072                                                                .WORD   T28DTR
      062506  016360                                                                .WORD   EXPREC
10798 062510                        250$:   CKLOOP                          ;LOOP IF SELECTED
      062510  104406                                                                TRAP    C$CLP1
10799 062512  012737  100410  063340        MOV     #100410,T28PK3          ;SPACE REVERSE,ACK, COMMAND
10800 062520  012737  000005  063342        MOV     #5,T28RB                ;NUMBER OF RECORDS TO SPACE BACK
10801 062526  012704  063340                MOV     #T28PK3,R4              ;SET UP R4 WITH PACKET ADDRESS
10802 062532  010465  177776                MOV     R4,TSDB(R5)             ;ISSUE COMMAND
10803 062536  004737  017134                JSR     PC,WAITF                ;WAIT FOR SSR TO SET
10804 062542  016501  000000                MOV     TSSR(R5),R1             ;GET TSSR CONTENTS
10805 062546  012702  100204                MOV     #SSR!SC!BIT2,R2         ;SET UP EXPECTED
10806 062552  020102                        CMP     R1,R2                   ;ARE THEY EQUAL
10807 062554  001406                        BEQ     260$                    ;BR, IF OK
10808 062556  004737  020116                JSR     PC,FATCHK               ;INC AND CHECK FOR MORE THAN 25 ERRORS
10812 062562                                ERRHRD  ERRNO,T28RDG,PKTSSR     ;TSSR INCORRECT AFTER SPACE REV CMD.
      062562  104456                                                                TRAP    C$ERHRD
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      062774  016360                                                                  .WORD   EXPREC
10860 062776                          300$:   CKLOOP                          ;LOOP IF SELECTED
      062776  104406                                                                  TRAP    C$CLP1
10861 063000  012737  100010  063340          MOV     #100010,T28PK3            ;SPACE FORWARD,ACK, COMMAND
10862 063006  012737  000005  063342          MOV     #5,T28RB                  ;NUMBER OF RECORDS TO SPACE FORW.
10863 063014  012704  063340                  MOV     #T28PK3,R4                ;SET UP R4 WITH PACKET ADDRESS
10864 063020  010465  177776                  MOV     R4,TSDB(R5)               ;ISSUE COMMAND
10865 063024  004737  017134                  JSR     PC,WAITF                  ;WAIT FOR SSR TO SET
10866 063030  016501  000000                  MOV     TSSR(R5),R1               ;GET TSSR CONTENTS
10867 063034  012702  100204                  MOV     #SSR!SC!BIT2,R2           ;SET UP EXPECTED
10868 063040  020102                          CMP     R1,R2                     ;ARE THEY EQUAL
10869 063042  001406                          BEQ     310$                      ;BR, IF OK
10870 063044  004737  020116                  JSR     PC,FATCHK                 ;INC AND CHECK FOR MORE THAN 25 ERRORS
10874 063050                                  ERRHRD  ERRNO,T28RDF,EXPREC       ;TSSR INCORRECT AFTER SPACE CMD.
      063050  104456                                                                  TRAP    C$ERHRD
      063052  000654                                                                  .WORD   428
      063054  063544                                                                  .WORD   T28RDF
      063056  016360                                                                  .WORD   EXPREC
10875 063060                          310$:   CKLOOP                          ;LOOP IF SELECTED
      063060  104406                                                                  TRAP    C$CLP1
10876 063062  013701  063236                  MOV     T28BFR+6,R1               ;PICK UP XSTO
10877 063066  010102                          MOV     R1,R2                     ;SET UP EXPECTED
10878 063070  052702  100000                  BIS     #BIT15,R2                 ;TMK SHOULD BE SET
10879 063074  020102                          CMP     R1,R2                     ;IS TMK SET
10880 063076  001406                          BEQ     320$                      ;BR, IF TMK WAS SET (GOOD)
10881 063100  004737  020116                  JSR     PC,FATCHK                 ;INC AND CHECK FOR MORE THAN 25 ERRORS
10885 063104                                  ERRHRD  ERRNO,T28RRP,EXPREC       ;TMK NOT SET AFTER READ REV
      063104  104456                                                                  TRAP    C$ERHRD
      063106  000655                                                                  .WORD   429
      063110  065014                                                                  .WORD   T28RRP
      063112  016360                                                                  .WORD   EXPREC
10886 063114                          320$:   CKLOOP                          ;LOOP IF SELECTED
      063114  104406                                                                  TRAP    C$CLP1
10887 063116  013701  063234                  MOV     T28BFR+4,R1               ;PICK UP RESIDUAL BYTE COUNTER
10888 063122  012702  000004                  MOV     #4.,R2                    ;SHOULD BE THE DIFFERENCE
10889 063126  020102                          CMP     R1,R2                     ;IS COUNTER CORRECT
10890 063130  001406                          BEQ     330$                      ;BR, IF COUNTER CORRECT
10891 063132  004737  020116                  JSR     PC,FATCHK                 ;INC AND CHECK FOR MORE THAN 25 ERRORS
10895 063136                                  ERRHRD  ERRNO,T28PBP,EXPREC       ;RESIDUAL BYTE COUNTER NOT CORRECT
      063136  104456                                                                  TRAP    C$ERHRD
      063140  000656                                                                  .WORD   430
      063142  063461                                                                  .WORD   T28PBP
      063144  016360                                                                  .WORD   EXPREC
10896 063146                          330$:   CKLOOP                          ;LOOP IF SELECTED
      063146  104406                                                                  TRAP    C$CLP1
10897 063150                                  ENDSUB                          ;<<<<<<<<<<< END SUBTEST >>>>>>>>>>>
      063150                                                                          L10075:
      063150  104403                                                                  TRAP    C$ESUB
10898 063152  023727  002170  000031          CMP     FATFLG,#25,                     ;IS ERROR COUNT AT 25
10899 063160  002402                          BLT     999$                            ;BR, IF LESS THAN 25
10900 063162  004737  020170                  JSR     PC,CKDROP                       ;TRY TO DROP THE UNIT
10901 063166                          999$:
10902                                 ;
10903                                 ;
10904                                 ;
10905 063166  004737  017372                  JSR     PC,TSTLOOP                ;DO WE NEED TO ITERATE TEST
10906 063172  103002                          BCC     163$                      ;BR, IF NO LOOP REQUIRED
```

H5


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10907 063174  000137  061100          JMP     T28LOOP             ;EXECUTE AGAIN
10908 063200                    163$:
10909 063200                          EXIT    TST                 ;ALL DONE THIS TEST
      063200  104432                                                TRAP    C$EXIT
      063202  002252                                                .WORD   L10074-.
```

```
10911                                   ;*
10912                                   ;LOCAL STORAGE FOR THIS TEST
10913                                   ;-
10915 063204                                    .BLKB   10-<.-TUV2A&7>
10917 063210                            T28PACKET:                      ;COMMAND PACKET FOR TEST
10918 063210  100004                              .WORD   100004        ;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
10919 063212  063220                              .WORD   T28DATA       ;ADDRESS OF CHARACTERISTICS BLOCK
10920 063214  000000                              .WORD   0
10921 063216  000012                              .WORD   10.           ;STARTING VALUE OF BLOCK SIZE
10922 063220                            T28DATA:                        ;CHARACTERISTICS DATA BLOCK
10923 063220  063230                              .WORD   T28BFR        ;ADDRESS OF MESSAGE BUFFER
10924 063222  000000                              .WORD   0
10925 063224  000024                              .WORD   20.           ;LENGTH OF MESSAGE BUFFER
10926 063226  000000                              .WORD   0
10927 063230                            T28BFR: .BLKW   25.             ;MESSAGE BUFFER
10928                                   ;
10929                                   ;WRITE SUBSYSTEM MEMORY COMMAND PACKET
10930                                   ;
10932 063312                                    .BLKB   10-<.-TUV2A&7>
10934 063320                            T28PK2:
10935 063320  100006                              .WORD   100006        ;WRITE SUB SYS MEM COMMAND, IE AND ACK
10936 063322  063350                              .WORD   T28BF2        ;ADDRESS OF SELECT BLOCK DATA
10937 063324  000000                              .WORD   0
10938 063326  000006                              .WORD   6.            ;SIZE OF DATA PACKET
10939
10941 063330                                    .BLKB   10-<.-TUV2A&7>
10943 063340                            T28PK3:
10944 063340  100005                              .WORD   100005        ;REREAD COMMAND,  AND ACK
10945 063342                            T28RB:
10946 063342  003072                    T28WB:    .WORD   FREE          ;ADDRESS OF WRITE BUFFER
10947 063344  000000                              .WORD   0
10948 063346  000000                    T28SZ:    .WORD   0             ;SIZE OF BUFFER (EXTENT)
10949                                             .EVEN
10950                                   ;
10951                                   ;
10952                                   ;
10953 063350                            T28BF2:
10954 063350     010                    T28BS0: .BYTE   10              ;BSEL0 AREA
10955 063351     200                    T28BS1: .BYTE   200             ;BSEL1 AREA
10956 063352  000000                    T28S2:  .WORD   0               ;SEL 2 AREA
10957 063354  000000                    T28S3:  .WORD   0               ;DATA AREA
10958                                   ;
10959                                   ;
10960                                             .EVEN
10961                                   ;TAPE MOTION PACKET COMMAND VALUES
10962
10963 063356                            T28IMV:
10964 063356  101411                              .WORD   101411        ;ILLEGAL MODE BITS TEST DATA
10965 063360  102011                              .WORD   102011
10966 063362  103411                              .WORD   103411
10967 063364  177777                              .WORD   177777
10968 063366  100011                    T28RN:    .WORD   100011        ;WRITE TAPE MARK COMMAND
10969 063370  100411                    T28WDR:   .WORD   100411        ;ERASE COMMAND
10970 063372  101011                    T28CON:   .WORD   101011        ;WRITE TAPE MARK RETRY
10971 063374  177777                              .WORD   177777        ;END OF DATA
10972
10973                                   ;
```

```
10974 063376  000000                T28CNT: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10975 063400  000000                T28CNU: .WORD   0               ;TAPE TIMER COUNTER STORAGE AREA
10976 063402  000000                T28DLY: .WORD   0               ;DELAY COUNTER
10977                                       .EVEN
10978
```

```
10980                                   ;+
10981                                   ;LOCAL TEXT MESSAGES FOR TEST
10982                                   ;-
10983
10984
10985 063404      124     141     160   T28RIB: .ASCIZ  'Tape Position Not Correct, RIB Should Be Set'
10986 063461      122     145     163   T28PBP: .ASCIZ  'Residual Byte Counter Register (RBPCR) Not Correct'
10987 063544      124     123     123   T28RDF: .ASCIZ  'TSSR Incorrect After READ REVERSE Into TAPE MARK'
10988 063625      124     123     123   T28RDG: .ASCIZ  'TSSR Incorrect After SPACE Command Into TAPE MARK'
10989 063707      124     123     123   T28WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
10990 063764      111     154     154   T28LOG: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
10991 064045      127     122     111   T28SSR: .ASCIZ  'WRITE MISCELLANEOUS Command Not Accepted'
10992 064116      124     123     123   T28WDE: .ASCIZ  'TSSR Not Correct After READ DATA Command, Into TAPE MARK'
10993 064207      124     141     160   T28BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
10994 064254      124     123     123   T28TM:  .ASCIZ  'TSSR Not Correct After FORMAT Command Reject'
10995 064331      122     145     167   T28RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
10996 064400      104     162     151   T28DFL: .ASCIZ  'Drive 7 Select Failed To Set "DFL" In TSSR'
10997 064453      124     123     123   T28WDC: .ASCIZ  'TSSR Not Correct After WRITE TAPE MARK Command'
10998 064532      103     126     103   T28VCK: .ASCIZ  'CVC Set, Didn''t Reset VCK In Message Buffer'
10999 064605      124     115     113   T28TMK: .ASCIZ  'TMK Not Set After WRITE TAPE MARK Command'
11000 064657      124     115     113   T28RRM: .ASCIZ  'TMK Not Set After READ REVERSE Into TAPE MARK'
11001 064735      124     115     113   T28RRN: .ASCIZ  'TMK Not Set After SPACE REVERSE Into TAPE MARK'
11002 065014      124     115     113   T28RRP: .ASCIZ  'TMK Not Set After READ FORWARD Into TAPE MARK'
11003 065072      104     141     164   T28DTR: .ASCIZ  'Data Transferred On READ REVERSE Into A TAPE MARK'
11004 065154      104     141     164   T28DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
11005 065251      127     162     151   TST28ID:        .ASCIZ  'Write/Read Tape Mark'
11006                                           .EVEN
11007                                   ;+
11008                                   ;
11009                                   ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
11010                                   ;WRITE SUBSYSTEM MEMORY COMMAND
11011                                   ;
11012                                   ;-
11013
11014 065276                             T28REST:
11015 065276                                     SAVREG                          ;SAVE THE REGISTERS
11016 065302  012701  063210                      MOV     #T28PACKET,R1           ;START OF THE PACKET
11017 065306  012721  100004                      MOV     #100004,(R1)+           ;WRITE SUBSYSTEM MEM. WITH ACK.
11018 065312  012721  063220                      MOV     #T28DATA,(R1)+          ;ADDRESS OF CHARAISTICS DATA BLOCK
11019 065316  005021                              CLR     (R1)+                   ;EXTENDED ADDRESS
11020 065320  012721  000012                      MOV     #10.,(R1)+              ;SIZE OF DATA BLOCK IN BYTES
11021 065324  012721  063230                      MOV     #T28BFR,(R1)+           ;ADDRESS OF MESSAGE BUFFER
11022 065330  005021                              CLR     (R1)+
11023 065332  012721  000024                      MOV     #20.,(R1)+              ;LENGTH OF MESSAGE BUFFER
11024 065336  005021                              CLR     (R1)+
11025 065340  012711  000000                      MOV     #0,(R1)                 ;SELECT DRIVE ZERO
11026 065344  012702  000030                      MOV     #24.,R2                 ;NUMBER OF LOCATIONS TO BE CLEARED
11027 065350  012762  177777  063230  64$:       MOV     #177777,T28BFR(R2)      ;ALL ONES TO MESSAGE BUFFER
11028 065356  005742                              TST     -(R2)                   ;NEXT LOCATION
11029 065360  020227  000000                      CMP     R2,#0                   ;CHECK FOR END
11030 065364  001371                              BNE     64$                     ;KEEP GOING UNTIL DONE
11031 065366  000207                              RTS     PC                      ;RETURN
11032
11033
11034 065370                             T28RT2:
11035 065370                                     SAVREG                          ;SAVE THE REGISTERS
11036 065374  012701  063320                      MOV     #T28PK2,R1              ;START OF THE PACKET
```

```
11037 065400  012721  100006                MOV     #100006,(R1)+       ;WRITE SUBSYSTEM MEM. WITH ACK,
11038 065404  012721  063350                MOV     #T28BF2,(R1)+       ;ADDRESS OF DATA BLOCK
11039 065410  005021                        CLR     (R1)+               ;EXTENDED ADDRESS
11040 065412  012721  000006                MOV     #6 ,(R1)+           ;SIZE OF DATA BLOCK IN BYTES
11041 065416  005021                        CLR     (R1)+
11042 065420  012701  063350                MOV     #T28BF2,R1          ;POINT TO DATA SEL AREA
11043 065424  005021                        CLR     (R1)+
11044 065426  005011                        CLR     (R1)
11045 065430  000207                        RTS     PC                  ;RETURN
11046 065432                        T28RT3:
11047 065432                                SAVREG
11048 065436  012701  063340                MOV     #T28PK3,R1          ;GET PACKET ADDRESS
11049 065442  005021                        CLR     (R1)+               ;CLEAR COMMAND AREA
11050 065444  005021                        CLR     (R1)+               ;CLEAR ADDRESS AREA
11051 065446  005021                        CLR     (R1)+               ;CLEAR EXTENDED ADDRESS AREA
11052 065450  005011                        CLR     (R1)                ;SIZE OF DATA TRANSFER
11053 065452  000207                        RTS     PC                          ;RETURN
11054 065454                                ENDTST
      065454                                                                L10074:
      065454  104401                                                              TRAP    C$ETST
11060
11065
11071
11072
11073
11074                                       .SBTTL  HARDWARE PARAMETER CODING SECTION
11075
11076                               ;++
11077                               ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
11078                               ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
11079                               ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
11080                               ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
11081                               ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
11082                               ; WITH THE OPERATOR.
11083                               ;--
11084 065456                                BGNHRD
      065456  000015                        .WORD L10076-L$HARD/2
      065460                        L$HARD::
11085
11086 065460                                GPRMA   HPM1,0,0,160000,177776,YES      ;GET TSBA/TSDB REGISTER ADDRESS.
      065460  000031                        .WORD   T$CODE
      065462  065512                        .WORD   HPM1
      065464  160000                        .WORD   T$LOLIM
      065466  177776                        .WORD   T$HILIM
11087 065470                                GPRMA   HPM2,2,0,0,776,YES              ;GET VECTOR ADDRESS.
      065470  001031                        .WORD   T$CODE
      065472  065541                        .WORD   HPM2
      065474  000000                        .WORD   T$LOLIM
      065476  000776                        .WORD   T$HILIM
11088 065500                                GPRMD   HPM3,4,0,340,0,7,YES            ;GET INTERRUPT PRIORITY.
      065500  002032                        .WORD   T$CODE
      065502  065565                        .WORD   HPM3
      065504  000340                        .WORD   340
      065506  000000                        .WORD   T$LOLIM
      065510  000007                        .WORD   T$HILIM
11089 065512                                ENDHRD
                                            .EVEN
```

```
        065512                                  L10076:
  11090 065512      104     105     126   HPM1:    .ASCIZ  'DEVICE ADDRESS (TSSR) '
  11091 065541      111     116     124   HPM2:    .ASCIZ  'INTERRUPT VECTOR   '
  11092 065565      111     116     124   HPM3:    .ASCIZ  'INTERRUPT PRIORITY     '
  11093                                            .EVEN
  11094
```

```
                                        .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.
                                ;--
065616                                  BGNSFT
065616  000006                          .WORD L10077-L$SOFT/2
065620                          L$SOFT::
065620                                  GPRML   SPM1,0,-1,YES                   ;GET RAM DUMP FLAG
065620  000130                          .WORD   T$CODE
065622  065634                          .WORD   SPM1
065624  177777                          .WORD   -1
065626                                  GPRML   SPM4,2,-1,YES                   ; GET ITERATION CONTROL.
065626  001130                          .WORD   T$CODE
065630  065700                          .WORD   SPM4
065632  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
065634                                  ENDSFT
065634                                  .EVEN
                                L10077:

065634  105  116  101  SPM1:    .ASCIZ  'ENABLE CONTROLLER RAM DUMP ON ERROR'
065700  111  116  110  SPM4:    .ASCIZ  'INHIBIT ITERATIONS     '
065730  120  105  122  SPM6:    .ASCIZ  'PER TEST ERROR LIMIT   '
065760  120  105  122  SPM7:    .ASCIZ  'PER UNIT ERROR LIMIT   '
                                .EVEN
                                .SBTTL  PATCH AREA
                                ;+
                                ;DISPATCH TABLE
                                ;
                                ; *** MOVE TO FRONT OF PROGRAM FOR RELEASE ***
                                ;-

066010                                  DISPATCH        TESTNU
066010  000004                          .WORD   4
066012                          L$DISPATCH::
066012  023650                          .WORD   T1
066014  031666                          .WORD   T2
066016  051036                          .WORD   T3
06602C  061034                          .WORD   T4

                                ;
                                ; FINALLY A GENEROUS PATCH AREA.
                                ;
                                ; AND AN ADJUSTMENT TO ACCOUNT FOR THE "LASTAD BIT7" HACK
                                ; DESCRIBED IN "SUPPRG.MEM" (FOR REV C).
                                ;
066022                          PATCH::
```

PATCH AREA

```
11137                                   ;       .IF     NZ,.&377
11138                                   ;       .=.!377+1
11139                                   ;       .ENDC
11140 066022                                    LASTAD          ;SET LAST USED ADDRESS.
                                                .EVEN
      066022  066040                            .WORD T$FREE
      066024  000005                            .WORD T$SIZE
      066026                            L$LAST::
11141                                           .SBTTL  HARD CODED P-TABLE
11142                                   ;++
11143                                   ;       DIAGNOSTIC IS PRE-PARAMETERIZED PER THIS TABLE
11144                                   ;--
11145 066026                                    BGNSETUP        1
11146 066026                                    BGNPTAB
      066026  000000                            .WORD   0
      066030  000003                            .WORD   L10102-.)/2-1
      066032                            L10100:
11147 066032  172522                            .WORD           172522
11148 066034  000224                            .WORD           224
11149 066036  000240                            .WORD           PRI05
11150 066040                                    ENDPTAB
      066040                            L10102:
11151 066040                                    ENDSETUP
11152
11153         000001                    .END
```

F6

SYMBOL TABLE

```
T26WSS  050151        T27S2   055662        T28RES  065276        WC.IRW= 000004        XSOVCK= 000020
T27AM3  057177        T27S3   055664        T28RIB  063404        WC.IOT= 000100        XSOWLE= 004000
T27BA   057537        T27TIM  056644        T28RN   063366        WC.I1T= 000040        XSOWLK= 000004
T27BFR  055540        T27TM   057000        T28RRM  064657        WC.I5R= 000020        XS1CON  015257
T27BF2  055660        T27TRL  060133        T28RRN  064735        WF.IED= 000010        XS2CON  015324
T27BOT  056551        T27TSA  060374        T28RRP  065014        WF.IER= 000004        XS3CON  015371
T27BSO  055660        T27VCK  057464        T28RT2  065370        WF.IHI= 000200        XXCOMM  003070 G
T27BS1  055661        T27WB   055652        T28RT3  065432        WF.IRE= 000040        X$ALWA= 000000
T27CNT  055676        T27WDC  057411        T28RWN  064331        WF.IWF= 000020        X$FALS= 000040
T27CNU  055700        T27WDD  057321        T28SSR  064045        WF.IWR= 000100        X$OFFS= 000400
T27CON  055672        T27WDE  056462        T28SZ   063346        WF.I3R= 000002        X$TRUE= 000020
T27DAT  055530        T27WDF  056270        T28S2   063352        WF.I4R= 000001        X1.COR= 020000
T27DLY  055702        T27WDR  055670        T28S3   063354        WRTCHR  010342 G      X1.DLT= 100000
T27DTA  060536        T27WNG  055704        T28TM   064254        WRTERR  005011        X1.MBZ= 017375
T27EOT  056721        T27WRF  060456        T28TMK  064605        WRTMSG  004754        X1.RBP= 000400
T27LON  057701        T27WSS  057612        T28VCK  064532        XFERAS  016624        X1.SPA= 040000
T27LOO  051106        T28BFR  063230        T28WB   063342        XNXM    017312        X1.UNC= 000002
T27LOP  057763        T28BF2  063350        T28WDC  064453        XORBFO  007432        X2.BUF= 000100
T27LOQ  056345        T28BOT  064207        T28WDE  064116        XORFOR  007550        X2.EXT= 000200
T27LOR  056220        T28BSO  063350        T28WDF  063707        XST0  = 000006 G      X2.OPM= 100000
T27NEF  060221        T28BS1  063351        T28WDR  063370        XST1  = 000010 G      X2.RCE= 040000
T27OFL  057246        T28CNT  063376        T3      051036 G      XST2  = 000012 G      X2.REV= 000077
T27PAC  055520        T28CNU  063400        T3.1    051106        XST3  = 000014 G      X2.SPA= 035400
T27PBP  060045        T28CON  063372        T3.2    051474        XST4  = 000016 G      X2.UNI= 000007
T27PK2  055630        T28DAT  063220        T3.3    052246        XSOBOT= 000002        X2.WCF= 002000
T27PK3  055650        T28DLY  063402        T3.4    053062        XSOCON  015212        X3.DCK= 000010
T27R8   055652        T28DTA  065154        T3.5    053756        XSOEOT= 000001        X3.MBZ= 000006
T27RDF  055772        T28DTR  065072        T4      061034 G      XSOIE = 000040        X3.MDE= 177400
T27RES  060654        T28IMV  063356        T4.1    061100        XSOILA= 000400        X3.OPI= 000100
T27RN   055666        T28LOO  061100        UAM   = 000200 G      XSOILC= 001000        X3.REV= 000040
T27RNC  057124        T28LOQ  063764        UNITN   002150 G      XSOLET= 020000        X3.RIB= 000001
T27RRF  056041        T28OFL  064400        UNREC = 000006        XSOMOT= 000200        X3.SPA= 000200
T27RT2  060746        T28PAC  063210        USI     004021        XSONEF= 002000        X3.TRF= 000020
T27RT3  061010        T28PBP  063461        WAITF   017134 G      XSOONL= 000100        X4.HSP= 100000
T27RWN  057055        T28PK2  063320        WC.IFA= 000200        XSOPED= 000010        X4.MBZ= 017400
T27SC   056136        T28PK3  063340        WC.IFE= 000002        XSORLL= 010000        X4.RCE= 040000
T27SCF  060317        T28R8   063342        WC.IGO= 000001        XSORLS= 040000        X4.TSM= 020000
T27SSR  056426        T28RDF  063544        WC.IRE= 000010        XSOTMK= 100000        X4.WRC= 000377
T27SZ   055656        T28RDG  063625

. ABS.  066040      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  29424 WORDS  ( 115 PAGES)
DYNAMIC MEMORY:  20060 WORDS  ( 77 PAGES)
ELAPSED TIME:  00:37:17
CZTKGA.BIC,CZTKGA/-SP=SVC/ML,CZTKGA
```

TEST 2: REREADS B1
TEST 2: REREADS C1
TEST 2: REREADS D1
TEST 2: REREADS E1
TEST 2: REREADS F1
TEST 2: REREADS G1
TEST 2: REREADS H1
TEST 2: REREADS I1
TEST 2: REREADS J1
TEST 2: REREADS K1
TEST 2: REREADS L1
TEST 2: REREADS M1
TEST 2: REREADS N1

TEST 4: WRITE/READ B5
TEST 4: WRITE/READ C5
TEST 4: WRITE/READ D5
TEST 4: WRITE/READ E5
TEST 4: WRITE/READ F5
TEST 4: WRITE/READ G5
TEST 4: WRITE/READ H5
TEST 4: WRITE/READ I5
TEST 4: WRITE/READ J5
TEST 4: WRITE/READ K5
TEST 4: WRITE/READ L5
HARDWARE PARAMETER C....M5
SOFTWARE PARAMETER C....N5

TEST 2: REREADS B2
TEST 2: REREADS C2
TEST 2: REREADS D2
TEST 2: REREADS E2
TEST 3: WRITE DATA F2
TEST 3: WRITE DATA G2
TEST 3: WRITE DATA H2
TEST 3: WRITE DATA I2
TEST 3: WRITE DATA J2
TEST 3: WRITE DATA K2
TEST 3: WRITE DATA L2
TEST 3: WRITE DATA M2
TEST 3: WRITE DATA N2

PATCH AREA B6
SYMBOL TABLE C6
SYMBOL TABLE D6
SYMBOL TABLE E6
SYMBOL TABLE F6

TEST 3: WRITE DATA B3
TEST 3: WRITE DATA C3
TEST 3: WRITE DATA D3
TEST 3: WRITE DATA E3
TEST 3: WRITE DATA F3
TEST 3: WRITE DATA G3
TEST 3: WRITE DATA H3
TEST 3: WRITE DATA I3
TEST 3: WRITE DATA J3
TEST 3: WRITE DATA K3
TEST 3: WRITE DATA L3
TEST 3: WRITE DATA M3
TEST 3: WRITE DATA N3

TEST 3: WRITE DATA B4
TEST 3: WRITE DATA C4
TEST 3: WRITE DATA D4
TEST 3: WRITE DATA E4
TEST 3: WRITE DATA F4
TEST 3: WRITE DATA G4
TEST 3: WRITE DATA H4
TEST 3: WRITE DATA I4
TEST 3: WRITE DATA J4
TEST 4: WRITE/READ K4
TEST 4: WRITE/READ L4
TEST 4: WRITE/READ M4
TEST 4: WRITE/READ N4