IDENTIFICATION

PRODUCT CODE:	AC-T477A-MC
PRODUCT NAME:	CNRXFA0 RX02 FCTN/LGC
PRODUCT DATE:	DEC, 1982
MAINTAINER:	DIAGNOSTICS SERVICES/ISS
AUTHOR:	L. S. PRUCHA

TABLE OF CONTENTS

1.0 GENERAL INFORMATION

1.1 PROGRAM ABSTRACT

THIS PROGRAM CONTAINS A FUNCTION TEST OPTION AND A LOGIC TEST OPTION. A USER MAY SELECT TO RUN THE FUNCTION TEST ONLY, LOGIC TEST ONLY OR BOTH. THE DIAGNOSTIC WILL DEFAULT TO RUN THE LOGIC TEST ONLY. THE FUNCTION TEST WILL PERFORM A FUNCTIONAL EVALUATION OF THE DEVICE. IT WILL VERIFY THAT THE DRIVES CAN SEEK, THAT DATA CAN BE WRITTEN AND READ AND THAT DRIVE STATUS IS CORRECT. THE LOGIC TEST WILL ANALYZE DEVICE FAILURES, REPORT FAILING FIELD REPLACEABLE UNITS AND PROVIDE EXTENSIVE INFORMATION ON THE NATURE OF THE ERROR.

1.2 SYSTEM REQUIREMENTS

1.2.1 HARDWARE REQUIREMENTS

PDP-11/21 PROCESSOR WITH 16K OR MORE OF MEMORY
CONSOLE DEVICE (LA30, LA36, VT50, ETC.), LOAD MEDIA DEVICE.

1.2.2 SOFTWARE REQUIREMENTS

THIS DIAGNOSTIC IS DESIGNED TO RUN WITH THE DIAGNOSTIC SUPERVISOR AS DESCRIBED IN PARAGRAPH 2.0.

1.3 RELATED DOCUMENTS AND STANDARDS

XXDP+ USERS MANUAL

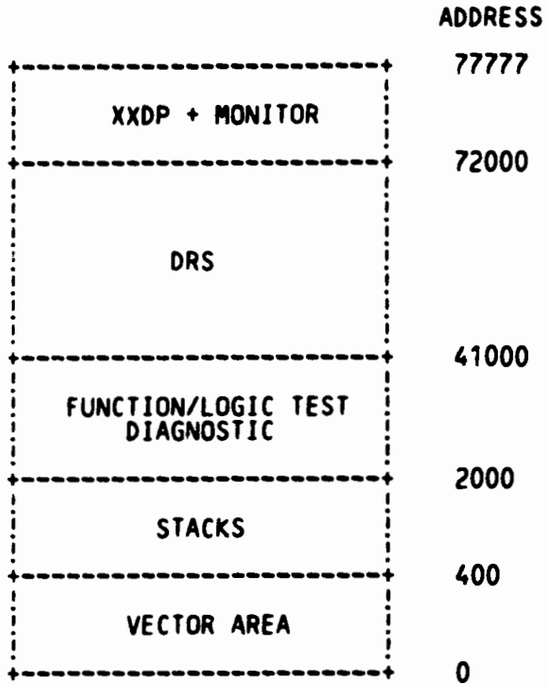
1.4 DIAGNOSTIC HIERARCY PREREQUISITES

NONE

1.5 ASSUMPTIONS

THIS DIAGNOSTIC ASSUMES THAT ALL HARDWARE OTHER THAN THE RXV21/RX211 INTERFACE OR RX02 SUBSYSTEM BEING TESTED WORKS PROPERLY. FALSE ERRORS MAY BE REPORTED IF THE PROCESSOR, MEMORY, ETC., DOES NOT FUNCTION PROPERLY.

MEMORY LAYOUT ON 16K MACHINE - XXDP ENVIRONMENT



IN A MACHINE WITH MORE MEMORY FREE SPACE WILL OCCUR BETWEEN THE DIAGNOSTIC AND THE DRS.

CTIONS

THIS IS A REV A SUPERVISOR DIAGNOSTIC: FOR OPERATING INSTRUC-
TIONS, PLEASE SEE CHAPTER 5 OF XXDP+ OPERATOR'S MANUAL. THEY
ARE NO LONGER INCLUDED IN THE DIAGNOSTIC LISTING BECAUSE IT IS
DESIRED THAT A CHANGE IN THOSE INSTRUCTIONS NOT REQUIRE A RE-
ASSEMBLY OF ALL SUPERVISOR DIAGNOSTICS.

2.1 HARDWARE QUESTIONS

THE FOLLOWING SERIES OF QUESTIONS COMPRISE THE PARAMETERS
NECESSARY TO IDENTIFY EACH FLOPPY DISK SUBSYSTEM.

RX ADDRESS -
THIS PARAMETER DEFINES THE BASE BUS ADDRESS FOR THE FLOPPY
DISK SUBSYSTEM INTERFACE.

VECTOR ADDRESS -
THIS PARAMETER DEFINES THE INTERRUPT VECTOR ADDRESS FOR
THE FLOPPY DISK SUBSYSTEM INTERFACE.

DRIVE # -
THIS PARAMETER DEFINES THE FLOPPY DISK SUBSYSTEM DRIVE
NUMBER (0 - 1).

EXPANSION-TYPE -
THIS PARAMETER IS TO BE USED FOR FUTURE EXPANSION. TYPE
A CARRIAGE RETURN.

BR-LEVEL -
THIS PARAMETER DEFINES THE BR-LEVEL OF THE FLOPPY DISK
SUBSYSTEM INTERFACE. A BR LEVEL OF 0 -> 7 WILL BE ACCEPTED.

THE FOLLOWING SERIES OF QUESTIONS ARE INTENDED TO PROVIDE SELECTION OF VARIOUS TEST OPTIONS.

TEST HELP -
IF ANSWER IS YES "Y" THEN A SHORT HELP DESCRIPTION ON USE OF THIS DIAGNOSTIC WILL BE TYPED.

LOGIC TEST MODE -
IF ANSWER IS YES "Y" THEN THE LOGIC TESTS WILL BE DONE. THESE TESTS PROVIDE EXTENSIVE TESTING OF THE FLOPPY DISK SUBSYSTEM LOGIC. FAILING FIELD REPLACEABLE UNITS WILL BE CALLED OUT AND EXTENSIVE ERROR INFORMATION WILL BE REPORTED. THE AMOUNT OF ERROR INFORMATION MAYBE SUPPRESSED WITH THE "DRS" "IXE" FLAG.

FUNCTION TEST MODE -
IF ANSWER IS YES "Y" THEN THE FUNCTION TESTS WILL BE DONE. THESE TESTS PROVIDE A QUICK VERIFICATION THAT THE FLOPPY DISK SUBSYSTEM IS FUNCTIONAL, ONLY VERY BASIC ERROR REPORTING IS DONE, MEDIA RELATED ERRORS ARE IGNORED.

DEVICE FATAL THRESHOLD LEVEL -
THE DEVICE FATAL THRESHOLD LEVEL (DFTL) IS INITIALLY SET=1. THIS THRESHOLD LEVEL EQUALS THE NUMBER OR HARD ERRORS THAT WILL CAUSE A DEVICE FATAL ERROR WHEN THE DRS "EVL" FLAG IS SET.

NON-EXISTENT MEMORY ADDRESS -
THIS ADDRESS IS USED BY THE DIAGNOSTIC TO TEST THE RX CAPABILITY TO DETECT NON EXISTENT MEMORY (VIA BUS TIME OUT). THIS IS ONLY TESTED DURING THE NON EXISTENT MEMORY TEST. THE STANDARD 160000 DIAGNOSTIC ADDRESS IS USED BY DEFAULT.

EXTENDED ADDRESS BITS -
THESE BITS ARE USED DURING THE NPR & NON EXISTENT MEMORY TESTS TO TEST THE RX EXTENDED MEMORY CAPABILITIES. BITS 13 & 12 ARE SET IN THE RXCS REGISTER CORRESPONDING TO BITS 1 & 0 SET BY THE USER.

TEST CONTROL FLAGS -
IF ANSWER IS YES "Y", THEN THE FOLLOWING QUESTION WILL BE ASKED.

PRINT ONLY 10 DATA ERRORS & CONTINUE
IF THIS QUESTION IS ANSWERED NO "N", THEN ALL ERRORS IN THE RX DATA BUFFER WILL BE PRINTED. A YES ANSWER "Y" WILL CAUSE ONLY THE FIRST 10 BYTES IN ERROR TO BE PRINTED.

3.0 ERROR INFORMATION

THIS PROGRAM HAS THREE TYPES OF ERROR CLASSIFICATIONS; SYSTEM FATAL, DEVICE FATAL, AND HARD ERRORS.

3.1 SYSTEM FATAL ERRORS

SYSTEM FATAL ERRORS ARE USED TO INDICATE THAT AN ERROR WAS DETECTED BY THE DIAGNOSTIC SUPERVISOR IN RELATION TO LOADING/ CONTROLLING THE DIAGNOSTIC PROCESS. WHEN A SYSTEM FATAL ERROR IS DETECTED THE UNIT IS USUALLY DROPPED.

THE CONTENT OF EACH ERROR IS SUCH THAT IT SHOULD BE SELF - EXPLANATORY. HOWEVER, THE MESSAGES UTILIZE SOME TERMS THAT ARE SPECIFIC TO THE FLOPPY DISK SUBSYSTEM, AND MAY REQUIRE SOME GETTING USE TO.

3.2 DEVICE FATAL ERRORS

DEVICE FATAL ERRORS ARE A RESULT OF:

1. REACHING A DEVICE FATAL THRESHOLD LEVEL ("DVTL"). THIS LEVEL IS INITIALLY SET=1, BUT MAY BE MODIFIED BY THE OPERATOR. AN "DVTL" =1 WILL CAUSE 1 HARD ERROR TO BE CLASSIFIED A DEVICE FATAL ERROR.

2. AN ERROR THAT IS CONSIDERED FATAL TO THE DEVICE, BUT TESTING WILL CONTINUE.

3.3 HARD ERRORS

HARD ERRORS ARE A RESULT OF: A NON-RECOVERABLE ERROR

3.5 ERROR PRINTOUT FORMAT

EACH ERROR WILL BE PRINTED OUT USING THE STANDARD "DRS" HEADER.

3.5.1 FUNCTION TESTS

THE SECOND LINE PRINTED OUT WILL GIVE THE TEST TITLE
THE THIRD LINE PRINTED OUT WILL IDENTIFY THE ERROR. IF IT
IS A CSR ERROR THE ACTUAL AND EXPECTED RESULTS WILL BE DISPLAYED.

EXAMPLE ERROR PRINTOUT:

```
CZRXFA0 HRD ERR  00004 ON UNIT 01 TST 010 SUB C00 PC:003476
 POSITIONING - FNC TST
  CSR- ERROR
       REG ACTUAL=005520
       REG EXPECT=037565
```

3.5.2 LOGIC TESTS

THE SECOND AND THIRD LINES WILL BE PRINTED AS DESCRIBED FOR
THE FUNCTION TESTS.
DEPENDING ON THE TYPE OF ERROR ADDITIONAL ACTUAL AND EXPECTED
RESULTS WILL BE DISPLAYED. THEN THE TEST WILL CALL OUT WHICH ARE
THE MOST LIKELY FIELD REPLACEABLE UNITS "FRU'S" THAT ARE
FAILING. ALL CURRENT DEVICE REGISTERS ARE THEN DISPLAYED,
INCLU ING A DATA BUFFER DUMP IF DATA WAS BAD.

EXAMPLE ERROR PRINTOUT:

```
CNRXFA0 DEV FTL ERR  00019 ON UNIT 01 TST 024 SUB 000 PC:003476
 WRD CNT INTEGRITY PRT:1 - LGC TST
  WORD COUNT ERROR
       REG ACTUAL=000020
       REG EXPECT=000000

  POSSIBLE FAILING "FRU'S":
           CONTROLLER - M7744
           INTERFACE - M8256

  UNIT#1 RXCSR=014440 RXESR=010040 CMD=000437 ->READ ERR CODE
  ERROR CODE=230 ->WORD CNT OVF.
  WORD CNT=020
  CUR TRK DV0=76. CUR TRK DRV1= 0.
  TARGET TRK =76. TARGET SEC  =10. SOFT STAT=060 BAD TRK=15.
```

4.0 PERFORMANCE AND PROGRESS REPORTS

NONE

5.0 DEVICE INFORMATION

5.1 DEVICE REGISTERS

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
											<FUNCTION>					
RXCS:	ERR	INT	XM	XM	RX2		SID	DEN	TR	IE	DON	DRV	FUN	FUN	FUN	GO
RXWC:	X	X	X	X	X	X	X	X	WORD COUNT							
RXBA:	BUS ADDRESS															
RXES:	X	X	X	X	NXM	WC OVF	SID #1	DRV #1	DRV RDY	DEL DAT	DSK DEN	DEN ERR	AC LOW	INT DON	SID RDY	CRC
RXTA:	X	X	X	X	X	X	X	X	0	TRACK ADDRESS						
RXSA:	X	X	X	X	X	X	X	X	0	0	0	SECTOR ADDRESS				
RXDB:	DATA BUFFER															

READ ERROR CODE REGISTERS - (SEE LABLE "XERUUT")

WORD	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
#1	WORD COUNT								ERROR CODE							
#2	CURRENT TRACK DRV #1								CURRENT TRACK DRIVE #0							
#3	TARGET SECTOR								TARGET TRACK							
#4	BAD TRACK-ONLY VALID IF ERRCODE=150								UNT SEL	DV1 DEN	HD LD	DV0 DEN	X	X	X	LCD DEN

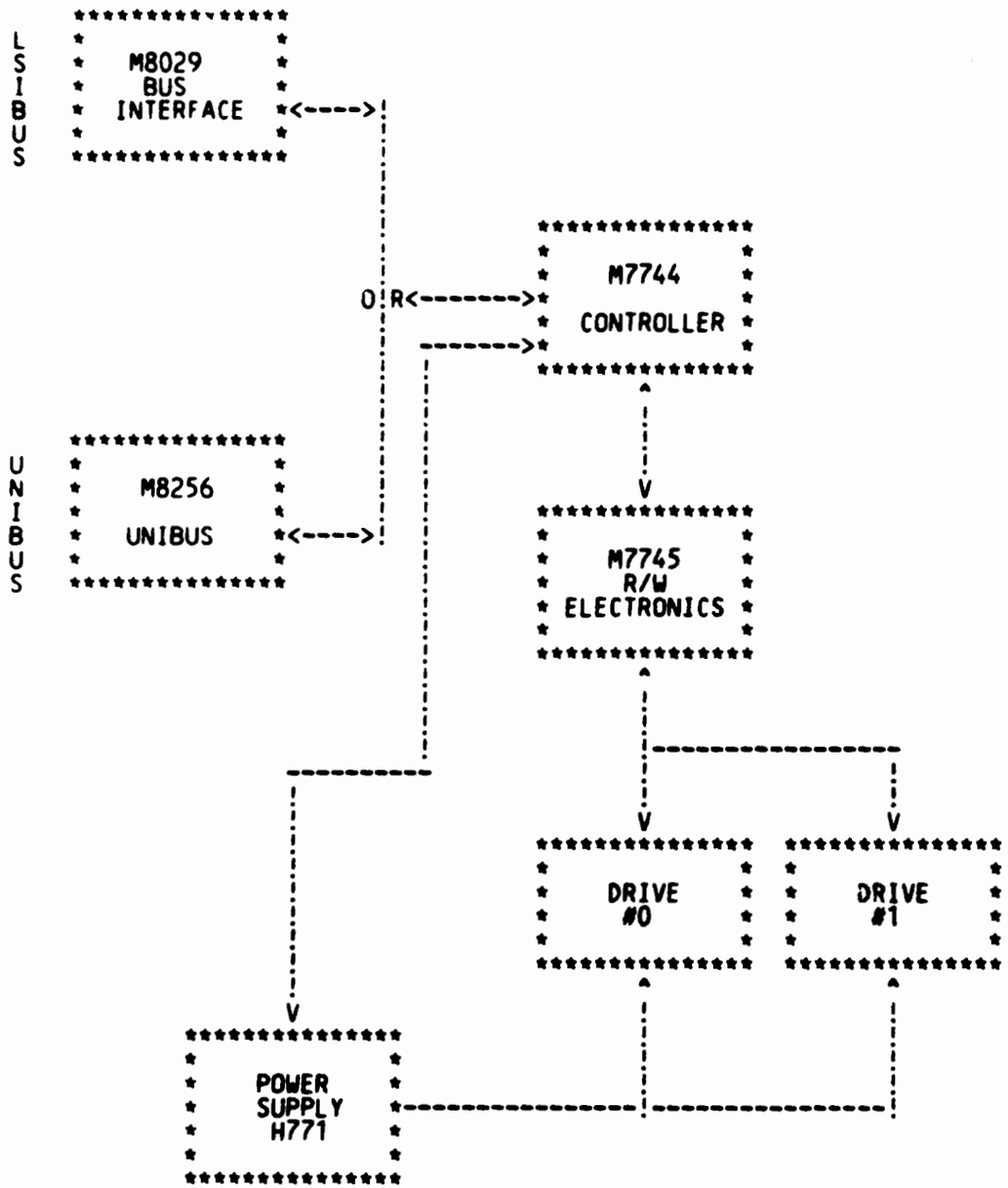
5.2 DEVICE PROTOCOL

RX02 FUNCTIONAL PROCESS

FUNCTION CODE BIT # 3 2 1	FUNCTION	PROCEDURE (PROTOCOL)
0 0 0	FILL BUFFER	Function Word --->TR--->WC--->TR--->BA--->DONE
0 0 1	EMPTY BUFFER	Function Word --->TR--->WC--->TR--->BA--->DONE
0 1 0	WRITE SECTOR	Function Word --->TR--->SA--->TR--->TA--->DONE
0 1 1	READ SECTOR	Function Word --->TR--->SA--->TR--->TA--->DONE
1 0 0	SET DENSITY	Function Word --->TR--->VW--->DONE
1 0 1	READ MAINT. STATUS	Function Word --->DONE
1 1 0	WRITE SECTOR with deleted data	Function Word --->TR--->SA--->TR--->TA--->DONE
1 1 1	READ ERROR CODE	Function Word --->TR--->BA--->DONE

TR = wait for TR BIT
DONE = wait for DONE BIT
BA = BUS ADDRESS (output to RX)
VW = VERIFICATION WORD (output to RX)
WC = WORD COUNT (output to RX)
SA = SECTOR ADDRESS (output to RX)
TA = TRACK ADDRESS (output to RX)

5.3 DEVICE HARDWARE CONFIGURATION



6.0 TEST SUMMARIES

TEST 1 - INITIALIZE - FNC TST

TEST TO VERIFY THAT AN RX INITIALIZE WILL RETURN THE DEVICE TO A VALID STATE.

DESCRIPTION:
1. DO BUS INITIALIZE
2. IF RX ERR BIT IS SET REPORT ERROR
3. CALL PROGAMMED INITIALIZE
4. IF RX ERR BIT IS SET REPORT ERROR

TEST 2 - READ ERROR CODE - FNC TST

TEST TO VERIFY THAT THE DEVICE WILL COMPLETE A READ ERROR CODE COMMAND WITHOUT ENCOUNTERING AN ERROR.

DESCRIPTION:
1. CALL PROGRAMMED INITIALIZE
2. IF RX ERR BIT IS SET REPORT ERROR
3. CALL READ ERROR CODE
4. IF RX ERR BIT IS SET REPORT ERROR

TEST 3 - FILL BUFFER - FNC TST

TEST TO VERIFY THE DEVICE BUFFER WILL FILL WITH NO RESULTING ERROR.

DESCRIPTION:
1.CALL FILL BUFFER
2. IF RX ERR BIT IS SET REPORT ERROR

TEST 4 - EMPTY BUFFER - FNC TST

TEST TO VERIFY THE DEVICE BUFFER WILL EMPTY WITHOUT ERRORS.

DESCRIPTION:
1. CALL EMPTY BUFFER
2. IF RX ERR BIT IS SET REPORT ERROR

TEST 5 - READ STATUS - FNC TST

TEST TO VERIFY THAT A DEVICE MAINTENANCE READ STATUS (RXES) COMMAND WILL EXECUTE WITHOUT ERROR.

DESCRIPTION:
1. CALL READ STATUS
2. IF RX ERR BIT IS SET REPORT ERROR

TEST 6 - FILL & EMPTY BUFFER - FNC TST

TEST TO VERIFY THE DEVICE BUFFER DATA IS VALID AFTER A FILL/EMPTY BUFFER COMMAND SEQUENCE.

DESCRIPTION:

1. SETUP RANDOM DATA PATTERN
2. CALL FILL BUFFER
3. IF RX ERR BIT IS SET REPORT ERROR
4. CALL EMPTY BUFFER
5. IF RX ERR BIT IS SET REPORT ERROR
6. CALL DATA CHECK

TEST 7 - READ & WRITE SECTOR - FNC TST

TEST TO VERIFY THE DEVICE WILL READ AND WRITE IN BOTH DENSITIES WITHOUT AN ERROR.

DESRIPTION:

1. SETUP TO DO TEST IN WRONG DENSITY
2. CALL WRITE SECTOR
3. IF RX ERR BIT IS NOT SET REPORT ERROR
4. CALL READ SECTOR
5. IF RX ERR BIT IS NOT SET REPORT ERROR
6. SETUP CORRECT DENSITY
7. CALL WRITE SECTOR
8. IF RX ERR BIT IS SET REPORT ERROR
9. CALL READ SECTOR
10. IF RX ERR BIT IS SET REPORT ERROR

TEST 8 - WRITE SECTOR DELETED DATA - FNC TST

TEST TO VERIFY THAT THE DEVICE WILL WRITE A DELETED DATA MARK ON THE DISKETTE WITHOUT ERROR.

DESCRIPTION:

1. SETUP TEST TO CORRECT DENSITY AND DELETED DATA MODE
2. CALL WRITE SECTOR DELETED DATA
3. IF RX ERR BIT IS SET REPORT ERROR
4. CALL READ SECTOR
5. IF RX ERR BIT IS SET REPORT ERROR
6. CLEAR DELETED DATA MODE
7. CALL WRITE SECTOR (CLEAR DETETED DATA MARK)
8. IF RX ERR BIT IS SET REPORT ERROR

TEST 9 - SET DENSITY - FNC TST

TEST TO VERIFY THE DEVICE WILL CHANGE DENSITIES WITHOUT INCURRING AN ERROR.

DESCRIPTION:

1. SETUP DENSITY = DISK DENSITY
2. CALL SET DENSITY
3. IF RX ERR BIT IS SET REPORT ERROR
4. CALL READ SECTOR
5. IF RX ERR BIT IS SET OR DENSITY NOT CORRECT REPORT ERROR
6. SETUP DENSITY = OPPOSITE DISK DENSITY
7. CALL SET DENSITY
8. IF RX ERR BIT IS SET REPORT ERROR
9. CALL READ SECTOR
10. IF RX ERR BIT IS SET OR DENSITY NOT CORRECT REPORT ERROR
11. SETUP DENSITY = DISK DENSITY
12. CALL SET DENSITY
13. IF RX ERR BIT IS SET REPORT ERROR

TEST 10 - POSITIONING - FNC TEST

TEST TO VERIFY THE DEVICE WILL CHANGE SECTORS AND TRACKS WITHOUT INCURRING AN ERROR.

DESCRIPTION:

1. SETUP RANDOM TRACK PATTERN AND DENSITY = DISK DENSITY
2. CALL GET A TRACK & SECTOR
3. CALL READ SECTOR
4. IF RX ERR BIT IS SET REPORT ERROR
5. DO 2. -> 4. UNTIL 76. TRACKS DONE

TEST 11 - CSR BITS - LGC TST

TEST TO VERIFY THAT THE READ/WRITE BITS OF THE CONTROL AND STATUS REGISTER CAN BE WRITTEN INTO AND READ AND OTHERWISE BEHAVE AS EXPECTED.

DESCRIPTION:

1. LOAD RX CSR WITH 1'S
2. CHECK & REPORT THAT ALL BITS THAT SHOULD SET, DO SET
3. LOAD RX CSR WITH 0'S
4. CHECK & REPORT THAT ALL BITS THAT SHOULD NOT BE SET, ARE NOT SET

TEST 12 - DBR BITS - LGC TST

TEST TO VERIFY THAT THE READ/WRITE BITS OF THE DATA BUFFER REGISTER CAN BE WRITTEN INTO AND READ AS EXPECTED.

DESCRIPTION:

1. WRITE RX DBR WITH ALL 1'S
2. CHECK & REPORT ALL BITS THAT SHOULD & SHOULD NOT BE SET
3. WIRTE RX DBR WITH ALL 0'S
4. CHECK & REPORT ALL BITS THAT SHOULD & SHOULD NOT BE SET

TEST 13 - CSR-DBR COMMON BYTE - LGC TST

TEST TO VERIFY THAT THE LOWER BYTE OF THE RXCS MAPS INTO THE RXDB AND THEREFORE CHECK WRITE ONLY BITS OF THE RXCS.

DESCRIPTION:
1. LOAD RX CSR LOW BYTE WITH ALL 1'S (EXCEPT BIT#0)
2. CHECK & REPORT IF RX DBR LOW BYTE NOT EQUAL TO ALL 1'S (EXCEPT BIT#0 & BIT#3)
3. LOAD RX CSR LOW BYTE WITH ALL 0'S
4. CHECK & REPORT IF RX DBR LOW BYTE NOT EQUAL TO ALL 0'S

TEST 14 - BUS INITIALIZE - LGC TST

TEST TO VERIFY THAT THE INTERFACE BOARD WILL COMPLETE A BUS INITIALIZE.

DESCRIPTION:
1. ISSUE BUS INITIALIZE
2. CHECK & REPORT IF ERROR BIT OR AC LOW BIT ARE SET OR IF DONE BIT IS NOT SET

TEST 15 - PROGRAMMED INITIALIZE - LGC TST

TEST TO VERIFY THAT THE INTERFACE BOARD WILL COMPLETE A PROGRAMMED INITIALIZE.

DESCRIPTION:
1. CALL PROGRAMMED INITIALIZE
2. CALL DEVICE STATE CHECK
3. CHECK & REPORT ERRORS

TEST 16 - POWER FAIL - LGC TST

TEST TO VERIFY THAT THE ACLOW CIRCUITS OPERATE AS EXPECTED.

DESCRIPTION:
1. IF MANNUAL INTERVENTION ALLOWED ASK OPERATOR TO POWER DOWN RX
2. IF POWERED DOWN, THEN CHECK & REPORT IF AC LOW BIT NOT SET
3. ASK OPERATOR TO POWER UP RX
4. IF POWERED UP, THEN INITIALIZE, CHECK & REPORT IF AC LOW BIT SET

TEST 17 - CONTROLLER-INTERFACE - LGC TST

TEST TO VERIFY THAT THE INTERFACE BOARD STATE SEQUENCER IS FUNCTIONAL. ALSO TO VERIFY THE CONTROLLER-INTERFACE HANDSHAKE BY TRYING FUNCTIONS WITH MINIMUM READ/WRITE BOARD INVOLVEMENT.

DESCIRPTION:
1. CALL READ ERROR CODE
2. IF ERROR, THEN REPORT ERROR
3. CALL FILL BUFFER
4. IF ERROR, THEN REPORT ERROR
5. CALL EMPTY BUFFER
6. IF ERROR, THEN REPORT ERROR
7. CALL READ STATUS
8. IF ERROR, THEN REPORT ERROR

TEST 18 - NPR - LGC TST

TEST TO VERIFY THAT THE NPR LOGIC WILL STORE A WORD IN MEMORY.

DESCRIPTION:
1. SETUP MEMORY LOCATION
2. CALL READ ERROR CODE (TO WRITE OVER LOCATION)
3. IF ERROR, THEN REPORT NPR ERROR
4. SETUP BUFFER AREAS BEGIN, END & END+1
5. CALL FILL BUFFER
6. IF ERROR, THEN REPORT ERROR
7. CALL EMPTY BUFFER
8. IF ERROR, THEN REPORT ERROR
9. CHECK BUFFER AREAS BEGIN & END SHOULD CHANGE & END+1 SHOULD NOT, REPORT AS NPR ERROR, IF CONDITIONS NOT MET

TEST 19 - NPR NON-EXISTENT MEM - LGC TST

TEST TO VERIFY THAT THE NPR NON-EXISTEND MEMORY LOGIC WILL TIME OUT WHEN GIVEN AN ILLEGAL ADDRESS.

DESCIRPTION:
1. SETUP BUS TRAPS AND NONEXSISTANT MEMORY ADDRESS
2. CALL READ ERROR CODE
3. IF RX CSR ERROR BIT OR RX ESR NXM BIT NOT SET, THEN CALL ERROR
4. CALL INITIALIZE (CLEAR RX ERROR)
5. CLEAR BUS TRAP VECTOR

TEST 20 - INTERRUPT - LGC TST

TEST TO VERIFY THAT THE INTERRUPTS CAN BE SET AND THAT THE DEVICE RESPONDS AS EXPECTED.

DESCRIPTION:
1. SET PROCESSOR PRIORTY = 7 (NO INTERRUPTS)
2. SET RX INTERRUPT BIT & SETUP LOWER PRIORITY
3. CALL WATCH TO LOWER PROCESSOR PRIORITY & WAIT FOR INTERRUPT
4. CALL ERROR IF DID NOT INTERRUPT
5. CLEAR RX INTERRUPT BIT

TEST 21 - PRIORITY LVL - LGC TST

TEST TO VERIFY THAT THE DEVICE PRIORITY IS SET TO THE CORRECT LEVEL.

DESCRIPTION:
1. SETUP PROCESSOR PRIORITY = 6 (NO INTERRUPTS)
2. DO SET PROCESSOR PRIORITY
3. SET RX INTERRUPT BIT
4. IF INTERRUPT OCCURED, THEN CHECK LEVEL & REPORT IF PROCSSOR PRIORITY NOT LOWER THAN RX
5. IF INTERRUPT DID NOT OCCUR, THEN SETUP NEXT LOWER PROCESSOR PRIORITY & START AT 2. AGAIN

TEST 22 - INITIALIZE CONTROL - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE INITIALIZE.

DESCRIPTION:
1. CALL PROGRAMMED INITIALIZE
2. IF ERROR, THEN REPORT ERROR

TEST 23 - DATA BUF INTEGRITY - LGC TST

TEST TO VERIFY ALL BITS OF DATA BUFFER, VARIOUS PATTERNS WILL BE USED.

DESCRIPTION:
1. SETUP RANDOM DATA PATTERN
2. CALL FILL BUFFER
3. IF ERROR, THEN REPORT ERROR
4. CALL EMPTY BUFFER
5. IF ERROR, THEN REPORT ERROR
6. CALL DATA CHECK
7. SETUP NEW DATA PATTERN
8. DO 2. -> 7. UNTIL ALL DATA PATTERNS DONE

TEST 24 - WRD CNT INTEGRITY - LGC TST

TEST TO VERIFY ALL BITS OF WORD COUNT REGISTER AND CHECK THAT EXCEEDING THE WORD COUNT FOR DISKETTE DENSITY WILL BE DETECTED.

DESCRIPTION:
1. SETUP BUFFER LENGTH = 128.
2. CALL FILL BUFFER
3. IF ERROR, THEN REPORT ERROR
4. CALL READ ERROR CODE
5. IF ERROR, THEN REPORT ERROR
6. IF RX WORD COUNT NOT = 0, THEN CALL ERROR
7. DECREMENT WORD COUNT TO RX, DO 2. -> 6. UNTIL WORD COUNT TO RX IS = 0

TEST 25 - CONTROLLER-READ*WRITE ELECT - LGC TST

TEST TO VERIFY MINIMAL CONTROLLER BOARD-READ/WRITE ELECTRONICS BOARD INTERFACE VIA INITIALIZE OF A SELECTED DRIVE.

DESCRIPTION:
1. CALL PROGRAMMED INITIALIZE
2. IF ERROR, THEN REPORT ERROR
3. CALL READ ERROR CODE
4. IF ERROR, THEN REPORT ERROR

TEST 26 - READ SECTOR-PRT:1 - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE A READ SECTOR IN BOTH DENSITIES AND RETURN A VALID ERROR CODE.

DESCRIPTION:

1. SETUP DENSITY = DISK DENSITY
2. CALL READ SECTOR
3. CALL READ ERROR CODE
4. IF ERROR, THEN REPORT ERROR
5. SETUP DENSITY = OPPOSITE DISK DENSITY
6. CALL READ SECTOR
7. CALL READ ERROR CODE
8. IF ERROR, THEN REPORT ERROR

TEST 27 - POSITIONING - LGC TST

TEST TO VERIFY THAT THE DRIVE WILL READ THE HEADERS ON ALL TRACKS OF THE DEIVE AS EXPECTED.

DESCRIPTION:

1. SETUP RANDOM TRACKS MODE
2. CALL GET A TRACK
3. CALL READ SECTOR
4. CALL READ ERROR CODE
5. IF TRACK OR OTHER ERROR, THEN REPORT ERROR
6. DO 2. -> 5. UNTIL 76. TRACKS DONE

TEST 28 - WRITE SECTOR-PRT:1 - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE A WRITE SECTOR IN BOTH DENSITIES AND RETURN A VALID ERROR CODE.

DESCRIPTION:

1. SETUP DENSITY = DISK DENSITY
2. CALL WRITE SECTOR
3. IF ERROR, THEN REPORT ERROR
4. SETUP DENSITY = OPPOSITE DISK DENSITY
5. CALL WRITE SECTOR
6. IF NO DENSITY ERROR, THEN REPORT ERROR

TEST 29 - DELETED DATA WRITE PRT:1 - LGC TST

TEST TO VERIFY THAT THE DEVICE SET A DELETED DATA MARK ON THE DISKETTE HEADER AND RETRIEVE THIS DATA ON A KNOWN GOOD DISKETTE.

DESCRIPTION:

1. SETUP DENSITY = DISK DENSITY
2. SETUP DELETED DATA MODE
3. CALL WRITE SECTOR
4. IF ERROR, THEN REPORT ERROR
5. CALL READ SECTOR
6. IF RX CSR DELETED DATA BIT NOT SET, THEN REPORT ERROR
7. CLEAR DELETED DATA MODE
8. CALL WRITE SECTOR (CLEAR DELETED DATA MARK)

TEST 30 - SET DENSITY - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE SET DENSITY IN BOTH DENSITIES. THE VALID WORD WILL ALSO BE CHECKED. ALSO TO VERIFY THAT THE DRIVE WILL READ IN BOTH DENSITIES, WITHOUT ERRORS.

DESCRIPTION:

1. GET & SAVE DISK DENSITY
2. SETUP DENSITY = SINGLE
3. CALL SET DENSITY
4. IF ERROR, THEN REPORT ERROR
5. SETUP INVALID KEY WORD = ASCII "K"
6. CALL SET DENSITY
7. IF NO DENSITY ERROR, THEN REPORT ERROR
8. SETUP VALID KEY WORD = ASCII "I"
9. SETUP DENSITY = DOUBLE
10. CALL SET DENSITY
11. IF ERROR, THEN REPORT ERROR
12. CHECK DISK DENSITY & REPORT IF NOT SET = DOUBLE
13. IF SAVED DISK DENSITY = DOUBLE, THEN SET DENSITY = SINGLE AND CALL SET DENSITY

TEST 31 - SECTOR ADR - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL HANDLE ALL LEGAL AND ILLEGAL SECTOR ADDRESSES PROPERLY.

DESCIRPTION:

1. GET A SECTOR
2. CALL READ SECTOR
3. CALL READ ERROR CODE
4. IF SECTOR ADDRESS NOT = RX SECTOR ADDRESS OR OTHER ERROR, THEN REPORT ERROR
5. DO 1. -> 4. UNTIL ALL SECTORS DONE OR ERROR OCCURS
6. SETUP SECTOR = 0 (ILLEGAL SECTOR)
7. CALL READ SECTOR
8. CALL READ ERROR CODE
9. IF NO SECTOR ERROR OR IF OTHER ERROR, THEN REPORT ERROR

TEST 32 - TRACK ADR - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL HANDLE ALL LEGAL AND ILLEGAL
TRACK ADDRESSES PROPERLY.

DESCRIPTION:
1. GET A TRACK
2. CALL READ SECTOR
3. CALL READ ERROR CODE
4. IF TRACK ADDRESS NOT = RX TRACK ADDRESS, THEN CALL ERROR
   OR IF OTHER TRACK ERROR OCCURED, THEN CALL ERROR
5. DO 1. -> 4. UNTIL ALL TRACKS DONE OR FINI FLAG SET (COMMAND ERROR)
6. SETUP ILLEGAL TRACK
7. CALL READ SECTOR
8. CALL READ ERROR CODE
9. IF TRACK ADDRESS NOT = RX TRACK ADDRESS OR
   IF ERROR CODE NOT = 40 (TRACK > 76.), THEN CALL ERROR

TEST 33 - READ SECTOR-PRT:2 - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE A READ SECTOR IN
BOTH DENSITIES AND RETURN A VALID ERROR CODE.

DESCRIPTION:
1. SETUP DENSITY = DISK DENSITY
2. CALL READ SECTOR
3. CALL READ ERROR CODE
4. IF ERROR, THEN REPORT ERROR
5. SETUP DENSITY = OPPOSITE DISK DENSITY
6. CALL READ SECTOR
7. CALL READ ERROR CODE
8. IF NOT DENSITY ERROR, THEN REPORT ERROR

TEST 34 - WRITE SECTOR-PRT:2 - LGC TST

TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE A WRITE SECTOR IN
BOTH DENSITIES AND RETURN A VALID ERROR CODE.

DESCRIPTION:
1. SETUP DENSITY = DISK DENSITY
2. CALL WRITE SECTOR
3. IF ERROR, THEN REPORT ERROR
4. SETUP DENSITY = OPPOSITE DISK DENSITY
5. CALL WRITE SECTOR
6. IF NOT DENSITY ERROR, THEN REPORT ERROR

TEST 35 - DELETED DATA WRITE PRT:2 - LGC TST

TEST TO VERIFY THAT THE DEVICE SET A DELETED DATA MARK ON THE DISKETTE HEADER AND RETRIEVE THIS DATA ON A KNOWN GOOD DISKETTE. THIS IS DONE IN OPPOSITE DENSITY OF PART: 1.

DESCRIPTION:

1. SETUP DENSITY = DISK DENSITY
2. SETUP DELETED DATA MODE
3. CALL WRITE SECTOR
4. CALL READ ERROR CODE
5. IF ERROR, THEN REPORT ERROR
6. CALL READ SECTOR
7. IF RX ESR DELETED DATA BIT NOT SET OR OTHER ERROR, THEN REPORT ERROR

TEST 36 - DISKETTE & DENSITY DATA CHECK - LGC TST

TEST TO VERIFY WITH A KNOWN GOOD DISKETTE THAT THE DEVICE WILL READ AND WRITE TO THE DISKETTE WITHOUT DATA ERRORS. BOTH DENSITIES WILL BE DONE.

DESCRIPTION:

1. SETUP DENSITY = DISK DENSITY
2. SETUP RANDOM DATA PATTERN
3. GET A TRACK & SECTOR
4. CALL FILL BUFFER
5. CALL WRITE SECTOR
6. SETUP TO CLEAR RX INTERNAL BUFFER
7. CALL FILL BUFFER
8. CALL READ SECTOR
9. CALL EMPTY BUFFER
10. CALL DATA CHECK
11. DO 3. -> 10. UNTIL AT LEAST ONE SECTOR OF EACH TRACK IS ACCESSED
12. SETUP DENSITY = OPPOSITE DISK DENSITY
13. CALL SET DENSITY
14. DO 3. -> 13. UNTIL BOTH DENSITIES DONE

7.0 REVISION HISTORY

CZRXFAO MACRO AND DOCUMENTATION HAV BEEN REVISED TO RUN ON PDP11/21
PROCESSOR AND RENAMED TO CNRXFAO TO BE SPECIFIC TO THIS PROCESSOR.
THE CHANGES INCLUDE PROCESSOR PRIORITY BEING LOWERED TO 6 FROM 7.

8.0 LISTING INDEX

PROGRAM HEADER AND TABLES MACRO M1200 14-DEC-82 16:33
TABLE OF CONTENTS

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33
TABLE OF CONTENTS

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33
TABLE OF CONTENTS

```
                .NLIST  SEQ,LD,BIN,CND

                                                                .REPT 0
                                .LIST   SEQ,BIN
                                .TITLE PROGRAM HEADER AND TABLES
                                .SBTTL  PROGRAM HEADER

                                        .ENABL  ABS,AMA
            002000                      .=2000
                                        .NLIST  BEX,MD

002000                                  BGNMOD

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

002000                                  POINTER BGNSW,BGNSFT,BGNAU,BGNDU,ERRTBL,BGNSETUP


002000                                  HEADER  CNRXFA0,0,0,170,0
002122                                  DESCRIPT <RX02 FUNCTION-LOGIC TEST>

002154                                  DEVTYP <RX02>









                                .SBTTL  DISPATCH TABLE

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

002162                                  DISPATCH 36
```

```
                                .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 HARDWARE P-TABLES.
                                ;--
002274                                  BGNHW   DFPTBL
002276  177170                        .WORD   177170          ;UNIBUS ADDRESS
002300  000264                        .WORD   264             ;VECTOR ADDRESS
002302  000000                        .WORD   0               ;DRIVE #
002304  000000                        .WORD   0               ;FUTURE EXPANSION
002306  000005                        .WORD   5               ;BR LEVEL #'S
002310                                  ENDHW

                                .SBTTL  LOAD DEVICE PROTECTION
                                ;++
                                ; LOAD DEVICE PROTECTION TABLE - USED TO CHECK HARDWARE P-TABLE
                                ; AGAINST LOAD DEVICE.
                                ;--
002310                                  BGNPROT
002310  000000                        .WORD   0               ;P-TABLE OFFSET->CSR
002312  177777                        .WORD   -1              ;P-TABLE OFFSET->VECTOR-DON'T CARE
002314  000004                        .WORD   4               ;P-TABLE OFFSET->DRIVE
002316                                  ENDPROT

                                .SBTTL  SOFTWARE P-TABLE
                                ;++
                                ; THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
                                ; PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
                                ;--
002316                                  BGNSW   SFPTBL
002320  000001                DVTL:     .WORD   1               ;HARD ERROR->DEVICE FATAL THRESHOLD LEVEL
002322  000000                          .WORD   0               ;CONTROL WORD FOR SOFTWARE P-TABLES
002324  000001                TSTMOD::  .WORD   1               ;TEST MODE
002326  000000                TSTPAT::  .WORD   0               ;TEST PATTERN #
002330  000000                TRKSEQ::  .WORD   0               ;TRACK SEQUENCE #
002332  000020                SWREG::   .WORD   20              ;SOFTWARE SWITCH REG
002334  000000                OD::      .WORD   0               ;OUTSIDE DIA. TRACK LIMIT
002336  000114                ID::      .WORD   114             ;INSIDE DIA. TRACK LIMIT.
002340  000001                MINSEC::  .WORD   1               ;MINIMUM SECTOR LIMIT
002342  000032                MAXSEC::  .WORD   32              ;MAXIMUM SECTOR LIMIT
002344  160000                NXMADR::  .WORD   160000          ;NON-EXISTENT MEMORY-ADR
002346  000000                XADBIT::  .WORD   0               ;EXTENDED ADDRESS BITS
002350                                  ENDSW

                                ;       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
                                ;       | 15| 14| 13| 12| 11| 10| 09| 08| 07| 06| 05| 04| 03| 02| 01| 00|
                                ;-------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
                                ;SWREG: |   |PRT|   |SID|   |   |   |   |   |   |   |TEN|SEK|   |FUN|   |
                                ;       |   |STA|   |FLG|   |   |   |   |   |   |   |DAT|CAL|   |TST|   |
                                ;-------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

002350                                  ENDMOD
```

```
    188                                 .TITLE GLOBAL AREAS
    189                                 .SBTTL  GLOBAL EQUATES SECTION
    215
    225                                 ;----< TEST MACROS >----
    226                                 ; THIS SECTION CONTAINS MACROS USED THROUGHOUT THE TESTS
    227                                 ;----------------------------------------------------------------------
    273
    291
    297
    326
    332
    344
    416
    422
    452
    458
    488 002350                                BGNMOD
    489
    490                                 ;++
    491                                 ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
    492                                 ; ARE USED IN MORE THAN ONE TEST.
    493                                 ;--
    494
    495 002350                                EQUALS
                                        ;
                                        ; BIT DIFINITIONS
                                        ;
                100000                  BIT15== 100000
                040000                  BIT14== 40000
                020000                  BIT13== 20000
                010000                  BIT12== 10000
                004000                  BIT11== 4000
                002000                  BIT10== 2000
                001000                  BIT09== 1000
                000400                  BIT08== 400
                000200                  BIT07== 200
                000100                  BIT06== 100
                000040                  BIT05== 40
                000020                  BIT04== 20
                000010                  BIT03== 10
                000004                  BIT02== 4
                000002                  BIT01== 2
                000001                  BIT00== 1
                                        ;
                001000                  BIT9==  BIT09
                000400                  BIT8==  BIT08
                000200                  BIT7==  BIT07
                000100                  BIT6==  BIT06
                000040                  BIT5==  BIT05
                000020                  BIT4==  BIT04
                000010                  BIT3==  BIT03
                000004                  BIT2==  BIT02
                000002                  BIT1==  BIT01
                000001                  BIT0==  BIT00
                                        ;
                                        ; EVENT FLAG DEFINITIONS
                                        ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
```

```
                                ;
                                ;                                       ;  BIT POSITION IN SECOND STATUS WORD
000040                          EF.START==      32.                     ; (100000) START COMMAND WAS ISSUED
000037                          EF.RESTART==    31.                     ; (040000) RESTART COMMAND WAS ISSUED
000036                          EF.CONTINUE==   30.                     ; (020000) CONTINUE COMMAND WAS ISSUED
000035                          EF.NEW==        29.                     ; (010000) A NEW PASS HAS BEEN STARTED
000034                          EF.PWR==        28.                     ; (004000) A POWER-FAIL/POWER-UP OCCURRED
                                ;
                                ;
                                ; 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
```

```
                                ;***** PROGRAM EQUIVALENTS *****
                                
000010          DLDCMD  =       BIT3            ;DEL. DATA CMD BIT------<CSR>
100000          ERRBIT  =       BIT15           ;ERROR BIT--------------<CSR>
040000          RXINIT  =       BIT14           ;RXINIT BIT-------------<CSR>
004000          RX2BIT  =       BIT11           ;RX02 BIT---------------<CSR>
001000          SIDE1   =       BIT9            ;SIDE #1 BIT------------<ESR> & <CSR>
000400          DENBIT  =       BIT8            ;DENSITY BIT------------<CSR>
000200          TRBIT   =       BIT7            ;TR BIT-----------------<CSR>
000040          DNBIT   =       BIT5            ;DONE BIT---------------<CSR>
000020          DRV1    =       BIT4            ;DRIVE 1----------------<CSR>
004000          NXMBIT  =       BIT11           ;NON-EXISTENT MEM-------<ESR>
002000          WCOVRF  =       BIT10           ;WORD COUNT OVERFLOW----<ESR>
000400          DRIVE1  =       BIT8            ;DRIVE #1 BIT-----------<ESR>
000200          DRVRDY  =       BIT7            ;DRIVE READY BIT--------<ESR>
000100          DLDBIT  =       BIT6            ;DEL. DATA BIT----------<ESR>
000040          DRVDEN  =       BIT5            ;DRIVE DENSITY----------<ESR>
000020          DENERR  =       BIT4            ;DENSITY ERROR----------<ESR>
000010          ACLOW   =       BIT3            ;AC LOW BIT-------------<ESR>
000004          INITDN  =       BIT2            ;INITIALIZE DONE BIT----<ESR>
000002          SIDRDY  =       BIT1            ;SIDE READY BIT---------<ESR>
000001          CRCERB  =       BIT0            ;CRC ERROR BIT----------<ESR>
000004          BTRP4   =       4               ;BUS TRAP LOC #4 - TRAP HANDLER
000006          BTRP6   =       6               ;BUS TRAP LOC #4 - PSW
000001          LOGICT  =       BIT0            ;LOGIC TEST BIT---------<SWREG>
000002          FUNCTT  =       BIT1            ;FUNCTION TEST BIT------<SWREG>
010000          SIDFLG  =       BIT12           ;SIDE FLAG SOFT-P TABLE-<SWREG>
000400          ITK     =       BIT8            ;INITIALIZE TRACKS FLAG         <TKSCFG>
001000          ISC     =       BIT9            ;INITIALIZE SECTORS FLAG        <TKSCFG>
000001          STK     =       BIT0            ;SEQUENCE TRACKS FLAG           <TKSCFG>
000002          SSC     =       BIT1            ;SEQUENCE SECTORS FLAG          <TKSCFG>
000000          RTK     =       0               ;RANDOM TRACKS FLAG             <TKSCFG>
000000          RSC     =       0               ;RANDOM SECTORS FLAG            <TKSCFG>
000004          ILTK    =       BIT2            ;ILLEGAL TRACKS FLAG            <TKSCFG>

                                ;***** DEVICE COMMANDS *****

000000          FBCMD   =       0               ;FILL BUFFER CMD
000002          EBCMD   =       2               ;EMPTY BUFFER CMD
000004          WSCMD   =       4               ;WRITE SECTOR
000006          RSCMD   =       6               ;READ SECTOR
000010          SDCMD   =       10              ;SET DENSITY
000012          STCMD   =       12              ;STATUS
000014          WDDCMD  =       14              ;WRITE DELETED DATA CMD
000016          RECCMD  =       16              ;READ ERROR CODE CMD
```

```
                        ;***** ERROR NUMBER EQUIVALENTS *****
                        
000002  WRTERR  =       2.      ;WRITE ERR                      -HRD
000003  RDERR   =       3.      ;READ ERR                       -HRD
000004  CRCERR  =       4.      ;CRC ERR                        -HRD
000005  DATER   =       5.      ;DATA ERR                       -HRD
000006  SEKERR  =       6.      ;SEEK ERR                       -HRD
000007  DLDERR  =       7.      ;DELETED DATA ERR               -HRD
                        ;-----------------------------------------------------------------
                        
000012  FILERR  =       10.     ;FILL BUFFER ERR                -HRD
000013  EMPERR  =       11.     ;EMPTY BUFFER ERR               -HRD
000014  INTNDN  =       12.     ;INTERRUPT, NO DONE ERR         -HRD
000015  DNNINT  =       13.     ;DONE, NO INTERRUPT ERR         -HRD
000016  ERRNST  =       14.     ;ERROR NOT SET ERR              -HRD
000017  ILLERC  =       15.     ;ILLEGAL ERROR CODE             -HRD
000020  DENDSK  =       16.     ;DENSITY OF DISK-NOT ERR        -HRD
000021  RECERR  =       17.     ;READ ERROR CODE ERR            -HRD
                        ;-----------------------------------------------------------------
                        
000023  WCERR   =       19.     ;WORD COUNT ERROR               -DVCFTL
000024  SDRDYE  =       20.     ;SIDE READY                     -DVCFTL
000025  DVRDYE  =       21.     ;DRIVE READY                    -DVCFTL
000026  SIDWRG  =       22.     ;SIDE WRONG                     -DVCFTL
000027  DRVWRG  =       23.     ;DRIVE WRONG                    -DVCFTL
000030  DENERR  =       24.     ;DENSITY ERR                    -DVCFTL
000031  DENMIX  =       25.     ;DENSITY MIXED ON DISK ERR      -DVCFTL
000032  DLDTER  =       26.     ;DELETED DATA ERR               -DVCFTL
000033  CSRERR  =       27.     ;RXCSR-ERR                      -DVCFTL
000034  DBRERR  =       28.     ;RXESR-ERR                      -DVCFTL
000035  STDNER  =       29.     ;SET DENSITY ERR                -DVCFTL
000036  SDKYWD  =       30.     ;SET DENSITY KEYWORD (VARIFY)   -DVCFTL
000037  ACLOWD  =       31.     ;AC LOW                         -DVCFTL
000040  ALGO2E  =       32.     ;ALGO2 ERROR                    -DVCFTL
000041  TRKAER  =       33.     ;TRACK ADDRESS                  -DVCFTL
000042  SECAER  =       34.     ;SECTOR ADDRESS                 -DVCFTL
                        ;-----------------------------------------------------------------
                        
000050  ACLOWF  =       40.     ;AC LOW FATAL ERR               -SYSFTL
000051  WCOVFE  =       41.     ;WORD COUNT OVERFLOW ERR        -SYSFTL
000052  NXMERR  =       42.     ;NON-EXISTENT MEMORY ERR        -SYSFTL
000053  NPRERR  =       43.     ;NPR LOGIC ERR                  -SYSFTL
000054  PRILEV  =       44.     ;PRIORITY LEVEL ERR             -SYSFTL
000055  DATABF  =       45.     ;DATA BUFFER INTEG ERR          -SYSFTL
000056  HDSFDG  =       46.     ;HARDWARE SELF DIAG ERR         -SYSFTL
000057  NOTRBT  =       47.     ;"TR" BIT TIME OUT ERR          -SYSFTL
000060  NODNBT  =       48.     ;"DONE" BIT TIBIT TIME OUT ERR  -SYSFTL
000061  NOITDB  =       49.     ;NO "INIT DONE" BIT ERR         -SYSFTL
000062  NOITDP  =       50.     ;NO PROG "INIT DONE" BIT ERR    -SYSFTL
000063  DNNOTR  =       51.     ;"DONE" BIT, NO "TR" BIT        -SYSFTL
                        ;-----------------------------------------------------------------
```

```
                                ;***** FRU CALLOUT MESSAGE EQUIVALENTS *****
000000                          INTERF  =       0               ;INTERFACE=0
000002                          CONTRL  =       2*1.    ;FRUM1  ;CONTROLLER
000004                          RWELEC  =       2*2.    ;FRUM2  ;R-W ELECTRONICS
000006                          PHYDRV  =       2*3.    ;FRUM3  ;PHYSICAL DRIVE
000010                          CABLES  =       2*4.    ;FRUM4  ;CABLES
000012                          POWRSP  =       2*5.    ;FRUM5  ;POWER SUPPLY
000014                          DISKET  =       2*6.    ;FRUM6  ;DISKETTE
000016                          INTFSW  =       2*7.    ;FRUM7  ;INTERFACE SWITCHES
000020                          NPRJPR  =       2*8.    ;FRUM8  ;NPR JUMPER
000022                          CONTSW  =       2*9.    ;FRUM9  ;CONTROLLER SWITCHES
000024                          INTFCB  =       2*10.   ;FRUM10 ;INTERFACE CABLE
000026                          DOOROP  =       2*11.   ;FRUM11 ;DOOR OPEN
000030                          DISKSP  =       2*12.   ;FRUM12 ;DISK SPINNING-DRIVE BELT
000032                          MOTOR   =       2*13.   ;FRUM13 ;MOTOR AC POWER NOT ROTATING
000034                          NOPWR   =       2*14.   ;FRUM14 ;POWER CORD, BLOWN FUSE, DRIVE POWER
                                                        ;CONNECTOR POWER SUPPLY FAULT.

                                ;***** TEST FLAGS REGISTER EQUIVALENTS (FLAGST) *****
000001                          REGCK   =       BIT0            ;REGISTER CHECK
000002                          DDCFLG  =       BIT1            ;DOUBLE DENSITY CONTROL FLAG (DD=1)
000004                          DATCK   =       BIT2            ;DATA CHECK
000010                          DLPDN   =       BIT3            ;DO LOOP DONE
000020                          EMBUFF  =       BIT4            ;EMPTY BUFFER-<USED BY DATA CHECK>
000040                          FUNTST  =       BIT5            ;FUNCTION TEST FLAG
000100                          HDRPRT  =       BIT6            ;ERROR CALL HEADER PRINT
000200                          RECFLG  =       BIT7            ;READ ERROR CODE FLAG
001000                          TRKDON  =       BIT9            ;TRACK DONE
002000                          SECDON  =       BIT10           ;SECTOR DONE
004000                          NEGTST  =       BIT11           ;NEGATIVE TEST FLAG
010000                          ILLGAL  =       BIT12           ;ILLEGAL FLAG
020000                          CKERR   =       BIT13           ;CHECK ERROR WORDS FLAG
040000                          HRDERR  =       BIT14           ;HARD ERROR
100000                          ERRFLG  =       BIT15           ;ERROR

                                ;***** PROGRAM/PRINT FLAGS REGISTER EQUIV (FLAGSP) *****

000001                          TKPRT   =       BIT0            ;TRACKS PRINT
000002                          SCPRT   =       BIT1            ;SECTORS PRINT
000004                          RGPRT   =       BIT2            ;REGISTERS PRINT
000010                          PROPRT  =       BIT3            ;PROTOCAL LEVEL PRINT
000100                          HDRPRT  =       BIT6            ;HEADER PRINT
000200                          RECTST  =       BIT7            ;ERROR CODE TEST (INVOKE ERROR CODE)
000400                          LSIFLG  =       BIT8            ;LSI FLAG
010000                          FONZFG  =       BIT12           ;FONZ FLAG
040000                          RESFLG  =       BIT14           ;RESTART FLAG
100000                          STAFLG  =       BIT15           ;START FLAG

                                ;***** "SYS ERR" & "TYP ERR" REGISTER EQUIVALENTS *****

000020                          CMDERR  =       BIT4            ;COMMAND ERROR
004000                          DVFERR  =       BIT11           ;DEVICE FATAL ERROR
002000                          SYFERR  =       BIT10           ;SYSTEM FATAL ERROR
```

```
                                .SBTTL  GLOBAL DATA SECTION

                                ;++
                                ; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                ; IN MORE THAN ONE TEST.
                                ;--
                                ; STORAGE FOR DEVICE REGISTERS
                                ;
                                ;-------------------------------------------------------------------------------
002350  000000                  RXCS:    .WORD   0       ;UNIT BUS ADR-CSR                <UUT *>  |
002352  000000                  RXDB:    .WORD   0       ;UNIT BUS ADR-DBR                <UUT *>  |
002354  000000                  VECT:    .WORD   0       ;UNIT VECTOR                     <UUT *>  |
002356  000000                  RXPRI:   .WORD   0       ;PRIORITY FOR DEVICE INTERRUPTS  <UUT *>  |  DEVICE
002360  000000                  EMPADR:  .WORD   0       ;EMPTY BUFFER ADDRESS                     |
002362  000000                  FILADR:  .WORD   0       ;FILL BUFFER ADDRESS                      |
002364  000000                  RECADR:  .WORD   0       ;READ ERROR CODE ADDRESS                  |  PARAMETERS
002366  000000                  EXTADR:  .WORD   0       ;EXTENDED ADDRESS (BITS: #12 & #13)       |
002370  000000                  WDCNT:   .WORD   0       ;WORD COUNT                               |
002372  000000                  VARIFY:  .WORD   0       ;VARIFY WORD                              |
002374  000000                  TRACK:   .WORD   0       ;TRACK ADR                                |
002376  000000                  SECTOR:  .WORD   0       ;SECTOR ADR                               |
                                ;-------------------------------------------------------------------------------
002400  000000                  CMD:     .WORD   0       ;COMMAND WORD-TO DEVICE                   |
002402  000000                  DELDAT:  .WORD   0       ;DELETED DATA FLAG & WORD        <CMD>    |  COMMAND
002404  000000                  INTERT:  .WORD   0       ;INTERRUPT WORD                  <CMD>    |
002406  000000                  DRIVE:   .WORD   0       ;DRIVE WORD                      <CMD*>   |
002410  000000                  SIDE:    .WORD   0       ;SIDE WORD                       <CMD*>   |  PARAMETERS
002412  000000                  DENSTY:  .WORD   0       ;DENSITY CONTROL WORD            <CMD>    |
002414  000000                  DENSTA:  .WORD   0       ;DENSITY STATUS WORD-DRIVE DENSITY         |
002416  000000                  PRIORT:  .WORD   0       ;PRIORITY OF INTERRUPT HANDLER-WATCH DOG   |
002420  000000                  DRVOFF:  .WORD   0       ;DRIVE BYTE OFFSET                        |
                                ;-------------------------------------------------------------------------------
002422  000000                  ERRCMD:  .WORD   0       ;ERROR COMMAND                            |  DEVICE
002424  000000                  LCMD:    .WORD   0       ;LAST COMMAND                             |  ERROR
002426  000000                  LRXCSR:  .WORD   0       ;LAST RX CSR STORAGE                      |
002430  000000                  LRXESR:  .WORD   0       ;LAST RX ESR STORAGE                      |  &
002432  000000                  RXCSR:   .WORD   0       ;RX CSR STORAGE                           |
002434  000000                  RXESR:   .WORD   0       ;RX ESR STORAGE                           |  STATUS
002436  000000                  REGEXP:  .WORD   0       ;REGISTER EXPECTED                        |  INFO
002440  000000                  REGACT:  .WORD   0       ;REGISTER ACTUAL                          |
                                ;-------------------------------------------------------------------------------
                                ;                                        * = INFO FROM HARDWARE P-TABLES
                                ;-------------------------------------------------------------------------------


                                .SBTTL -  READ ERROR CODE BUFFER
                                ;-------------------------------------------------------------------------
002442  000                     XERUUT:  .BYTE   0       ;ERROR CODE UUT
002443  000                     WC:      .BYTE   0       ;WORD COUNT UUT
002444  000                     CTK0.    .BYTE   0       ;CUR TRK DRV#0
002445  000                     CTK1:    .BYTE   0       ;CUR TRK DRV#1
002446  000                     TTRK:    .BYTE   0       ;TARGET TRACK
002447  000                     TSEC:    .BYTE   0       ;TARGET SECTOR
002450  000                     SFTSTS:  .BYTE   0       ;MICRO CODE SOFT STATUS
002451  000                     BTRK:    .BYTE   0       ;BAD TRACK ADR (ONLY APPLIES IF ERR CODE = 150
                                ;-------------------------------------------------------------------------
```

```
                        ;------------------------------------------------------------------------------------
002452  000000          ABORT:  .WORD   0       ;ABORT FLAG                                  !  TEST
002454  000000          FIN:    .WORD   0       ;FINI COMMAND FLAG                           !  ERROR
002456  000000          SYSERR: .WORD   0       ;SYSTEM ERROR                                !
002460  000000          TYPERR: .WORD   0       ;TYPE ERROR                                  !  &
002462  000000          RECERN: .WORD   0       ;READ ERROR CODE-ERROR NUMBER                !  STATUS
002464  000000          NGTSER: .WORD   0       ;NEG TEST EXPECTED ERROR                     !  INFO
                        ;------------------------------------------------------------------------------------
002466  000000          TSTID:  .WORD   0       ;TEST IDENT WORD                             !  TEST
002470  000000          TCMDCT: .WORD   0       ;TEST COMMAND COUNTER                        !
002472  000000          PROTCT: .WORD   0       ;PROTOCAL COUNT                              !  INFO
002474  000004          DNWTMT: .WORD   4       ;DONE WAIT MULTIPLIER                        !
                        ;------------------------------------------------------------------------------------
002476  000000          FLAGST: .WORD   0       ;SOFTWARE TEST FLAGS -> SEE BELOW            !  TEST
002500  000000          FLAGSP: .WORD   0       ;SOFTWARE PROG/PRT FLAGS-->SEE BELOW         !
002502  000004          FLGDRS: .WORD   4       ;FLAGS FROM 'DRS''                           !  CONTROL
002504  000000          TTEMP1: .WORD   0       ;TEST TEMP 1                                 !
002506  000000          TSAVE1: .WORD   0       ;TEST SAVE 1                                 !  FLAGS
002510  000000          TKSCFG: .WORD   0       ;TRACK & SECTORS FLAGS --> SEE BELOW         !
                        ;------------------------------------------------------------------------------------
002512  000000          UNTPRT: .WORD   0       ;UNIT #-PRINT                                !  DEVICE
002514     000          DRVPRT: .BYTE   0       ;DRIVE #-PRINT                               !  PRINT
002515     000          SIDPRT: .BYTE   0       ;SIDE #-PRINT                                !
                        ;------------------------------------------------------------------------------------
002516                  ERRTBL
002516  000000          ERRTYP::        .WORD   0
002520  000000          ERRNBR::        .WORD   0
002522  000000          ERRMSG::        .WORD   0
002524  000000          ERRBLK::        .WORD   0
                        ;-----------------------------------------------------------------------------
                        ;       ***** SOFTWARE REGISTER DEFINITIONS *****
                        ;-----------------------------------------------------------------------------
                        ;                !           !           !           !           !               !
                        ;        ! 15! 14! 13! 12! 11! 10! 09! 08! 07! 06! 05! 04! 03! 02! 01! 00!
                        ;        !---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---!
                        ;        !ERR!ERR!DON!ITR!WRT! RD!FIL!UNK!   ! DD! DD!   !   ! CK!   !   !
                        ;TYPERR: !BIT!NOT! NO! NO!ERR!ERR!EMP!ERR! - !MIS!UNX!CMD!DAT!SUM!SEK!CRC!
                        ;        !   !SET!ITR!DON!   !   !ERR!   !   !   !   !ERR!   !   !   !   !
                        ;=======!===+===+===+===+===+===+===+===+===+===+===+===+===+===+===+===!
                        ;        !   !   !   !   !   !   ! WRONG !TR !SID!DRV!NO DONE! FUNCTION  !
                        ;SYSERR: !UN     !DEN!       !DVF!SYF!-------!TO !RDY!RDY!-------!  CAUSING  !
                        ;        !ERR!   !ERR!       !ERR!ERR!SID!DRV!ERR!ERR!ERR!FUN!INT!   ERROR   !
                        ;=======+===+===+===+===+===+===+===+===+===+===+===+===+===+===+===+===!
                        ;FLAGST: !ERR!HRD! CK!ILL!NEG!SEC!TRK!RTY!REC!HDR!FUN!EMB!DLP!DAT!DDC!REG!
                        ;        !FLG!ERR!ERR!GAL!TST!DON!DON!ENB!FLG!PRT!TST!UFF!DN :  CK!FLG! CK!
                        ;=======================================================================!
                        ;FLAGSP: !STA!RES!                       !LSI!REC!HDR!   !   !PRO!RG !SC !TK !
                        ;        !FLG!FLG!                       !FLG!TST!PRT!   !   !PRT!PRT!PRT!PRT!
                        ;========================================================================
                        ;TKSCFG: !   !   !   !   !   !   ! I ! I !   !   !   !   !   !IL ! S ! S !
                        ;        !   !   !   !   !   !   !SC !TK !   !   !   !   !   !TK !SC !TK !
                        ;========================================================================
                        ;NOTE:  RXXX IS REFERENCE FOR FURTHER EXPANSION
```

```
                                .SBTTL  GLOBAL TEXT SECTION

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

                                ;
                                ; NAMES OF DEVICES SUPPORTED BY PROGRAM
                                ;



                                ;
                                ; FORMAT STATEMENTS USED IN PRINT CALLS
                                ;
```

```
                                .SBTTL  GLOBAL ERROR REPORT SECTION

                                ;++
                                ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX CALLS
                                ; THAT ARE USED IN MORE THAN ONE TEST.  IT ALSO INCLUDES THE ASCII MESSAGES
                                ; THAT ARE USED BY THE PRINTB AND PRINTX CALLS..
                                ;--


                                ;-------------------------------------------------------------------------
002526                                  BGNMSG  PRTB0
002526  004737  002550                  CALL    PRTB0S
002532                                  ENDMSG
                                ;-------------------------------------------------------------------------
002534                                  BGNMSG  PRTB1
002534  004737  002570                  CALL    PRTB1S
002540                                  ENDMSG
                                ;-------------------------------------------------------------------------
002542                                  BGNMSG  PRTB2
002542  004737  002612                  CALL    PRTB2S
002546                                  ENDMSG
                                ;-------------------------------------------------------------------------
002550                          PRTB0S: PRINTB  R1
002566  000207                          RETURN                          ;RETURN
                                ;-------------------------------------------------------------------------
002570                          PRTB1S: PRINTB  R1,R2
002610  000207                          RETURN                          ;RETURN
                                ;-------------------------------------------------------------------------
002612                          PRTB2S: PRINTB  R1,R2,R3
002634  000207                          RETURN                          ;RETURN
                                ;-------------------------------------------------------------------------
002636                          PRTB3S: PRINTB  R1,R2,R3,R4
002662  000207                          RETURN                          ;RETURN
                                ;-------------------------------------------------------------------------
002664                          PRTB4S: PRINTB  R1,R2,R3,R4,R5
002712  000207                          RETURN                          ;RETURN
                                ;-------------------------------------------------------------------------
002714                          PRTX0S: PRINTX  R1
002732  000207                          RETURN
                                ;-------------------------------------------------------------------------
002734                          PRTX1S: PRINTX  R1,R2
002754  000207                          RETURN
                                ;-------------------------------------------------------------------------
002756                          PRTX2S: PRINTX  R1,R2,R3
003000  000207                          RETURN
                                ;-------------------------------------------------------------------------
003002                          PRTX3S: PRINTX  R1,R2,R3,R4
003026  000207                          RETURN
                                ;-------------------------------------------------------------------------
003030                          PRTX4S: PRINTX  R1,R2,R3,R4,R5
003056  000207                          RETURN
                                ;-------------------------------------------------------------------------
```

```
                        .SBTTL -  MOD U.ERR.ERR - ERROR
                        ;-------------------------------------------------------------------------
                        ; BGNSUB       ERR
                        ;       IF ERR NBR NOT=0                                          [F]
                        ;       : THEN-SET ERR SAVE = ERR NUMBER
                        ;       :       CALL ERROR NUMBER EVALUATION
                        ;       :       SETUP ERROR BLOCK CODE ADDRESS
                        ;       :       CALL PRINT ERROR TYPE
                        ;       :       IF PROGRAM FLAGS-PRT REGS ???? SET                [J]
                        ;       :       THEN-IF ERRNBR=CSR ERROR                          [I]
                        ;       :       :     : THEN-CALL PRINT REGS
                        ;       :       :   ENDIF
                        ;       :       ENDIF
                        ;       :       IF COMMAND ERROR SET IN TYPERR                    [B]
                        ;       :       : THEN-CALL PRINT COMMAND ERROR
                        ;       :       ENDIF
                        ;       :       IF FUNCTION TEST NOT SET                          [A]
                        ;       :       : THEN-IF PRINT FLAGS=REGS PRINT                  [E]
                        ;       :       :       : THEN-CALL REGISTERS PRINT
                        ;       :       :       ENDIF
                        ;       :       :       IF PRINT FLAG=SECTOR PRINT                [G]
                        ;       :       :       : THEN-CALL SECTOR PRINT
                        ;       :       :       ENDIF
                        ;       :       :       IF PRINT FLAG=TRACK PRINT                 [C]
                        ;       :       :       : THEN-CALL TRACKS PRINT
                        ;       :       :       ENDIF
                        ;       :       :       CALL PRINT FRU
                        ;       :       :       CALL PRINT UNIT STATUS
                        ;       :       : ELSE-IF SWITCH REGISTER BIT #14 SET             [D]
                        ;       :       :       : THEN-CALL PRINT UNIT STATUS
                        ;       :       :       ENDIF
                        ;       :       ENDIF
                        ;       :       IF ERR SAVE = ERR OLD                             [K]
                        ;       :       : THEN - INCREMENT ERROR CTR
                        ;       :       :       IF ERROR CTR = 10 ERRORS                  [L]
                        ;       :       :       : THEN - SET ABORT = 20
                        ;       :       :       ENDIF
                        ;       :       : ELSE - SET ERR OLD = ERR SAVE
                        ;       :       :       CLEAR ERR SAVE
                        ;       :       :       CLEAR ERR CTR
                        ;       :       ENDIF
                        ;       :       CALL CLEAR ERRORS
                        ;       ENDIF
                        ; ENDSUB
                        ;-------------------------------------------------------------------------
```

```
 938 003060  000240                 ERROR:  NOP                     ;
 939 003062  005737  002520          IFERR:  TST     ERRNBR          ;IF ERR NBR,
 940 003066  001520                          BEQ     EFERR           ;NOT=0, THEN
 941 003070  013737  002520  003336          MOV     ERRNBR,ERRSAV   ;SAVE ERROR NUMBER
 942 003076  004737  003344                  CALL    ERNBEV          ;CALL ERROR NUMBER EVALUATION
 943 003102  012737  003502  002524          MOV     #ERIDNT,ERRBLK  ;SETUP ERROR BLOCK CODE ADDRESS
 944 003110  004737  003474                  CALL    PTERTY          ;CALL PRINT ERROR TYPE
 945 003114  032737  000004  002500  IJERR:  BIT     #RGPRT,FLAGSP   ;IF PROGRAM FLAG-PRT FLAG
 946 003122  001006                          BNE     IBERR           ;NOT SET, THEN
 947 003124  022737  000033  002520  IIERR:  CMP     #CSRERR,ERRNBR  ;IF CSR ERR
 948 003132  001002                          BNE     IBERR           ;THEN,
 949 003134  004737  007564                  CALL    PRTREG          ;CALL PRINT REGS
 950 003140  032737  000020  002460  IBERR:  BIT     #CMDERR,TYPERR  ;IF TYPERR-COMMAND ERROR
 951 003146  001402                          BEQ     IAERR           ;SET, THEN
 952 003150  004737  007040                  CALL    PRTCDE          ;CALL PRINT COMMAND ERRORS
 953 003154  032737  000040  002476  IAERR:  BIT     #FUNTST,FLAGST  ;IF FLAGS-FUNCTION TEST
 954 003162  001027                          BNE     IDERR           ;NOT SET, THEN
 955 003164  032737  000004  002500  IEERR:  BIT     #RGPRT,FLAGSP   ;IF PROGRAM FLAGS=REGS PRINT
 956 003172  001402                          BEQ     IGERR           ;THEN
 957 003174  004737  007564                  CALL    PRTREG          ;CALL PRINT REGS
 958 003200  032737  000002  002500  IGERR:  BIT     #SCPRT,FLAGSP   ;IF PROGRAM FLAG=SECTOR
 959 003206  001402                          BEQ     ICERR           ;BIT SET, THEN
 960 003210  004737  007674                  CALL    PRTSEC          ;
 961 003214  032737  000001  002500  ICERR:  BIT     #TKPRT,FLAGSP   ;IF PROGRAM FLAGS=TRK PRINT
 962 003222  001402                          BEQ     ECERR           ;BIT SET, THEN
 963 003224  004737  010002                  CALL    PRTTRK          ;CALL PRINT TRACKS
 964 003230  004737  005404          ECERR:  CALL    PRTFRU          ;CALL PRINT FRU
 965 003234  004737  015240                  CALL    PRTSTA          ;CALL PRINT UNIT STATUS
 966 003240  000406                          BR      EAERR           ;BR TO END 'A'
 967 003242  032737  040000  002332  IDERR:  BIT     #BIT14,SWREG    ;IF SWITCH REG BIT 14
 968 003250  001402                          BEQ     EAERR           ;SET, THEN
 969 003252  004737  015240                  CALL    PRTSTA          ;CALL PRINT UNIT STATUS
 970 003256  000240                 EAERR:  NOP                     ;
 971 003260  023737  003336  003340  IKERR:  CMP     ERRSAV,ERROLD   ;IF SAVED ERR & OLD ERR
 972 003266  001011                          BNE     LKERR           ;EQUAL, THEN
 973 003270  005237  003342                  INC     ERRCTR          ;INCREMENT ERR CTR
 974 003274  022737  000012  003342  ILERR:  CMP     #10.,ERRCTR     ;IF 10 ERRS OF SAME KIND
 975 003302  012737  000020  002452          MOV     #20,ABORT       ;SET ABORT FLAG
 976 003310  000407                          BR      EFERR           ;BR TO END 'F'
 977 003312  013737  003336  003340  LKERR:  MOV     ERRSAV,ERROLD   ;SETUP OLD ERR FOR NEXT CK
 978 003320  005037  003336                  CLR     ERRSAV          ;CLEAR OUT SAVED ERR
 979 003324  005037  003342                  CLR     ERRCTR          ;CLEAR ERR CTR
 980 003330  004737  010300          EFERR:  CALL    CLRERR          ;CALL CLEAR ERRORS
 981 003334  000207                 XERROR: RETURN                  ;RETURN
 982                                 ;-------------------------------------------------------------------
 983 003336  000000                 ERRSAV: 0                       ;SAVED ERR
 984 003340  000000                 ERROLD: 0                       ;OLD ERR
 985 003342  000000                 ERRCTR: 0                       ;ERR CTR
 986                                 ;-------------------------------------------------------------------
```

```
                                .SBTTL -  MOD U.SFT.ENV - ERROR NUMBER EVALUATION
                                ;-------------------------------------------------------------------
                                ; BGNSUB
                                ;       IF ERR NBR > 39.                                        [A]
                                ;       :  THEN-SET SYSTEM FATAL ERR->ERRTYP
                                ;       :  ELSE
                                ;       :    IF ERR NBR > 19.                                   [B]
                                ;       :    :  THEN-SET DEVICE FATAL ERR->ERRTYP
                                ;       :    :  ELSE
                                ;       :    :    IF ERR NBR > 0.                               [D]
                                ;       :    :    :  THEN-SET HARD ERR->ERRTYP
                                ;       :    :    :    ENDIF
                                ;       :    :  ENDIF
                                ;       :  ENDIF
                                ;       IF ERRTYP=HARD ERROR                                    [F]
                                ;       :  THEN-
                                ;       :    IF EVAL SET IN DRS FLAGS                           [G]
                                ;       :    :  THEN-INCREMENT HARD ERR THRESHOLD LEVEL
                                ;       :    :    IF HARD ERR THRESHOLD LEVEL=SET LEVEL         [H]
                                ;       :    :    :  THEN-SET DEV FATAL ERR->ERRTYP
                                ;       :    :  ENDIF
                                ;       :  ENDIF
                                ;       ENDIF
                                ; ENDSUB
                                ;-------------------------------------------------------------------
003344  000240                  ERRNBEV: NOP                    ;
003346  022737  000047  002520  IAENV:   CMP     #39.,ERRNBR     ;IF ERR NBR > 39.
003354  101003                          BHI     IBENV           ;THEN
003356  005037  002516                  CLR     ERRTYP          ;SET ERRTYP=SYS FTL
003362  000416                          BR      IFENV           ;BR TO IF 'F'
003364  022737  000023  002520  IBENV:   CMP     #19.,ERRNBR     ;IF ERR NBR > 19.
003372  101004                          BHI     IDENV           ;THEN
003374  012737  000001  002516          MOV     #1,ERRTYP       ;SET ERRTYP=DVC FTL
003402  000406                          BR      IFENV           ;BR TO IF 'F'
003404  005737  002520  IDENV:   TST     ERRNBR          ;IF ERR NBR > 0
003410  001403                          BEQ     IFENV           ;THEN
003412  012737  000002  002516          MOV     #2,ERRTYP       ;SET ERRTYP=HARD ERR
003420  022737  000002  002516  IFENV:   CMP     #2,ERRTYP       ;IF ERRTYP = HARD ERR
003426  001017                          BNE     EFENV           ;THEN
003430  032737  000004  002502  IGENV:   BIT     #BIT2,FLGDRS    ;IF EVAL IN DRS FLAGS
003436  001413                          BEQ     EFENV           ;SET, THEN
003440  005237  003472                  INC     HETLCT          ;INCREMENT HARD ERR THRESHOLD LEVEL CTR
003444  023737  002320  003472  IHENV:   CMP     DVTL,HETLCT     ;IF DEVICE FTL THRES LVL=SFT LEV
003452  101005                          BHI     EFENV           ;THEN
003454  012737  000001  002516          MOV     #1,ERRTYP       ;SET ERRTYP=DEV FTL ERR
003462  005037  003472                  CLR     HETLCT          ;CLEAR HARD ERR THRES LVL CTR
003466  000240                  EFENV:  NOP                     ;
003470  000207                  XERNBE: RETURN                  ;RETURN
                                ;-------------------------------------------------------------------
003472  000000                  HETLCT: 0                       ;HARD ERROR THRESHOLD LEVEL CTR
                                ;-------------------------------------------------------------------
```

```
1048                                .SBTTL -  MOD U.PRT.PET - PRINT ERROR TYPE
1051                                ;-------------------------------------------------------------------------
1052                                ; BGNSUB
1053                                ;       CALL ERROR - REVC
1054                                ; ENDSUB
1055                                ;-------------------------------------------------------------------------
1056
1057 003474  000240                PTERTY: NOP                     ;
1058 003476                               ERROR                   ;
1059 003500  000207                       RETURN                  ;RETURN
1060                                ;-------------------------------------------------------------------------
1120
1121                                .SBTTL -  MOD U.ERR.IDT - GET & PRINT ERROR IDENTIFICATION MESSAGE
1122                                ;-------------------------------------------------------------------------
1123                                ;
1124                                ; BGNMSG        ERIDENT
1125                                ;       LET R1=ERROR #
1126                                ;       DOUBLE R1 FOR ADDRESSING - MESSAGE OFFSET
1127                                ;       LET R1=ERR MSG TABLE ADD + MESSAGE OFFSET
1128                                ;       PRINT BASIC R1
1129                                ;       PUT MESSAGE TABLE ADDRESS IN R1
1130                                ;       PRINT BASIC R1
1131                                ; ENDMSG
1132                                ;-------------------------------------------------------------------------
1133
1134 003502                               BGNMSG  ERIDNT
1135 003502  013701  002520               MOV     ERRNBR,R1       ;GET ERR #
1136 003506  006301                       ASL     R1              ;DOUBLE IT FOR ADDRESSING
1137 003510  000240                       NOP                     ;
1138 003512  016101  003534               MOV     ERMSTB(R1),R1   ;GET ERR MSG ADR FROM TABLE
1139 003516  004737  002550               CALL    PRTBOS          ;CALL PRINT BASIC NO ARG
1140 003522  013701  003534               MOV     ERMSTB,R1       ;GET REST OF ERR MSG FROM TABLE
1141 003526  004737  002550               CALL    PRTBOS          ;CALL PRINT BASIC NO ARG
1142 003532                               ENDMSG
1143                                ;-------------------------------------------------------------------------
```

```
1146                                ;    ERROR MESSAGE TABLE        ERROR DESCRIPTION                -CLASS
1147                                ;-------------------------------------------------------------------------
1148 003534  003706                ERMSTB: .WORD   ERMS0    ;ERROR  ;
1149 003536  003706                        .WORD   ERMS0    ;ERR#0  ;
1150 003540  003717                        .WORD   ERMS2    ;ERR#2  ;WRITE                           -HARD
1151 003542  003731                        .WORD   ERMS3    ;ERR#3  ;READ                            -HARD
1152 003544  003742                        .WORD   ERMS4    ;ERR#4  ;CRC                             -HARD
1153 003546  003752                        .WORD   ERMS5    ;ERR#5  ;DATA ERR                        -HARD
1154 003550  003763                        .WORD   ERMS6    ;ERR#6  ;SEEK                            -HARD
1155 003552  003774                        .WORD   ERMS7    ;ERR#7  ;DEL DATA                        -HARD
1156 003554  003706                        .WORD   ERMS0    ;ERR#8  ;                                -HARD
1157 003556  003706                        .WORD   ERMS0    ;ERR#9  ;                                -HARD
1158 003560  004015                        .WORD   ERMS10   ;ERR#10 ;FILL BUFFER                     -HARD
1159 003562  004035                        .WORD   ERMS11   ;ERR#11 ;EMPTY BUFFER                    -HARD
1160 003564  004056                        .WORD   ERMS12   ;ERR#12 ;INTR-NO DONE                    -HARD
1161 003566  004112                        .WORD   ERMS13   ;ERR#13 ;DONE-NO INTR                    -HARD
1162 003570  004146                        .WORD   ERMS14   ;ERR#14 ;ERR-NOT SET                     -HARD
1163 003572  004177                        .WORD   ERMS15   ;ERR#15 ;ILLEG ERR CODE                  -HARD
1164 003574  004226                        .WORD   ERMS16   ;ERR#16 ;DISK DENSITY MIXED OR WRG       -HARD
1165 003576  004264                        .WORD   ERMS17   ;ERR#17 ;READ ERROR CODE-ERROR WRG       -HARD
1166 003600  003706                        .WORD   ERMS0    ;ERR#18 ;
1167 003602  004314                        .WORD   ERMS19   ;ERR#19 ;WORD COUNT
1168 003604  004333                        .WORD   ERMS20   ;ERR#20 ;SIDE NOT RDY                    -DEVFTL
1169 003606  004356                        .WORD   ERMS21   ;ERR#21 ;DRIVE NOT RDY                   -DEVFTL
1170 003610  004402                        .WORD   ERMS22   ;ERR#22 ;SIDE RESPONDING WRG             -DEVFTL
1171 003612  004434                        .WORD   ERMS23   ;ERR#23 ;DRIVE RESPONDING WRG            -DEVFTL
1172 003614  004467                        .WORD   ERMS24   ;ERR#24 ;DENSITY                         -DEVFTL
1173 003616  004503                        .WORD   ERMS25   ;ERR#25 ;DENSITY DISK                    -DEVFTL
1174 003620  004532                        .WORD   ERMS26   ;ERR#26 ;DEL DATA                        -DEVFTL
1175 003622  004553                        .WORD   ERMS27   ;ERR#27 ;CSR                             -DEVFTL
1176 003624  004564                        .WORD   ERMS28   ;ERR#28 ;DBR                             -DEVFTL
1177 003626  003706                        .WORD   ERMS0    ;ERR#29 ;                                -DEVFTL
1178 003630  004625                        .WORD   ERMS30   ;ERR#30 ;SET DENSITY KEYWORD             -DEVFTL
1179 003632  004655                        .WORD   ERMS31   ;ERR#31 ;AC LOW                          -DEVFTL
1180 003634  004670                        .WORD   ERMS32   ;ERR#32 ;ALGO2                           -DEVFTL
1181 003636  004711                        .WORD   ERMS33   ;ERR#33 ;TRACK ADDRESS                   -DEVFTL
1182 003640  004733                        .WORD   ERMS34   ;ERR#34 ;SECTOR ADDRESS                  -DEVFTL
1183 003642  003706                        .WORD   ERMS0    ;ERR#35 ;
1184 003644  003706                        .WORD   ERMS0    ;ERR#36 ;
1185 003646  003706                        .WORD   ERMS0    ;ERR#37 ;
1186 003650  003706                        .WORD   ERMS0    ;ERR#38 ;
1187 003652  003706                        .WORD   ERMS0    ;ERR#39 ;
1188 003654  004756                        .WORD   ERMS40   ;ERR#40 ;AC LOW FATAL                    -SYSFTL
1189 003656  004777                        .WORD   ERMS41   ;ERR#41 ;WORD COUNT OVERFLOW             -SYSFTL
1190 003660  005027                        .WORD   ERMS42   ;ERR#42 ;NON-EXISTENT MEM                -SYSFTL
1191 003662  005054                        .WORD   ERMS43   ;ERR#43 ;NON PROCESSOR REQUEST           -SYSFTL
1192 003664  005102                        .WORD   ERMS44   ;ERR#44 ;PRIORITY LEVEL                  -SYSFTL
1193 003666  005125                        .WORD   ERMS45   ;ERR#45 ;DATA BUFFER INTEG               -SYSFTL
1194 003670  005153                        .WORD   ERMS46   ;ERR#46 ;HARDWARE SELF DIAG              -SYSFTL
1195 003672  005202                        .WORD   ERMS47   ;ERR#47 ;"TR" BIT TIME OUT               -SYSFTL
1196 003674  005230                        .WORD   ERMS48   ;ERR#48 ;"DONE" BIT TIME OUT             -SYSFTL
1197 003676  005260                        .WORD   ERMS49   ;ERR#49 ;NO BUS "INIT DONE"              -SYSFTL
1198 003700  005307                        .WORD   ERMS50   ;ERR#50 ;NO PROG "INIT DONE"             -SYSFTL
1199 003702  005337                        .WORD   ERMS51   ;ERR#51 ;"DONE" SET->WAITING FOR "TR" BIT-SYSFTL
1200 003704  003706                        .WORD   ERMS0    ;ERR#52 ;                                -SYSFTL
1201                                ;-------------------------------------------------------------------------
```

```
1204                                    .SBTTL -    ERROR MESSAGES
1205                                    ;-------------------------------------------------------------------------
1206 003706     045     101     040    ERMS0:  .ASCIZ  /%A ERROR/
1207                                    ;ERMS1: .ASCIZ  /%A  1 ?/
1208 003717     045     101     040    ERMS2:  .ASCIZ  /%A  WRITE/
1209 003731     045     101     040    ERMS3:  .ASCIZ  /%A  READ/
1210 003742     045     101     040    ERMS4:  .ASCIZ  /%A  CRC/
1211 003752     045     101     040    ERMS5:  .ASCIZ  /%A  DATA/
1212 003763     045     101     040    ERMS6:  .ASCIZ  /%A  SEEK/
1213 003774     045     101     040    ERMS7:  .ASCIZ  /%A  DELETED DATA/
1214                                    ;ERMS8: .ASCIZ  /%A  8 ?/
1215                                    ;ERMS9: .ASCIZ  /%A  9 ?/
1216 004015     045     101     040    ERMS10: .ASCIZ  /%A  FILL BUFFER/
1217 004035     045     101     040    ERMS11: .ASCIZ  /%A  EMPTY BUFFER/
1218 004056     045     101     040    ERMS12: .ASCIZ  /%A  INTERRUPT-NO "DONE" BIT/
1219 004112     045     101     040    ERMS13: .ASCIZ  /%A  "DONE" BIT-NO INTERRUPT/
1220 004146     045     101     040    ERMS14: .ASCIZ  /%A  ERROR BIT NOT SET-ON/
1221 004177     045     101     040    ERMS15: .ASCIZ  /%A  ILLEGAL ERROR CODE/
1222 004226     045     101     040    ERMS16: .ASCIZ  /%A  DISK DENSITY MIXED OR WRG/
1223 004264     045     101     040    ERMS17: .ASCIZ  /%A  RD ERR CODE-ERR WRG/
1224                                    ;ERMS18: .ASCIZ /%A  18 ?/
1225 004314     045     101     040    ERMS19: .ASCIZ  /%A  WORD COUNT/
1226 004333     045     101     040    ERMS20: .ASCIZ  /%A  SIDE NOT READY/
1227 004356     045     101     040    ERMS21: .ASCIZ  /%A  DRIVE NOT READY/
1228 004402     045     101     040    ERMS22: .ASCIZ  /%A  WRONG SIDE RESPONDING/
1229 004434     045     101     040    ERMS23: .ASCIZ  /%A  WRONG DRIVE RESPONDING/
1230 004467     045     101     040    ERMS24: .ASCIZ  /%A  DENSITY/
1231 004503     045     101     040    ERMS25: .ASCIZ  /%A  DISK-MIXED DENSITY/
1232 004532     045     101     040    ERMS26: .ASCIZ  /%A  DELETED DATA/
1233 004553     045     101     040    ERMS27: .ASCIZ  /%A  CSR-/
1234 004564     045     101     040    ERMS28: .ASCIZ  /%A  DBR-/
1235 004575     045     101     040    ERMS29: .ASCIZ  /%A  DENSITY DID NOT SET/
1236 004625     045     101     040    ERMS30: .ASCIZ  /%A  SET DENSITY KEYWORD/
1237 004655     045     101     040    ERMS31: .ASCIZ  /%A  AC LOW/
1238 004670     045     101     040    ERMS32: .ASCIZ  /%A  ALGO2 FAILED/
1239 004711     045     101     040    ERMS33: .ASCIZ  /%A  TRACK ADDRESS/
1240 004733     045     101     040    ERMS34: .ASCIZ  /%A  SECTOR ADDRESS/
1241                                    ;ERMS35: .ASCIZ /%A  35 ?/
1242                                    ;ERMS36: .ASCIZ /%A  36 ?/
1243                                    ;ERMS37: .ASCIZ /%A  37 ?/
1244                                    ;ERMS38: .ASCIZ /%A  38 ?/
1245                                    ;ERMS39: .ASCIZ /%A  39 ?/
1246 004756     045     101     040    ERMS40: .ASCIZ  /%A  AC LOW FATAL/
1247 004777     045     101     040    ERMS41: .ASCIZ  /%A  WORD COUNT OVERFLOW/
1248 005027     045     101     040    ERMS42: .ASCIZ  /%A  NON-EXISTENT MEM/
1249 005054     045     101     040    ERMS43: .ASCIZ  /%A  NON-PROCESSOR REQ/
1250 005102     045     101     040    ERMS44: .ASCIZ  /%A  PRIORITY LEVEL/
1251 005125     045     101     040    ERMS45: .ASCIZ  /%A  DATA BUFFER INTEG/
1252 005153     045     101     040    ERMS46: .ASCIZ  /%A  HARDWARE SELF DIAG/
1253 005202     045     101     040    ERMS47: .ASCIZ  /%A  "TR" BIT TIME OUT/
1254 005230     045     101     040    ERMS48: .ASCIZ  /%A  "DONE" BIT TIME OUT/
1255 005260     045     101     040    ERMS49: .ASCIZ  /%A  NO BUS "INIT DONE"/
1256 005307     045     101     040    ERMS50: .ASCIZ  /%A  NO PROG "INIT DONE"/
1257 0053??     045     101     040    ERMS51: .ASCIZ  /%A  "DONE" SET->WAITING FOR "TR" BIT/
1258                                    ;ERMS52: .ASCIZ /%A  52 ?/
1259                                            .EVEN   ;800. BYTES-->680.
1260
```

```
1261                    ;
1262                    ; BIT-NAMES FOR THE DEVICE REGISTERS
1263                    ;
1264
1265                    .SBTTL -  MOD U.SFT.FRU - GET & PRINT FRU'S IDENT
1266                    ;-----------------------------------------------------------------------
1267                    ; BGNSUB - GET/PRINT FRU-<GPFRU>
1268                    ;       IF FINI FLAG SET                                        [A]
1269                    ;       :  THEN-GET FINI FRU TABLE ADDRESS
1270                    ;       :  ELSE-IF ERR CODE NOT=0 & FLAGS=PRINT ERROR CODE SET  [B]
1271                    ;       :       :  THEN-GET ERROR CODE
1272                    ;       :       :       CLEAR TOP BYTE & SHIFT RT 2 FOR ADDRESSING
1273                    ;       :       :       GET ERROR CODE FRU TABLE ADDRESS
1274                    ;       :       :       FIND ERROR CODE FRU TABLE ADDRESS FROM TABLE
1275                    ;       :       :       SET TABLE ADDRESS
1276                    ;       :       :  ELSE-GET TEST TABLE ADDRESS
1277                    ;       :       :       DOWHILE TABLE ENTRY NOT=-1              [C]
1278                    ;       :       :       :  ADVANCE TABLE ADDRESS POINTER
1279                    ;       :       :       ENDDO
1280                    ;       :       :       DOWHILE TABLE ENTRY NOT=-1              [D]
1281                    ;       :       :       :  ADVANCE TABLE ADDRESS POINTER
1282                    ;       :       :       ENDDO
1283                    ;       :       :       ADVANCE TABLE ADDRESS POINTER
1284                    ;       :       :       DOUBLE TEST          TER
1285                    ;       :       :       FRU TABLE ADDRESS THIS TEST SEQ=TABLE ADR PTR+TEST
1286                    ;       :       ENDIF
1287                    ;       ENDIF
1288                    ;       SETUP & PRINT FRU HEADER
1289                    ;       DOWHILE TABLE ENTRY NOT=-1                              [E]
1290                    ;       :  IF FRU TABLE ENTRY=0                                 [F]
1291                    ;       :  :  THEN-IF LSI PROCESSOR                             [G]
1292                    ;       :  :       :  THEN-SET FRU PRINT=INTERFACE-M8029  (LSI)
1293                    ;       :  :       :  ELSE-SET FRU PRINT=INTERFACE-M8256 (UNIBUS)
1294                    ;       :  :       ENDIF
1295                    ;       :  :       CALL FRU PRINT
1296                    ;       :  :  ELSE-SET FRU PRINT=TABLE ENTRY
1297                    ;       :  :       CALL FRU PRINT
1298                    ;       :  ENDIF
1299                    ;       :  ADVANCE TABLE ADDRESS
1300                    ;       ENDDO
1301                    ;       NOP
1302                    ; ENDSUB
1303                    ;-----------------------------------------------------------------------
```

```
GLOBAL AREAS    MACRO M1200  14-DEC-82 16:33  PAGE 31
-  MOD U.SFT.FRU - GET & PRINT FRU'S IDENT

1306 005404  000240                  PRTFRU: NOP                     ;
1307 005406  005737  002454          IAFRU:  TST     FIN             ;IF FINI FLAG
1308 005412  001404                          BEQ     IBFRU           ;SET, THEN
1309 005414  012737  006640  005610          MOV     #TOFTO,FRUTAD   ;SET FRU TBL ADR=FINI FRU TBL ADR
1310 005422  000431                          BR      EAFRU           ;BR TO WHILE 'E'
1311 005424  105737  002442          IBFRU:  TSTB    XERUUT          ;IF ERROR CODE
1312 005430  001412                          BEQ     LBFRU           ;NOT=0, AND
1313 005432  032737  000200  002476          BIT     #RECFLG,FLAGST  ;FLAGS-READ ERROR CODE BIT
1314 005440  001406                          BEQ     LBFRU           ;SET, THEN
1315 005442  004737  017106                  CALL    GTECOF          ;CALL GET ERROR CODE OFFSET
1316 005446  016137  006660  005610          MOV     TOFTB(R1),FRUTAD  ;GET ERROR CODE FRU TABLE ADDRESS
1317 005454  000414                          BR      EAFRU           ;BR TO WHILE 'E'
1318 005456  013701  002466          LBFRU:  MOV     TSTID,R1        ;GET TEST TABLE ADDRESS
1319 005462  005721                  WCFRU:  TST     (R1)+           ;DO WHILE TABLE ENTRY NOT=-1
1320 005464  100376                          BPL     WCFRU           ;ADVANCE TABLE ADDRESS
1321 005466  005721                  WDFRU:  TST     (R1)+           ;DO WHILE TABLE ENTRY NOT=-1
1322 005470  100376                          BPL     WDFRU           ;ADVANCE TABLE ADDRESS
1323 005472  013702  002470                  MOV     TCMDCT,R2       ;GET TEST COMMAND CTR
1324 005476  006302                          ASL     R2              ;DOUBLE IT
1325 005500  060201                          ADD     R2,R1           ;SETUP FRU TABLE ADDRESS
1326 005502  011137  005610                  MOV     (R1),FRUTAD     ;SET FRU TABLE ADR=ABOVE ADDRESS
1327 005506  012701  005650          EAFRU:  MOV     #FRUM00,R1      ;SET FRU MSG HEADER
1328 005512  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-NO ARG
1329 005516  105777  000066          WEFRU:  TSTB    @FRUTAD         ;DO WHILE TABLE ENTRY
1330 005522  100430                          BMI     EEFRU           ;NOT=-1
1331 005524  105777  000060          IFFRU:  TSTB    @FRUTAD         ;IF TABLE ENTRY
1332 005530  001014                          BNE     LFFRU           ;EQUALS 0, THEN
1333 005532  032737  000400  002500  IGFRU:  BIT     #LSIFLG,FLAGSP  ;IF LSI FLAG BIT-PROGRAM FLAGS
1334 005540  001403                          BEQ     LGFRU           ;SET, THEN
1335 005542  012701  005713                  MOV     #FRUM0A,R1      ;SET LSI INTERFACE MSG
1336 005546  000402                          BR      EGFRU           ;BR TO END 'G'
1337 005550  012701  005746          LGFRU:  MOV     #FRUM0B,R1      ;SET UNIBUS INTERFACE MSG
1338 005554  004737  002550          EGFRU:  CALL    PRTBOS          ;CALL PRINT BASIC-NO ARG
1339 005560  000406                          BR      EFFRU           ;BR TO END 'G'
1340 005562  117701  000022          LFFRU:  MOVB    @FRUTAD,R1      ;SETUP PRINT FRU MSG OFFSET FROM TABLE
1341 005566  016101  005612                  MOV     FRUTBM(R1),R1   ;SET FRU MSG ADR FROM TABLE
1342 005572  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-NO ARG
1343 005576  005237  005610          EFFRU:  INC     FRUTAD          ;INCREMENT FRU TABLE ADDRESS
1344 005602  000745                          BR      WEFRU           ;END DO 'E'
1345 005604  000240                  EEFRU:  NOP                     ;
1346 005606  000207                  XPTFRU: RETURN                  ;RETURN
1347                                  ;-------------------------------------------------------------------------
1348 005610  000000                  FRUTAD: 0                       ;FRU TABLE ADDRESS
1349                                  ;-------------------------------------------------------------------------
```

```
1352 005612  000000                  FRUTBM: .WORD   0
1353 005614  006001                          .WORD   FRUM1
1354 005616  006035                          .WORD   FRUM2
1355 005620  006070                          .WORD   FRUM3
1356 005622  006120                          .WORD   FRUM4
1357 005624  006140                          .WORD   FRUM5
1358 005626  006173                          .WORD   FRUM6
1359 005630  006221                          .WORD   FRUM7
1360 005632  006255                          .WORD   FRUM8
1361 005634  006324                          .WORD   FRUM9
1362 005636  006361                          .WORD   FRUM10
1363 005640  006426                          .WORD   FRUM11
1364 005642  006451                          .WORD   FRUM12
1365 005644  006504                          .WORD   FRUM13
1366 005646  006544                          .WORD   FRUM14
1367                                 ;-----------------------------------------------------------------------
1368
1369                                 .SBTTL -    FRU MESSAGES
1370                                 ;-----------------------------------------------------------------------
1371 005650      045      116      045 FRUM00: .ASCIZ  /%N%A  POSSIBLE FAILING 'FRU'S": %N/
1372 005713      045      123      061 FRUM0A: .ASCIZ  /%S11%A INTERFACE - M8029%N/
1373 005746      045      123      061 FRUM0B: .ASCIZ  /%S11%A INTERFACE - M8256%N/
1374 006001      045      123      061 FRUM1:  .ASCIZ  /%S11%A CONTROLLER - M7744%N/
1375 006035      045      123      061 FRUM2:  .ASCIZ  /%S11%A R-W ELECT - M7745%N/
1376 006070      045      123      061 FRUM3:  .ASCIZ  /%S11%A PHYSICAL DRIVE%N/
1377 006120      045      123      061 FRUM4:  .ASCIZ  /%S11%A CABLES%N/
1378 006140      045      123      061 FRUM5:  .ASCIZ  /%S11%A POWER SUPPLY-H771%N/
1379 006173      045      123      061 FRUM6:  .ASCIZ  /%S11%A BAD DISKETTE%N/
1380 006221      045      123      061 FRUM7:  .ASCIZ  /%S11%A INTERFACE SWITCHES%N/
1381 006255      045      123      061 FRUM8:  .ASCIZ  /%S11%A NPR JUMPER - PDP-11 BACKPLANE%N/
1382 006324      045      123      061 FRUM9:  .ASCIZ  /%S11%A CONTROLLER SWITCHES%N/
1383 006361      045      123      061 FRUM10: .ASCIZ  /%S11%A INTERFACE->CONTROLLER CABLE%N/
1384 006426      045      123      061 FRUM11: .ASCIZ  /%S11%A DOOR OPEN%N/
1385 006451      045      123      061 FRUM12: .ASCIZ  /%S11%A BROKEN DRIVE BELT%N/
1386 006504      045      123      061 FRUM13: .ASCIZ  /%S11%A DRIVE MOTOR - AC POWER%N/
1387 006544      045      123      061 FRUM14: .ASCIZ  /%S11%A POWER CORD, BLOWN FUSE, DRIVE POWER, POWER SUPPLY %N/
1388                                 ;-----------------------------------------------------------------------
1400                                         .EVEN   ;506. BYTES
```

```
1403                                    .SBTTL -    FRU CALLOUT - PRESETUP FOR TESTS
1404                                    ;-------------------------------------------------------------------
1405            000000                  TN=0
1406            006640                          INFCTL=TOFT0            ;INTERFACE & CONTROLLER
1407 006640                             FRUTB   0,INTERF,CONTRL,INTFCB
     006640     000                             TOFT0: .BYTE    INTERF
     006641     002                                    .BYTE    CONTRL
     006642     024                                    .BYTE    INTFCB
     006643     377                                    .BYTE    -1
1408                                    ;-------------------------------------------------------------------
1409            006644                          INTONL=TOFT40           ;INTERFACE ONLY
1410 006644                             FRUTB   40,INTERF
     006644     000                             TOFT40: .BYTE   INTERF
     006645     377                                    .BYTE    -1
1411                                    ;-------------------------------------------------------------------
1412            006646                          CTLINF=TOFT41           ;CONTROLLER & INTERFACE
1413 006646                             FRUTB   41,CONTRL,INTERF
     006646     002                             TOFT41: .BYTE   CONTRL
     006647     000                                    .BYTE    INTERF
     006650     377                                    .BYTE    -1
1414                                    ;-------------------------------------------------------------------
1415            006651                          CTLRWE=TOFT42
1416 006651                             FRUTB   42,CONTRL,RWELEC
     006651     002                             TOFT42: .BYTE   CONTRL
     006652     004                                    .BYTE    RWELEC
     006653     377                                    .BYTE    -1
1417                                    ;-------------------------------------------------------------------
1418            006654                          CTLONL=TOFT43
1419 006654                             FRUTB   43,CONTRL,INTFCB
     006654     002                             TOFT43: .BYTE   CONTRL
     006655     024                                    .BYTE    INTFCB
     006656     377                                    .BYTE    -1
1420                                    ;-------------------------------------------------------------------
1421                                            .EVEN
```

```
1424                                    ;                       ERROR CODE - FRU CALLOUT ADDRESS TABLE
1425                                    ;-------------------------------------------------------------------
1426 006660  000000                    TOFTB:  .WORD   0
1427 006662  006736                            .WORD   TOFT1
1428 006664  006742                            .WORD   TOFT2
1429 006666  000000                            .WORD   0
1430 006670  006746                            .WORD   TOFT4
1431 006672  006751                            .WORD   TOFT5
1432 006674  000000                            .WORD   0
1433 006676  006755                            .WORD   TOFT7
1434 006700  000000                            .WORD   0
1435 006702  006763                            .WORD   TOFT11
1436 006704  006770                            .WORD   TOFT12
1437 006706  006776                            .WORD   TOFT13
1438 006710  000000                            .WORD   0
1439 006712  007002                            .WORD   TOFT15
1440 006714  007006                            .WORD   TOFT16
1441 006716  007012                            .WORD   TOFT17
1442 006720  007016                            .WORD   TOFT20
1443 006722  000000                            .WORD   0
1444 006724  007022                            .WORD   TOFT22
1445 006726  007025                            .WORD   TOFT23
1446 006730  007030                            .WORD   TOFT24
1447 006732  007035                            .WORD   TOFT25
1448 006734  177777                            .WORD   -1
1449                                    ;-------------------------------------------------------------------
1450
1451                                    .SBTTL -    FRU CALLOUT - PRESETUP FOR ERROR CODE
1452                                    ;-------------------------------------------------------------------
1453          000000                    TN=0
1454 006736                                     FRUTB   1,PHYDRV,CONTRL,RWELEC
     006736      006                            TOFT1: .BYTE    PHYDRV
     006737      002                                    .BYTE   CONTRL
     006740      004                                    .BYTE   RWELEC
     006741      377                                    .BYTE   -1
1455 006742                                     FRUTB   2,PHYDRV,CONTRL,RWELEC
     006742      006                            TOFT2: .BYTE    PHYDRV
     006743      002                                    .BYTE   CONTRL
     006744      004                                    .BYTE   RWELEC
     006745      377                                    .BYTE   -1
1456 006746                                     FRUTB   4,INTERF,CONTRL
     006746      000                            TOFT4: .BYTE    INTERF
     006747      002                                    .BYTE   CONTRL
     006750      377                                    .BYTE   -1
1457 006751                                     FRUTB   5,RWELEC,PHYDRV,CONTRL
     006751      004                            TOFT5: .BYTE    RWELEC
     006752      006                                    .BYTE   PHYDRV
     006753      002                                    .BYTE   CONTRL
     006754      377                                    .BYTE   -1
1458 006755                                     FRUTB   7,DISKET,RWELEC,PHYDRV,CONTRL,INTERF
     006755      014                            TOFT7: .BYTE    DISKET
     006756      004                                    .BYTE   RWELEC
     006757      006                                    .BYTE   PHYDRV
     006760      002                                    .BYTE   CONTRL
     006761      000                                    .BYTE   INTERF
     006762      377                                    .BYTE   -1
1459 006763                                     FRUTB   11,DISKET,RWELEC,PHYDRV,CONTRL
```

```
        006763  014                             TOFT11: .BYTE   DISKET
        006764  004                                     .BYTE   RWELEC
        006765  006                                     .BYTE   PHYDRV
        006766  002                                     .BYTE   CONTRL
        006767  377                                     .BYTE   -1
  1460  006770                                FRUTB   12,DISKET,RWELEC,PHYDRV,CONTRL,POWRSP
        006770  014                             TOFT12: .BYTE   DISKET
        006771  004                                     .BYTE   RWELEC
        006772  006                                     .BYTE   PHYDRV
        006773  002                                     .BYTE   CONTRL
        006774  012                                     .BYTE   POWRSP
        006775  377                                     .BYTE   -1
  1461  006776                                FRUTB   13,DISKET,RWELEC,CONTRL
        006776  014                             TOFT13: .BYTE   DISKET
        006777  004                                     .BYTE   RWELEC
        007000  002                                     .BYTE   CONTRL
        007001  377                                     .BYTE   -1
  1462  007002                                FRUTB   15,RWELEC,PHYDRV,CONTRL
        007002  004                             TOFT15: .BYTE   RWELEC
        007003  006                                     .BYTE   PHYDRV
        007004  002                                     .BYTE   CONTRL
        007005  377                                     .BYTE   -1
  1463  007006                                FRUTB   16,RWELEC,PHYDRV,CONTRL
        007006  004                             TOFT16: .BYTE   RWELEC
        007007  006                                     .BYTE   PHYDRV
        007010  002                                     .BYTE   CONTRL
        007011  377                                     .BYTE   -1
  1464  007012                                FRUTB   17,DISKET,RWELEC,CONTRL
        007012  014                             TOFT17: .BYTE   DISKET
        007013  004                                     .BYTE   RWELEC
        007014  002                                     .BYTE   CONTRL
        007015  377                                     .BYTE   -1
  1465  007016                                FRUTB   20,DISKET,RWELEC,CONTRL
        007016  014                             TOFT20: .BYTE   DISKET
        007017  004                                     .BYTE   RWELEC
        007020  002                                     .BYTE   CONTRL
        007021  377                                     .BYTE   -1
  1466  007022                                FRUTB   22,RWELEC,CONTRL
        007022  004                             TOFT22: .BYTE   RWELEC
        007023  002                                     .BYTE   CONTRL
        007024  377                                     .BYTE   -1
  1467  007025                                FRUTB   23,INTERF,CONTRL
        007025  000                             TOFT23: .BYTE   INTERF
        007026  002                                     .BYTE   CONTRL
        007027  377                                     .BYTE   -1
  1468  007030                                FRUTB   24,DISKET,CONTRL,INTERF,RWELEC
        007030  014                             TOFT24: .BYTE   DISKET
        007031  002                                     .BYTE   CONTRL
        007032  000                                     .BYTE   INTERF
        007033  004                                     .BYTE   RWELEC
        007034  377                                     .BYTE   -1
  1469  007035                                FRUTB   25,INTERF,CONTRL
        007035  000                             TOFT25: .BYTE   INTERF
        007036  002                                     .BYTE   CONTRL
        007037  377                                     .BYTE   -1
  1470                          ;-------------------------------------------------------------------
  1471                                  .EVEN
```

```
                                .SBTTL -  MOD U.ERR.PCE - PRINT COMMAND ERROR
                                ;-----------------------------------------------------------------
                                ; BGNSUB
                                ;       SETUP & PRINT COMMAND FORMAT MESSAGE
                                ;       GET COMMAND
                                ;       IF INITIALIZE COMMAND
                                ;       :  THEN-SETUP INIT COMMAND MSG
                                ;       :  ELSE-CLEAR TOP BITS & GO BIT
                                ;       :       CLEAR TOP BITS & GO BIT
                                ;       :       GET COMMAND MSG ADDRESS FROM TABLE (INDEXED BY COMMAND)
                                ;       ENDIF
                                ;       CALL PRINT
                                ;       SETUP & PRINT END OF COMMAND ERROR
                                ;       IF PROTOCOL TYPE COMMAND
                                ;       :  THEN-IF PRINT FLAGS=PRINT PROTOCAL SET
                                ;       :       :  THEN-SETUP & PRINT PROTOCOL ERR
                                ;       :       ENDIF
                                ;       ENDIF
                                ; ENDSUB
                                ;-----------------------------------------------------------------

007040  000240                  PRTCDE: NOP                     ;
007042  012701  007204                  MOV     #CMFTMS,R1      ;SETUP COMMAND FORMAT MESSAGE
007046  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-NO ARG
007052  013702  002422                  MOV     ERRCMD,R2       ;GET COMMAND
007056  032702  040000          IAPCE:  BIT     #BIT14,R2       ;IF INITIALIZE BIT
007062  001405                  BEQ     LAPCE                   ;SET, THEN
007064  012701  007452                  MOV     #CMDM8,R1       ;SET PROGRAMMED INIT MSG
007070  012702  000012                  MOV     #12,R2          ;SET R2 TO SHOW COMMAND WITH NO PROTOCOL
007074  000404                  BR      EAPCE                   ;BR TO END 'A'
007076  042702  177761          LAPCE:  BIC     #177761,R2      ;CLEAR TOP BITS & GO BIT
007102  016201  007164                  MOV     CMDMSG(R2),R1   ;GET COMMAND MSG ADR FROM TABLE
007106  004737  002550          EAPCE:  CALL    PRTBOS          ;CALL PRINT BASIC-NO ARG
007112  012701  007216                  MOV     #CMERMS,R1      ;SETUP "COMMAND ERR" MSG
007116  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-NO ARG
007122  022702  000012          IBPCE:  CMP     #12,R2          ;IF R2 CONTAINS PROTOCOL TYPE COMMAND
007126  001415                  BEQ     XPCE                    ;THEN
007130  032737  000010  002500  ICPCE:  BIT     #PROPRT,FLAGSP  ;IF PRINT PROTOCOL FLAG=FLAGSP
007136  001411                  BEQ     XPCE                    ;SET, THEN
007140  013702  002472                  MOV     PROTCT,R2       ;SETUP PRINT PROTOCOL CNT
007144  012701  007502                  MOV     #CMDPE,R1       ;SETUP PRINT PROTOCOL ERR MSG
007150  004737  002734                  CALL    PRTX1S          ;PRINT MSG
007154  042737  000020  002460          BIC     #CMDERR,TYPERR  ;CLEAR TYP ERR COMMAND ERROR
007162  000207                  XPCE:   RETURN                  ;RETURN
                                ;-----------------------------------------------------------------
```

```
1521                                    .SBTTL -    COMMAND ERROR MESSAGE TABLE
1522                                    ;-------------------------------------------------------------------------
1523 007164  007237                     CMDMSG: .WORD   CMDM0
1524 007166  007255                             .WORD   CMDM1
1525 007170  007274                             .WORD   CMDM2
1526 007172  007313                             .WORD   CMDM3
1527 007174  007331                             .WORD   CMDM4
1528 007176  007347                             .WORD   CMDM5
1529 007200  007374                             .WORD   CMDM6
1530 007202  007430                             .WORD   CMDM7
1531 007204     045     116     045     CMFTMS: .ASCIZ  /%N%S6%A->/
1532 007216     045     101     040     CMERMS: .ASCIZ  /%A COMMAND ERROR/
1533 007237     045     101     106     CMDM0:  .ASCIZ  /%AFILL BUFFER/
1534 007255     045     101     105     CMDM1:  .ASCIZ  /%AEMPTY BUFFER/
1535 007274     045     101     127     CMDM2:  .ASCIZ  /%AWRITE SECTOR/
1536 007313     045     101     122     CMDM3:  .ASCIZ  /%AREAD SECTOR/
1537 007331     045     101     123     CMDM4:  .ASCIZ  /%ASET DENSITY/
1538 007347     045     101     122     CMDM5:  .ASCIZ  /%AREAD MAINT. STATUS/
1539 007374     045     101     127     CMDM6:  .ASCIZ  /%AWRITE SECTOR-DELETED DATA/
1540 007430     045     101     122     CMDM7:  .ASCIZ  /%AREAD ERROR CODE/
1541 007452     045     101     120     CMDM8:  .ASCIZ  /%APROGRAMMED INITIALIZE/
1542 007502     045     116     045     CMDPE:  .ASCIZ  /%N%S8%APROTOCOL FAILED-WAITING TO PASS WORD #%O1/
1543                                             .EVEN
1544                                    ;-------------------------------------------------------------------------
```

```
1547                                    .SBTTL -  MOD U.ERR.PRE - PRINT REGISTER ERROR
1548                                    ;-------------------------------------------------------------------
1549
1550 007564  000240                     PRTREG: NOP                     ;
1551 007566  012701  007620                     MOV     #PRTGMS,R1      ;SETUP REGISTER MESSAGE
1552 007572  013702  002440                     MOV     REGACT,R2       ;SETUP REG ACTUAL
1553 007576  013703  002436                     MOV     REGEXP,R3       ;SETUP REG EXPECTED
1554 007602  004737  002612                     CALL    PRTB2S          ;CALL PRINT BASIC-2 ARG
1555 007606  005037  002440                     CLR     REGACT          ;CLEAR OLD RESULTS
1556 007612  005037  002436                     CLR     REGEXP          ;CLEAR OLD RESULTS
1557 007616  000207                           RETURN                  ;RETURN
1558                                    ;-------------------------------------------------------------------
1559 007620     045     116     045    PRTGMS: .ASCII  /%N%S6%AREG ACTUAL=%O%N/
1560 007646     045     123     066            .ASCIZ  /%S6%AREG EXPECT=%O%N/
1561                                            .EVEN
1562                                    ;-------------------------------------------------------------------
1563
1564                                    .SBTTL -  MOD U.PRT.SCP - PRINT SECTORS
1565                                    ;-------------------------------------------------------------------
1566                                    ; BGNSUB
1567                                    ;       IF READ ERROR CODE FLAG SET
1568                                    ;       :  THEN-SETUP PRINT EXPECTED SECTOR
1569                                    ;       :       SETUP PRINT DEVICE SECTOR
1570                                    ;       :       CALL PRINT
1571                                    ;       ENDIF
1572                                    ; ENDSUB
1573                                    ;-------------------------------------------------------------------
1574
1575 007674  000240                     PRTSEC: NOP                     ;
1576 007676  032737  000200  002476     IASCP:  BIT     #RECFLG,FLAGST  ;IF READ ERROR CODE FLAG
1577 007704  001424                             BEQ     XSCP            ;SET, THEN
1578 007706  013702  002376                     MOV     SECTOR,R2       ;SETUP EXPECTED SECTOR
1579 007712  012701  010156                     MOV     #EXMS,R1        ;SETUP EXPECTED MSG
1580 007716  004737  002550                     CALL    PRTBOS          ;CALL PRINT BASIC-0 ARG
1581 007722  012701  007760                     MOV     #ADSCMS,R1      ;SETUP SECTOR MSG
1582 007726  004737  002570                     CALL    PRTB1S          ;CALL PRINT BASIC-1 ARG
1583 007732  113702  002447                     MOVB    TSEC,R2         ;SETUP DEVICE SECTOR
1584 007736  012701  010220                     MOV     #TGMS,R1        ;SETUP TARGET MSG
1585 007742  004737  002550                     CALL    PRTBOS          ;CALL PRINT BASIC-0 ARG
1586 007746  012701  007760                     MOV     #ADSCMS,R1      ;SETUP SECTOR MSG
1587 007752  004737  002570                     CALL    PRTB1S          ;CALL PRINT BASIC-1 ARG
1588 007756  000207                     XSCP:   RETURN                  ;RETURN
1589                                    ;---- -------------------------------------------------------------
1590 007760     045     101     040    ADSCMS: .ASCIZ  /%A SECTOR=%D2%A./
1591                                            .EVEN
1592                                    ;-------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.PRT.TKP - PRINT TRACKS
                                        ;-------------------------------------------------------------------
                                        ; BGNSUB
                                        ;       CALL PRINT UNIT IDENT
                                        ;       IF READ ERROR CODE FLAG SET
                                        ;       :  THEN-SETUP PRINT EXPECTED TRACK
                                        ;       :       CALL PRINT 1 PARAMETER
                                        ;       :       IF DRIVE #1 SELECTED
                                        ;       :       :  THEN-SETUP CURRENT TRACK DRV1-PRINT
                                        ;       :       :  ELSE-SETUP CURRENT TRACK DRV0-PRINT
                                        ;       :       ENDIF
                                        ;       :       CALL PRINT 1 PARAMETER
                                        ;       :       SETUP PRINT DRIVE TARGET TRACK
                                        ;       :       CALL PRINT 1 PARAMETER
                                        ;       :  ELSE-SETUP PRINT ERROR ON TRACK
                                        ;       :       CALL PRINT 1 PARAMETER
                                        ;       ENDIF
                                        ; ENDSUB
                                        ;-------------------------------------------------------------------
010002  004737  020600          PRTTRK: CALL    PRTDID          ;CALL PRINT DRIVE IDENT
010006  032737  000200  002476  IATKP:  BIT     #RECFLG,FLAGST  ;IF READ ERROR CODE FLAG
010014  001445                          BEQ     LATKP           ;FLAG SET, THEN
010016  013702  002374                  MOV     TRACK,R2        ;SETUP EXPECTED TRACK
010022  012701  010156                  MOV     #EXMS,R1        ;SETUP EXPECTED MSG
010026  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-0 ARG
010032  012701  010257                  MOV     #ADTKMS,R1      ;SETUP PRINT TRACK
010036  004737  002570                  CALL    PRTB1S          ;CALL PRINT BASIC-1 PAR.
010042  005737  002406          IBTKP:  TST     DRIVE           ;IF DRIVE #1
010046  001403                          BEQ     LBTKP           ;SELECTED, THEN
010050  113702  002445                  MOVB    CTK1,R2         ;SETUP CUR TRK D1-PRT
010054  000402                          BR      EBTKP           ;BR TO END 'B'
010056  113702  002444          LBTKP:  MOVB    CTK0,R2         ;SETUP CUR TRK D0-PRT
010062  012701  010177          EBTKP:  MOV     #CDMS,R1        ;SETUP DRIVE CURRENT MSG
010066  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-0 ARG
010072  012701  010257                  MOV     #ADTKMS,R1      ;SETUP PRINT TRACK
010076  004737  002570                  CALL    PRTB1S          ;CALL PRINT BASIC-1 PAR.
010102  113702  002446                  MOVB    TTRK,R2         ;SETUP TARGET TRACK
010106  012701  010220                  MOV     #TGMS,R1        ;SETUP TARGET MSG
010112  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-0 ARG
010116  012701  010257                  MOV     #ADTKMS,R1      ;SETUP PRINT TRACK
010122  004737  002570                  CALL    PRTB1S          ;CALL PRINT BASIC-1 PAR.
010126  000412                          BR      XTKPRT          ;BR TO EXIT
010130  013702  002374          LATKP:  MOV     TRACK,R2        ;SETUP ERROR TRACK
010134  012701  010241                  MOV     #ERTKMS,R1      ;SETUP ERROR TRACK MSG
010140  004737  002550                  CALL    PRTBOS          ;CALL PRINT BASIC-0 ARG
010144  012701  010257                  MOV     #ADTKMS,R1      ;SETUP PRINT TRACK
010150  004737  002570                  CALL    PRTB1S          ;CALL PRINT BASIC-1 PAR.
010154  000207                  XTKPRT: RETURN                  ;
                                        ;-------------------------------------------------------------------
010156      045     116     045 EXMS:   .ASCIZ  /%N%S6%A EXPECTED/
010177      045     116     045 CDMS:   .ASCIZ  /%N%S6%A  CUR DRV/
010220      045     116     045 TGMS:   .ASCIZ  /%N%S6%A   TARGET/
010241      045     116     045 ERTKMS: .ASCIZ  /%N%A ERROR ->/
010257      045     101     040 ADTKMS: .ASCIZ  /%A TRACK=%D2%A./
                                        .EVEN
                                        ;-------------------------------------------------------------------
```

```
1653                                    .SBTTL -  MOD U.ERR.CLE - CLEAR ERRORS
1654                                    ;-------------------------------------------------------------------
1655                                    ; BGNSUB
1656                                    ;       CLEAR ERROR NUMBER
1657                                    ;       CLEAR ERROR TYPE
1658                                    ;       CLEAR ERROR BLOCK
1659                                    ;       CLEAR FIN
1660                                    ;       CLEAR ABORT
1661                                    ; ENDSUB
1662                                    ;-------------------------------------------------------------------
1663
1664 010300  000240                     CLRERR: NOP                     ;
1665 010302  005037  002442                     CLR     XERUUT          ;CLEAR READ ERR CODE WORD
1666 010306  005037  002520                     CLR     ERRNBR          ;CLEAR ERROR NUMBER
1667 010312  005037  002516                     CLR     ERRTYP          ;CLEAR ERROR TYPE
1668 010316  012737  003502  002524           MOV     #ERIDNT,ERRBLK  ;CLEAR ERROR BLOCK
1669 010324  005037  002454                     CLR     FIN             ;CLEAR FINI
1670 010330  005037  002452                     CLR     ABORT           ;CLEAR ABORT
1671 010334  042737  100000  002476           BIC     #ERRFLG,FLAGST  ;CLEAR FLAGST ERR FLAG
1672 010342  000207                     RETURN                          ;RETURN
1673                                    ;-------------------------------------------------------------------
```

```
                                        .SBTTL  GLOBAL SUBROUTINES SECTION

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

                                        .SBTTL -  MOD U.1.0 - RANDOM GENERATOR
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:
                                        ;    SUBROUTINE TO GENERATE A RANDOM NUMBER
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  NONE
                                        ; OUTPUTS:  RANUM
                                        ; IMPLICIT OUTPUTS:  NONE
                                        ; SUBORDINATE ROUTINES USED:  NONE
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:  SUB
                                        ;--


                                        ;---------- RANDOM GENERATOR ----------------------------------------
010344  012700  000001          RANGEN: MOV     #1,R0
010350  063700  010432                  ADD     RAN1,R0
010354  063700  010434                  ADD     RAN2,R0
010360  042700  170000                  BIC     #170000,R0
010364  000241                          CLC
010366  006100                          ROL     R0
010370  006100                          ROL     R0
010372  010037  010432                  MOV     R0,RAN1
010376  005000                          CLR     R0
010400  013700  010434                  MOV     RAN2,R0
010404  006000                          ROR     R0
010406  006000                          ROR     R0
010410  063700  010432                  ADD     RAN1,R0
010414  042700  170000                  BIC     #170000,R0
010420  010037  010434                  MOV     R0,RAN2
010424  010037  010436                  MOV     R0,RANUM
010430  000207                          RTS     PC
                                        ;--------------------------------------------------------------------
010432  000000                  RAN1:   0
010434  000000                  RAN2:   0
010436  000000                  RANUM:  0
                                        ;--------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.INT - INITIALIZE DEVICE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND INITIALIZE TO DEVICE.-ERROR CK
                                        ; INPUTS: NONE
                                        ; IMPLICIT INPUTS:  ERROR BIT
                                        ; OUTPUTS:  DEVICE INITIALIZE
                                        ; IMPLICIT OUTPUTS:
                                        ; SUBORDINATE ROUTINES USED:  COMMAND ERR CK, GET DEV. REGS, WAIT DONE
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ; CALLING SEQUENCE:  SUBR
                                        ;--

                                        ;-------------------------------------------------------------------------

010440  012737  040000  002400  INTIAL: MOV     #40000,CMD      ;SET INT COMMAND
010446  013777  002400  171674           MOV     CMD,@RXCS       ;INIT UNIT 0
010454  004737  012032                   CALL    AWDN            ;GO AWAIT DONE
010460  004737  011544           XINT:   CALL    CDERCK          ;CALL COMMAND ERROR CK
010464  004737  012244                   CALL    GETREG          ;CALL GET DEV REGS
010470  000207                           RTS     PC              ;RETURN
                                        ;-------------------------------------------------------------------------



                                        .SBTTL -  MOD U.DEV.CLD - CLEAR DEVICE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND INIT TO DEVICE - NO ERROR CK
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  NONE
                                        ; OUTPUTS:  DEVICE INITIALIZE
                                        ; IMPLICIT OUTPUTS:
                                        ; SUBORDINATE ROUTINES USED:  A WAIT "DONE"
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ; CALLING SEQUENCE:  SUBR
                                        ;--

                                        ;-------------------------------------------------------------------------

010472  012701  040000           CLRDEV: MOV     #40000,R1       ;SET INITIALIZE COMMAND
010476  010177  171646                   MOV     R1,@RXCS        ;CLEAR DEVICE
010502  004737  012032                   CALL    AWDN            ;AWAIT DONE
010506  000207                           RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
                                .SBTTL -  MOD U.DEV.FLB - FILL BUFFER
                                ;++
                                ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND FILL BUFFER COMMAND TO DEVICE.
                                ; INPUTS:  NONE
                                ; IMPLICIT INPUTS: NONE
                                ; OUTPUTS:  FILL BUFFER TO RX
                                ; IMPLICIT OUTPUTS:
                                ; SUBORDINATE ROUTINES USED: SET COMMANDS, WAIT "DONE", WAIT "TR"
                                ; FUNCTIONAL SIDE EFFECTS:
                                ; CALLING SEQUENCE:
                                ;--

                                ;-----------------------------------------------------------------------

010510  004737  011634          FILBUF: CALL    DVDNCK          ;CALL DEVICE READY CHECK
010514  005737  002454                  TST     FIN             ;IF FINI FLAG SET
010520  001035                          BNE     XFILBF          ;NOT SET, THEN
010522  012737  000001  011542          MOV     #1,NCMD         ;SET FILL BUFFER COMMAND
010530  004737  011502                  CALL    SETSCD          ;CALL SET SUBSYS COMMAND - MOD U.DEV.SSC
010534  053737  002366  002400          BIS     EXTADR,CMD      ;SET EXT. ADR. BITS
010542  013777  002400  171600          MOV     CMD,@RXCS       ;LOAD COMMAND
010550  004737  012110                  CALL    AWTR            ;WAIT FOR "TR"
010554  005737  002454          IBFLB:  TST     FIN             ;IF FINI FLAG
010560  001015                          BNE     XFILBF          ;EQUALS ZERO THEN
010562  013777  002370  171562          MOV     WDCNT,@RXDB     ;LOAD WORD COUNT FOR OUTPUT BUFFER
010570  004737  012110                  CALL    AWTR            ;WAIT FOR "TR"
010574  005737  002454          ICFLB:  TST     FIN             ;IF FINI FLAG
010600  001005                          BNE     XFILBF          ;EQUALS ZERO THEN
010602  013777  002362  171542          MOV     FILADR,@RXDB    ;LOAD BASE ADDRESS FOR OUTPUT BUFFER
010610  004737  011610                  CALL    WAIT            ;WAIT FOR "DONE" OR INTERRUPT
010614  004737  011544          XFILBF: CALL    CDERCK          ;CALL COMMAND ERROR CHECK
010620  004737  012244                  CALL    GETREG          ;CALL GET DEV REGS
010624  000207                          RTS     PC              ;RETURN
                                ;-----------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.EMB - EMPTY BUFFER
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND EMPTY BUFFER TO DEVICE.
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  NONE
                                        ; OUTPUTS:  EMPTY BUFFER TO RX
                                        ; IMPLICIT OUTPUTS:
                                        ; SUBORDINATE ROUTINES USED:  SETUP COMMANDS, WAIT "DONE", WAIT "TR"
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ; CALLING SEQUENCE:
                                        ;--
                                        ;-----------------------------------------------------------------------

010626  004737  011634          EMPBUF: CALL    DVDNCK          ;CALL DEVICE READY CHECK
010632  005737  002454                  TST     FIN             ;IF FINI FLAG
010636  001035                          BNE     XEMPBF          ;NOT SET, THEN
010640  012737  000003  011542          MOV     #3,NCMD         ;SET EMPTY BUFFER COMMAND
010646  004737  011502                  CALL    SETSCD          ;CALL SET SUBSYS COMMAND
010652  053737  002366  002400          BIS     EXTADR,CMD      ;SET EXT. ADR. BITS
010660  013777  002400  171462          MOV     CMD,@RXCS       ;ELSE LOAD COMMAND
010666  004737  012110                  CALL    AWTR            ;WAIT FOR "TR"    DO MOD U.TR
010672  005737  002454          IBEMB:  TST     FIN             ;IF FINI FLAG
010676  001015                          BNE     XEMPBF          ;EQUALS ZERO
010700  013777  002370  171444          MOV     WDCNT,@RXDB     ;THEN LOAD WORD COUNT FOR INPUT BUFFER
010706  004737  012110                  CALL    AWTR            ;WAIT FOR "TR"     DO MOD U.TR
010712  005737  002454          ICEMB:  TST     FIN             ;IF FINI FLAG
010716  001005                          BNE     XEMPBF          ;EQUALS ZERO
010720  013777  002360  171424          MOV     EMPADR,@RXDB    ;THEN LOAD BASE ADDRESS FOR INPUT BUFFER
010726  004737  011610                  CALL    WAIT            ;WAIT FOR "DONE" OR INTERRUPT
010732  004737  011544          XEMPBF: CALL    CDERCK          ;CALL COMMAND ERROR CHECK
010736  004737  012244                  CALL    GETREG          ;CALL GET DEV REGS
010742  000207                          RTS     PC              ;RETURN
                                        ;-----------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.WRT - WRITE SUBROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND WRITE SECTOR TO DEVICE.
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  DELETED DATA MODE
                                        ; OUTPUTS: WRITE SECTOR TO RX
                                        ; IMPLICIT OUTPUTS:
                                        ; SUBORDINATE ROUTINES USED:  SETUP COMMANDS, WAIT "DONE", WAIT "TR"
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ; CALLING SEQUENCE:
                                        ;--

                                        ;-----------------------------------------------------------------------

010744  004737  011634          WRITE:  CALL    DVDNCK          ;CALL DEVICE READY CHECK
010750  005737  002454                  TST     FIN             ;IF FINI FLAG
010754  001037                          BNE     XWRITE          ;EQUALS ZERO THEN
010756  012737  000005  011542          MOV     #5,NCMD         ;SET TO WRITE SECTOR
010764  053737  002402  011542          BIS     DELDAT,NCMD     ;SETUP WRITE DELETED DATA, IF SET
010772  004737  011502                  CALL    SETSCD          ;CALL SET SUBSYS COMMAND
010776  004737  011462                  CALL    SETDCD          ;CALL SET DEVICE COMMAND - MOD U.DEV.CMD
011002  013777  002400  171340  WRITE1: MOV     CMD,@RXCS       ;LOAD COMMAND
011010  004737  012110                  CALL    AWTR            ;GO AWAIT TRANSFER READY "TR"
011014  005737  002454          IBWRT:  TST     FIN             ;IF FINI FLAG
011020  001015                          BNE     XWRITE          ;EQUALS ZERO THEN
011022  013777  002376  171322          MOV     SECTOR,@RXDB    ;LOAD SECTOR ADDRESS
011030  004737  012110                  CALL    AWTR            ;GO AWAIT TRANSFER READY "TR"
011034  005737  002454          ICWRT:  TST     FIN             ;IF FINI FLAG
011040  001005                          BNE     XWRITE          ;EQUALS ZERO THEN
011042  013777  002374  171302          MOV     TRACK,@RXDB     ;LOAD TRACK ADDRESS
011050  004737  011610                  CALL    WAIT            ;WAIT FOR INTERRUPT OR "DONE"
011054  004737  012244          XWRITE: CALL    GETREG          ;CALL GET DEV REGS
011060  000207                          RTS     PC              ;RETURN
                                        ;-----------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.RED - READ SUBROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND READ SECTOR IO DEVICE.
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  NONE
                                        ; OUTPUTS.  READ SECTOR TO RX
                                        ; IMPLICIT OUTPUTS:
                                        ; SUBORDINATE ROUTINES USED:  SETUP COMMANDS, WAIT 'DONE", WAIT "TR"
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ; CALLING SEQUENCE:
                                        ;--

                                        ;-------------------------------------------------------------------------

011062  004737  011634          READ:   CALL    DVDNCK          ;CALL DEVICE READY CHECK
011066  005737  002454                  TST     FIN             ;IF FINI FLAG
011072  001034                         BNE     XREAD           ;EQUALS ZERO, THEN
011074  012737  000007  011542          MOV     #7,NCMD         ;SET READ COMMAND
011102  004737  011502                  CALL    SETSCD          ;CALL SET SUBSYS COMMAND
011106  004737  011462                  CALL    SETDCD          ;CALL SET DEVICE COMMAND - MOD U.DEV.SDC
011112  013777  002400  171230  READ1:  MOV     CMD,@RXCS       ;LOAD COMMAND
011120  004737  012110                  CALL    AWTR            ;GO AWAIT TRANSFER READY
011124  005737  002454          IBRED:  TST     FIN             ;IF FINI FLAG
011130  001015                         BNE     XREAD           ;EQUALS ZERO, THEN
011132  013777  002376  171212          MOV     SECTOR,@RXDB    ;LOAD SECTOR ADDRESS
011140  004737  012110                  CALL    AWTR            ;GO AWAIT TRANSFER READY
011144  005737  002454          ICRED:  TST     FIN             ;IF FINI FLAG
011150  001005                         BNE     XREAD           ;EQUALS ZERO, THEN
011152  013777  002374  171172          MOV     TRACK,@RXDB     ;LOAD TRACK ADDRESS
011160  004737  011610                  CALL    WAIT            ;WAIT FOR INTERRUPT OR "DONE"
011164  004737  012244          XREAD:  CALL    GETREG          ;CALL GET DEV REGS
011170  000207                         RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.SDN - SET DENSITY
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND SET DENSITY COMMAND TO DEVICE.
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS: DENSITY
                                        ; OUTPUTS:  SET DENSITY TO RX
                                        ; IMPLICIT OUTPUTS:
                                        ; SUBORDINATE ROUTINES USED:  SETUP COMMANDS, WAIT 'DONE', WAIT 'TR'
                                        ; FUNCTIONAL SIDE EFFECTS:
                                        ; CALLING SEQUENCE:
                                        ;--
                                        ;-------------------------------------------------------------------------

011172  004737  011634          SETDN:  CALL    DVDNCK          ;CALL DEVICE READY CHECK
011176  005737  002454                  TST     FIN             ;IF FINI FLAG
011202  001024                          BNE     XSETDN          ;NOT SET, THEN
011204  012737  000011  011542          MOV     #11,NCMD        ;SETUP  DENSITY COMMAND
011212  004737  011502                  CALL    SETSCD          ;CALL SET SUBSYS COMMAND
011216  004737  011462                  CALL    SETDCD          ;CALL SET DEVICE COMMAND - MOD U.DEV.SDC
011222  013777  002400  171120          MOV     CMD,@RXCS       ;SEND COMMAND
011230  004737  012110                  CALL    AWTR            ;GO AWAIT  'TR'
011234  005737  002454          IBSDN:  TST     FIN             ;IF FINI FLAG IS
011240  001005                          BNE     XSETDN          ;ZERO
011242  013777  002372  171102          MOV     VARIFY,@RXDB    ;SEND VARIFY WORD
011250  004737  011610                  CALL    WAIT            ;WAIT FOR 'DONE' OR INTERRUPT
011254  004737  011544          XSETDN: CALL    CDERCK          ;CALL COMMAND ERROR CHECK
011260  004737  012244                  CALL    GETREG          ;CALL GET DEV REGS
011264  000207                          RTS     PC              ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.RST - READ STATUS
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND READ STATUS COMMAND TO DEVICE.
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  NONE
                                        ; OUTPUTS:  READ STATUS TO RX
                                        ; IMPLICIT OUTPUTS:  NONE
                                        ; SUBORDINATE ROUTINES USED:  SETUP COMMANDS, WAIT 'DONE', WAIT 'TR'
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:
                                        ;--

                                        ;-------------------------------------------------------- ----------

011266  004737  011634          RDSTAT: CALL    DVDNCK          ;CALL DEVICE READY CHECK
011272  022737  000060  002520          CMP     #NODNBT,ERRNBR  ;IF ERRNBR NOT SET=
011300  001416                        BEQ     XRDSTA          ;'NO DONE BIT', THEN
011302  012737  000013  011542        MOV     #13,NCMD        ;SET READ STATUS
011310  004737  011502                CALL    SETSCD          ;CALL SET SUBSYS COMMAND
011314  004737  011462                CALL    SETDCD          ;CALL SET DEVICE COMMAND - MOD U.DEV.SDC
011320  013777  002400  171022        MOV     CMD,@RXCS       ;SEND COMMAND
011326  004737  011610                CALL    WAIT            ;GO AWAIT 'DONE' OR INTERRUPT
011332  004737  012244                CALL    GETREG          ;CALL GET DEV REGS
011336  000207                  XRDSTA: RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
2087                                    .SBTTL -  MOD U.DEV.REC - READ ERROR CODE
2088                                    ;++
2089                                    ; FUNCTIONAL DESCRIPTION:  SUBR TO SEND READ ERROR CODE TO DEVICE.
2090                                    ; INPUTS:  EXTENDED ADDRESS BITS, FINI FLAG, SETUP COMMAND WORD
2091                                    ; IMPLICIT INPUTS:  NONE
2092                                    ; OUTPUTS:  READ ERROR CODE FLAG, READ ERROR CODE TO DRIVE, READ ERROR CODE NEW CMD
2093                                    ; IMPLICIT OUTPUTS:  NONE
2094                                    ; SUBORDINATE ROUTINES USED:  SET DEVICE CMD, WAIT, WAIT FOR "TR", GET
2095                                    ;                             REG, CMD ERR CK
2096                                    ; FUNCTIONAL SIDE EFFECTS:  NONE
2097                                    ; CALLING SEQUENCE:  -
2098                                    ;--
2099                                    ;-------------------------------------------------------------------------
2100
2101 011340  004737  011634            RDERCD: CALL    DVDNCK          ;CALL DEVICE READY CHECK
2102 011344  022737  000060  002520            CMP     #NODNBT,ERRNBR  ;IF ERRNBR NOT SET=
2103 011352  001440                            BEQ     XRDERC          ;"NO DONE BIT", THEN
2104 011354  012737  000017  011542            MOV     #17,NCMD        ;SET ERROR CODE COMMAND
2105 011362  004737  011502                    CALL    SETSCD          ;CALL SET SUBSYS COMMAND
2106 011366  042737  000400  002400            BIC     #DENBIT,CMD     ;CLEAR DENSITY BIT FROM CMD
2107 011374  053737  002366  002400            BIS     EXTADR,CMD      ;SET EXTENDED ADDRESS BITS
2108 011402  013777  002400  170740            MOV     CMD,@RXCS       ;SEND COMMAND
2109 011410  004737  012110                    CALL    AWTR            ;THEN GO AWAIT "TR"
2110 011414  005737  002454            IBREC:  TST     FIN             ;IF FINI FLAG
2111 011420  001015                            BNE     XRDERC          ;EQUALS ZERO THEN
2112 011422  013777  002364  170722            MOV     RECADR,@RXDB    ;SET BASE ADDR FOR READ ERR CODE
2113 011430  004737  011610                    CALL    WAIT            ;GO AWAIT "DONE" OR INTERRUPT
2114 011434  005737  002454            ICREC:  TST     FIN             ;IF FINI FLAG
2115 011440  001005                            BNE     XRDERC          ;NOT SET, THEN
2116 011442  052737  000200  002476            BIS     #RECFLG,FLAGST  ;SET PRINT ERROR CODE OR FLAG
2117 011450  004737  012244                    CALL    GETREG          ;CALL GET DEV REGS
2118 011454  004737  011544            XRDERC: CALL    CDERCK          ;CALL COMMAND ERROR CHECK
2119 011460  000207                            RTS     PC              ;RETURN
2120                                    ;-------------------------------------------------------------------------
```

```
                                .SBTTL -  MOD U.DEV.CMD - SETUP DEVICE COMMAND
                                ;++
                                ; FUNCTIONAL DESCRIPTION:  SUBR TO SETUP DEVICE COMMAND WORD - I.E.,
                                ;                          SET DRIVE & SIDE BITS
                                ; INPUTS:  NONE
                                ; IMPLICIT INPUTS: SIDE & DRIVE BITS, COMMAND
                                ; OUTPUTS:  COMMAND WORD FOR DEVICE
                                ; IMPLICIT OUTPUTS:  NONE
                                ; SUBORDINATE ROUTINES USED:  NONE
                                ; FUNCTIONAL SIDE EFFECTS:  NONE
                                ; CALLING SEQUENCE:  SUBR
                                ;--

                                ;-------------------------------------------------------------------------

011462  000240                  SETDCD: NOP                     ;
011464  053737  002406  002400          BIS     DRIVE,CMD       ;SETUP DRIVE BIT
011472  053737  002410  002400          BIS     SIDE,CMD        ;SETUP SIDE BIT
011500  000207                  ;       RETURN                  ;RETURN
                                ;-------------------------------------------------------------------------

                                .SBTTL -  MOD U.DEV.SSC - SETUP SUBSYSTEM COMMANDS
                                ;++
                                ; FUNCTIONAL DESCRIPTION: SUBR TO SETUP SUBSYSTEM COMMANDS - I.E.
                                ;                          SET BITS THAT ARE NOT DRIVE RELATED
                                ; INPUTS:  NEW COMMAND
                                ; IMPLICIT INPUTS:  COMMAND, DENSITY, INTERRUPT BIT
                                ; OUTPUTS:  COMMAND
                                ; IMPLICIT OUTPUTS:  LAST COMMAND, PROTOCAL CTR
                                ; SUBORDINATE ROUTINES USED:  NONE
                                ; FUNCTIONAL SIDE EFFECTS:  NONE
                                ; CALLING SEQUENCE:  SUBR
                                ;--
                                ;-------------------------------------------------------------------------
011502  000240                  SETSCD: NOP                     ;
011504  013737  002400  002424          MOV     CMD,LCMD        ;SAVE LAST COMMAND
011512  013737  011542  002400          MOV     NCMD,CMD        ;SETUP NEW COMMAND
011520  005037  002472                  CLR     PROTCT          ;CLEAR TEST COMMAND PROTOCAL COUNTER
011524  053737  002412  002400          BIS     DENSTY,CMD      ;SETUP DENSITY BIT
011532  053737  002404  002400          BIS     INTERT,CMD      ;SETUP INTERRUPT BIT
011540  000207                  ;       RETURN                  ;
                                ;-------------------------------------------------------------------------
011542  000000                  NCMD:   0                       ;NEW COMMAND
                                ;-------------------------------------------------------------------------
```

```
                                .SBTTL -  MOD U.DEV.CEC - DEVICE COMMAND ERROR CHECK
                                ;-------------------------------------------------------------------
                                ;++
                                ; FUNCTIONAL DESCRIPTION:  SUBR TO CHECK FOR DEVICE COMMAND FATAL ERRORS.
                                ; INPUTS:  NONE
                                ; IMPLICIT INPUTS:  FIN FLAG, FLAGS(NEG TEST), ERR NBR
                                ; OUTPUTS:  NONE
                                ; IMPLICIT OUTPUTS:  ERROR CONDITION
                                ; SUBORDINATE ROUTINES USED:  ERROR
                                ; FUNCTIONAL SIDE EFFECTS:  DROP UNIT & CLEAN UP
                                ; CALLING SEQUENCE:  SUBR
                                ;--
                                ;-------------------------------------------------------------------
011544  000240                  CDERCK: NOP                     ;
011546  005737  002454                  TST     FIN             ;IF FINI FLAG
011552  001415                          BEQ     XCEC            ;SET, THEN
011554  005737  002520                  TST     ERRNBR          ;IF ERROR NUMBER
011560  001412                          BEQ     XCEC            ;NOT=0, THEN
011562  032737  004000  002476          BIT     #NEGTST,FLAGST  ;IF NEG TEST FLAG
011570  001006                          BNE     XCEC            ;NOT SET, THEN
011572  004737  003060                  CALL    ERROR           ;CALL ERROR-MOD
011576                                  DODU    UNIT            ;DROP UNIT
011604                                  DOCLN                   ;DO CLEAN-UP
011606  000207                  XCEC:   RETURN                  ;RETURN
                                ;-------------------------------------------------------------------
```

```
2199                                    .SBTTL -  MOD U.DEV.WAT - WAIT SUBROUTINE
2200                                    ;++
2201                                    ; FUNCTIONAL DESCRIPTION:  SUBR TO DETERMINE TO WAIT FOR "DONE" OR INTERRUPTS
2202                                    ; INPUTS:  DEVICE COMMAND
2203                                    ; IMPLICIT INPUTS:  NONE
2204                                    ; OUTPUTS:  NONE
2205                                    ; IMPLICIT OUTPUTS:  NONE
2206                                    ; SUBORDINATE ROUTINES USED:  WATCH & A WAIT DONE
2207                                    ; FUNCTIONAL SIDE EFFECTS:  NONE
2208                                    ; CALLING SEQUENCE:  SUBR
2209                                    ;--
2210
2211                                    ;-----------------------------------------------------------------------
2212
2213 011610  032737  000100  002400  WAIT:   BIT     #100,CMD        ;IF COMMAND-INTERRUPT BIT
2214 011616  001403                        BEQ     1$              ;SET, THEN
2215 011620  004737  011662                CALL    WATCH           ;CALL WATCH DOG WAIT FOR INTERRUPT
2216 011624  000402                        BR      XWAIT           ;BR TO END
2217 011626  004737  012032          1$:   CALL    AWDN            ;ELSE, CALL WAIT FOR DONE
2218 011632  000207                XWAIT:  RETURN                  ;RETURN
2219                                    ;-----------------------------------------------------------------------
2220
2221
2222
2223                                    .SBTTL -  MOD U.DEV.DRC - DEVICE DONE CHECK
2224                                    ;++
2225                                    ; FUNCTIONAL DESCRIPTION:  SUBR TO CK IF DEVICE IS READY TO ACCEPT A CMD
2226                                    ; INPUTS:  NONE
2227                                    ; IMPLICIT INPUTS:  DONE BIT
2228                                    ; OUTPUTS:  NONE
2229                                    ; IMPLICIT OUTPUTS:  NONE
2230                                    ; SUBORDINATE ROUTINES USED:  WATCH & A WAIT DONE
2231                                    ; FUNCTIONAL SIDE EFFECTS:  NONE
2232                                    ; CALLING SEQUENCE:  SUBR
2233                                    ;--
2234
2235                                    ;-----------------------------------------------------------------------
2236
2237 011634  005003                DVDNCK: CLR     R3              ;CLEAR REC
2238 011636  032777  000040  170504  1$:     BIT     #DNBIT,@RXCS    ;IF DEVICE DONE
2239 011644  001005                        BNE     XDVRCK          ;NOT SET
2240 011646  005203                        INC     R3              ;BUMP TIMEOUT COUNTER
2241 011650  001372                        BNE     1$              ;IF TIME OUT, THEN
2242 011652                               BRESET                  ;EXECUTE BUS RESET
2243 011654  004737  012032               CALL    AWDN            ;CALL A WAIT "DONE"
2244 011660  000207                XDVRCK: RETURN                  ;RETURN
2245                                    ;-----------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.WCH - WATCH DOG TIMER
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO WATCH DOG DEVICE 'DONE' & INTERRUPTS
                                        ; INPUTS:  PROCESSOR LOW PRIORITY
                                        ; IMPLICIT INPUTS:  DEVICE 'DONE' & INTERRUPTS
                                        ; OUTPUTS:  DONE TIMEOUT ERROR, NO INTERRUPT ERROR
                                        ; IMPLICIT OUTPUTS:  NONE
                                        ; SUBORDINATE ROUTINES USED:  NONE
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:  SUBR
                                        ;--

                                        ;-----------------------------------------------------------------

011662  005037  012030          WATCH:  CLR     DNFLAG          ;CLEAR DONE FLAG
011666                                  SETPRI  PRIORT          ;SET PROCESSOR PRI - ALLOW INTERRUPTS
011674  013704  012024                  MOV     DX,R4           ;SET DELAY MULT
011700  013703  012026          BAUWCH: MOV     DLY,R3          ;SET DELAY
011704  005737  012030          IBUWCH: TST     DNFLAG          ;IF INTERRUPTS DONE FLAG
011710  001413                          BEQ     LBUWCH          ;IS SET, THEN
011712  032777  000040  170430  ICUWCH: BIT     #DNBIT,@RXCS    ;IF DONT BIT
011720  001035                          BNE     XUWCH           ;IS NOT SET, THEN
011722  012737  000014  002520          MOV     #INTNDN,ERRNBR  ;SET ERROR #=NO DONE BIT
011730  012737  010000  002460          MOV     #BIT12,TYPERR   ;SET INTERR, BUT NO DONE ERROR
011736  000426                          BR      XUWCH           ;BR TO MOD 'EXIT'
011740                          LBUWCH: BREAK
011742  005303                          DEC     R3              ;DECREMENT DELAY COUNT
011744  001357                  UDUWCH: BNE     IBUWCH          ;DO UNIT DELAY COUNT=0
011746  005304                          DEC     R4              ;DECREMENT DELAY MULT
011750  001353                  UAUWCH: BNE     BAUWCH          ;DO UNTIL DELAY MULT=0
011752  032777  000040  170370  IEUWCH: BIT     #DNBIT,@RXCS    ;IF DONE BIT IS
011760  001407                          BEQ     LEUWCH          ;SET, THEN
011762  012737  000015  002520          MOV     #DNNINT,ERRNBR  ;SET ERR #=DONE, NO INTR
011770  052737  020000  002460          BIS     #BIT13,TYPERR   ;SET DONE, BUT NO INTERRUPT ERROR
011776  000406                          BR      XUWCH           ;BR TO MOD 'EXIT'
012000  052737  000020  002456  LEUWCH: BIS     #BIT4,SYSERR    ;SET NO DONE T.O. ERROR
012006  012737  000060  002520          MOV     #NODNBT,ERRNBR  ;SET ERR #=NO DONE BIT
012014                          XUWCH:  SETPRI  #PRI06          ;SET PROCESSOR PRI=6 - NO INTERRUPTS
012022  000207                          RTS     PC              ;RETURN
                                        ;-----------------------------------------------------------------
012024  000010                  DX:     10                      ;DELAY MULT
012026  100000                  DLY:    100000                  ;DELAY
012030  000000                  DNFLAG: 0                       ;DONE FLAG
                                        ;MOD U.2.3.4 ---- END MODULE ----------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.WDN - AWAIT DONE BIT SUBROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO WAIT FOR DEVICE "DONE" BIT
                                        ; INPUTS:  TIMEOUT PASS COUNTER
                                        ; IMPLICIT INPUTS:  DEVICE "DONE" BIT, (RXCSR), DONE WAIT MULTIPLIER
                                        ; OUTPUTS:  "DONE" BIT TIMEOUT ERROR
                                        ; IMPLICIT OUTPUTS:  NONE
                                        ; SUBORDINATE ROUTINES USED:  GET DEVICE REGISTERS
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:  SUBR
                                        ;--
                                        ;-----------------------------------------------------------------------

012032  005004                  AWDN:   CLR     R4              ;RESET TIME OUT MULTIPLIER
012034  005003                  1$:     CLR     R3              ;PRESET TIME OUT COUNTER
012036  032777  000040  170304  2$:     BIT     #DNBIT,@RXCS    ;SEE IF DONE SET
012044  001020                          BNE     3$              ;IF SO: BR
012046                                  BREAK                   ;TEMPORARY RETURN TO MONITOR
012050  005203                          INC     R3              ;BUMP TIME OUT COUNTER
012052  001371                          BNE     2$              ;IF NOT TIMED OUT: BR
012054  005204                          INC     R4              ;INCREMENT TIMEOUT MULTIPLIER
012056  023704  002474                  CMP     DNWTMT,R4       ;IF ON 2ND
012062  101364                          BHI     1$              ;TIMEOUT PASS, THEN
012064  012737  000060  002520          MOV     #NODNBT,ERRNBR  ;SET ERR #=NO DONE BIT
012072  052737  000020  002456          BIS     #BIT4,SYSERR    ;SET NO DONE BIT ON SYSTEM ERROR
012100  012737  000001  002454          MOV     #1,FIN          ;EXIT THIS COMMAND
012106  000207                  3$:     RTS     PC              ;EXIT
                                        ;-----------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.WTR - AWAIT TRANSFER READY SUBROUTINE
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO WAIT FOR DEVICE "TR" BIT
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  DEVICE "TR", "DONE" & CSR, ESR
                                        ; OUTPUTS:  "TR" TIMEOUT ERROR, NO DONE BIT, PROTOCAL COUNTER
                                        ; IMPLICIT OUTPUTS:  NONE
                                        ; SUBORDINATE ROUTINES USED:  GET DEVICE REGISTERS
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:  SUBR
                                        ;--

                                        ;-------------------------------------------------------------------------

012110  005237  002472          AWTR:   INC     PROTCT          ;INCREMENT TEST PROTOCAL COUNTER
012114  005004                          CLR     R4              ;PRESET TIMEOUT MULTIPLIER
012116  005003                  1$:     CLR     R3              ;PRESET TIME OUT COUNTER
012120  032777  000040  170222  2$:     BIT     #DNBIT,@RXCS    ;IF DONE BIT
012126  001013                          BNE     3$              ;NOT SET, THEN
012130  032777  000200  170212          BIT     #TRBIT,@RXCS    ;SEE IF TRANSFER READY SET
012136  001041                          BNE     5$              ;IF SO: BR
012140                                  BREAK                   ;TEMPORARY RETURN TO MONITOR
012142  005203                          INC     R3              ;BUMP TIME OUT COUNTER
012144  001365                          BNE     2$              ;IF NOT TIMED OUT: BR
012146  005204                          INC     R4              ;INCREMENT TIMEOUT MULTIPLIER
012150  022704  000004                  CMP     #4,R4           ;IF ON 2ND
012154  101360                          BHI     1$              ;TIMEOUT PASS, THEN
012156  012737  000001  002454  3$:     MOV     #1,FIN          ;EXIT THIS COMMAND
012164  052737  000020  002460          BIS     #CMDERR,TYPERR  ;**** ERROR ON COMMAND ****
012172  013737  002400  002422          MOV     CMD,ERRCMD      ;SETUP ERROR COMMAND
012200  012737  000057  002520          MOV     #NOTRBT,ERRNBR  ;SET ERR #=NO "TR" BIT
012206  052737  000200  002456          BIS     #TRBIT,SYSERR   ;SET SYS ERR=NO "TR" BIT
012214  032777  000040  170126          BIT     #DNBIT,@RXCS    ;IF DONE BIT
012222  001004                          BNE     4$              ;NOT SET, THEN
012224  052737  000020  002456          BIS     #BIT4,SYSERR    ;SET NO DONE BIT EITHER
012232  000403                          BR      5$              ;BR TO EXIT
012234  012737  000063  002520  4$:     MOV     #DNNOTR,ERRNBR  ;SET ERR #="DONE" NO "TR"
012242  000207                  5$:     RTS     PC              ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.DEV.REG - GET DEVICE REGISTERS
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBROUTINE TO GET RX02 CSR & ESR
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  DEVICE CSR & ESR
                                        ; OUTPUTS:  DEVICE CSR & ESR
                                        ; IMPLICIT OUTPUTS:  OLD CSR & ESR
                                        ; SUBORDINATE ROUTINES USED:  NONE
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:  SUBR
                                        ;--

                                        ;-------------------------------------------------------------------------

012244  013737  002432  002426  GETREG: MOV     RXCSR,LRXCSR    ;SAVE LAST CSR
012252  013737  002434  002430          MOV     RXESR,LRXESR    ;SAVE LAST ESR
012260  017737  170064  002432          MOV     @RXCS,RXCSR     ;GET RXCSR FOR PRINT
012266  017737  170060  002434          MOV     @RXDB,RXESR     ;GET RXESR FOR PRINT
012274  000207                          RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------



                                        .SBTTL -  MOD U.DEV.ITR - INTERRUPT HANDLER
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  ;DEVICE INTERRUPT HANDLER
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  DEVICE "DONE" BIT & INTERRUPT BIT
                                        ; OUTPUTS:  DONE FLAG
                                        ; IMPLICIT OUTPUTS:  NONE
                                        ; SUBORDINATE ROUTINES USED:  NONE
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:  DEVICE INTERRUPT
                                        ;--

                                        ;-------------------------------------------------------------------------

012276  012737  000001  012030  INTRHD: MOV     #1,DNFLAG       ;SET DONE FLAG
012304  000002                          RTI                     ;RETURN FROM INTERRUPT
                                        ;-------------------------------------------------------------------------
```

```
2409                                    .SBTTL -  MOD U.SFT.DPT - SET DATA PATTERN
2410                                    ;-------------------------------------------------------------------
2411                                    ;  PAT #   SUBROUTINE          DATA PATTERN
2412                                    ;  -----   ----------          ------------
2413                                    ;    0       RANDAT        NO PATTERN SPECIFIED (FORCE RANDOM DATA)
2414                                    ;    1       DATA0         ALL ZEROS
2415                                    ;    2       DATA1         ALL ONES
2416                                    ;    3       FLOAT0        FLOATING ZERO
2417                                    ;    4       FLOAT1        FLOATING ONE
2418                                    ;    5       PAT125        ALTERNATING BITS
2419                                    ;    6       PAT333        ALTERNATING PAIRS OF BITS
2420                                    ;    7       RANDAT        RANDOM
2421                                    ;-------------------------------------------------------------------
2422 012306  042737  000377  012372  STDATP: BIC     #377,@#BRONPT   ;CLEAR BRANCH OFFSET
2423 012314  005037  012654          CLR     SUM             ;SET UP FOR ACCUMULATION OF CHECK SUM
2424 012320  005737  012660          TST     PAT             ;IF NO PATTERN SPECIFIED FORCE PATTERN 7
2425 012324  001003                  BNE     1$
2426 012326  012737  000007  012660          MOV     #7,PAT
2427 012334  013704  012660          1$:     MOV     PAT,R4          ;GET PATTERN BITS
2428 012340  005304                  DEC     R4              ;ADJUST FOR CORRECT OFFSET
2429 012342  006304                  ASL     R4
2430 012344  150437  012372          BISB    R4,@#BRONPT     ;INSERT OFFSET
2431 012350  012704  036224          MOV     #DATPAT+2,R4    ;SET UP ADDRESS OF FIRST BYTE
2432 012354  013705  002370          MOV     WDCNT,R5        ;SETUP WORD COUNT
2433 012360  006305                  ASL     R5              ;DOUBLE  WORD COUNT FOR ADR
2434 012362  062705  036222          ADD     #DATPAT,R5      ;ADD DATA PATTERN ADR
2435 012366  162705  000004          SUB     #4,R5           ;ADJ. FOR CHECKSUM
2436 012372  000777                  BRONPT: BR      .               ;BRANCH BY OFFSET SELECTED
2437 012374  000137  012430          JMP     DATA0           ;000 DATA BYTE
2438 012400  000137  012446          JMP     DATA1           ;377 DATA BYTE
2439 012404  000137  012456          JMP     FLOAT0          ;FLOAT A 0 THROUGH ALL 1'S
2440 012410  000137  012524          JMP     FLOAT1          ;FLOAT A 1 THROUGH ALL 0'S
2441 012414  000137  012532          JMP     PAT125          ;125/052 DATA WORD
2442 012420  000137  012556          JMP     PAT333          ;314/063 DATA WORD
2443 012424  000137  012566          JMP     RANDAT          ;RANDOM DATA BYTE
2444                                    ;-------------------------------------------------------------------
2445 012430  005037  012656          DATA0:  CLR     DATBYT
2446 012434  004737  012614          PG:     JSR     PC,LOAD         ;GO LOAD THE DATA BUFFER
2447 012440  005705                  TST     R5              ;IF R5
2448 012442  001463                  BEQ     END131          ;NOT =0 ,THEN
2449 012444  000773                  BR      PG
2450                                    ;-------------------------------------------------------------------
2451 012446  112737  000377  012656  DATA1:  MOVB    #377,DATBYT
2452 012454  000767                  BR      PG
2453                                    ;-------------------------------------------------------------------
2454 012456  112737  000376  012656  FLOAT0: MOVB    #376,DATBYT     ;SET UP A ONES FIELD
2455 012464  000261                  XPG:    SEC             ;SET THE C BIT TO ROTATE THROUGH THE DATA
2456 012466  012702  000000          1$:     MOV     #0,R2           ;CLR R2 (CAN'T USE "CLR" AS IT CLEARS "C" BIT)
2457 012472  103001                  BCC     2$              ;BR IF THE "C" BIT IS CLEARED
2458 012474  005202                  INC     R2              ;SET R2 IF NOT
2459 012476  004737  012614          2$:     JSR     PC,LOAD         ;GO LOAD THE DATA BUFFER
2460 012502  005705                  TST     R5              ;IF R5
2461 012504  001442                  BEQ     END131          ;NOT ZERO THEN
2462 012506  000241                  CLC
2463 012510  005702                  TST     R2              ;IS R2 NONZERO
2464 012512  001401                  BEQ     3$
2465 012514  000261                  SEC                     ;YES, SET THE "C" BIT
```

```
2466 012516  106137  012656          3$:     ROLB    DATBYT
2467 012522  000761                          BR      1$
2468                                ;-------------------------------------------------------------------
2469 012524  005037  012656          FLOAT1: CLR     DATBYT
2470 012530  000755                          BR      XPG
2471                                ;-------------------------------------------------------------------
2472 012532  112737  000125  012656  PAT125: MOVB    #125,DATBYT
2473 012540  004737  012614          XXPG:   JSR     PC,LOAD
2474 012544  005705                          TST     R5              ;IF R5
2475 012546  001421                          BEQ     END131          ;NOT ZERO THEN
2476 012550  105137  012656                  COMB    DATBYT
2477 012554  000771                          BR      XXPG
2478                                ;-------------------------------------------------------------------
2479 012556  112737  000333  012656  PAT333: MOVB    #333,DATBYT
2480 012564  000765                          BR      XXPG
2481                                ;-------------------------------------------------------------------
2482 012566  004737  010344          RANDAT: JSR     PC,RANGEN       ;GET RANDOM NUMBER
2483 012572  113737  010436  012656          MOVB    RANUM,DATBYT
2484 012600  004737  012614                  JSR     PC,LOAD
2485 012604  005705                          TST     R5              ;IF R5
2486 012606  001401                          BEQ     END131          ;NOT ZERO THEN
2487 012610  000766                          BR      RANDAT
2488                                ;-------------------------------------------------------------------
2489 012612  000207                END131: RTS     PC              ;RETURN.
2490                                ;-------------------------------------------------------------------
2491
2492
2493                                ;-------------------------------------------------------------------
2494 012614  063737  012656  012654  LOAD:   ADD     DATBYT,SUM      ;ACCUMULATE THE PATTERN CHECK SUM
2495 012622  113724  012656          MOVB    DATBYT,(R4)+    ;LOAD THE DATA BUFFER
2496 012626  020504                  CMP     R5,R4           ;HAVE 124 BYTES BEEN GENERATE
2497 012630  001401                  BEQ     1$              ;IF YES, RETURN
2498 012632  000407                  BR      ENDLD           ;IF NO, RETURN TO PATTERN GENERATOR
2499 012634  113724  012654          1$:     MOVB    SUM,(R4)+       ;PUT CHECKSUM INTO TABLE
2500 012640  005137  012654                  COM     SUM             ;COMPLIMENT CHECKSUM
2501 012644  113714  012654                  MOVB    SUM,(R4)        ;PUT COMP CHECK SUM INTO TABLE
2502 012650  005005                          CLR     R5              ;CLEAR TEMP #5 - FLAG DONE MODULE
2503 012652  000207                ENDLD:  RTS     PC              ;RETURN
2504                                ;-------------------------------------------------------------------
2505 012654  000000                SUM:    0
2506 012656  000000                DATBYT: 0
2507 012660  000000                PAT:    0
2508                                ;MOD 1.3.1 ----- END MODULE ----------------------------------------
```

```
2511                                    .SBTTL -  MOD U.SFT.GTK - GET TRACK
2512                                    ;-------------------------------------------------------------------
2513
2514 012662  000240                    GETTRK: NOP             ;
2515 012664  032737  000400  002510    IAGTK:  BIT     #ITK,TKSCFG     ;IF INITIALIZE TRK IS
2516 012672  001423                            BEQ     ICGTK           ;SET, THEN
2517 012674  042737  000400  002510            BIC     #ITK,TKSCFG     ;RESET INITIALIZE TRK FLG
2518 012702  013737  002336  013100            MOV     ID,TRKCNT       ;GET INSIDE TRACK
2519 012710  163737  002334  013100            SUB     OD,TRKCNT       ;GET OUTSIDE TRACK
2520 012716  005237  013100                    INC     TRKCNT          ;INCREMENT # OF TRACKS
2521 012722  013737  002334  002374            MOV     OD,TRACK        ;SET TRACK=O.D.
2522 012730  005337  002374                    DEC     TRACK           ;DECREMENT TRACK
2523 012734  042737  001000  002476            BIC     #TRKDON,FLAGST  ;CLEAR TRACK DONE FLAG
2524 012742  032737  000004  002510    ICGTK:  BIT     #ILTK,TKSCFG    ;IF TK/SC FLAGS=ILLEGAL TRACK
2525 012750  001416                            BEQ     LBGTK           ;BIT SET, THEN
2526 012752  012737  000115  002374            MOV     #77.,TRACK      ;SET TRACK=77=ILLEGAL TRACK
2527 012760  052737  001000  002476            BIS     #TRKDON,FLAGST  ;SET TRACK DONE FLAG
2528 012766  000443                            BR      XGTK            ;BR TO EXIT
2529 012770  032737  000001  002510    IBGTK:  BIT     #STK,TKSCFG     ;IF TK & SE FLAG=SEQ TRK FLAG
2531 013000  005237  002374                    INC     TRACK           ;INCREMENT TRACK
2532 013004  000426                            BR      EBGTK           ;BR TO END 'B'
2533 013006  004737  010344    LBGTK:  CALL    RANGEN          ;GET A RANDOM NUMBER
2534 013012  042737  177600  010436            BIC     #177600,RANUM   ;CLEAR ALL BUT LOW 7 BITS
2535 013020  123737  010436  002336    IDCOMP: CMPB    RANUM,ID        ;IF RANUM LARGER THAN ID ADDRESS
2536 013026  003401                            BLE     ODCOMP          ;THEN
2537 013030  000766                            BR      LBGTK           ;BR TO GET ANOTHER RANDOM NUMBER
2538 013032  123737  010436  002334    ODCOMP: CMPB    RANUM,OD        ;IF RANUM SMALLER THAN OD ADDRESS
2539 013040  002001                            BGE     PRESCK          ;THEN
2540 013042  000761                            BR      LBGTK           ;BR TO GET ANOTHER RANDOM NUMBER
2541 013044  123737  010436  002374    PRESCK: CMPB    RANUM,TRACK     ;IF RANUM EQUALS PRESENT TRACK
2542 013052  001755                            BEQ     LBGTK           ;GET ANOTHER RANDOM NUMBER
2543 013054  013737  010436  002374            MOV     RANUM,TRACK     ;RANUM OK PUT IT IN TARGET TRACK
2544 013062  005337  013100    EBGTK:  DEC     TRKCNT          ;IF TOTAL # OF TRACKS
2545 013066  001003                            BNE     XGTK            ;DONE, THEN
2546 013070  052737  001000  002476            BIS     #TRKDON,FLAGST  ;THEN SET TRACK DONE FLAG
2547 013076  000207            XGTK:   RTS     PC              ;
2548                                    ;-------------------------------------------------------------------
2549 013100  000000            TRKCNT: .WORD   0               ;DRV TRK TABLE LOCATOR
2550 013102  000000            INITTK: .WORD   0               ;INITIALIZE TRK FLAG
2551                                    ;-------------------------------------------------------------------
```

```
2554                                    .SBTTL -  MOD U.SFT.GSC - GET SECTOR
2555                                    ;-------------------------------------------------------------------
2556
2557 013104  000240                     GETSEC: NOP                             ;
2558 013106  032737  001000  002510      IAGSC:  BIT     #ISC,TKSCFG             ;IF TK/SC FLAGS=INIT SECTORS BIT
2559 013114  001411                             BEQ     IBGSC                   ;SET, THEN
2560 013116  042737  001000  002510             BIC     #ISC,TKSCFG             ;CLEAR THE FLAG
2561 013124  012737  000001  002376             MOV     #1,SECTOR               ;SET SECTOR=1
2562 013132  042737  002000  002476             BIC     #SECDON,FLAGST          ;CLEAR FLAGST-SECTOR DONE FLAG
2563 013140  105737  002510              IBGSC:  TSTB    TKSCFG                  ;IF SEQUENCE SECTOR
2564 013144  001416                             BEQ     BCGSC                   ;SET, THEN
2565 013146  062737  000001  002376             ADD     #1,SECTOR               ;BUMP SECTOR ADDRESS
2566 013154  022737  000033  002376             CMP     #33,SECTOR              ;IF SECTORS
2567 013162  101030                             BHI     XGSC                    ;DONE, THEN
2568 013164  012737  000001  002376             MOV     #1,SECTOR               ;SET SECTOR=1
2569 013172  052737  002000  002476             BIS     #SECDON,FLAGST          ;SET FLAGST-SECTOR DONE FLAG
2570 013200  000421                             BR      XGSC                    ;BR EXIT
2571 013202  004737  010344              BCGSC:  CALL    RANGEN                  ;BGN DO 'C'-CALL RANDOM NO. GENERATOR
2572 013206  042737  177740  010436             BIC     #177740,RANUM           ;CLEAR TOP BITS RANDOM NUM.
2573 013214  123727  010436  000033      UCGSC:  CMPB    RANUM,#27.              ;DOUNTIL RANNUM < 27.
2574 013222  103367                             BHIS    BCGSC                   ;
2575 013224  105737  010436              IDGSC:  TSTB    RANUM                   ;IF RANDOM NO.
2576 013230  001002                             BNE     EDGSC                   ;EQUALS ZERO, THEN
2577 013232  105237  010436                     INCB    RANUM                   ;SET RANNUM = 1
2578 013236  113737  010436  002376      EDGSC:  MOVB    RANUM,SECTOR            ;SET SECTOR ADR = RANDOM NO.
2579 013244  000207                      XGSC:   RTS     PC
2580                                    ;-------------------------------------------------------------------
```

```
2583                                    .SBTTL -  MOD U.SFT.DCK - DATA CHECK
2584                                    ;-------------------------------------------------------------------
2585
2586 013246  005037  013520            DATACK: CLR     DAERCT          ;CLEAR DATA ERR COUNT
2587 013252  052737  000100  002500            BIS     #HDRPRT,FLAGSP  ;SET PRINT HEADER FLAG
2588 013260  013737  002370  013514            MOV     WDCNT,BYTCNT    ;SAVE WORD COUNT
2589 013266  006337  013514                    ASL     BYTCNT          ;DOUBLE IT SO BYTE COUNT
2590 013272  005037  013516                    CLR     BYTNUM          ;CLEAR BYTE NUMBER
2591 013276  013705  013516            BADCK:  MOV     BYTNUM,R5       ;SETUP BYTE NUMBER FOR AUTO INDEX
2592 013302  116501  036222                    MOVB    DATPAT(R5),R1   ;SET TEMP#1=DATA SOURCE BYTE
2593 013306  116502  036622                    MOVB    DATBUF(R5),R2   ;SET TEMP#2=DATA BUFFER BYTE
2594 013312  120102                    IBDCK:  CMPB    R1 R2           ;IF SOURCE BYTE & BUFFER BYTE
2595 013314  001465                            BEQ     EBDCK           ;NOT EQUAL
2596 013316  005237  013520                    INC     DAERCT          ;INCREMENT DATA ERR COUNT
2597 013322  023727  013520  000012  IEDCK:  CMP     DAERCT,#10.     ;IF OVER 10 DATA ERRORS
2598 013330  103404                            BLO     TFDCK           ;THEN
2599 013332  032737  000020  002332  IFDCK:  BIT     #20,SWREG       ;IF PRINT ONLY 10 DATA ERROR FLAG
2600 013340  001053                            BNE     EBDCK           ;IS NOT SET, THEN
2601 013342  110137  013522            TFDCK:  MOVB    R1,DATASB       ;GET DATA SHOULD BE->PRINT
2602 013346  110237  013524                    MOVB    R2,DATAWS       ;GET DATA WAS->PRINT
2603 013352  032737  000100  002500  IMDCK:  BIT     #HDRPRT,FLAGSP  ;IF PRINT HEADER
2604 013360  001431                            BEQ     EMDCK           ;OK, THEN
2605 013362  042737  000100  002500            BIC     #HDRPRT,FLAGSP  ;CLEAR PRINT HEADER
2606 013370  012737  000005  002520            MOV     #DATER,ERRNBR   ;SETUP ERR NBR= DATA ERR
2607 013376  004737  003060                    CALL    ERROR           ;CALL ERROR
2608 013402  032737  000020  002476  INDCK:  BIT     #EMBUFF,FLAGST  ;IF EMPTY BUFFER BIT
2609 013410  001011                            BNE     ENDCK           ;NOT SET, THEN
2610 013412  012701  013526                    MOV     #DMSG1B,R1      ;SETUP MSG FORMAT
2611 013416  013702  002374                    MOV     TRACK,R2        ;SETUP TRACK # PRT
2612 013422  013703  002376                    MOV     SECTOR,R3       ;SETUP SECTOR # PRT
2613 013426  004737  002612                    CALL    PRTB2S          ;CALL PRINT BASIC-2 ARG
2614 013432  000400                            BR      ENDCK           ;BR TO END 'N'
2615 013434  012701  013561            ENDCK:  MOV     #DMSG1,R1       ;SETUP MSG FORMAT
2616 013440  004737  002550                    CALL    PRTB0S          ;CALL PRINT BASIC-0 ARG
2617 013444  012701  013615            EMDCK:  MOV     #DMSG2,R1       ;SETUP MSG FORMAT(
2618 013450  013702  013516                    MOV     BYTNUM,R2       ;SETUP BYTE #
2619 013454  013703  013522                    MOV     DATASB,R3       ;SETUP DATA SHOULD BE
2620 013460  013704  013524                    MOV     DATAWS,R4       ;SETUP DATA WAS
2621 013464  004737  002636                    CALL    PRTB3S          ;CALL PRINT BASIC-3 ARG
2622 013470  005237  013516            EBDCK:  INC     BYTNUM          ;INCREMENT BYTE #
2623 013474  005337  013514                    DEC     BYTCNT          ;DECREMENT BYTE COUNT
2624 013500  005737  013514            UADCK:  TST     BYTCNT          ;COUNTIL BYTE COUNT
2625 013504  003274                            BGT     BADCK           ;EQUALS 0
2626 013506  004737  013642            ENDDCK: CALL    CLRDAT          ;CALL CLEAR DATA BUFFER
2627 013512  000207                            RTS     PC              ;RETURN
2628                                    ;-------------------------------------------------------------------
2629 013514  000000                    BYTCNT: 0                       ;BYTE COUNT
2630 013516  000000                    BYTNUM: 0                       ;BYTE NUMBER
2631 013520  000000                    DAERCT: 0                       ;DATA ERR COUNT
2632 013522  000000                    DATASB: 0                       ;DATA SHOULD BE
2633 013524  000000                    DATAWS: 0                       ;DATA WAS
2634                                    ;-------------------------------------------------------------------
2635 013526     045     116     045    DMSG1B: .ASCIZ  /%N%A TRK#%D3%A. SEC#%D2%A./
2636 013561     045     116     045    DMSG1:  .ASCIZ  /%N%A BYTE#%S2%AGOOD%S6%ABAD/
2637 013615     045     116     045    DMSG2:  .ASCIZ  /%N%S3%D3%S2%B8%S2%B8/
2638                                            .EVEN
2639                                    ;-------------------------------------------------------------------
```

```
2642                                    .SBTTL -  MOD U.SFT.CDB - CLEAR DATA BUFFER
2643                                    ;-------------------------------------------------------------------
2644
2645 013642  012705  036622             CLRDAT: MOV     #DATBUF,R5      ;GET BEGIN OF DATA BUFFER
2646 013646  012704  000200                     MOV     #128.,R4        ;SET WORD LENGTH OF TABLE
2647 013652  005025                     BACDB:  CLR     (R5)+           ;CLEAR WORD IN DATA BUFFER TABLE
2648 013654  005304                             DEC     R4              ;DECREMENT WORD COUNT
2649 013656  005704                             TST     R4              ;DO UNTIL
2650 013660  001374                     UACDB:  BNE     BACDB           ;ALL TABLE WORDS ZEROED
2651 013662  000207                             RETURN                  ;RETURN
2652                                    ;-------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.SFT.RCR - REGISTER CHECK & REPORT
                                        ;-------------------------------------------------------------------
                                        ;
                                        ; BGNSUB
                                        ;       IF FINI FLAG NOT SET
                                        ;       :  THEN-
                                        ;       :    GET TEST TABLE ADDRESS
                                        ;       :    DOUNTIL TEST TABLE ENTRY=-1
                                        ;       :    :  ADVANCE TEST TABLE ADDRESS
                                        ;       :    ENDDO
                                        ;       :    ADVANCE TEST TABLE ADDRESS
                                        ;       :    GET COMMAND COUNTER
                                        ;       :    DOUBLE COMMAND COUNTER
                                        ;       :    ADDRESS OF REG TABLE THIS CMD=CMD COUNTER + TEST TABLE ADR
                                        ;       :    GET ADDRESS OF REG TABLE THIS COMMAND
                                        ;       :    SET RXCSR COMPARE WORD=COMPARE WORD FROM TABLE
                                        ;       :    SET RXCSR MASK WORD=DON'T CARE BITS FROM REG TABLE
                                        ;       :    SET RXESR COMPARE WORD=COMPARE WORD FROM TABLE
                                        ;       :    SET RXESR MASK WORD=DON'T CARE BITS FROM REG TABLE
                                        ;       :    SETUP CSR REG CK
                                        ;       :    IF RXCSR NOT=CSRCMP
                                        ;       :    :  THEN-CALL CK BITS
                                        ;       :    ENDIF
                                        ;       :    SETUP ESR REG CK
                                        ;       :    IF ESR NOT=ESRCMP
                                        ;       :    :  THEN-CALL CK BITS
                                        ;       :    ENDIF
                                        ;       ENDIF
                                        ;       GET REGISTER ERR TABLE PTR
                                        ;       TERMINATE ERROR TABLE
                                        ;       ENDIF
                                        ;       NOP
                                        ; ENDSUB
                                        ;-------------------------------------------------------------------
2689 013664  000240                     REGSCK: NOP                     ;
2690 013666  005037  014670                     CLR     RGETPT          ;CLEAR REG ERROR TABLE PTR
2691 013672  005737  002454             IARCR:  TST     FIN             ;IF FINI FLAG
2692 013676  001160                             BNE     EARCR           ;NOT SET, THEN
2693 013700  004737  014276                     CALL    SURGCK          ;CALL SETUP REGS CHECK
2694 013704  013701  002466                     MOV     TSTID,R1        ;GET TEST TABLE ADDRESS
2695 013710  005721                     UBRCR:  TST     (R1)+           ;DO UNTIL TEST TABLE ENTRY
2696 013712  100401                             BMI     EBRCR           ;EQUALS -1, ADVANCE TEST TABLE ADRS
2697 013714  000775                             BR      UBRCR           ;END DO 'B'
2698 013716  013702  002470             EBRCR:  MOV     TCMDCT,R2       ;GET TEST COMMAND CTR
2699 013722  006302                             ASL     R2              ;DOUBLE COMMAND CTR
2700 013724  060201                             ADD     R2,R1           ;CAL ADRS OF REG TABLE FOR THIS CMD
2701 013726  011103                             MOV     (R1),R3         ;GET ADRS FROM TEST TABLE
2702 013730  012337  014260                     MOV     (R3)+,CSRCMP    ;SET RXCSR COMPARE WORD=TABLE CSR CMP
2703 013734  012337  014262                     MOV     (R3)+,CSRMSK    ;SET RXCSR MASK WORD=TABLE CSR MSK
2704 013740  012337  014264                     MOV     (R3)+,ESRCMP    ;SET RXESR COMPARE WORD=TABLE ESR CMP
2705 013744  011337  014266                     MOV     (R3),ESRMSK     ;SET RXESR MASK WORD=TABLE ESR MSK
2706 013750  013701  002432             CSRCHK: MOV     RXCSR,R1        ;GET RXCS
2707 013754  042701  172027                     BIC     #172027,R1      ;CLEAR OFF WRITE ONLY BIT-CK DRV SELECT BIT ****
2708 013760  043701  014262                     BIC     CSRMSK,R1       ;MASK OFF BITS DON'T CARE ABOUT
2709 013764  043737  014262  014270             BIC     CSRMSK,CSRSET   ;MASK OFF CSRSET BITS DON'T CARE
2710 013772  053737  014270  014260             BIS     CSRSET,CSRCMP   ;SET CSR COMMAND VARIABLE BITS
2711 014000  023701  014260                     CMP     CSRCMP,R1       ;IF RXCS CONTAINS
```

```
2712 014004  001437                          BEQ     4$              ;ERRORS, THEN
2713 014006  013737  014260  002436          MOV     CSRCMP,REGEXP   ;SAVE EXPECTED
2714 014014  010137  002440                  MOV     R1,REGACT       ;SAVE ACTUAL
2715 014020  032737  000002  002332          BIT     #FUNCTT,SWREG   ;IF FUNCTION TEST
2716 014026  001403                          BEQ     1$              ;MODE, THEN
2717 014030  005237  014274                  INC     FTERCT          ;INCREMENT ERROR COUNT
2718 014034  000420                          BR      3$              ;BR TO REST OF SETUP
2719 014036  010137  014702          1$:     MOV     R1,BADWRD       ;SET BAD WORD
2720 014042  013737  014260  014700          MOV     CSRCMP,CMPWRD   ;SET COMPARE WORD
2721 014050  012737  000004  014676          MOV     #4,BITOFF       ;SET # BITS TO OFFSET WORD
2722 014056  012737  000014  014674          MOV     #12.,BITLIM     ;SET # BITS TO CHECK
2723 014064  012737  014776  014704  2$:     MOV     #CSERTB,RTBADR  ;SET REG TAB ADR=CSR
2724 014072  004737  014522                  CALL    CKBITS          ;FIND BAD BITS & RELATED ERR #
2725 014076  012701  100000          3$:     MOV     #ERRFLG,R1      ;SET ERR
2726 014102  000401                          BR      XCSRCK          ;BR TO END
2727 014104  005001                  4$:     CLR     R1              ;CLEAR ERRORS
2728 014106  050137  002476          XCSRCK: BIS     R1,FLAGST       ;SET FLAGST ERR BIT-IF ERRORS
2729 014112  013701  002434          ESRCHK: MOV     RXESR,R1        ;GET RXES
2730 014116  042701  176000                  BIC     #176000,R1      ;MASK OFF BITS NOT USED IN RXES
2731 014122  043701  014266                  BIC     ESRMSK,R1       ;MASK OFF BITS DON'T CARE ABOUT
2732 014126  043737  014266  014272          BIC     ESRMSK,ESRSET   ;MASK OFF ESRSET BITS DON'T CARE
2733 014134  053737  014272  014264          BIS     ESRSET,ESRCMP   ;SET ESR COMMAND VARIBLE BITS
2734 014142  023701  014264                  CMP     ESRCMP,R1       ;IF RXES CONTAINS
2735 014146  001431                          BEQ     4$              ;ERRORS, THEN
2736 014150  032737  000002  002332          BIT     #FUNCTT,SWREG   ;IF FUNCTION TEST
2737 014156  001403                          BEQ     1$              ;MODE, THEN
2738 014160  005237  014274                  INC     FTERCT          ;INCREMENT ERROR COUNT
2739 014164  000417                          BR      3$              ;BR TO REST OF SETUP
2740 014166  010137  014702          1$:     MOV     R1,BADWRD       ;SET BAD WORD
2741 014172  013737  014264  014700          MOV     ESRCMP,CMPWRD   ;SET COMPARE WORD
2742 014200  005037  014676                  CLR     BITOFF          ;SET BIT OFFSET
2743 014204  012737  000014  014674          MOV     #12.,BITLIM     ;SET # BITS TO CHECK
2744 014212  012737  014746  014704  2$:     MOV     #ESERTB,RTBADR  ;SET REG ERR TAB ADR=ESR
2745 014220  004737  014522                  CALL    CKBITS          ;FIND BAD BITS & RELATED ERR #
2746 014224  012701  100000          3$:     MOV     #ERRFLG,R1      ;SET ERR
2747 014230  000401                          BR      XESRCK          ;BR TO END
2748 014232  005001                  4$:     CLR     R1              ;CLEAR ERRORS
2749 014234  050137  002476          XESRCK: BIS     R1,FLAGST       ;SET TEST ERROR FLAG, IF ERRORS
2750 014240  013705  014670          EARCR:  MOV     RGETPT,R5       ;GET REG ERR TBL PTR
2751 014244  006305                          ASL     R5              ;DOUBLE REG ERROR TAB PTR FOR ADDRESSING
2752 014246  012765  177777  014706          MOV     #-1,RGERTB(R5)  ;TERMINATE TBL
2753 014254  000240                          NOP                     ;
2754 014256  000207                  XREGCK: RTS     PC              ;RETURN
2755                                         ;-----------------------------------------------------------------------
2756 014260  000000                  CSRCMP: 0                       ;CSR COMPARE WORD
2757 014262  000000                  CSRMSK: 0                       ;CSR MASK WORD
2758 014264  000000                  ESRCMP: 0                       ;ESR COMPARE WORD
2759 014266  000000                  ESRMSK: 0                       ;ESR MASK WORD
2760 014270  000000                  CSRSET: 0                       ;CSR SET - SETUP REGS CK
2761 014272  000000                  ESRSET: 0                       ;ESR SET - SETUP REGS CK
2762 014274  000000                  FTERCT: 0                       ;FUNCTION TEST ERROR COUNTER
2763                                         ;-----------------------------------------------------------------------
```

```
2766                                    .SBTTL -  MOD U.SFT.SRC - SETUP REGISTER CHECK
2767                                    ;-------------------------------------------------------------------------
2768 014276  000240                     SURGCK: NOP                     ;
2769 014300  005037  014272                     CLR     ESRSET          ;CLEAR ESR SET
2770 014304  032737  040000  002400     IGSRC:  BIT     #RXINIT,CMD     ;IF CMD WAS RX INITIALIZE
2771 014312  001406                             BEQ     EGSRC           ;THEN
2772 014314  042737  001000  002400             BIC     #SIDE1,CMD      ;CLEAR SIDE #1 SELECT BIT
2773 014322  042737  000400  002400             BIC     #DRIVE1,CMD     ;CLEAR DRIVE #1 SELECT BIT
2774 014330  013705  002400             EGSRC:  MOV     CMD,R5          ;GET COMMAND
2775 014334  042705  177761                     BIC     #177761,R5      ;CLEAR ALL BUT COMMAND
2776 014340  022705  000016             IASRC:  CMP     #16,R5          ;IF COMMAND = READ ERROR CODE
2777 014344  001015                             BNE     EASRC           ;THEN
2778 014346  032737  000200  002500     IFSRC:  BIT     #RECTST,FLAGSP  ;IF FLAGSP NOT=REC TEST
2779 014354  001011                             BNE     EASRC           ;THEN
2780 014356  013737  002424  002400             MOV     LCMD,CMD        ;SET COMMAND=LAST COMMAND
2781 014364  013737  002426  002432             MOV     LRXCSR,RXCSR    ;GET LAST RXCSR
2782 014372  013737  002430  002434             MOV     LRXESR,RXESR    ;GET LAST RXESR
2783 014400  013705  002400             EASRC:  MOV     CMD,R5          ;GET COMMAND
2784 014404  010537  014270                     MOV     R5,CSRSET       ;SETUP CRS SET
2785 014410  042737  176277  014270             BIC     #176277,CSRSET  ;SAVE ONLY: SIDE,DENS,INTR ENA,(DRV SEL CK) BITS
2786 014416  032705  001000             IBSRC:  BIT     #SIDE1,R5       ;IF SIDE #1 SELECTED
2787 014422  001403                             BEQ     ICSRC           ;THEN
2788 014424  052737  001000  014272             BIS     #SIDE1,ESRSET   ;SETUP ESR SET -> SIDE1
2789 014432  032705  000020             ICSRC:  BIT     #DRV1,R5        ;IF DRIVE #1 SELECTED
2790 014436  001403                             BEQ     IDSRC           ;THEN
2791 014440  052737  000400  014272             BIS     #DRIVE1,ESRSET  ;SETUP ESRSET -> DRIVE1
2792 014446  032705  000400             IDSRC:  BIT     #DENBIT,R5      ;IF DOUBLE DENSITY SELECTED
2793 014452  001403                             BEQ     EDSRC           ;THEN
2794 014454  052737  000040  014272             BIS     #DRVDEN,ESRSET  ;SETUP ESR SET = DOUBLE DENSITY
2795 014462  042705  177761             EDSRC:  BIC     #177761,R5      ;CLEAR ALL BUT COMMAND
2796 014466  005737  002402             IESRC:  TST     DELDAT          ;IF DELETED DATA MODE
2797 014472  001411                             BEQ     EESRC           ;AND
2798 014474  022705  000006                     CMP     #RSCMD,R5       ;COMMAND=READ SECTOR
2799 014500  001403                             BEQ     1$              ;OR
2800 014502  022705  000014                     CMP     #WDDCMD,R5      ;COMMAND-WRITE DELETED DATA SECTOR
2801 014506  001003                             BNE     EESRC           ;THEN
2802 014510  052737  000100  014272     1$:     BIS     #DLDBIT,ESRSET  ;SETUP  ESR SET ->DELETED DATA BIT
2803 014516  000240                     EESRC:  NOP                     ;
2804 014520  000207                     XSRC:   RETURN                  ;RETURN
2805                                    ;-------------------------------------------------------------------------
```

```
2808                                    .SBTTL -  MOD U.SFT.BTK - BITS SET/NOT SET CHECK
2809                                    ;-----------------------------------------------------------------------
2810
2811 014522  013702  014700            CKBITS: MOV     CMPWRD,R2       ;GET COMPARE WORD
2812 014526  013701  014702                    MOV     BADWRD,R1       ;GET BAD WORD
2813 014532  040201                            BIC     R2,R1           ;SET R1=BITS THAT SHOULDN'T BE SET
2814 014534  005102                            COM     R2              ;COMPLIMENT COMPARE WORD
2815 014536  053702  014702                    BIS     BADWRD,R2       ;SET BAD BITS
2816 014542  005102                            COM     R2              ;SET R2=BITS THAT SHOULD BE SET
2817 014544  050201                            BIS     R2,R1           ;SET R1=ALL BITS THAT SHOULD OR SHOULDN'T BE SET
2818 014546  005737  014676                    TST     BITOFF          ;IF BIT OFFSET
2819 014552  001407                            BEQ     2$              ;NOT=0, THEN
2820 014554  005337  014676            1$:     DEC     BITOFF          ;
2821 014560  000241                            CLC                     ;CLEAR CARRY
2822 014562  006001                            ROR     R1              ;
2823 014564  005737  014676                    TST     BITOFF          ;IF BIT OFFSET
2824 014570  001371                            BNE     1$              ;EQUALS 0, THEN
2825 014572  005037  014672            2$:     CLR     BITCNT          ;CLEAR BIT COUNTER
2826 014576  032701  000001            3$:     BIT     #1,R1           ;IF LSB
2827 014602  001417                            BEQ     4$              ;NOT=0, THEN
2828 014604  013702  014672                    MOV     BITCNT,R2       ;GET BIT COUNTER
2829 014610  006302                            ASL     R2              ;DOUBLE IT FOR ADDRESSING
2830 014612  063702  014704                    ADD     RTBADR,R2       ;ADD REG TABLE ADR
2831 014616  011203                            MOV     (R2),R3         ;GET ERR# THIS BIT ERROR FROM TABLE
2832 014620  005703                            TST     R3              ;IF ERR #
2833 014622  001407                            BEQ     4$              ;NOT=0, THEN
2834 014624  013704  014670                    MOV     RGETPT,R4       ;SET UP REG ERR TABLE POINTER
2835 014630  006304                            ASL     R4              ;DOUBLE IT FOR ADDRESSING
2836 014632  010364  014706                    MOV     R3,RGERTB(R4)   ;SET THIS ERR# IN TABLE OF REG ERRORS
2837 014636  005237  014670                    INC     RGETPT          ;ADVANCE TABLE POINTER TO NEXT LOCATION
2838 014642  005237  014672            4$:     INC     BITCNT          ;INCREMENT BIT COUNTER
2839 014646  000241                            CLC                     ;CLEAR CARRY
2840 014650  006001                            ROR     R1              ;SHIFT NEXT BIT FOR TEST
2841 014652  023737  014674  014672            CMP     BITLIM,BITCNT   ;IF ALL BITS SPECIFIED
2842 014660  101346                            BHI     3$              ;DONE, THEN
2843 014662  005037  014672                    CLR     BITCNT          ;RESET BIT COUNT
2844 014666  000207                    XCRBIT: RETURN                  ;RETURN
2845                                    ;-----------------------------------------------------------------------
2846 014670  000000                    RGETPT: 0                       ;REG ERROR TABLE POINTER
2847 014672  000000                    BITCNT: 0                       ;BIT COUNTER
2848 014674  000000                    BITLIM: 0                       ;BIT REGISTER LIMIT
2849 014676  000000                    BITOFF: 0                       ;BIT REGISTER OFFSET
2850 014700  000000                    CMPWRD: 0                       ;COMPARE WORD
2851 014702  000000                    BADWRD: 0                       ;BAD WORD
2852 014704  000000                    RTBADR: 0                       ;REGISTER ERROR TABLE ADDRESS
2853                                    ;-----------------------------------------------------------------------
```

```
                                        ;                       REGISTER ERROR #'S - TABLE
                                        ;-------------------------------------------------------------------
2858 014706  000000                     RGERTB: .WORD   0               ;
2859 014710  177777                             .WORD   -1              ;
2860 014712  177777                             .WORD   -1              ;
2861 014714  177777                             .WORD   -1              ;
2862 014716  177777                             .WORD   -1              ;
2863 014720  177777                             .WORD   -1              ;
2864 014722  177777                             .WORD   -1              ;
2865 014724  177777                             .WORD   -1              ;
2866 014726  177777                             .WORD   -1              ;
2867 014730  177777                             .WORD   -1              ;
2868 014732  177777                             .WORD   -1              ;
2869 014734  177777                             .WORD   -1              ;
2870 014736  177777                             .WORD   -1              ;
2871 014740  177777                             .WORD   -1              ;
2872 014742  177777                             .WORD   -1              ;
2873 014744  177777                             .WORD   -1              ;
                                        ;-------------------------------------------------------------------
                                        ;                       TABLE - ESR ERROR #'S
                                        ;-------------------------------------------------------------------
2878 014746  000004                     ESERTB: .WORD   CRCERR          ;BIT #00 - CRC ERR
2879 014750  000024                             .WORD   SDRDYE          ;BIT #01 - SIDE 1 RDY
2880 014752  000062                             .WORD   NOITDP          ;BIT #02 - INIT DONE
2881 014754  004050                             .WORD   ACLOWF!NEGTST   ;BIT #03 - AC LOW
2882 014756  004030                             .WORD   DENERR!NEGTST   ;BIT #04 - DEN ERR
2883 014760  004020                             .WORD   DENDSK!NEGTST   ;BIT #05 - DRV DEN-->NOT ERROR
2884 014762  000032                             .WORD   DLDTER          ;BIT #06 - DEL DATA
2885 014764  000025                             .WORD   DVRDYE          ;BIT #07 - DRV RDY
2886 014766  000027                             .WORD   DRVWRG          ;BIT #08 - UNIT SEL
2887 014770  000026                             .WORD   SIDWRG          ;BIT #09 - HEAD SEL
2888 014772  004051                             .WORD   WCOVFE!NEGTST   ;BIT #10 - WC OVFL
2889 014774  004052                             .WORD   NXMERR!NEGTST   ;BIT #11 - NXM
                                        ;-------------------------------------------------------------------
                                        ;                       TABLE - CSR ERROR #'S
                                        ;-------------------------------------------------------------------
2894 014776  000033                     CSERTB: .WORD   CSRERR          ;BIT #04 - UNIT SEL     - R/W
2895 015000  000033                             .WORD   CSRERR          ;BIT #05 - "DONE"       - R
2896 015002  000033                             .WORD   CSRERR          ;BIT #06 - INTER ENB    - R/W
2897 015004  000033                             .WORD   CSRERR          ;BIT #07 - "TR"         - R
2898 015006  000033                             .WORD   CSRERR          ;BIT #08 - DENSITY      - R/W
2899 015010  000033                             .WORD   CSRERR          ;BIT #09 - HEAD SEL     - R/W
2900 015012  000033                             .WORD   CSRERR          ;BIT #10 -
2901 015014  000033                             .WORD   CSRERR          ;BIT #11 - RX02         - R
2902 015016  000033                             .WORD   CSRERR          ;BIT #12 -              - W
2903 015020  000033                             .WORD   CSRERR          ;BIT #13 -              - W
2904 015022  000033                             .WORD   CSRERR          ;BIT #14 -              - W
2905 015024  000033                             .WORD   CSRERR          ;BIT #15 - ERR BIT      - R
                                        ;-------------------------------------------------------------------
```

```
2909                                    .SBTTL -    PRESETUP REGISTER TABLES
2910                                    ;-----------------------------------------------------------------------
2911
2912            000000                  TN=0
2913  015026                            REGTB   1,04040,0,0,-1          ;RXCS ONLY
      015026    004040                          TORT1: .WORD    04040                   ;RXCSR SHOULD BE
      015030    000000                                 .WORD    0                       ;RXCSR DONT CARE
      015032    000000                                 .WORD    0                       ;RXESR SHOULD BE
      015034    177777                                 .WORD    -1                      ;RXESR DONT CARE
2914  015036                            REGTB   2,04040,0,0,0           ;RXCS & RXES/ALL
      015036    004040                          TORT2: .WORD    04040                   ;RXCSR SHOULD BE
      015040    000000                                 .WORD    0                       ;RXCSR DONT CARE
      015042    000000                                 .WORD    0                       ;RXESR SHOULD BE
      015044    000000                                 .WORD    0                       ;RXESR DONT CARE
2915  015046                            REGTB   3,04040,0,4,177773      ;RXCS & RXES INITIALIZE CK
      015046    004040                          TORT3: .WORD    04040                   ;RXCSR SHOULD BE
      015050    000000                                 .WORD    0                       ;RXCSR DONT CARE
      015052    000004                                 .WORD    4                       ;RXESR SHOULD BE
      015054    177773                                 .WORD    177773                  ;RXESR DONT CARE
2916  015056                            REGTB   4,04040,0,204,1440      ;RXCS & RXES INITIALIZE ALL CK
      015056    004040                          TORT4: .WORD    04040                   ;RXCSR SHOULD BE
      015060    000000                                 .WORD    0                       ;RXCSR DONT CARE
      015062    000204                                 .WORD    204                     ;RXESR SHOULD BE
      015064    001440                                 .WORD    1440                    ;RXESR DONT CARE
2917  015066                            REGTB   5,04040,0,200,60        ;RXCS & RXES READ STATUS CK
      015066    004040                          TORT5: .WORD    04040                   ;RXCSR SHOULD BE
      015070    000000                                 .WORD    0                       ;RXCSR DONT CARE
      015072    000200                                 .WORD    200                     ;RXESR SHOULD BE
      015074    000060                                 .WORD    60                      ;RXESR DONT CARE
2918  015076                            REGTB   6,04040,0,0,1440        ;RXCS & RXES NO DISK OPERATION
      015076    004040                          TORT6: .WORD    04040                   ;RXCSR SHOULD BE
      015100    000000                                 .WORD    0                       ;RXCSR DONT CARE
      015102    000000                                 .WORD    0                       ;RXESR SHOULD BE
      015104    001440                                 .WORD    1440                    ;RXESR DONT CARE
2919                                    ;-----------------------------------------------------------------------
2920            015026                  CSONLY  =       TORT1           ;RXCS ONLY
2921            015036                  CSESAL  =       TORT2           ;RXCS & RXES ALL
2922            015046                  CEINIT  =       TORT3           ;RXCS & RXES INITIALIZE CK
2923            015056                  CSESIT  =       TORT4           ;RXCS &RXES INITIALIZE ALL
2924            015066                  CSESRS  =       TORT5           ;RXCS & RXES READ STATUS CK
2925            015076                  CSESND  =       TORT6           ;RXCS & RXES NO DISK OPERATION
2926                                    ;-----------------------------------------------------------------------
```

```
2929                                    .SBTTL -  MOD U.SET.GEN - GET ERROR CODE-ERR #
2930                                    ;-------------------------------------------------------------------
2931
2932 015106  005002                     GTECEN: CLR     R2              ;CLEAR TEMP REG #2
2933 015110  105737  002442              IAGEN:  TSTB    XERUUT          ;IF X ERR CODE UUT
2934 015114  001422                             BEQ     XGTECN          ;NOT=0, THEN
2935 015116  122737  000260  002442     IBGEN:  CMPB    #260,XERUUT     ;IF ERR CODE UUT
2936 015124  101003                             BHI     LBGEN           ;EXCEEDS 260, THEN
2937 015126  012702  000017                     MOV     #ILLERC,R2      ;SET ERR CODE #
2938 015132  000407                             BR      EBGEN           ;BR TO END 'B'
2939 015134  052737  100000  002476     LBGEN:  BIS     #ERRFLG,FLAGST  ;SET FLAGS-ERR FLAG
2940 015142  004737  017106                     CALL    GTECOF          ;CALL GET ERROR CODE OFFSET
2941 015146  016102  015164                     MOV     ECERNT(R1),R2   ;GET ERROR CODE ERR # FROM TABLE
2942 015152  010237  002462             EBGEN:  MOV     R2,RECERN       ;READ ERR CODE ERR #
2943 015156  010237  020164                     MOV     R2,ECERNB       ;PASS ERR CODE ERR # TO "ERRCHK" MOD
2944 015162  000207                     XGTECN: RETURN                  ;RETURN
2945                                    ;-------------------------------------------------------------------
2946
2947                                    ;       ERROR CODE ERROR # TABLE
2948                                    ;-------------------------------------------------------------------
2949
2950 015164  000000                     ECERNT: .WORD                   ; 00->NO ERROR                  -
2951 015166  000006                             .WORD   SEKERR          ; 10->NO HOME DRV0              -SEEK
2952 015170  000006                             .WORD   SEKERR          ; 20->NO HOME DRV1              -SEEK
2953 015172  000017                             .WORD   ILLERC          ; 30-> --                       -
2954 015174  004041                             .WORD   TRKAER!NEGTST   ; 40->ACC TK > 76               -TRACK ERR
2955 015176  000006                             .WORD   SEKERR          ; 50->HOME BEFORE TRK           -SEEK
2956 015200  000017                             .WORD   ILLERC          ; 60-> --                       -
2957 015202  004003                             .WORD   RDERR!NEGTST    ; 70->NO SEC-52 TRIES           -READ
2958 015204  000017                             .WORD   ILLERC          ;100-> --                       -
2959 015206  000003                             .WORD   RDERR           ;110->NO STEP CLOCK             -READ
2960 015210  000003                             .WORD   RDERR           ;120->NO PREAMBLE               -READ
2961 015212  000003                             .WORD   RDERR           ;130->PREAMBLE-NO I.D.          -READ
2962 015214  000017                             .WORD   ILLERC          ;140-> --                       -
2963 015216  000006                             .WORD   SEKERR          ;150->GD TRK NOT=TRK            -SEEK
2964 015220  000003                             .WORD   RDERR           ;160->TOO MY TRIES IDAM         -READ
2965 015222  000003                             .WORD   RDERR           ;170->DATA AM NOT FND           -READ
2966 015224  000004                             .WORD   CRCERR          ;200->CRC                       -CRC
2967 015226  0C0017                             .WORD   ILLERC          ;210-> --                       -
2968 015230  000056                             .WORD   HDSFDG          ;220->SELF DIAG                 -SELF DIAG
2969 015232  004051                             .WORD   WCOVFE!NEGTST   ;230->WRD COUNT OVF             -WRD CTOV
2970 015234  004030                             .WORD   DENERR!NEGTST   ;240->DENSITY ERR               -DEN ERR
2971 015236  004036                             .WORD   SDKYWD!NEGTST   ;250->WRG KEYWD-S.D.            -WRG KEY
2972                                    ;-------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.PRT.STA - PRINT UNIT STATUS
                                        ;-------------------------------------------------------------------
                                        ;
015240  012701  015446          PRTSTA: MOV     #IDENT1,R1      ;SETUP FORMAT MSG
015244  013702  002512                  MOV     UNTPRT,R2       ;SETUP UNIT PRT
015250  013703  002432                  MOV     RXCSR,R3        ;SETUP RXCSR
015254  013704  002434                  MOV     RXESR,R4        ;SETUP RXESR
015260  013705  002400                  MOV     CMD,R5          ;SETUP COMMAND
015264  004737  002664                  CALL    PRTB4S          ;CALL PRINT BASIC 4-PARM.
015270  005737  002400          IBSTA:  TST     CMD             ;IF CMD
015274  001417                          BEQ     IASTA           ;NOT = 0, THEN
015276  032737  040000  002400  ICSTA:  BIT     #BIT14,CMD      ;IF PROG INIT
015304  001403                          BEQ     LCSTA           ;THEN
015306  012701  007452                  MOV     #CMDM8,R1       ;SETUP PROG INIT MSG
015312  000406                          BR      ECSTA           ;BR TO END 'C'
015314  013705  002400          LCSTA:  MOV     CMD,R5          ;GET COMMAND
015320  042705  177761                  BIC     #177761,R5      ;CLR ALL BUT CMD
015324  016501  007164                  MOV     CMDMSG(R5),R1   ;GET CMD MSG
015330  004737  002550          ECSTA:  CALL    PRTBOS          ;CALL PRINT BASIC 0 - PAR
015334  032737  000200  002476  IASTA:  BIT     #RECFLG,FLAGST  ;IF ERR CODE FLAG
015342  001435                          BEQ     XPTSTA          ;SET, THEN
015344  004737  015744                  CALL    PRTECD          ;CALL PRINT ERROR CODE
015350  004737  017124                  CALL    CLRRGS          ;CALL CLEAR REGISTER
015354  012701  015531                  MOV     #XER2,R1        ;SETUP FORMAT MSG
015360  113702  002443                  MOVB    WC,R2           ;SETUP WORD COUNT
015364  113703  002444                  MOVB    CTK0,R3         ;SETUP CTK0
015370  113704  002445                  MOVB    CTK1,R4         ;SETUP CTK1
015374  004737  003002                  CALL    PRTX3S          ;CALL PRINT-EXT 3 PARAMETERS
015400  012701  015627                  MOV     #XER3,R1        ;SETUP FORMAT MSG
015404  113702  002446                  MOVB    TTRK,R2         ;SETUP TTRK
015410  113703  002447                  MOVB    TSEC,R3         ;SETUP TSEC
015414  113704  002450                  MOVB    SFTSTS,R4       ;SETUP SFTSTS
015420  113705  002451                  MOVB    BTRK,R5         ;SETUP BTRK
015424  004737  003030                  CALL    PRTX4S          ;CALL PRINT-EXT 4 PAR
015430  042737  000200  002476          BIC     #RECFLG,FLAGST  ;CLEAR ERROR CODE FLAG
015436  005037  015444  XPTSTA: CLR     ERRREG          ;CLEAR ERROR REGISTER
015442  000207                          RTS     PC              ;RETURN
                                        ;-------------------------------------------------------------------
015444  000000          ERRREG: 0                       ;
                                        ;-------------------------------------------------------------------
                                        ;
015446      045     116     045 IDENT1: .ASCIZ  /%N%A  UNIT#%O1%A RXCSR=%O%A RXESR=%O%A CMD=%O%A ->/
015531      045     116     045 XER2:   .ASCIZ  /%N%A  WORD CNT=%O3%N%A  CUR TRK DV0=%D2%A. CUR TRK DV1=%D2%A./
015627      045     116     045 XER3:   .ASCIZ  /%N%A  TARGET TRK =%D2%A. TARGET SEC =%D2%A. SOFT STAT=%O3%A BAD TRK=%D2%A.%
                                        .EVEN
                                        ;-------------------------------------------------------------------
```

```
3022                                    .SBTTL -  MOD U.PRT.EC  - PRINT UNIT ERROR CODE
3023                                    ;-------------------------------------------------------------------
3024
3025 015744  012701  016014            PRTECD: MOV     #XER1,R1        ;SETUP FORMAT MSG
3026 015750  113702  002442                    MOVB    XERUUT,R2       ;GET ERROR CODE
3027 015754  042702  177400                    BIC     #177400,R2      ;CEAR TOP R2
3028 015760  004737  002734                    CALL    PRTX1S          ;CALL PRINT EXTENDED-1 ARG
3029 015764  105737  002442                    TSTB    XERUUT          ;IF ERROR
3030 015770  001410                            BEQ     ENDXER          ;NOT=0, THEN
3031 015772  004737  017106                    CALL    GTECOF          ;CALL GET ERROR CODE OFFSET
3032 015776  016101  016042                    MOV     ECTAB-2(R1),R1  ;SET ADR OF ERROR MSG FOR PRINT
3033 016002  004737  002714                    CALL    PRTXOS          ;CALL PRINT EXTENDED-NO ARG
3034 016006  105037  002442                    CLRB    XERUUT          ;CLEAR ERROR CODE
3035 016012  000207                    ENDXER: RTS     PC              ;RETURN
3036                                    ;-------------------------------------------------------------------
3037 016014     045     116     045    XER1:   .ASCIZ  /%N%A  ERR CODE=%03%A ->/
3038                                            .EVEN
3039                                    ;-------------------------------------------------------------------
3040
3041 016044  016136                    ECTAB:  .WORD   EC1
3042 016046  016175                            .WORD   EC2
3043 016050  016116                            .WORD   EC0
3044 016052  016234                            .WORD   EC4
3045 016054  016274                            .WORD   EC5
3046 016056  016116                            .WORD   EC0
3047 016060  016337                            .WORD   EC7
3048 016062  016116                            .WORD   EC0
3049 016064  016407                            .WORD   EC11
3050 016066  016451                            .WORD   EC12
3051 016070  016477                            .WORD   EC13
3052 016072  016116                            .WORD   EC0
3053 016074  016567                            .WORD   EC15
3054 016076  016640                            .WORD   EC16
3055 016100  016670                            .WORD   EC17
3056 016102  016716                            .WORD   EC20
3057 016104  016116                            .WORD   EC0
3058 016106  016753                            .WORD   EC22
3059 016110  017013                            .WORD   EC23
3060 016112  017033                            .WORD   EC24
3061 016114  017052                            .WORD   EC25
3062                                    ;-------------------------------------------------------------------
```

```
                                        .SBTTL -    UNIT ERROR CODE MESSAGES
                                        ;-------------------------------------------------------------------------
016116      045      101      040  EC0:     .ASCIZ  /%A ILL ERR CODE/
016136      045      101      116  EC1:     .ASCIZ  /%ANO HOME ON INITIALIZE DRV 0./
016175      045      101      116  EC2:     .ASCIZ  /%ANO HOME ON INITIALIZE DRV 1./
                                   ;EC3:    .ASCIZ  /%AILL ERR CDE./
016234      045      101      124  EC4:     .ASCIZ  /%ATRIED TO ACCESS A TRACK > 76./
016274      045      101      110  EC5:     .ASCIZ  /%AHOME FOUND BEFORE DESIRED TRACK./
                                   ;EC6:    .ASCIZ  /%AILL ERR CDE./
016337      045      101      065  EC7:     .ASCIZ  /%A52 HEADERS PASSED & SECTOR NOT FOUND./
                                   ;EC10:   .ASCIZ  /%AILL ERR CDE./
016407      045      101      116  EC11:    .ASCIZ  /%ANO STEPCLK SEEN IN 40 MICROSEC./
016451      045      101      120  EC12:    .ASCIZ  /%APREAMBLE NOT FOUND./
016477      045      101      120  EC13:    .ASCIZ  /%APREAMBLE FOUND BUT NO ID MARK IN TIME./
016550      045      101      111  EC14:    .ASCIZ  /%AILL ERR CDE./
016567      045      101      107  EC15:    .ASCIZ  /%AGOOD HEADER TRACK ADR NOT=SELECTED TRK/
016640      045      101      111  EC16:    .ASCIZ  /%AIDAM->TOO MANY TRIES./
016670      045      101      116  EC17:    .ASCIZ  /%ANO DATA AM IN TIME./
016716      045      101      103  EC20:    .ASCIZ  /%ACRC ERR ON READING SECTOR./
                                   ;EC21:   .ASCIZ  /%AILL ERR CDE./
016753      045      101      122  EC22:    .ASCIZ  /%AR-W ELECT. FAILED MAINT. TST./
017013      045      101      127  EC23:    .ASCIZ  /%AWORD CNT OVF./
017033      045      101      104  EC24:    .ASCIZ  /%ADENSITY ERR./
017052      045      101      123  EC25:    .ASCIZ  /%ASET DENSITY WRG KEY WORD./
                                        ;-------------------------------------------------------------------------
                                                .EVEN
                                        .SBTTL -  MOD U.SFT.GEO - GET ERROR CODE OFFSET
                                        ;-------------------------------------------------------------------------

017106  013701  002442                  GTECOF: MOV     XERUUT,R1           ;SAVE EXTENDED ERROR CODE IN TEMP #1
017112  006201                                  ASR     R1                  ;FORMAT E.C.
017114  006201                                  ASR     R1                  ;FORMAT E.C. FOR ADR
017116  042701  177700                          BIC     #177700,R1          ;CLR TOP BYTE
017122  000207                                  RETURN                      ;RETURN
                                        ;-------------------------------------------------------------------------

                                        .SBTTL -  MOD U.SFT.CRS - CLEAR REGISTERS
                                        ;-------------------------------------------------------------------------

017124  005001                          CLRRGS: CLR     R1
017126  005002                                  CLR     R2
017130  005003                                  CLR     R3
017132  005004                                  CLR     R4
017134  005005                                  CLR     R5
017136  000207                                  RETURN                      ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
3113                                    .SBTTL -  MOD U.SFT.DSC - DEVICE STATE CHECK
3114                                    ;-------------------------------------------------------------------
3115                                    ; BGNSUB
3116                                    ;       IF RXCS ERROR BIT SET
3117                                    ;       : THEN
3118                                    ;       :   IF RXCS DONE BIT SET
3119                                    ;       :   : THEN
3120                                    ;       :   :   IF RXES ACLOW BIT SET
3121                                    ;       :   :   : THEN-SETUP ERROR
3122                                    ;       :   :   :       SETUP MSG->''NO PWR, CABLED BACK, RX01 STRAP, PDP-8''
3123                                    ;       :   :   :       CALL ERROR
3124                                    ;       :   :   :       SETUP DROP UNIT
3125                                    ;       :   :   :       DO DROP UNIT
3126                                    ;       :   :   ENDIF
3127                                    ;       :   ENDIF
3128                                    ;       ENDIF
3129                                    ; ENDSUB
3130                                    ;-------------------------------------------------------------------
3131
3132 017140  013701  002350            DVSTCK: MOV     RXCS,R1         ;SET R1=RXCS ADDRESS
3133 017144  032711  100000            IADSC:  BIT     #ERRBIT,(R1)    ;IF RXCS REG=ERR BIT
3134 017150  001423                            BEQ     EADSC           ;SET, THEN
3135 017152  032721  000040            IBDSC:  BIT     #DNBIT,(R1)+    ;IF RXCS REG=DONE BIT
3136 017156  001420                            BEQ     EADSC           ;SET, THEN
3137 017160  032711  000010            ICDSC:  BIT     #ACLOW,(R1)     ;IF RXES REG=AC LOW BIT
3138 017164  001415                            BEQ     EADSC           ;SET, THEN
3139 017166  012737  000050  002520            MOV     #ACLOWF,ERRNBR  ;SET ERR NBR=AC LOW FATAL ERROR
3140 017174  004737  003060                    CALL    ERROR           ;CALL ERROR
3141 017200  012701  017222                    MOV     #STATER,R1      ;SET MSG->''NO PWR, CABLE BACK...ETC.''
3142 017204  004737  002550                    CALL    PRTBOS          ;CALL PRINT BASIC-NO ARG
3143 017210                                    DODU    UNIT            ;DROP UNIT
3144 017216                                    DOCLN                   ;DO CLEAN
3145 017220  000207                    EADSC:  RETURN                  ;RETURN
3146                                    ;-------------------------------------------------------------------
3147 017222     045     116     045    STATER: .ASCIZ  /%N%A ->NO PWR, CABLED BACKWARDS, STRAPPED RX01, PDP-8/
3148                                            .EVEN
3149                                    ;-------------------------------------------------------------------
```

```
3151
3152                                    .SBTTL -  MOD U.SFT.DRC - DEVICE READY CHECK
3153                                    ;-------------------------------------------------------------------------
3154                                    ; BGNSUB
3155                                    ;       CALL CLEAR DEVICE
3156                                    ;       IF RXES DRV RDY NOT SET                                    [A]
3157                                    ;       :  THEN-SET SYS ERR-DRV RDY ERR
3158                                    ;       :       SETUP ERR # DRV RDY ERR
3159                                    ;       :       CALL ERR
3160                                    ;       ENDIF
3161                                    ; ENDSUB
3162                                    ;-------------------------------------------------------------------------
3163
3164 017310  000240                    DVRYCK: NOP                     ;
3165 017312  004737  010472                    CALL    CLRDEV          ;CALL CLEAR DEVICE
3166 017316  032777  000200  163026    IADRC:  BIT     #DRVRDY,@RXDB   ;IF RXDB-DRIVE RDY
3167 017324  001010                            BNE     EADRC           ;NOT SET, THEN
3168 017326  052737  000040  002456            BIS     #BIT5,SYSERR    ;SET SYS ERR=DRV RDY ERR
3169 017334  012737  000025  002520            MOV     #DVRDYE,ERRNBR  ;SET ERR NBR=DRV RDY ERROR
3170 017342  004737  003060                    CALL    ERROR           ;CALL ERROR
3171 017346  000207                    EADRC:  RETURN                  ;BR TO EXIT
3172                                    ;-------------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.SFT.DDC - DEVICE DENSITY CK
                                        ;-------------------------------------------------------------------------
                                        ; BGNSUB
                                        ;       CALL DEVICE READY CK
                                        ;       IF SYS ERR=DEVICE READY ERR NOT SET
                                        ;       :       THEN-SET TRACK=0, SECTOR=10
                                        ;       :       CALL READ SECTOR
                                        ;       :       IF FINI NOT SET                                 [A]
                                        ;       :       :  THEN
                                        ;       :       :    IF RXES DRIVE DENSITY=DOUBLE DEN           [B]
                                        ;       :       :    :  THEN-SET DENSITY STATUS=DOUBLE DENSITY
                                        ;       :       :    :  ELSE-SET DENSITY STATUS=SINGLE DENSITY
                                        ;       :       :    ENDIF
                                        ;       :       :    SET TRACK=76, SECTOR=10
                                        ;       :       :    CALL READ SECTOR
                                        ;       :       :    IF RXES DRIVE DENSITY NOT=DENSITY STATUS   [C]
                                        ;       :       :    :  THEN-
                                        ;       :       :    :    SETUP ERROR # & ERROR MSG=>'DISKETTE-MIXED DENSITY''
                                        ;       :       :    :    CALL ERROR
                                        ;       :       :    :    DO DROP UNIT
                                        ;       :       :    ENDIF
                                        ;       :       ENDIF
                                        ;       ENDIF
                                        ; ENDSUB
                                        ;-------------------------------------------------------------------------
017350  004737  017310          DENCHK: CALL    DVRYCK          ;CALL DEVICE READY CK
017354  032737  000040  002456  IDDDC:  BIT     #BIT5,SYSERR    ;IF SYS ERR=DEVICE RDY ERR
017362  001054                        BNE     EADDC           ;NOT SET, THEN
017364  005037  002374                CLR     TRACK           ;SET TRACK=0
017370  012737  000012  002376        MOV     #10.,SECTOR     ;SET SECTOR=10
017376  004737  011062                CALL    READ            ;CALL READ SECTOR
017402  005737  002454          IADDC: TST     FIN             ;IF FINI
017406  001042                        BNE     EADDC           ;NOT SET, THEN
017410  032777  000040  162734  IBDDC:  BIT     #DRVDEN,@RXDB   ;IF DRIVE DEN-DOUBLE DEN BIT
017416  001404                        BEQ     LBDDC           ;SET, THEN
017420  012737  000400  002414        MOV     #DENBIT,DENSTA  ;SET DENSITY STATUS=DOUBLE DEN
017426  000402                        BR      EBDDC           ;BR TO END 'B'
017430  005037  002414          LBDDC: CLR     DENSTA          ;SET DENSITY STATUS=SINGLE DEN
017434  012737  000114  002374  EBDDC:  MOV     #76.,TRACK      ;SET TRACK=76.
017442  004737  011062                CALL    READ            ;CALL READ SECTOR
017446  017701  162700                MOV     @RXDB,R1        ;GET RXES
017452  042701  177737                BIC     #^CDRVDEN,R1    ;CLEAR ALL BUT DRIVE DENSITY
017456  006301                        ASL     R1              ;   ADV DRIVE DENSITY
017460  006301                        ASL     R1              ;     SO EQUAL TO
017462  006301                        ASL     R1              ;       DENSITY STATUS
017464  020137  002414          ICDDC: CMP     R1,DENSTA       ;IF RXES DRIVE DENSITY & DENSITY STATUS
017470  001411                        BEQ     EADDC           ;NOT=, THEN
017472  012737  000020  002520        MOV     #DENDSK,ERRNBR  ;SET ERR NBR=DISK DENSITY ERROR
017500  004737  003060                CALL    ERROR           ;CALL ERROR-MOD
017504                                DODU    UNIT            ;DROP UNIT
017512                                DOCLN                   ;DO CLEAN
017514  000207          EADDC:  RETURN                        ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
3230                    .SBTTL -  MOD U.SFT.TKE - TRACK ERROR CHECK
3231                    ;-----------------------------------------------------------------------
3232                    ; BGNSUB
3233                    ;       IF LAST COMMAND=READ OR WRITE SECTOR                    [A]
3234                    ;       :  THEN-IF FLAG=READ ERROR CODE BIT SET                 [B]
3235                    ;       :       :  THEN-IF DRIVE #0 SELECTED                    [C]
3236                    ;       :       :       :  THEN-IF CURRENT TRK DRV #0 NOT=TRACK [D]
3237                    ;       :       :       :       :  THEN-
3238                    ;       :       :       :       :    IF FLAGS=NEG TST NOT SET   [E]
3239                    ;       :       :       :       :    :  THEN-SETUP ERROR #
3240                    ;       :       :       :       :    :       SET PRINT TRACKS-PRINT FLAGS
3241                    ;       :       :       :       :    :       CALL ERROR REPORT
3242                    ;       :       :       :       :    ENDIF
3243                    ;       :       :       :       ENDIF
3244                    ;       :       :       :  ELSE-IF CURRENT TRK DRV #1 NOT=TRACK [F]
3245                    ;       :       :       :       :  THEN-
3246                    ;       :       :       :       :    IF FLAGS=NEG TST NOT SET   [G]
3247                    ;       :       :       :       :    :  THEN-SETUP ERROR
3248                    ;       :       :       :       :    :       SET PRINT TRACKS-PRINT FLAGS
3249                    ;       :       :       :       :    :       CALL ERROR REPORT
3250                    ;       :       :       :       :    ENDIF
3251                    ;       :       :       :       ENDIF
3252                    ;       :       :       ENDIF
3253                    ;       :       :  ELSE-IF ERROR ON COMMAND                     [H]
3254                    ;       :       :       :  THEN-
3255                    ;       :       :       :    IF FLAGS=NEG TEST NOT SET          [I]
3256                    ;       :       :       :    :  THEN-SETUP ERR #
3257                    ;       :       :       :    :       SET PRINT TRACKS-PRINT FLAGS
3258                    ;       :       :       :    :       CALL ERR REPORT
3259                    ;       :       :       :    ENDIF
3260                    ;       :       :       ENDIF
3261                    ;       :       ENDIF
3262                    ;       ENDIF
3263                    ;       NOP
3264                    ; ENDSUB
3265                    ;-----------------------------------------------------------------------
```

```
3268 017516  000240                    TKERCK: NOP                     ;
3269 017520  022737  000017  002424    IATKE:  CMP     #17,LCMD        ;IF LAST COMMAND
3270 017526  001471                            BEQ     EATKE           ;  WAS
3271 017530  032737  000004  002400            BIT     #4,CMD          ;    READ OR WRITE
3272 017536  001465                            BEQ     EATKE           ;THEN
3273 017540  032737  000200  002476    IBTKE:  BIT     #RECFLG,FLAGST  ;IF FLAGS=READ ERROR CODE BIT
3274 017546  001442                            BEQ     IHTKE           ;SET, THEN
3275 017550  005737  002406            ICTKE:  TST     DRIVE           ;IF DRIVE# 0
3276 017554  001016                            BNE     IFTKE           ;SELECTED, THEN
3277 017556  123737  002444  002374    IDTKE:  CMPB    CTK0,TRACK      ;IF CURRENT TRACK DRIVE 0 & TRACK
3278 017564  001452                            BEQ     EATKE           ;NOT=, THEN
3279 017566  032737  004000  002476    IETKE:  BIT     #NEGTST,FLAGST  ;IF FLAGS=NEG TEST BIT
3280 017574  001046                            BNE     EATKE           ;NOT SET, THEN
3281 017576  012737  000041  002520            MOV     #TRKAER,ERRNBR  ;SET ERR NBR=TRACK ADDRESS ERROR
3282 017604  004737  003060                    CALL    ERROR           ;CALL ERROR
3283 017610  000440                            BR      EATKE           ;BR TO END 'A'
3284 017612  123737  002445  002374    IFTKE:  CMPB    CTK1,TRACK      ;IF CURRENT TRACK DRIVE 1 & TRACK
3285 017620  001434                            BEQ     EATKE           ;NOT=, THEN
3286 017622  032737  004000  002476    IGTKE:  BIT     #NEGTST,FLAGST  ;IF FLAGS=NE TEST BIT
3287 017630  001030                            BNE     EATKE           ;NOT SET, THEN
3288 017632  012737  000041  002520            MOV     #TRKAER,ERRNBR  ;SET ERR NBR=TRACK ADDRESS ERROR
3289 017640  052737  000001  002500            BIS     #TKPRT,FLAGSP   ;SET PRINT TRACKS FLAG-PROGRAM FLAGS
3290 017646  004737  003060                    CALL    ERROR           ;CALL ERROR
3291 017652  000417                            BR      EATKE           ;BR TO END 'A'
3292 017654  005737  002432            IHTKE:  TST     RXCSR           ;IF ERROR ON COMMAND (READ OR WRITE)
3293 017660  100014                            BPL     EATKE           ;SET, THEN
3294 017662  032737  004000  002476    IITKE:  BIT     #NEGTST,FLAGST  ;IF FLAGS=NEG TEST BIT
3295 017670  001010                            BNE     EATKE           ;SET, THEN
3296 017672  012737  000041  002520            MOV     #TRKAER,ERRNBR  ;SET ERR NBR=TRACK ADDRESS ERROR
3297 017700  052737  000001  002500            BIS     #TKPRT,FLAGSP   ;SET PRINT TRACKS FLAG
3298 017706  004737  003060                    CALL    ERROR           ;CALL ERROR
3299 017712  000240                    EATKE:  NOP                     ;
3300 017714  042737  000001  002500            BIC     #TKPRT,FLAGSP   ;CLEAR PRINT TRACKS FLAG
3301 017722  000207                    XTKECK: RETURN                  ;RETURN
3302                                    ;-----------------------------------------------------------------------
```

```
3305                    .SBTTL -  MOD U.SFT.ECK - ERROR CHECK
3306                    ;-----------------------------------------------------------------------
3307                    ; BGNSUB
3308                    ;       IF REG CHECK SET                                        [A]
3309                    ;       :  THEN-CALL REGISTER CHECK
3310                    ;       ENDIF
3311                    ;       IF READ ERROR CODE SET                                  [B]
3312                    ;       :  THEN-IF FLAGSP=READ ERROR CODE TEST NOT SET          [N]
3313                    ;       :       :  THEN-CALL READ ERROR CODE CHECK
3314                    ;       :       :       CALL ERROR NEG TEST CK
3315                    ;       :       ENDIF
3316                    ;       ENDIF
3317                    ;       IF ERROR FLAG SET                                       [C]
3318                    ;       :  THEN
3319                    ;       :    IF ERR NUMBER NOT SET=SYSFTL ERROR                 [D]
3320                    ;       :    :  THEN-CLEAR REG ERR #
3321                    ;       :    :  DOWHILE REG ERR # TABLE ENTRY NOT=-1            [E]
3322                    ;       :    :  :  SET TEMP R2=REG ERR # TABLE ENTRY
3323                    ;       :    :  :  IF TEMP REG #2 > REG ERR #                   [I]
3324                    ;       :    :  :  :  THEN-SET REG ERR #=TEMP REG
3325                    ;       :    :  :  ENDIF
3326                    ;       :    :  ENDDO
3327                    ;       :    :  IF REG ERR # > ERR CODE ERR #                   [M]
3328                    ;       :    :  :  THEN-SET ERR NUMBER=REG ERR #
3329                    ;       :    :  :  ELSE-SET ERR NUMBER=ERR CODE ERR #
3330                    ;       :    :  ENDIF
3331                    ;       :    ENDIF
3332                    ;       :    CLEAR REG ERR #
3333                    ;       :    CLEAR ERR CODE ERR #
3334                    ;       :    CALL ERROR
3335                    ;       ENDIF
3336                    ; ENDSUB
3337                    ;-----------------------------------------------------------------------
```

```
3340 017724  000240                    ERRCHK: NOP                     ;
3341 017726  032737  000001  002476  IAECK:  BIT     #REGCK,FLAGST    ;IF FLAGS=REG CK BIT
3342 017734  001402                            BEQ     IBECK           ;SET, THEN
3343 017736  004737  013664                    CALL    REGSCK          ;CALL REGISTER CHECK
3344 017742  032737  000200  002476  IBECK:  BIT     #RECFLG,FLAGST   ;IF FLAGS=READ ERROR CODE BIT
3345 017750  001420                            BEQ     ICECK           ;SET, THEN
3346 017752  032737  000200  002500  INECK:  BIT     #RECTST,FLAGSP   ;IF FLAGSP=READ ERROR CODE TEST
3347 017760  001014                            BNE     ICECK           ;NOT SET, THEN
3348 017762  032737  100000  002432  IOECK:  BIT     #ERRBIT,RXCSR    ;IF RXCSR ERR BIT
3349 017770  001410                            BEQ     ICECK           ;SET, THEN
3350 017772  004737  015106                    CALL    GTECEN          ;CALL GET READ ERROR CODE ERR #
3351 017776  013702  020164                    MOV     ECERNB,R2       ;PASS ERROR CODE ERR # TO "NEG TEST CK" MOD
3352 020002  004737  020170                    CALL    ERNTCK          ;CALL ERROR NEG TEST CHECK
3353 020006  010237  020164                    MOV     R2,ECERNB       ;SAVE REC ERR
3354 020012  032737  100000  002476  ICECK:  BIT     #ERRFLG,FLAGST   ;IF FLAGS=ERROR FLAG
3355 020020  001460                            BEQ     XERRCK          ;SET, THEN
3356 020022  022737  000047  002520  IDECK:  CMP     #39.,ERRNBR      ;IF ERR NUMBER NOT=SYS FTL ERR
3357 020030  103434                            BLO     EDECK           ;THEN
3358 020032  005037  020166                    CLR     RGERNB          ;CLEAR REGISTER ERROR #
3359 020036  005001                            CLR     R1              ;CLEAR REGISTER ERROR TABLE PTR
3360 020040  005761  014706          WEECK:  TST     RGERTB(R1)       ;DOWHILE REG ERR TABLE ENTRY
3361 020044  100413                            BMI     IMECK           ;NOT=-1, THEN
3362 020046  016102  014706                    MOV     RGERTB(R1),R2    ;PASS REG ERR # TABLE ENTRY TO "NEG TEST CK" MOD VIA "R2"
3363 020052  004737  020170                    CALL    ERNTCK          ;CALL ERROR NEG TEST CHECK
3364 020056  020237  020166          IIECK:  CMP     R2,RGERNB        ;IF TEMP R2 > REG ERR NBR
3365 020062  103402                            BLO     EIECK           ;THEN
3366 020064  010237  020166                    MOV     R2,RGERNB       ;SET REG ERR NUMBER=R2
3367 020070  005721                  EIECK:  TST     (R1)+            ;INCREMENT INDEX
3368 020072  000762                  EEECK:  BR      WEECK            ;BR TO DOWHILE 'E'
3369 020074  023737  020166  020164  IMECK:  CMP     RGERNB,ECERNB    ;IF REG ERR# > ERR CODE ERR#
3370 020102  103404                            BLO     LMECK           ;THEN
3371 020104  013737  020166  002520            MOV     RGERNB,ERRNBR    ;SET ERR NUMBER=REG ERR #
3372 020112  000403                            BR      EDECK           ;BR TO END 'D'
3373 020114  013737  020164  002520  LMECK:  MOV     ECERNB,ERRNBR    ;SET ERR NUMBER=ERR CODE ERR#
3374 020122  000240                  EDECK:  NOP                     ;
3375 020124  032737  020000  002332  IPECK:  BIT     #BIT13,SWREG     ;IF SW REG BIT #13
3376 020132  001402                            BEQ     EPECK           ;SET, THEN
3377 020134  004737  020240                    CALL    TSTDBG          ;**
3378 020140  005037  020166          EPECK:  CLR     RGERNB           ;CLEAR REG ERR #
3379 020144  005037  020164                    CLR     ECERNB          ;CLEAR ERR CODE ERR #
3380 020150  004737  003060                    CALL    ERROR           ;CALL ERROR
3381 020154  042737  000200  002500            BIC     #RECFLG,FLAGSP   ;CLEAR RD ERR CODE FLG
3382 020162  000207                  XERRCK: RETURN                  ;RETURN
3383                                ;-------------------------------------------------------------------------------
3384 020164  000000                ECERNB: 0                       ;ERR CODE ERR #
3385 020166  000000                RGERNB: 0                       ;REG ERR #
3386                                ;-------------------------------------------------------------------------------
```

```
3389                                    .SBTTL -  MOD U.SFT.ENC - ERROR NEG TEST CHECK
3390                                    ;-------------------------------------------------------------------
3391                                    ; BGNSUB
3392                                    ;       IF TEMP REG #2=NEG TEST FLAG SET                        [A]
3393                                    ;       :  THEN-CLEAR NEG TEST FLAG FROM ERR #
3394                                    ;       :       IF FLAGS=NEG TEST FLAG SET                      [B]
3395                                    ;       :       :  THEN-IF NEG TEST ERR #=SET NEG TEST ERR      [C]
3396                                    ;       :       :       :  THEN-CLEAR THE ERROR
3397                                    ;       :       :       :  ELSE-IF REG #2=DISK ERROR            [D]
3398                                    ;       :       :       :       :  THEN-CLEAR-NOT ERROR
3399                                    ;       :       :       :       ENDIF
3400                                    ;       :       :       ENDIF
3401                                    ;       :       ENDIF
3402                                    ;       ENDIF
3403                                    ; ENDSUB
3404                                    ;-------------------------------------------------------------------
3405
3406 020170  000240                    ERNTCK: NOP                     ;
3407 020172  032702  004000            IAENC:  BIT     #NEGTST,R2      ;IF TEMP REG=NEG TEST FLAG
3408 020176  001417                            BEQ     XENTCK          ;SET, THEN
3409 020200  042702  004000                    BIC     #NEGTST,R2      ;CLEAR NEG TEST FLAG
3410 020204  032737  004000  002476    IBENC:  BIT     #NEGTST,FLAGST  ;IF FLAGS=NEG TEST BIT
3411 020212  001411                            BEQ     XENTCK          ;SET, THEN
3412 020214  023702  002464            ICENC:  CMP     NGTSER,R2       ;IF NEG TEST ERR # & SET NEG TEST ERR
3413 020220  001002                            BNE     IDENC           ;ARE EQUAL, THEN
3414 020222  005002                            CLR     R2              ;OK, CLEAR THE ERROR !!
3415 020224  000404                            BR      XENTCK          ;BR TO IF 'I'
3416 020226  022702  000020            IDENC:  CMP     #DENDSK,R2      ;IF DISK DEN
3417 020232  001001                            BNE     XENTCK          ;ERROR, THEN
3418 020234  005002                            CLR     R2              ;CLEAR-NOT ERROR<-----
3419 020236  000207                    XENTCK: RETURN                  ;RETURN
3420                                    ;-------------------------------------------------------------------
```

```
3423                                    .SBTTL -  MOD U.SFT.DBG - TEST STATUS
3424                                    ;-------------------------------------------------------------------
3425
3426 020240  013702  002476            TSTDBG: MOV     FLAGST,R2
3427 020244  013703  002500                    MOV     FLAGSP,R3
3428 020250  013704  002522                    MOV     ERRMSG,R4
3429 020254  012701  020306                    MOV     #TSDGMS,R1
3430 020260  004737  002636                    CALL    PRTB3S
3431 020264  012701  020364                    MOV     #TSDGM1,R1
3432 020270  013702  020166                    MOV     RGERNB,R2
3433 020274  013703  020164                    MOV     ECERNB,R3
3434 020300  004737  002612                    CALL    PRTB2S
3435 020304  000207                          RETURN                  ;RETURN
3436                                    ;-------------------------------------------------------------------
3437 020306     045     116     045    TSDGMS: .ASCIZ  /%N%A->FLAGST=%O%A FLAGSP=%O%A ERRMSG ADR=%O%N/
3438 020364     045     101     040    TSDGM1: .ASCIZ  /%A REG ERR #%O%A ERR CODE ERR #%O%N/
3439                                            .EVEN
3440                                    ;-------------------------------------------------------------------
3441
3442                                    .SBTTL -  MOD U.SFT.CDC - COMPLIMENT DENSITY CONTROL
3443                                    ;-------------------------------------------------------------------
3444
3445 020430  000240                    CDENC:  NOP                     ;
3446 020432  005737  002412            IACDC:  TST     DENSTY          ;IF CONTROL DENSITY
3447 020436  001406                            BEQ     LACDC           ;EQUALS DOUBLE, THEN
3448 020440  042737  000002  002476            BIC     #DDCFLG,FLAGST  ;CLEAR DOUBLE DENSITY CONTROL FLAG
3449 020446  005037  002412                    CLR     DENSTY          ;SET CONTROL DENSITY=SINGLE
3450 020452  000406                            BR      XCDENC          ;BR TO 'X'
3451 020454  012737  000400  002412    LACDC:  MOV     #DENBIT,DENSTY  ;SET CONTROL DENSTY=DOUBLE
3452 020462  052737  000002  002476            BIS     #DDCFLG,FLAGST  ;SET DOUBLE DENSITY CONTROL FLAG
3453 020470  000207                    XCDENC: RETURN                  ;RETURN
3454                                    ;-------------------------------------------------------------------
3455
3456                                    .SBTTL -  MOD U.SFT.SDC - SETUP DENSITY CONTROL
3457                                    ;-------------------------------------------------------------------
3458
3459 020472  013737  002414  002412    SDENC:  MOV     DENSTA,DENSTY   ;SET DENSTY CONTROL=DENSITY STATUS
3460 020500  005737  002414            IASDC:  TST     DENSTA          ;IF DENSITY STATUS SET TO
3461 020504  001407                            BEQ     LASDC           ;DOUBLE DENSITY, THEN
3462 020506  052737  000002  002476            BIS     #DDCFLG,FLAGST  ;SET DOUBLE DENSITY CONTROL FLAG
3463 020514  012737  000200  002370            MOV     #128.,WDCNT     ;SET WORD COUNT=128
3464 020522  000406                            BR      XSDC            ;BR TO EXIT
3465 020524  042737  000002  002476    LASDC:  BIC     #DDCFLG,FLAGST  ;CLEAR DOUBLE DENSITY CONTROL FLAG
3466 020532  012737  000100  002370            MOV     #64.,WDCNT      ;SET WORD COUNT=64
3467 020540  000207                    XSDC:   RETURN                  ;RETURN
3468                                    ;-------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.PRT.UNT - PRINT UNIT IDENT
                                        ;-------------------------------------------------------------------------
                                        ;BGNSUB
                                        ;       GET UNIT #
                                        ;       GET UNIT MSG
                                        ;       CALL PRINT-1 ARG
                                        ;ENDSUB
                                        ;-------------------------------------------------------------------------

020542  013702  002512                          MOV     UNTPRT,R2       ;GET UNIT #
020546  012701  020560                          MOV     #PTUTMS,R1      ;GET UNIT MSG
020552  004737  002570                          CALL    PRTB1S          ;CALL PRINT BASIC-1 ARG
020556  000207                                  RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------
020560      045     116     045         PTUTMS: .ASCIZ  /%N%A UNIT #%D2/
                                                .EVEN
                                        ;-------------------------------------------------------------------------


                                        .SBTTL -  MOD U.PRT.DID - PRINT DRIVE IDENT
                                        ;-------------------------------------------------------------------------
                                        ; BGNSUB
                                        ;       GET DRIVE #
                                        ;       GET SIDE #
                                        ;       IF DOUBLE SIDED DEVICE
                                        ;       :  THEN-SETUP PRINT IDENT DOUBLE SIDED DEVICE
                                        ;       :       CALL PRINT BASIC-2 PAR.
                                        ;       :  ELSE-SETUP PRINT IDENT SINGLE SIDED DEVICE
                                        ;       :       CALL PRINT BASIC-1 PAR.
                                        ;       ENDIF
                                        ; ENDSUB
                                        ;-------------------------------------------------------------------------


020600  013702  002514          PRTDID: MOV     DRVPRT,R2       ;SETUP R2=DRV #
020604  012701  020657                  MOV     #IDSSMS,R1      ;SETUP PRINT IDENT SINGLE SIDED DEVICE
020610  004737  002570                  CALL    PRTB1S          ;CALL PRINT BASIC-1 PAR.
020614  032737  010000  002332  IADID:  BIT     #SIDFLG,SWREG   ;IF DOUBLE SIDED DEVICE
020622  001406                          BEQ     XPTDID          ;FLAG SET, THEN
020624  013702  002515                  MOV     SIDPRT,R2       ;SETUP R3=SID #
020630  012701  020642                  MOV     #IDDSMS,R1      ;SETUP PRINT IDENT DOUBLE SIDED DEVICE
020634  004737  002570                  CALL    PRTB1S          ;CALL PRINT BASIC-2 PAR.
020640  000207                  XPTDID: RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------
020642      045     101     040         IDDSMS: .ASCIZ  /%A SIDE #%01/
020657      045     116     045         IDSSMS: .ASCIZ  /%N%A DRIVE #%01/
                                                .EVEN
                                        ;-------------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD U.TST.FTS - FUNCTION TEST SETUP
                                        ;-------------------------------------------------------------------------
                                        ; BGNSUB
                                        ;       SET FUNCTION TEST BIT-FLAGS
                                        ;       SETUP TEST IDENT MSG IN "ERRMSG"
                                        ;       SET FLAGS REGISTER CHECK
                                        ;       NOP
                                        ; ENDSUB
                                        ;-------------------------------------------------------------------------
020700  000240                  FTSTUP: NOP                     ;
020702  004737  021122                  CALL    CLRCR           ;CALL CLEAR CTRS & REGS
020706  012737  000040  002476          MOV     #FUNTST,FLAGST  ;SET FUNCTION TEST BIT-FLAGS
020714  017737  161546  002522          MOV     @TSTID,ERRMSG   ;SETUP TEST IDENT MSG
020722  052737  000001  002476          BIS     #REGCK,FLAGST   ;SET FLAGS-REGISTER CHECK
020730  004737  021014                  CALL    SUDVCD          ;CALL SETUP DEVICE COMMANDS
020734  000207                          RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------


                                        .SBTTL -  MOD U.TST.LTS - LOGIC TEST SETUP
                                        ;-------------------------------------------------------------------------
                                        ; BGNSUB
                                        ;       CLEAR FUNCTION TEST BIT-FLAGS
                                        ;       SETUP TEST IDENT MSG IN "ERRMSG"
                                        ;       GET TEST TABLE ADDRESS
                                        ;       INCREMENT TO NEXT ADDRESS
                                        ;       SET ANY FLAGS FROM THAT ADDRESS
                                        ;       SET FLAGS REGISTER CHECK
                                        ;       NOP
                                        ; ENDSUB
                                        ;-------------------------------------------------------------------------
020736  000240                  LTSTUP: NOP                     ;
020740  004737  021122                  CALL    CLRCR           ;CALL CLEAR CTRS & REGS
020744  042737  000040  002476          BIC     #FUNTST,FLAGST  ;CLEAR FUNCTION TEST BIT-FLAGS
020752  017737  161510  002522          MOV     @TSTID,ERRMSG   ;SETUP TEST IDENT MSG
020760  004737  020772                  CALL    SUTSFG          ;CALL SETUP TEST FLAGS
020764  004737  021014                  CALL    SUDVCD          ;CALL SETUP DEVICE COMMANDS
020770  000207                          RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------


                                        .SBTTL -  MOD U.TST.SFG - SETUP TEST FLAGS
                                        ;-------------------------------------------------------------------------
020772  000240                  SUTSFG: NOP                     ;
020774  013701  002466                  MOV     TSTID,R1        ;GET TEST TABLE ADDRESS
021000  005721                          TST     (R1)+           ;INC TEST TABLE ADDRESS
021002  012137  002476                  MOV     (R1)+,FLAGST    ;SET TEST FLAGS FROM TABLE
021006  111137  002500                  MOVB    (R1),FLAGSP     ;SET PRINT FLAGS FROM TABLE
021012  000207                          RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------------
```

```
3569                                    .SBTTL -  MOD U.SFT.SDC - SETUP DEVICE COMMANDS
3570                                    ;-------------------------------------------------------------------
3571
3572 021014  012737  036622  002360  SUDVCD: MOV     #DATBUF,EMPADR  ;SETUP EMPTY BUFFER ADDRESS
3573 021022  012737  000111  002372          MOV     #'I,VARIFY      ;SETUP SET DENSITY KEYWORD="I"
3574 021030  012737  036222  002362          MOV     #DATPAT,FILADR  ;SETUP FILL BUFFER ADDRESS
3575 021036  032737  000002  002476  1$:     BIT     #DDCFLG,FLAGST  ;IF DOUBLE DENSITY FLAGS
3576 021044  001407                          BEQ     2$              ;SET, THEN
3577 021046  012737  000400  002412          MOV     #DENBIT,DENSTY  ;SET DEVICE DENSITY=DOUBLE
3578 021054  012737  000200  002370          MOV     #128.,WDCNT     ;SET WORD COUNT=DOUBLE DEN  'ZE
3579 021062  000405                          BR      3$              ;BR
3580 021064  005037  002412          2$:     CLR     DENSTY          ;SET DEVICE DENSITY=SINGLE
3581 021070  012737  000100  002370          MOV     #64.,WDCNT      ;SET WORD COUNT=SINGLE DEN SIZE
3582 021076  012737  002442  002364  3$:     MOV     #XERUUT,RECADR  ;SET READ ERROR CODE ADR=NORMAL ADR
3583 021104  012737  000001  002374          MOV     #1,TRACK        ;SETUP TRACK=1
3584 021112  012737  000001  002376          MOV     #1,SECTOR       ;SETUP SECTOR=1
3585 021120  000207                          RETURN                  ;RETURN
3586                                    ;-------------------------------------------------------------------
3587
3588                                    .SBTTL -  MOD U.TST.CCR - CLEAR TEST CTRS & ERROR REGS
3589                                    ;-------------------------------------------------------------------
3590                                    ; BGNSUB
3591                                    ;       CLEAR ANY ERRORS FROM PREVIOUS TESTS
3592                                    ; ENDSUB
3593                                    ;-------------------------------------------------------------------
3594
3595 021122  005037  002400          CLRCR:  CLR     CMD             ;CLEAR COMMAND WORD
3596 021126  005037  002454                  CLR     FIN             ;CLEAR COMMAND FINI FLAG
3597 021132  005037  002460                  CLR     TYPERR          ;CLEAR TYPE ERROR
3598 021136  005037  002470                  CLR     TCMDCT          ;CLEAR TEST COMMAND CTR
3599 021142  005037  002442                  CLR     XERUUT          ;CLEAR READ ERR CODE WORD
3600 021146  005037  002510                  CLR     TKSCFG          ;CLEAR TRK & SEC FLAGS
3601 021152  005037  002402                  CLR     DELDAT          ;CLEAR DELETED DATA MODE
3602 021156  005037  002504                  CLR     TTEMP1          ;CLEAR TEST TEMP #1
3603 021162  000240                          NOP                     ;
3604 021164  000240                          NOP                     ;
3605 021166  000240                          NOP                     ;
3606 021170  000240                          NOP                     ;
3607 021172  000207                          RETURN                  ;RETURN
3608                                    ;-------------------------------------------------------------------
3609
3610                                    .SBTTL -  MOD U.TST.T76 - SET TRACK=76
3611                                    ;-------------------------------------------------------------------
3612
3613 021174  012737  000114  002374  STTK76: MOV     #76.,TRACK      ;SET TRACK=76.
3614 021202  012737  000012  002376          MOV     #10.,SECTOR     ;SET SECTOR=10.
3615 021210  000207                          RETURN                  ;RETURN
3616                                    ;-------------------------------------------------------------------
3617
3618 021212                                  ENDMOD
3619
```

```
3632                                    .TITLE MISCELLANEOUS SECTIONS
3633                                    .SBTTL  REPORT CODING SECTION
3661
3662 021212                                     BGNMOD
3663
3664                                    ;++
3665                                    ; THE REPORT CODING SECTION CONTAINS THE
3666                                    ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
3667                                    ;--
3668
3669 021212                                     BGNRPT
3675
3676 021212                                     ENDRPT
3677
3688                                            .EVEN
```

```
                                .SBTTL  INITIALIZE SECTION

                                ;++
                                ; THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
                                ; AT THE BEGINNING OF EACH PASS.
                                ;--

021214                                  BGNINIT

021214  000240                  INIT:  NOP
021216                                  RFLAGS  FLGDRS
021224                                  READEF  #EF.CONTINUE    ;IF CONTINUE
021232                                  BCOMPLETE XINIT         ;NOT SET, THEN
021234                                  READEF  #EF.PWR         ;IF POWER FAIL
021242                                  BCOMPLETE XINIT         ;NOT SET, THEN
021244  042737  140000  002500          BIC     #RESFLG!STAFLG,FLAGSP ;CLEAR RESTART & START FLAGS
021252                          START:  READEF  #EF.START       ;IF START FLAG
021260                                  BNCOMPLETE RESTAR       ;SET, THEN
021262                          START0: READBUS                 ;IF BUS IS "LSI-BUS"
021264                                  BNCOMPLETE UN1          ;THEN
021266  052737  000400  002500          BIS     #LSIFLG,FLAGSP  ;SET LSI FLAG-PROGRAM FLAGS
021274  022737  004177  002120          CMP     #4177,L$HIMEM   ;IF HI MEMORY (417776=HI LIMIT 124K)
021302  101007                          BHI     START1          ;IS 124K OR HIGHER, THEN
021304  052737  010000  002500          BIS     #FONZFG,FLAGSP  ;SET LSI 11/23 FLAG
021312  000403                          BR      START1          ;BR TO "START1"
021314  042737  000400  002500  UN1:    BIC     #LSIFLG,FLAGSP  ;CLEAR LSI FLAG-PROGRAM FLAGS
021322  052737  100000  002500  START1: BIS     #STAFLG,FLAGSP  ;SET START FLAG
021330  000414                          BR      SETUP           ;BR TO "SET UP"
021332                          RESTAR: READEF  #EF.RESTART     ;IF RESTART FLAG
021340                                  BNCOMPLETE NEW          ;SET, THEN
021342  052737  040000  002500          BIS     #RESFLG,FLAGSP  ;SET RESTART FLAG
021350  000404                          BR      SETUP           ;BR TO "SETUP"
021352                          NEW:    READEF  #EF.NEW         ;IF NEW PASS FLAG
021360                                  BNCOMPLETE NEXT         ;THEN
021362  012737  177777  021526  SETUP:  MOV     #-1,UNIT        ;SETUP TO START GETING UNITS OVER
021370  062737  000001  021526  NEXT:   ADD     #1,UNIT         ;BUMP UNIT TO NEXT UNIT
021376  023737  002012  021526          CMP     L$UNIT,UNIT     ;IF "DRS" UNIT CNT & DIAG UNIT
021404  001426                          BEQ     INITER          ;NOT EXCEEDED, THEN
021406                                  GPHARD  UNIT,PLOC       ;GET NEXT UNIT
021420                                  BNCOMPLETE NEXT         ;IF FOUND A UNIT,THEN
021422  004737  021742                  CALL    INTTBL          ;CALL INITIALIZE TABLES
021426  004737  021572                  CALL    UNPKHP          ;UNPACK HARDAWRE P-TABLES
021432                                  SETVEC  VECT,#INTRHD,#PRI06
021460  000414                          BR      XINIT
021462                          INITER: PRINTF  #INTER1         ;PRINT "TOO MANY UNITS"
021502  012737  000001  002452          MOV     #1,ABORT        ;SET ABORT FLAG
021510                                  DOCLN
021512  000240                  XINIT:  NOP                     ;
021514  013737  021526  002512          MOV     UNIT,UNTPRT     ;SET USER # = LOGICAL UNIT #
021522                                  ENDINIT
                                ;-------------------------------------------------------------------------
021524  000000                  PLOC:   .WORD   0               ;P-TABLE LOCATION
021526  177777                  UNIT:   .WORD   -1              ;LOGICAL UNIT# UNDER TEST
                                ;-------------------------------------------------------------------------
021530      045     116     045 INTER1: .ASCIZ  /%N%ASTART OVER -> TOO MANY UNITS/
                                        .EVEN
                                ;-------------------------------------------------------------------------
```

```
                                        .SBTTL -  MOD I.1 - UNPACK HARDWARE P-TABLES
                                        ;-------------------------------------------------------------------
                                        ;
021572  013701  021524          UNPKHP: MOV     PLOC,R1         ;SAVE P-TABLE LOCATION
021576  012137  002350                  MOV     (R1)+,RXCS      ;LOAD UNIT BUS ADR-CSR
021602  013737  002350  002352          MOV     RXCS,RXDB       ;LOAD UNIT BUS ADR-DBR
021610  062737  000002  002352          ADD     #2,RXDB         ;SET UNIT BUS ADR-DBR
021616  012137  002354                  MOV     (R1)+,VECT      ;LOAD UNIT VECTOR
021622  005721                  IAI1:   TST     (R1)+           ;IF DRIVE #0
021624  001007                          BNE     LAI1            ;THEN
021626  005037  002406                  CLR     DRIVE           ;SETUP TO SELECT DRIVE #0
021632  005037  002420                  CLR     DRVOFF          ;SETUP DRIVE BYTE OFFSET DRV0
021636  105037  002514                  CLRB    DRVPRT          ;SET PRINT DRV #=0
021642  000411                          BR      IBI1            ;BR TO IF 'B'
021644  012737  000020  002406  LAI1:   MOV     #DRV1,DRIVE     ;SETUP TO SELECT DRIVE #1
021652  012737  000001  002420          MOV     #1,DRVOFF       ;SETUP DRIVE BYTE OFFSET DRV1
021660  112737  000001  002514          MOVB    #1,DRVPRT       ;SET PRINT DRV #=1
021666  005721                  IBI1:   TST     (R1)+           ;IF SIDE #0 SELECTED
021670  001005                          BNE     LBI1            ;THEN
021672  005037  002410                  CLR     SIDE            ;SETUP TO SELECT SIDE #0
021676  105037  002515                  CLRB    SIDPRT          ;SET PRINT SID #=0
021702  000406                          BR      EBI1            ;BR TO END 'B'
021704  012737  001000  002410  LBI1:   MOV     #SIDE1,SIDE     ;SETUP TO SELECT SIDE #1
021712  112737  000001  002515          MOVB    #1,SIDPRT       ;SET PRINT SID #=1
021720  011102                  EBI1:   MOV     (R1),R2         ;GET DEVICE PRIORITY
021722  116237  021732  002356          MOVB    PRITAB(R2),RXPRI  ;SETUP PROPER DEVICE PRIORITY
021730  000207                          RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------
021732     000                  PRITAB: .BYTE   PRI00           ;PRIORITY 0
021733     040                          .BYTE   PRI01           ;PRIORITY 1
021734     100                          .BYTE   PRI02           ;PRIORITY 2
021735     140                          .BYTE   PRI03           ;PRIORITY 3
021736     200                          .BYTE   PRI04           ;PRIORITY 4
021737     240                          .BYTE   PRI05           ;PRIORITY 5
021740     300                          .BYTE   PRI06           ;PRIORITY 6
021741     340                          .BYTE   PRI07           ;PRIORITY 7
                                        ;-------------------------------------------------------------------


                                        .SBTTL -  MOD I.2 - INITIALIZE TABLES
                                        ;-------------------------------------------------------------------

021742  000240                  INTTBL: NOP                     ;
021744  012701  002452                  MOV     #ABORT,R1       ;GET ADDRES SOF TABLE TO CLEAR
021750  012702  000010                  MOV     #10,R2          ;SET TABLE LENGTH
021754  005021                  1$:     CLR     (R1)+           ;CLEAR LOCATOIN
021756  005302                          DEC     R2              ;DECREMENT TABLE COUNT
021760  001375                          BNE     1$              ;IF DONE, THEN
021762  000207                          RETURN                  ;RETURN
                                        ;-------------------------------------------------------------------
```

```
                                .SBTTL  CLEANUP CODING SECTION

                                ;++
                                ; THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
                                ; AFTER THE HARDWARE TESTS HAVE BEEN PERFORMED.
                                ;--

021764                                  BGNCLN
021764                                  CLRVEC  VECT    ;CLEAR VECTOR
021772                                  BRESET          ;BUS RESET
021774                                  ENDCLN
                                        .EVEN
                                ;-------------------------------------------------------------------

                                .SBTTL  DROP UNIT SECTION
                                ;++
                                ; THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE TO NO
                                ; LONGER BE TESTED.
                                ;-------------------------------------------------------------------
021776                                  BGNDU
021776  010002                          MOV     R0,R2           ;GET LOGICAL UNIT #
022000  012701  022012                  MOV     #DUMSG1,R1      ;SET DROP MSG
022004  004737  002570                  CALL    PRTB1S          ;CALL PRINTB 1 ARG
022010                                  ENDDU
                                ;-------------------------------------------------------------------
022012     045     116     045  DUMSG1: .ASCIZ  /%N%A DROP UNIT#%D1%A FROM TEST%N/
                                ;-------------------------------------------------------------------
                                        .EVEN


                                .SBTTL  AUTO DROP UNIT SECTION
                                ;-------------------------------------------------------------------
022054                                  BGNAUTO
022054  004737  022066                  CALL    ADRTST          ;CALL ADDRESSING TST
022060                                  ENDAUTO
                                ;-------------------------------------------------------------------


                                .SBTTL  ADD UNIT SECTION
                                ;-------------------------------------------------------------------
                                ;++
                                ; THE ADD-UNIT SECTION CONTAINS ANY CODE THE PROGRAMMER WISHES
                                ;  TO BE EXECUTED IN CONJUNCTION WITH THE ADDING OF A UNIT BACK
                                ;  TO THE TEST CYCLE.
                                ;-------------------------------------------------------------------
022062                                  BGNAU
022062  000240                          NOP
022064                                  ENDAU
                                ;-------------------------------------------------------------------
                                        .EVEN
022066                                  ENDMOD
```

```
 3936                                   .TITLE HARDWARE TESTS
 3947
 3983 022066                                   BGNMOD
 3984
 3985                                   .SBTTL  TEST 0 - ADDRESSING TEST
 3986                                   ;++
 3987                                   ; TEST TO ASSURE THAT THE DEVICE WILL RESPOND WITHOUT A BUS TRAP.
 3988                                   ;--------------------------------------------------------------------
 3989                                   ; BGNSUB
 3990                                   ;       SETUP TEST
 3991                                   ;       SETUP BUS TRAPS
 3992                                   ;       READ RXCSR
 3993-                                  ;       RESET BUS TRAPS
 3994                                   ;       IF TRAP
 3995                                   ;       :  THEN-SET SYSTEM  FATAL FLAG
 3996                                   ;       :       CALL FUNCTION TEST ERROR
 3997                                   ;       :       REPORT BUS TRAP ON RXCSR
 3998                                   ;       ENDIF
 3999                                   ;       READ RXDBR
 4000                                   ;       IF TRAP
 4001                                   ;       :  THEN-SET SYSTEM FATAL FLAG
 4002                                   ;       :       CALL FUNCTION TEST ERROR
 4003                                   ;       :       REPORT BUS TRAP ON RXDBR
 4004                                   ;       ENDIF
 4005                                   ;       RESET BUS TRAPS
 4006                                   ; ENDSUB
 4007                                   ;--------------------------------------------------------------------
 4008 022066  000240                    ADRTST: NOP                     ;
 4009 022070  005037  002452                    CLR     ABORT           ;CLEAR ABORT FLAG
 4010 022074                                    SETVEC  #BTRP4,#TRAP,#PRI06
 4011 022122  017701  160222                    MOV     @RXCS,R1        ;READ RXCSR
 4012 022126                                    CLRVEC  #BTRP4
 4013 022134  005737  002452                    TST     ABORT           ;IF ABORT FLAG
 4014 022140  001413                            BEQ     1$              ;SET, THEN
 4015 022142  012701  022212                    MOV     #TRPMS1,R1      ;SET TRAP MESSAGE
 4016 022146  013702  002350                    MOV     RXCS,R2         ;SET TRAP ADDRESS
 4017 022152                                    ERRSF   60,TOMSG,PRTB1
 4018 022162                                    DODU    UNIT
 4019 022170  000207                    1$:     RETURN                  ;RETURN
 4020                                   ;--------------------------------------------------------------------
 4021 022172      101      104      104 TOMSG:  .ASCIZ  /ADDRESSING TEST/
 4022 022212      045      101      040 TRPMS1: .ASCII  /%A BUS TRAP AT ADDRESS:%O6%N/
 4023 022246      045      101      040         .ASCIZ  /%A INTERFACE BAD OR NOT SET TO ABOVE ADDRESS/
 4024                                           .EVEN
 4025                                   ;--------------------------------------------------------------------
 4026
```

```
                                        .SBTTL -  MOD U.SFT.TRP - BUS TRAP HANDLER
                                        ;++
                                        ; FUNCTIONAL DESCRIPTION:  SUBR TO HANDLE DEVICE BUS TRAP
                                        ; INPUTS:  NONE
                                        ; IMPLICIT INPUTS:  BUS TRAP
                                        ; OUTPUTS:  ABORT FLAG
                                        ; IMPLICIT OUTPUTS:  NONE
                                        ; SUBORDINATE ROUTINES USED:  NONE
                                        ; FUNCTIONAL SIDE EFFECTS:  NONE
                                        ; CALLING SEQUENCE:  INTERRUPT
                                        ;--

                                        ;-------------------------------------------------------------------------

022324  005237  002452          TRAP:   INC     ABORT           ;SET ABORT FLAG
022330  000002                          RTI                     ;RETURN FROM TRAP INTERRUPT
                                        ;-------------------------------------------------------------------------
                                        ;
                                        ;
                                        ;       TEST SETUP DEFINITIONS
                                        ;
                                        FRUS1=0
                                        TN=0
                                        FUNCT=1
```

```
                                        .SBTTL  TEST 1 -   INITIALIZE - FNC TST
     022332  000414                             BR      BGNT1           ;BR TO BGN TST
     022334     040     040     111  T1MSG: .ASCIZ   /  INITIALIZE - FNC TST/
                                             .EVEN

                                        ;++
                                        ; TEST TO VERIFY THAT AN RX INITIALIZE WILL RETURN THE DEVICE TO A VALID
                                        ; STATE.
                                        ;--------------------------------------------------------------------------
                                        ; BGNTST
                                        ;       IF FUNCTION TEST
                                        ;       :  THEN-SETUP TEST I.D.
                                        ;       :       CALL FUNCTION TEST SETUP
                                        ;       :       BUS INITIALIZE
                                        ;       :       CALL ERROR CHECK
                                        ;       :       CALL DEVICE STATE CHECK
                                        ;       :       INCREMENT COMMAND PTR
                                        ;       :       PROGRAM INITIALIZE RX
                                        ;       :       CALL ERROR CHECK
                                        ;       ENDIF
                                        ; ENDTST
                                        ;--------------------------------------------------------------------------

                                             TSETUP
     022364  012737  022444  002466  BGNT1: MOV     #T1TBL,TSTID    ;SETUP TEST ID TBL-TEST# 1
     022372  032737  000002  002324  IAT1:  BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
     022400  001417                         BEQ     XT1             ;BIT SET, THEN
     022402  004737  020700                 CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
     022406                                 BRESET
     022410  004737  011610                 CALL    WAIT
     022414  004737  012244                 CALL    GETREG          ;CALL GET REGS
     022420  004737  017724                 CALL    ERRCHK          ;CALL ERROR CHECK
     022424  004737  017140                 CALL    DVSTCK          ;CALL DEVICE CK
     022430  004737  010440                 CALL    INTIAL          ;CALL PROG INITIALIZE
     022434  004737  017724                 CALL    ERRCHK          ;CALL ERROR CHECK
     022440                          XT1:   EXIT    TST
     022444                                 REGTBL  CSONLY
             015026                                                 REGS1=CSONLY
     022444                                 TTBL
     022444  022334                                 T1TBL: .WORD    T1MSG
     022446  177777                                        .WORD    -1
     022450                                         T1RTB:
     022450  015026                                        .WORD    REGS1
     022452  177777                                        .WORD    -1
     022454                                 ENDTST
```

```
4087                                    .SBTTL  TEST 2 -   READ ERROR CODE - FNC TST
     022456  000416                             BR      BGNT2           ;BR TO BGN TST
     022460    040     040     122   T2MSG: .ASCIZ   /  READ ERROR CODE - FNC TST/
                                              .EVEN
4088
4089                                    ;++
4090                                    ; TEST TO VERIFY THAT THE DEVICE WILL COMPLETE A READ ERROR CODE COMMAND
4091                                    ; WITHOUT ENCOUNTERING AN ERROR.
4092                                    ;--------------------------------------------------------------------------
4093                                    ; BGNTST
4094                                    ;       IF FUNCTION TEST
4095                                    ;       :  THEN-SETUP TEST IDENT
4096                                    ;       :       CALL FUNCTION TEST SETUP
4097                                    ;       :       PROGRAM INITIALIZE RX
4098                                    ;       :       CALL ERROR CHECK
4099                                    ;       :       SETUP ERROR CODE ADDRESS
4100                                    ;       :       CALL READ ERROR CODE
4101                                    ;       :       CALL ERROR CHECK
4102                                    ;       ENDIF
4103                                    ; ENDTST
4104                                    ;--------------------------------------------------- ------------------
4105
4106 022514                                     TSETUP
     022514  012737  022604  002466   BGNT2:  MOV     #T2TBL,TSTID    ;SETUP TEST ID TBL-TEST# 2
     022522  032737  000002  002324   IAT2:   BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
     022530  001423                           BEQ     XT2             ;BIT SET, THEN
     022532  004737  020700                   CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
4107 022536  004737  010440                   CALL    INTIAL          ;CALL PROGRAM INITIALIZE
4108 022542  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
4109 022546  012737  002442  002364           MOV     #XERUUT,RECADR  ;SETUP READ ERROR CODE ADDRESS
4110 022554  052737  000200  002500           BIS     #RECTST,FLAGSP  ;SET READ ERROR CODE TEST=FLAGSP
4111 022562  004737  011340                   CALL    RDERCD          ;CALL READ ERROR CODE
4112 022566  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
4113 022572  042737  000200  002500           BIC     #RECTST,FLAGSP  ;CLEAR READ ERROR CODE TEST=FLAGSP
4114 022600                             XT2:    EXIT    TST
4115 022604                                     REGTBL  CSONLY
     015026                                                     REGS1=CSONLY
4116 022604                                     TTBL
     022604  022460                                     T2TBL: .WORD    T2MSG
     022606  177777                                            .WORD   -1
     022610                                             T2RTB:
     022610  015026                                            .WORD   REGS1
     022612  177777                                            .WORD   -1
4117 022614                                     ENDTST
```

```
4120                                    .SBTTL  TEST 3 -   FILL BUFFER - FNC TST
     022616  000414                             BR      BGNT3           ;BR TO BGN TST
     022620    040     040     105   T3MSG: .ASCIZ   /  FILL BUFFER - FNC TST/
                                              .EVEN
4121
4122                                    ;++
4123                                    ; TEST TO VERIFY THE DEVICE BUFFER WILL FILL WITH NO RESULTING ERROR.
4124                                    ;-------------------------------------------------------------------------
4125                                    ; BGNTST
4126                                    ;       IF FUNCTION TEST
4127                                    ;       :  THEN-SETUP TEST IDENT
4128                                    ;       :       SETUP DENSITY CONTROL
4129                                    ;       :       CALL SETUP DEVICE COMMANDS
4130                                    ;       :       CALL FILL BUFFER
4131                                    ;       :       NOP
4132                                    ;       ENDIF
4133                                    ; ENDTST
4134                                    ;-------------------------------------------------------------------------
4135
4136 022650                                             TSETUP
     022650  012737  022720  002466  BGNT3:  MOV     #T3TBL,TSTID    ;SETUP TEST ID TBL-TEST# 3
     022656  032737  000002  002324  IAT3:   BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
     022664  001413                          BEQ     XT3             ;BIT SET, THEN
     022666  004737  020700                  CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
4137 022672  052737  000002  002476          BIS     #DDCFLG,FLAGST  ;SET DOUBLE DENSITY CONTROL FLAG COMMANDS
4138 022700  004737  021014                  CALL    SUDVCD          ;CALL SETUP DEVICE COMMANDS
4139 022704  004737  010510                  CALL    FILBUF
4140 022710  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
4141 022714                          XT3:    EXIT    TST
4142 022720                                  REGTBL  CSONLY
          015026                                                    REGS1=CSONLY
4143 022720                                  TTBL
     022720  022620                                      T3TBL: .WORD    T3MSG
     022722  177777                                             .WORD   -1
     022724                                              T3RTB:
     022724  015026                                             .WORD   REGS1
     022726  177777                                             .WORD   -1
4144 022730                                  ENDTST
```

```
4147                                    .SBTTL  TEST 4 -   EMPTY BUFFER - FNC TST
     022732  000415                             BR      BGNT4           ;BR TO BGN TST
     022734     040      040      105  T4MSG: .ASCIZ   /  EMPTY BUFFER - FNC TST/
                                             .EVEN
4148
4149                                    ;++
4150                                    ; TEST TO VERIFY THE DEVICE BUFFER WILL EMPTY WITHOUT ERRORS.
4151                                    ;-------------------------------------------------------------------------
4152                                    ; BGNTST
4153                                    ;       IF FUNCTION TEST
4154                                    ;       :  THEN-SETUP TEST IDENT
4155                                    ;       :       SETUP DENSITY CONTROL
4156                                    ;       :       CALL SETUP DEVICE COMMANDS
4157                                    ;       :       CALL EMPTY BUFFER
4158                                    ;       :       CALL ERROR CHECK
4159                                    ;       :       NOP
4160                                    ;       ENDIF
4161                                    ; ENDTST
4162                                    ;-------------------------------------------------------------------------
4163
4164 022766                                         TSETUP
     022766  012737  023036  002466  BGNT4:  MOV     #T4TBL,TSTID    ;SETUP TEST ID TBL-TEST# 4
     022774  032737  000002  002324  IAT4:   BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
     023002  001413                         BEQ     XT4             ;BIT SET, THEN
     023004  004737  020700                 CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
4165 023010  052737  000002  002476         BIS     #DDCFLG,FLAGST  ;SET DOUBLE DENSITY CONTROL FLAG
4166 023016  004737  021014                 CALL    SUDVCD          ;CALL SETUP DEVICE COMMANDS
4167 023022  004737  010626                 CALL    EMPBUF          ;CALL EMPTY BUFFER
4168 023026  004737  017724                 CALL    ERRCHK          ;CALL ERROR CHECK
4169 023032                         XT4:    EXIT    TST
4170 023036                                 REGTBL  CSONLY
     015026                                                         REGS1=CSONLY
4171 023036                                 TTBL
     023036  022734                                     T4TBL: .WORD    T4MSG
     023040  177777                                            .WORD   -1
     023042                                             T4RTB:
     023042  015026                                            .WORD   REGS1
     023044  177777                                            .WORD   -1
4172 023046                                 ENDTST
```

```
4175                                    .SBTTL  TEST 5 -   READ STATUS - FNC TST
     023050  000414                               BR      BGNT5           ;BR TO BGN TST
     023052     040      040      122  T5MSG: .ASCIZ   /  READ STATUS - FNC TST/
                                               .EVEN
4176
4177                                    ;++
4178                                    ; TEST TO VERIFY THAT A DEVICE MAINTENANCE READ STATUS (RXES) COMMAND
4179                                    ; WILL EXECUTE WITHOUT ERROR.
4180                                    ;-------------------------------------------------------------------------
4181                                    ; BGNTST
4182                                    ;       IF FUNCTION TEST
4183                                    ;       :  THEN-SETUP TEST IDENT
4184                                    ;       :       SETUP DENSITY CONTROL=SINGLE
4185                                    ;       :       CALL SETUP DEVICE COMMANDS
4186                                    ;       :       CALL READ MAINT STATUS
4187                                    ;       :       CALL ERROR CHECK
4188                                    ;       :       NOP
4189                                    ;       ENDIF
4190                                    ; ENDTST
4191                                    ;-------------------------------------------------------------------------
4192
4193 023102                                            TSETUP
     023102  012737  023154  002466  BGNT5:  MOV     #T5TBL,TSTID    ;SETUP TEST ID TBL-TEST# 5
     023110  032737  000002  002324  IAT5:   BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
     023116  001414                          BEQ     XT5             ;BIT SET, THEN
     023120  004737  020700                  CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
4194 023124  042737  000002  002476          BIC     #DDCFLG,FLAGST  ;CLEAR DOUBLE DENSITY CONTROL FLAG
4195 023132  000240                          NOP                     ;
4196 023134  004737  021014                  CALL    SUDVCD          ;CALL SETUP DEVICE COMMANDS
4197 023140  004737  011266                  CALL    RDSTAT          ;CALL READ MAINT STATUS
4198 023144  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
4199 023150                          XT5:    EXIT    TST
4200 023154                                  REGTBL  CSONLY
     015026                                                      REGS1=CSONLY
4201 023154                                  TTBL
     023154  023052                                     T5TBL: .WORD    T5MSG
     023156  177777                                             .WORD   -1
     023160                                              T5RTB:
     023160  015026                                             .WORD   REGS1
     023162  177777                                             .WORD   -1
4202 023164                                  ENDTST
```

```
4205                                    .SBTTL  TEST 6 -   FILL & EMPTY BUFFER - FNC TST
     023166  000420                             BR      BGNT6           ;BR TO BGN TST
     023170     040      040      106  T6MSG: .ASCIZ   /  FILL & EMPTY BUFFER - FNC TST/
                                              .EVEN
4206
4207                                    ;++
4208                                    ; TEST TO VERIFY THE DEVICE BUFFER DATA IS VALID AFTER A FILL/EMPTY
4209                                    ; BUFFER COMMAND SEQUENCE.
4210                                    ;--------------------------------------------------------------------
4211                                    ; BGNTST
4212                                    ;       IF FUNCTION TEST
4213                                    ;       : THEN-SETUP TEST IDENT
4214                                    ;       :       SETUP DENSITY CONTROL=DOUBLE
4215                                    ;       :       CALL SETUP DEVICE COMMANDS
4216                                    ;       :       SET DATA PATTERN=RANDOM
4217                                    ;       :       CALL DATA PATTERN SETUP
4218                                    ;       :       CALL FILL BUFFER
4219                                    ;       :       CALL ERROR CHECK
4220                                    ;       :       CALL EMPTY BUFFER
4221                                    ;       :       CALL ERROR CHECK
4222                                    ;       :       SET EMPTY BUFFER FLAG
4223                                    ;       :       CALL DATA CHECK
4224                                    ;       ENDIF
4225                                    ; ENDTST
4226                                    ;--------------------------------------------------------------------
4227
4228 023230                                     TSETUP
     023230  012737  023340  002466  BGNT6:  MOV     #T6TBL,TSTID    ;SETUP TEST ID TBL-TEST# 6
     023236  032737  000002  002324  IAT6:   BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
     023244  001433                          BEQ     XT6             ;BIT SET, THEN
     023246  004737  020700                  CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
4229 023252  052737  000002  002476          BIS     #DDCFLG,FLAGST  ;SET DOUBLE DENSITY CONTROL FLAG
4230 023260  004737  021014                  CALL    SUDVCD          ;CALL SETUP DEVICE COMMANDS
4231 023264  005037  012660                  CLR     PAT             ;SET DATA PATTERN=RANDOM
4232 023270  004737  012306                  CALL    STDATP          ;CALL SET DATA PATTERN
4233 023274  004737  010510                  CALL    FILBUF          ;CALL FILL BUFFER
4234 023300  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
4235 023304  004737  010626                  CALL    EMPBUF          ;CALL EMPTY BUFFER
4236 023310  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
4237 023314  052737  000020  002476          BIS     #EMBUFF,FLAGST  ;SET EMPTY BUFFER FLAG
4238 023322  004737  013246                  CALL    DATACK          ;CALL DATA CHECK
4239 023326  042737  000020  002476          BIC     #EMBUFF,FLAGST  ;CLEAR EMPTY BUFFER FLAG
4240 023334                             XT6:    EXIT    TST
4241 023340                                     REGTBL  CSONLY
     015026                                                     REGS1=CSONLY
4242 023340                                     TTBL
     023340  023170                                     T6TBL: .WORD    T6MSG
     023342  177777                                            .WORD   -1
     023344                                             T6RTB:
     023344  015026                                            .WORD   REGS1
     023346  177777                                            .WORD   -1
4243 023350                                     ENDTST
```

```
                                .SBTTL  TEST 7 -   READ & WRITE SECTOR - FNC TST
023352  000420                        BR      BGNT7           ;BR TO BGN TST
023354     040     040     122  T7MSG: .ASCIZ   /  READ & WRITE SECTOR - FNC TST/
                                      .EVEN

                                ;++
                                ; TEST TO VERIFY THE DEVICE WILL READ AND WRITE IN BOTH DENSITIES WITHOUT
                                ; AN ERROR.
                                ;-------------------------------------------------------------------------
                                ; BGNTST
                                ;       IF FUNCTION TEST
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       CALL DENSITY CHECK
                                ;       :       SETUP TRACK=0, SECTOR=10
                                ;       :       CLEAR ENDDO FLAG
                                ;       :       BGNDO
                                ;       :       :  SET DENSITY CONTROL WORD=OPPOSITE DENSITY STATUS
                                ;       :       :  SET NEGATIVE TEST FLAG
                                ;       :       :  SETUP EXPECTED DEN ERR
                                ;       :       :  CALL WRITE SECTOR
                                ;       :       :  CALL ERROR CK
                                ;       :       :  CALL READ SECTOR
                                ;       :       :  CALL ERROR CK
                                ;       :       :  SET DENSITY CONTROL WORD=DOUBLE DEN
                                ;       :       :  CALL WRITE SECTOR
                                ;       :       :  CALL ERROR CK
                                ;       :       :  CALL READ SECTOR
                                ;       :       :  CALL ERROR CK
                                ;       :       :  CALL SET TRACK=76, SECTOR=10
                                ;       :       :  COMP ENDDO FLAG
                                ;       :       DOUNTIL ENDDO FLAG=0
                                ;       ENDIF
                                ; ENDTST
                                ;-------------------------------------------------------------------------

```

```
                                                TSETUP
023414                                  BGNT7:  MOV     #T7TBL,TSTID    ;SETUP TEST ID TBL-TEST# 7
023414  012737  023602  002466                 BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
023422  032737  000002  002324          IAT7:  BEQ     XT7             ;BIT SET, THEN
023430  001462                                  CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
023432  004737  020700                          CALL    DENCHK          ;CALL DENSITY CHECK
023436  004737  017350                          CLR     TRACK           ;SET TRACK-0
023442  005037  002374                          MOV     #10.,SECTOR     ;SET SECTOR=10.
023446  012737  000012  002376                  CLR     TTEMP1          ;CLEAR ENDDO FLAG
023454  005037  002504                  BBT7:   NOP                     ;
023460  000240                                  CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
023462  004737  020472                          BIC     #NEGTST,FLAGST  ;CLEAR NEG TEST FLAG
023466  042737  004000  002476                  CALL    WRITE           ;CALL WRITE SECTOR
023474  004737  010744                          CALL    ERRCHK          ;CALL ERROR CHECK
023500  004737  017724                          CALL    READ            ;CALL READ SECTOR
023504  004737  011062                          CALL    ERRCHK          ;CALL ERROR CHECK
023510  004737  017724                          CALL    CDENC           ;CALL COMPLIMENT DENSITY CONTROL
023514  004737  020430                          BIS     #NEGTST,FLAGST  ;SET NEG TEST FLAG
023520  052737  004000  002476                  MOV     #DENERR,NGTSER  ;SETUP EXPECTED NEG TEST ERR=DEN ERR
023526  012737  000030  002464                  CALL    WRITE           ;CALL WRITE SECTOR
023534  004737  010744                          CALL    ERRCHK          ;CALL ERROR CHECK
023540  004737  017724                          CALL    READ            ;CALL READ SECTOR
023544  004737  011062                          CALL    ERRCHK          ;CALL ERROR CHFCK
023550  004737  017724                          COM     TTEMP1          ;COMPLIMENT ENDDO FLAG
023554  005137  002504                          CALL    CDENC           ;CALL COMPLIMENT DENSITY CONTROL
023560  004737  020430                          CALL    STTK76          ;CALL SET TRACK=76.
023564  004737  021174                  UBT7:   TST     TTEMP1          ;DOUNTIL ENDDO FLAG
023570  005737  002504                          BNE     BBT7            ;EQUALS 0
023574  001331                          XT7:    EXIT    TST
023576                                          REGTBL  CSESAL
023602                                                                  REGS1=CSESAL
015036
023602                                          TTBL
023602  023354                                          T7TBL: .WORD    T7MSG
023604  177777                                                 .WORD    -1
023606                                                  T7RTB:
023606  015036                                                 .WORD    REGS1
023610  177777                                                 .WORD    -1
023612                                          ENDTST
```

```
                                        .SBTTL  TEST 8 -   WRITE SECTOR DELETED DATA - FNC TST
023614  000423                                  BR      BGNT8           ;BR TO BGN TST
023616    040     040     127   T8MSG: .ASCIZ   /  WRITE SECTOR DELETED DATA - FNC TST/
                                        .EVEN

                                        ;++
                                        ; TEST TO VERIFY THAT THE DEVICE WILL WRITE A DELETED DATA MARK ON THE
                                        ; DISKETTE WITHOUT ERROR.
                                        ;--------------------------------------------------------------------------
                                        ; BGNTST
                                        ;       IF FUNCTION TEST
                                        ;       :  THEN-SETUP TEST IDENT
                                        ;       :       SET TRACK=76, SECTOR=10
                                        ;       :       CALL DENSITY CHECK
                                        ;       :       SET DELETED DATA FLAG
                                        ;       :       SET DENSITY CONTROL WORD=DISK DENSITY
                                        ;       :       CALL WRITE SECTOR
                                        ;       :       CALL ERROR CK
                                        ;       :       CALL READ SECTOR SECTOR
                                        ;       :       CALL ERROR CK
                                        ;       :       CLEAR DELETED DATA FLAG
                                        ;       :       CALL WRITE SECTOR
                                        ;       :       CALL ERROR CK
                                        ;       ENDIF
                                        ; ENDTST
                                        ;--------------------------------------------------------------------------
023664                                  TSETUP
023664  012737  023772  002466  BGNT8:  MOV     #T8TBL,TSTID    ;SETUP TEST ID TBL-TEST# 8
023672  032737  000002  002324  IAT8:   BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
023700  001432                          BEQ     XT8             ;BIT SET, THEN
023702  004737  020700                  CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
023706  004737  021174                  CALL    STTK76          ;CALL SET TRACK=76.
023712  004737  017350                  CALL    DENCHK          ;CALL DENSITY CHECK
023716  004737  020472                  CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
023722  012737  000010  002402          MOV     #DLDCMD,DELDAT  ;SETUP DELETED DATA COMMAND MODE
023730  004737  010744                  CALL    WRITE           ;CALL WRITE SECTOR
023734  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
023740  004737  011062                  CALL    READ            ;CALL READ SECTOR
023744  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
023750  005037  002402                  CLR     DELDAT          ;CLEAR DELETED DATA COMMAND MODE
023754  004737  010744                  CALL    WRITE           ;CALL WRITE SECTOR
023760  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
023764  000240                          NOP                     ;
023766                          XT8:    EXIT    TST
023772                                  REGTBL  CSESAL
        015036                                                  REGS1=CSESAL
023772                                  TTBL
                                                        T8TBL: .WORD    T8MSG
023772  023616                                                  .WORD   -1
023774  177777                                                T8RTB:
023776                                                          .WORD   REGS1
023776  015036                                                  .WORD   -1
024000  177777
024002                                  ENDTST
```

```
4352                                    .SBTTL  TEST 9 -   SET DENSITY - FNC TST
     024004  000414                             BR      BGNT9           ;BR TO BGN TST
     024006     040     040     123  T9MSG: .ASCIZ   /  SET DENSITY - FNC TST/
                                             .EVEN
4353
4354                                    ;++
4355                                    ; TEST TO VERIFY THE DEVICE WILL CHANGE DENSITIES WITHOUT INCURRING AN
4356                                    ; ERROR.
4357                                    ;--------------------------------------------------------------------
4358                                    ; BGNTST
4359                                    ;       IF FUNCTION TEST
4360                                    ;       :  THEN-SETUP TEST IDENT
4361                                    ;       :       CALL DENSITY CHECK
4362                                    ;       :       SET DENSITY CONTROL WORD=DISK DENSITY
4363                                    ;       :       CALL SET DENSITY
4364                                    ;       :       CALL ERROR CK
4365                                    ;       :       CALL SET TRACK=76, SECTOR=10
4366                                    ;       :       CALL READ SECTOR
4367                                    ;       :       CALL ERROR CK
4368                                    ;       :       SET TRACK=0
4369                                    ;       :       CALL READ SECTOR
4370                                    ;       :       CALL ERROR CK
4371                                    ;       :       CALL COMPLIMENT DENSITY CONTROL
4372                                    ;       :       CALL SET DENSITY
4373                                    ;       :       CALL ERROR CK
4374                                    ;       :       CALL READ SECTOR
4375                                    ;       :       CALL ERROR CK
4376                                    ;       :       CALL SET TRACK=76., SECTOR=10.
4377                                    ;       :       CALL READ SECTOR
4378                                    ;       :       CALL ERROR CK
4379                                    ;       :       SET DENSITY CONTROL WORD=DISK DENSITY
4380                                    ;       :       CALL SET DENSITY
4381                                    ;       :       CALL ERROR CK
4382                                    ;       ENDIF
4383                                    ; ENDTST
4384                                    ;--------------------------------------------------------------------
```

```
HARDWARE TESTS  MACRO M1200  14-DEC-82 16:33  PAGE 157
TEST 9 -   SET DENSITY - FNC TST

                                                TSETUP
 4387 024036
      024036  012737  024210  002466  BGNT9:   MOV     #T9TBL,TSTID    ;SETUP TEST ID TBL-TEST# 9
      024044  032737  000002  002324  IAT9:    BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
      024052  001454                           BEQ     XT9             ;BIT SET, THEN
      024054  004737  020700                   CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
 4388 024060  004737  017350                   CALL    DENCHK          ;CALL DENSITY CHECK
 4389 024064  004737  020472                   CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
 4390 024070  004737  011172                   CALL    SETDN           ;CALL SET DENSITY
 4391 024074  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4392 024100  004737  021174                   CALL    STTK76          ;CALL SET TRACK=76.
 4393 024104  004737  011062                   CALL    READ            ;CALL READ SECTOR
 4394 024110  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4395 024114  005037  002374                   CLR     TRACK           ;SET TRACK=0
 4396 024120  004737  011062                   CALL    READ            ;CALL READ SECTOR
 4397 024124  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4398 024130  004737  020430                   CALL    CDENC           ;CALL COMPLIMENT DENSITY CONTROL
 4399 024134  004737  011172                   CALL    SETDN           ;CALL SET DENSITY
 4400 024140  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4401 024144  004737  011062                   CALL    READ            ;CALL READ SECTOR
 4402 024150  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4403 024154  004737  021174                   CALL    STTK76          ;CALL SET TRACK=76.
 4404 024160  004737  011062                   CALL    READ            ;CALL READ SECTOR
 4405 024164  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4406 024170  004737  020472                   CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
 4407 024174  004737  011172                   CALL    SETDN           ;CALL SET DENSITY
 4408 024200  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4409 024204                          XT9:     EXIT    TST
 4410 024210                                   REGTBL  CSESAL
      015036                                                           REGS1=CSESAL
 4411 024210                                   TTBL
      024210  024006                                          T9TBL: .WORD    T9MSG
      024212  177777                                                 .WORD   -1
      024214                                                 T9RTB:
      024214  015036                                                 .WORD   REGS1
      024216  177777                                                 .WORD   -1
 4412 024220                                   ENDTST
```

```
                                .SBTTL  TEST 10 -  POSITIONING - FNC TST
024222  000414                          BR      BGNT10          ;BR TO BGN TST
024224     040     120     117  T10MSG: .ASCIZ  / POSITIONING - FNC TST/
                                        .EVEN

                                ;++
                                ; TEST TO VERIFY THE DEVICE WILL CHANGE SECTORS AND TRACKS WITHOUT
                                ; INCURRING AN ERROR.
                                ;-------------------------------------------------------------------
                                ; BGNTST
                                ;       IF FUNCTION TEST
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       SET TRACK PATTERN=RANDOM
                                ;       :       CALL DENSITY CHECK
                                ;       :       SET DENSITY CONTROL WORD=DRV DENSITY
                                ;       :       BGNDO
                                ;       :       :  CALL GET A TRACK
                                ;       :       :  CALL GET A SECTOR
                                ;       :       :  CALL READ SECTOR
                                ;       :       :  CALL ERROR CK
                                ;       :       DOUNTIL TRACKS DONE FLAG SET
                                ;       :       NOP
                                ;       ENDIF
                                ; ENDTST
                                ;-------------------------------------------------------------------
                                ;--
024254                          TSETUP
024254  012737  024352  002466  BGNT10: MOV     #T10TBL,TSTID   ;SETUP TEST ID TBL-TEST# 10
024262  032737  000002  002324  IAT10:  BIT     #FUNCTT,TSTMOD  ;IF TEST MODE=FUNCTION TEST
024270  001426                          BEQ     XT10            ;BIT SET, THEN
024272  004737  020700                  CALL    FTSTUP          ;CALL FUNCTION TEST SETUP
024276  012737  000400  002510          MOV     #ITK!RTK,TKSCFG ;SET TRK/SEC FLAGS-->TRACK=INIT & RANDOM
024304  004737  017350                  CALL    DENCHK          ;CALL DENSITY CHECK
024310  004737  020472                  CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
024314  004737  012662          BBT10:  CALL    GETTRK          ;CALL GET TRACK
024320  004737  013104                  CALL    GETSEC          ;CALL GET SECTOR
024324  004737  011062                  CALL    READ            ;CALL READ SECTOR
024330  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
024334  032737  001000  002476  UBT10:  BIT     #TRKDON,FLAGST  ;DOUNTIL FLAGS->TRACK DONE FLAG
024342  001764                          BEQ     BBT10           ;SET
024344  000240                          NOP                     ;
024346                          XT10:   EXIT    TST
024352                                  REGTBL  CSESAL
        015036                                                  REGS1=CSESAL
024352                                  TTBL
024352  024224                                          T10TBL: .WORD   T10MSG
024354  177777                                                  .WORD   -1
024356                                          T10RTB:
024356  015036                                                  .WORD   REGS1
024360  177777                                                  .WORD   -1
024362                                  ENDTST
```

```
                                .SBTTL  TEST 11 -  CSR BITS - LGC TST
024364  000412                          BR      BGNT11          ;BR TO BGN TST
024366     040     103     123  T11MSG: .ASCIZ  / CSR BITS - LGC TST/
                                        .EVEN

                                ;++
                                ; TEST TO VERIFY THAT THE READ/WRITE BITS OF THE CONTROL AND STATUS REG-
                                ; ISTER CAN BE WRITTEN INTO AND READ AND OTHERWISE BEHAVE AS EXPECTED.
                                ;-----------------------------------------------------------------------
                                ; BGNTST
                                ;       IF LOGIC TEST
                                ;       :  THEN-SETUP TEST TEST IDENT
                                ;       :       CALL RX LEGAL STATE CHECK
                                ;       :       WRITE RXCSR-ALL 1'S (EXCEPT BITS #14 & #1)
                                ;       :       SETUP EXPECTED REGISTER RESULTS
                                ;       :       IF RXCSR DOES NOT=037566
                                ;       :       :  THEN-SETUP ACTUAL REGISTER RESULTS
                                ;       :       :       SETUP ERRNBR=CSR ERROR
                                ;       :       :       CALL ERROR
                                ;       :       ENDIF
                                ;       :       WRITE RXCSR-ALL 0'S
                                ;       :       IF RXCSR DOES NOT=004040
                                ;       :       :  THEN-SETUP ACTUAL REGISTER RESULTS
                                ;       :       :       SETUP ERRNBR=CSR ERROR
                                ;       :       :       CALL ERROR
                                ;       :       ENDIF
                                ;       :       NOP
                                ;       ENDIF
                                ; ENDTST
                                ;-----------------------------------------------------------------------
                                ; BOARD CALLOUT:
                                ;       1.  INTERFACE
                                ;-----------------------------------------------------------------------
                                ;--
```

```
                                                TSETUP
4489 024412
     024412  012737  024602  002466  BGNT11: MOV     #T11TBL,TSTID   ;SETUP TEST ID TBL-TEST# 11
     024420  032737  000001  002324  IAT11:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     024426  001463                          BEQ     XT11            ;BIT SET, THEN
     024430  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
4490 024434                                  BRESET                  ;BUS RESET
4491 024436  004737  011610                  CALL    WAIT            ;WAIT FOR DONE
4492 024442  004737  017140                  CALL    DVSTCK          ;CALL DEVICE STATE CHECK
4493 024446  012777  137776  155674          MOV     #137776,@RXCS   ;WRITE RXCSR=ALL 1'S (EXCEPT BIT#14 & #1)
4494 024454  032737  000400  002500  IDT11:  BIT     #LSIFLG,FLAGSP  ;IF LSI FLG - FLAGSP
4495 024462  001404                          BEQ     LDT11           ;SET, THEN
4496 024464  012737  005560  002436          MOV     #5560,REGEXP    ;SETUP EXPECTED REG RESULTS = 5560
4497 024472  000403                          BR      IBT11           ;BR TO IF 'B'
4498 024474  012737  037566  002436  LDT11:  MOV     #037566,REGEXP  ;SETUP EXPECTED REGISTER RESULTS=037566
4499 024502  023777  002436  155640  IBT11:  CMP     REGEXP,@RXCS    ;IF RXCSR NOT=EXPECTED REGISTER
4500 024510  001410                          BEQ     EBT11           ;THEN
4501 024512  017737  155632  002440          MOV     @RXCS,REGACT    ;SETUP ACTUAL REGISTER
4502 024520  012737  000033  002520          MOV     #CSRERR,ERRNBR  ;SET ERRNBR=CSRERR
4503 024526  004737  003060                  CALL    ERROR           ;CALL ERROR
4504 024532  012737  004040  002436  EBT11:  MOV     #4040,REGEXP    ;SETUP EXPECTED REGISTER RESULTS=4040
4505 024540  012777  000000  155602          MOV     #0,@RXCS        ;WRITE RXCSR=ALL 0'S
4506 024546  023777  002436  155574  ICT11:  CMP     REGEXP,@RXCS    ;IF RXCSR NOT=EXPECTED REGISTER
4507 024554  001410                          BEQ     XT11            ;THEN
4508 024556  017737  155566  002440          MOV     @RXCS,REGACT    ;SETUP ACTUAL REGISTER
4509 024564  012737  000033  002520          MOV     #CSRERR,ERRNBR  ;SET ERRNBR=CSR ERR
4510 024572  004737  003060                  CALL    ERROR           ;CALL ERROR
4511 024576                          XT11:   EXIT    TST
4512 024602                                  REGTBL
4513 024602                                  TTBL    0,RGPRT
     024602  024366                                  T11TBL: .WORD   T11MSG
     024604  000000                                          .WORD   0
     024606  000004                                          .WORD   RGPRT
     024610  177777                                          .WORD   -1
     024612                                          T11RTB:
     024612  177777                                          .WORD   -1
4514 024614                                  FRUTBL  INTONL
     024614                                          T11FTB:
     024614  006644                                          .WORD   INTONL
     024616  177777                                          .WORD   -1
4515 024620                                  ENDTST
```

```
4518                                    .SBTTL  TEST 12 -  DBR BITS - LGC TST
     024622  000412                             BR      BGNT12          ;BR TO BGN TST
     024624     040     104     102     T12MSG: .ASCIZ  / DBR BITS - LGC TST/
                                                .EVEN
4519
4520                                    ;++
4521                                    ; TEST TO VERIFY THAT THE READ/WRITE BITS OF THE DATA BUFFER REGISTER
4522                                    ; CAN BE WRITTEN INTO AND READ AS EXPECTED.
4523                                    ;-------------------------------------------------------------------------
4524                                    ; BGNTST
4525                                    ;       IF LOGIC TEST
4526                                    ;       :  THEN-SETUP TEST IDENT
4527                                    ;       :       WRITE RXDBR-ALL 1'S
4528                                    ;       :       SETUP EXPECTED REGISTER RESULTS
4529                                    ;       :       IF RXDBR NOT=173767
4530                                    ;       :       :  THEN-SETUP ACTUAL REGISTER RESULTS
4531                                    ;       :       :       SETUP ERR NBR=DBR ERR
4532                                    ;       :       :       CALL ERROR
4533                                    ;       :       ENDIF
4534                                    ;       :       WRITE RXDBR-ALL 0'S
4535                                    ;       :       SETUP EXPECTED REGISTER RESULTS
4536                                    ;       :       IF RXDBR NOT=000000
4537                                    ;       :       :  THEN-SETUP ACTUAL REGISTER RESULTS
4538                                    ;       :       :       SET ERRNBR=DBR ERR
4539                                    ;       :       :       CALL ERROR
4540                                    ;       :       ENDIF
4541                                    ;       :       NOP
4542                                    ;       ENDIF
4543                                    ; ENDTST
4544                                    ;-------------------------------------------------------------------------
4545                                    ; BOARD CALLOUT:
4546                                    ;       1.  INTERFACE
4547                                    ;-------------------------------------------------------------------------
4548                                    ;--
```

```
4551 024650                                        TSETUP
     024650  012737  025012  002466  BGNT12: MOV    #T12TBL,TSTID   ;SETUP TEST ID TBL-TEST# 12
     024656  032737  000001  002324  IAT12:  BIT    #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     024664  001450                          BEQ    XT12            ;BIT SET, THEN
     024666  004737  020736                  CALL   LTSTUP          ;CALL LOGIC TEST SETUP
4552 024672                                        BRESET          ;BUS RESET
4553 024674  004737  011610                  CALL   WAIT            ;WAIT FOR DONE
4554 024700  012777  177777  155444          MOV    #-1,@RXDB       ;WRITE RXDBR-ALL 1'S
4555 024706  012737  173767  002436          MOV    #173767,REGEXP  ;SETUP EXPECTED REGISTER RESULTS=173767
4556 024714  023777  002436  155430  IBT12:  CMP    REGEXP,@RXDB    ;IF RXDBR NOT=EXPECTED REGISTER
4557 024722  001410                          BEQ    EBT12           ;THEN
4558 024724  017737  155422  002440          MOV    @RXDB,REGACT    ;SETUP ACTUAL REGISTER RESULTS
4559 024732  012737  000034  002520          MOV    #DBRERR,ERRNBR  ;SET ERRNBR=DBR ERR
4560 024740  004737  003060                  CALL   ERROR           ;CALL ERROR
4561 024744  005037  002436          EBT12:  CLR    REGEXP          ;SETUP EXPECTED REGISTER RESULTS=0'S
4562 024750  012777  000000  155374          MOV    #0,@RXDB        ;WRITE RXDBR=ALL 0'S
4563 024756  023777  002436  155366  ICT12:  CMP    REGEXP,@RXDB    ;IF RXDBR NOT=EXPECTED REGISTER
4564 024764  001410                          BEQ    XT12            ;THEN
4565 024766  017737  155360  002440          MOV    @RXDB,REGACT    ;SETUP ACTUAL REGISTER RESULTS
4566 024774  012737  000034  002520          MOV    #DBRERR,ERRNBR  ;SET ERRNBR=DBR ERR
4567 025002  004737  003060                  CALL   ERROR           ;CALL ERROR
4568 025006                          XT12:   EXIT   TST
4569 025012                                  TTBL   0,RGPRT
     025012  024624                                        T12TBL: .WORD   T12MSG
     025014  000000                                                .WORD   0
     025016  000004                                                .WORD   RGPRT
     025020  177777                                                .WORD   -1
     025022                                                 T12RTB:
     025022  177777                                                .WORD   -1
4570 025024                                  FRUTBL  INTONL
     025024                                                 T12FTB:
     025024  006644                                                .WORD   INTONL
     025026  177777                                                .WORD   -1
4571 025030                                  ENDTST
```

```
                                .SBTTL  TEST 13 -  CSR-DBR COMMON BYTE - LGC TST
025032  000420                        BR      BGNT13          ;BR TO BGN TST
025034     040     103     123  T13MSG: .ASCIZ  / CSR-DBR COMMON BYTE - LGC TST/
                                .EVEN

                                ;++
                                ; TEST TO VERIFY THAT THE LOWER BYTE OF THE RXCS MAPS INTO THE RXDB AND
                                ; THEREFORE CHECK WRITE ONLY BITS OF THE RXCS.
                                ;-------------------------------------------------------------------------
                                ; BGNTST
                                ;       IF LOGIC TEST
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       WRITE RXCSR LOW BYTE-ALL 1'S (EXCEPT BIT #1)
                                ;       :       SETUP EXPECTED REGISTER RESULTS
                                ;       :       IF RXDBR LOW BYTE NOT=376
                                ;       :       :  THEN-SETUP ACTUAL REGISTER RESULTS
                                ;       :       :       SETUP ERR NBR=CSR ERR
                                ;       :       :       CALL ERROR
                                ;       :       ENDIF
                                ;       :       WRITE RXCSR LOW BYTE-ALL 0'S
                                ;       :       SETUP EXPECTED REGISTER RESULTS
                                ;       :       IF RXDBR LOW BYTE NOT=000
                                ;       :       :  THEN-SETUP ACTUAL REGISTER RESULTS
                                ;       :       :       SETUP ERR NBR=CSR ERR
                                ;       :       :       CALL ERROR
                                ;       :       ENDIF
                                ;       ENDIF
                                ; ENDTST
                                ;-------------------------------------------------------------------------
                                ; BOARD CALLOUT:
                                ;       1.  INTERFACE
                                ;-------------------------------------------------------------------------
                                ;--
```

```
                                                TSETUP
4607 025074
     025074  012737  025242  002466  BGNT13: MOV     #T13TBL,TSTID   ;SETUP TEST ID TBL-TEST# 13
     025102  032737  000001  002324  IAT13:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     025110  001452                          BEQ     XT13            ;BIT SET, THEN
     025112  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
4608 025116                                  BRESET                  ;BUS RESET
4609 025120  004737  011610                  CALL    WAIT            ;WAIT FOR DONE
4610 025124  012777  000376  155216          MOV     #376,@RXCS      ;WRITE RXCSR LOW BYTE-ALL IF (EXCEPT BIT #1)
4611 025132  012737  000366  002436          MOV     #366,REGEXP     ;SETUP EXPECTED REGISTER RESULTS=366
4612 025140  123777  002436  155204  IBT13:  CMPB    REGEXP,@RXDB    ;IF RXDBR LOW BYTE NOT=376
4613 025146  001413                          BEQ     EBT13           ;THEN
4614 025150  117737  155176  002440          MOVB    @RXDB,REGACT    ;SETUP ACTUAL REGISTER RESULTS
4615 025156  042737  177400  002440          BIC     #177400,REGACT  ;CLEAR TOP BYTE
4616 025164  012737  000033  002520          MOV     #CSRERR,ERRNBR  ;SET ERRNBR=CSR ERR
4617 025172  004737  003060                  CALL    ERROR           ;CALL ERROR
4618 025176  005037  002436          EBT13:  CLR     REGEXP          ;SETUP EXPECTED REGISTER RESULTS=0'S
4619 025202  112777  000000  155140          MOVB    #0,@RXCS        ;WRITE RXDBR=ALL 0'S
4620 025210  123777  002436  155134  ICT13:  CMPB    REGEXP,@RXDB    ;IF RXDBR NOT=EXPECTED RESULTS
4621 025216  001407                          BEQ     XT13
4622 025220  005037  002440                  CLR     REGACT          ;SETUP ACTUAL REGISTER RESULTS
4623 025224  012737  000033  002520          MOV     #CSRERR,ERRNBR  ;SETUP ERRNBR=CSR ERR
4624 025232  004737  003060                  CALL    ERROR           ;CALL ERROR
4625
4626 025236                          XT13:   EXIT    TST
4627
4628 025242                                  TTBL    0,RGPRT
     025242  025034                                          T13TBL: .WORD   T13MSG
     025244  000000                                                  .WORD   0
     025246  000004                                                  .WORD   RGPRT
     025250  177777                                                  .WORD   -1
     025252                                                  T13RTB:
     025252  177777                                                  .WORD   -1
4629 025254                                  FRUTBL  INTONL
     025254                                                  T13FTB:
     025254  006644                                                  .WORD   INTONL
     025256  177777                                                  .WORD   -1
4630 025260                                  ENDTST
```

```
4633                                    .SBTTL  TEST 14 -  BUS INITIALIZE - LGC TST
     025262  000415                               BR      BGNT14          ;BR TO BGN TST
     025264     040     102     125     T14MSG: .ASCIZ  / BUS INITIALIZE - LGC TST/
                                                .EVEN
4634
4635                                    ;++
4636                                    ; TEST TO VERIFY THAT THE INTERFACE BOARD WILL COMPLETE A BUS INITIALIZE.
4637                                    ;-------------------------------------------------------------------------
4638                                    ; BGNTST
4639                                    ;       IF LOGIC TEST
4640                                    ;       :  THEN-SETUP TEST IDENT
4641                                    ;       :       ISSUE BUS INITIALIZE
4642                                    ;       :       IF RXCSR ERROR BIT SET
4643                                    ;       :       :  THEN-IF RXESR AC LOW BIT SET
4644                                    ;       :       :       :  THEN-SETUP ERROR
4645                                    ;       :       :       :       CALL ERROR
4646                                    ;       :       :       ENDIF
4647                                    ;       :       ENDIF
4648                                    ;       :       NOP
4649                                    ;       ENDIF
4650                                    ; ENDTST
4651                                    ;-------------------------------------------------------------------------
4652                                    ; BOARD CALLOUT:
4653                                    ;       1.  INTERFACE
4654                                    ;       2.  CONTROLLER
4655                                    ;-------------------------------------------------------------------------
4656                                    ;--
4657
```

```
4660
4661 025316                                    TSETUP
     025316  012737  025462  002466  BGNT14:   MOV     #T14TBL,TSTID   ;SETUP TEST ID TBL-TEST# 14
     025324  032737  000001  002324  IAT14:    BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     025332  001451                            BEQ     XT14            ;BIT SET, THEN
     025334  004737  020736                    CALL    LTSTUP          ;CALL LOGIC TEST SETUP
4662 025340                                    BRESET
4663 025342  032777  100000  155000  IBT14:    BIT     #ERRBIT,@RXCS   ;IF RXCSR ERROR BIT
4664 025350  001442                            BEQ     XT14            ;SET, THEN
4665 025352  032777  000004  154772  ICT14:    BIT     #INITDN,@RXDB   ;IF RXESR=INIT DONE
4666 025360  001406                            BEQ     IDT14           ;SET, THEN
4667 025362  012737  000061  002520            MOV     #NOITDB,ERRNBR  ;SET ERR NBR=NO INIT DONE-BUS
4668 025370  004737  003060                    CALL    ERROR           ;CALL ERROR
4669 025374  000430                            BR      XT14            ;BR TO EXIT
4670 025376  032777  000030  154746  IDT14:    BIT     #DENERR,@RXDB   ;IF RXESR=DENSITY ERR
4671 025404  001406                            BEQ     IET14           ;SET, THEN
4672 025406  012737  000020  002520            MOV     #DENDSK,ERRNBR  ;SET ERR NBR=DISK DEN ERR
4673 025414  004737  003060                    CALL    ERROR           ;CALL ERROR
4674 025420  000416                            BR      XT14            ;BR TO EXIT
4675 025422  032777  000010  154722  IET14:    BIT     #ACLOW,@RXDB    ;IF RXESR NOT=INITIALIZE DONE BIT
4676 025430  001006                            BNE     LET14           ;SET, THEN
4677 025432  012737  000050  002520            MOV     #ACLOWF,ERRNBR  ;SET ERR NBR=NO INIT DONE-BIT
4678 025440  004737  003060                    CALL    ERROR           ;CALL ERROR
4679 025444  000404                            BR      XT14            ;BR TO EXIT
4680 025446  004737  011340          LET14:    CALL    RDERCD          ;CALL READ ERROR CODE
4681 025452  004737  017724                    CALL    ERRCHK          ;CALL ERROR CHECK
4682 025456                          XT14:     EXIT    TST
4683 025462                                    REGTBL
4684 025462                                    TTBL    REGCK,0
                                                       T14TBL: .WORD   T14MSG
     025462  025264                                            .WORD   REGCK
     025464  000001                                            .WORD   0
     025466  000000                                            .WORD   -1
     025470  177777                                    T14RTB:
     025472                                                    .WORD   -1
     025472  177777                                    T14FTB:
4685 025474                                    FRUTBL  INFCTL
     025474                                                    .WORD   INFCTL
     025474  006640                                            .WORD   -1
     025476  177777
4686 025500                                    ENDTST
```

```
4689                                    .SBTTL  TEST 15 -  PROGRAMMED INITIALIZE - LGC TST
     025502  000421                               BR      BGNT15          ;BR TO BGN TST
     025504     040     120     122     T15MSG: .ASCIZ  / PROGRAMMED INITIALIZE - LGC TST/
                                                .EVEN
4690
4691                                    ;++
4692                                    ; TEST TO VERIFY THAT THE INTERFACE BOARD WILL COMPLETE A PROGRAMMED
4693                                    ; INITIALIZE.
4694                                    ;-------------------------------------------------------------------------
4695                                    ; BGNTST
4696                                    ;       IF LOGIC TEST
4697                                    ;       :  THEN-SETUP TEST IDENT
4698                                    ;       :       CALL PROGRAMMED INITIALIZE
4699                                    ;       :       CALL DEVICE STATE CK
4700                                    ;       :       CALL ERROR CHECK
4701                                    ;       :       NOP
4702                                    ;       ENDIF
4703                                    ; ENDTST
4704                                    ;-------------------------------------------------------------------------
4705                                    ; BOARD CALLOUT:
4706                                    ;       1.  INTERFACE
4707                                    ;       2.  CONTROLLER
4708                                    ;-------------------------------------------------------------------------
4709                                    ;--
4710
4711 025546                                    TSETUP
     025546  012737  025610  002466  BGNT15: MOV     #T15TBL,TSTID   ;SETUP TEST ID TBL-TEST# 15
     025554  032737  000001  002324  IAT15:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     025562  001410                          BEQ     XT15            ;BIT SET, THEN
     025564  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
4712 025570  004737  010440                  CALL    INTIAL          ;CALL PROG INITIALIZE
4713 025574  004737  017140                  CALL    DVSTCK          ;CALL DEVICE STATE CK
4714 02560C  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
4715 025604                          XT15:   EXIT    TST
4716
4717 025610                                    REGTBL  CSESIT
     015056                                                         REGS1=CSESIT
4718 025610                                    TTBL    REGCK,0
     025610  025504                                        T15TBL: .WORD   T15MSG
     025612  000001                                                .WORD   REGCK
     025614  000000                                                .WORD   0
     025616  177777                                                .WORD   -1
     025620                                                 T15RTB:
     025620  015056                                                .WORD   REGS1
     025622  177777                                                .WORD   -1
4719 025624                                    FRUTBL  INFCTL
     025624                                                 T15FTB:
     025624  006640                                                .WORD   INFCTL
     025626  177777                                                .WORD   -1
4720 025630                                    ENDTST
```

```
                                .SBTTL  TEST 16 -  POWER FAIL - LGC TST
025632  000413                        BR      BGNT16          ;BR TO BGN TST
025634     040     120     117  T16MSG: .ASCIZ  / POWER FAIL - LGC TST/
                                .EVEN

                                ;++
                                ; TEST TO VERIFY THAT THE ACLOW CIRCUITS OPERATE AS EXPECTED.
                                ;-------------------------------------------------------------------------
                                ; BGNTST
                                ;       IF LOGIC TEST                                                   [A]
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       IF MANUAL INTERVENTION ALLOWED                          [B]
                                ;       :       :  THEN-ASK OPERATOR TO POWER DOWN RX02 ONLY
                                ;       :       :       IF OPERATION COMPLETE                           [C]
                                ;       :       :       :  THEN-CALL PROGRAMMED INITIALIZE
                                ;       :       :       :       SETUP EXPECTED ERROR=AC LOW
                                ;       :       :       :       SET NEG TEST FLAG=TEST FLAGS
                                ;       :       :       :       CALL ERROR CHECK
                                ;       :       :       :       ASK OPERATOR TO POWER UP RX02
                                ;       :       :       :       IF OPERATION COMPLETE                   [D]
                                ;       :       :       :       :  THEN-CLEAR OUT EXPECTED ERROR
                                ;       :       :       :       :       CLEAR NEG TEST FLAG=TEST FLAGS
                                ;       :       :       :       :       CALL INITIAL
                                ;       :       :       :       :       CALL ERROR CHECK
                                ;       :       :       :       ENDIF
                                ;       :       :       ENDIF
                                ;       :       ENDIF
                                ;       ENDIF
                                ; ENDTST
                                ;-------------------------------------------------------------------------
                                ; BOARD CALLOUT:
                                ;       1.  INTERFACE
                                ;-------------------------------------------------------------------------
                                ;--
```

```
                                                TSETUP
4756 025662
     025662  012737  026102  002466  BGNT16: MOV     #T16TBL,TSTID   ;SETUP TEST ID TBL-TEST# 16
     025670  032737  000001  002324  IAT16:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     025676  001477                          BEQ     XT16            ;BIT SET, THEN
     025700  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
4757 025704  005037  002504                  CLR     TTEMP1          ;SET TEMP1=0
4758 025710                          IBT16:  MANUAL                  ;IF MANUAL INTERVENTION
4759 025712                                  BNCOMPLETE XT16         ;ALLOWED, THEN
4760 025714                                  PRINTF  #PWRMS,UNIT     ;PRINT MSG
4761 025740                                  GMANIL  PWDNRY,TTEMP1,1,YES
4762 025754  032737  000001  002504  ICT16:  BIT     #1,TTEMP1       ;IF RX02 IS
4763 025762  001445                          BEQ     XT16            ;POWERED DOWN, THEN
4764 025764  004737  010440                  CALL    INTIAL          ;CALL INITIALIZE
4765 025770  012737  000050  002464          MOV     #ACLOWF,NGTSER  ;SETUP EXPECTED ERROR=AC LOW
4766 025776  052737  004000  002476          BIS     #NEGTST,FLAGST  ;SET NEG TEST FLAG=TEST FLAGS
4767 026004  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
4768 026010                                  PRINTF  #PWRMS,UNIT     ;PRINT MSG
4769 026034                                  GMANIL  PWUPRY,TTEMP1,1,YES
4770 026050  032737  000002  002504  IDT16:  BIT     #2,TTEMP1       ;IF RX02 IS
4771 026056  001407                          BEQ     XT16            ;POWERED UP, THEN
4772 026060  042737  004000  002476          BIC     #NEGTST,FLAGST  ;CLEAR NEG TEST FLAG=TEST FLAGS
4773 026066  004737  010440                  CALL    INTIAL          ;CALL INITIALIZE
4774 026072  004737  017724                  CALL    ERRCHK          ;
4775 026076                          XT16:   EXIT    TST
4776 026102                                  REGTBL  CSESIT
     026102  015056                                                  REGS1=CSESIT
4777 026102                                  TTBL    REGCK,0
     026102  025634                                  T16TBL: .WORD   T16MSG
     026104  000001                                          .WORD   REGCK
     026106  000000                                          .WORD   0
     026110  177777                                          .WORD   -1
     026112                                          T16RTB:
     026112  015056                                          .WORD   REGS1
     026114  177777                                          .WORD   -1
4778 026116                                  FRUTBL  INTONL
     026116                                          T16FTB:
     026116  006644                                          .WORD   INTONL
     026120  177777                                          .WORD   -1
4779
4780 026122     045     116     045  PWRMS:  .ASCIZ  /%N%A IS FLOPPY SYSTEM CONTAINING UNIT #%O2/
4781 026175     040     040     120  PWDNRY: .ASCIZ  /  POWERED DOWN/
4782 026214     040     040     120  PWUPRY: .ASCIZ  /  POWERED UP/
4783                                 .EVEN
4784
4785 026232                                  ENDTST
```

```
 4788                                   .SBTTL  TEST 17 -  CONTROLLER-INTERFACE - LGC TST
     026234  000420                             BR      BGNT17          ;BR TO BGN TST
     026236     040     103     117  T17MSG: .ASCIZ  / CONTROLLER-INTERFACE - LGC TST/
                                             .EVEN
 4789
 4790                                   ;++
 4791                                   ; TEST TO VERIFY THAT THE INTERFACE BOARD STATE SEQUENCER IS FUNCTIONAL.
 4792                                   ; ALSO TO VERIFY THE CONTROLLER-INTERFACE HANDSHAKE BY TRYING FUNCTIONS
 4793                                   ; WITH MINIMUM READ/WRITE BOARD INVOLVEMENT.
 4794                                   ;-------------------------------------------------------------------------
 4795                                   ; BGNTST
 4796                                   ;       IF LOGIC TEST
 4797                                   ;       :  THEN-SETUP TEST IDENT
 4798                                   ;       :       SET PROTOCAL CHECK (TEST SETUP SETS VIS TEST TABLE)
 4799                                   ;       :       CALL READ ERROR CODE
 4800                                   ;       :       CALL ERROR CHECK
 4801                                   ;       :       CALL FILL BUFFER
 4802                                   ;       :       CALL ERROR CHECK
 4803                                   ;       :       CALL EMPTY BUFFER
 4804                                   ;       :       CALL ERROR CHECK
 4805                                   ;       :       CALL READ MAINT STATUS
 4806                                   ;       :       CALL ERROR CHECK
 4807                                   ;       ENDIF
 4808                                   ; ENDTST
 4809                                   ;-------------------------------------------------------------------------
 4810                                   ; BOARD CALLOUT:
 4811                                   ;       1.  CONTROLLER
 4812                                   ;       2.  INTERFACE
 4813                                   ;-------------------------------------------------------------------------
 4814                                   ;--
```

```
 4817 026276                                   TSETUP                  ;
      026276  012737  026404  002466  BGNT17:  MOV     #T17TBL,TSTID   ;SETUP TEST ID TBL-TEST# 17
      026304  032737  000001  002324  IAT17:   BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
      026312  001432                           BEQ     XT17            ;BIT SET, THEN
      026314  004737  020736                   CALL    LTSTUP          ;CALL LOGIC TEST SETUP
 4818 026320  052737  000200  002500           BIS     #RECTST,FLAGSP  ;SET READ ERROR CODE TEST=FLAGSP
 4819 026326  004737  011340                   CALL    RDERCD          ;CALL READ ERROR CODE
 4820 026332  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4821 026336  042737  000200  002500           BIC     #RECTST,FLAGSP  ;CLEAR READ ERROR CODE TEST=FLAGSP
 4822 026344  004737  010510                   CALL    FILBUF          ;CALL FILL BUFFER
 4823 026350  004737  017724                   CALL    ERRCHK          ;CALL ERROR HECK
 4824 026354  004737  010626                   CALL    EMPBUF          ;CALL EMPTY BUFFER
 4825 026360  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4826 026364  005237  002470                   INC     TCMDCT          ;INCREMENT TST COMMAND CTR      ********.*******
 4827 026370  004737  011266                   CALL    RDSTAT          ;CALL READ MAINTENANCE STATUS
 4828 026374  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 4829 026400                          XT17:    EXIT    TST
 4830
 4831 026404                                   REGTBL  CSESND,CSESRS
              015076                                                   REGS1=CSESND
              015066                                                   REGS2=CSESRS
 4832 026404                                   TTBL    REGCK,PROPRT
      026404  026236                                          T17TBL:  .WORD   T17MSG
      026406  000001                                                   .WORD   REGCK
      026410  000010                                                   .WORD   PROPRT
      026412  177777                                                   .WORD   -1
      026414                                                  T17RTB:
      026414  015076                                                   .WORD   REGS1
      026416  015066                                                   .WORD   REGS2
      026420  177777                                                   .WORD   -1
 4833 026422                                   FRUTBL  CTLINF
      026422                                                  T17FTB:
      026422  006646                                                   .WORD   CTLINF
      026424  177777                                                   .WORD   -1
 4834 026426                                   ENDTST
```

```
 4837                                   .SBTTL  TEST 18 -  NPR - LGC TST
     026430  000410                              BR      BGNT18          ;BR TO BGN TST
     026432     040     116     120  T18MSG: .ASCIZ  / NPR - LGC TST/
                                             .EVEN
 4838
 4839                                   ;++
 4840                                   ; TEST TO VERIFY THAT THE NPR LOGIC WILL STORE A WORD IN MEMORY.
 4841                                   ;-------------------------------------------------------------------------
 4842                                   ; BGNTST
 4843                                   ;       IF LOGIC TEST
 4844                                   ;       :  THEN-SETUP TEST IDENT
 4845                                   ;       :       SET ERROR CODE STORAGE=1'S
 4846                                   ;       :       CALL READ ERROR CODE
 4847                                   ;       :       IF ERROR CODE STORAGE=1'S
 4848                                   ;       :       :  THEN-CALL ERROR
 4849                                   ;       :       ENDIF
 4850                                   ;       :       SET WORD COUNT=128.
 4851                                   ;       :       SET DATA PATTERN=0'S
 4852                                   ;       :       CALL SET DATA PATTERN
 4853                                   ;       :       DATA BUFFER AREA=1'S (BEGIN, END & END+1)
 4854                                   ;       :       SET DENSITY CONTROL=DOUBLE DENSITY
 4855                                   ;       :       CALL FILL BUFFER
 4856                                   ;       :       CALL LOGIC TEST ERROR CK
 4857                                   ;       :       CALL EMPTY BUFFER
 4858                                   ;       :       CALL ERROR CK
 4859                                   ;       :       IF BEGIN DATA BUFFER AREA NOT=0'S
 4860                                   ;       :       :  THEN-SETUP NPR ERROR
 4861                                   ;       :       :       CALL ERROR
 4862                                   ;       :       ENDIF
 4863                                   ;       :       IF END DATA BUFFER AREA NOT=0'S
 4864                                   ;       :       :  THEN-CALL NPR ERROR
 4865                                   ;       :       :       CALL ERROR
 4866                                   ;       :       ENDIF
 4867                                   ;       :       IF END+1 DATA BUFFER NOT=1'S
 4868                                   ;       :       :  THEN-CALL NPR ERROR
 4869                                   ;       :       :       CALL ERROR
 4870                                   ;       :       ENDIF
 4871                                   ;       ENDIF
 4872                                   ; ENDTST
 4873                                   ;-------------------------------------------------------------------------
 4874                                   ;--
 4875
```

```
4878 026452                                    TSETUP                  ;
     026452  012737  026752  002466  BGNT18:  MOV     #T18TBL,TSTID    ;SETUP TEST ID TBL-TEST# 18
     026460  032737  000001  002324  IAT18:   BIT     #LOGICT,TSTMOD   ;IF TEST MODE=LOGIC TEST
     026466  001527                           BEQ     XT18             ;BIT SET, THEN
     026470  004737  020736                   CALL    LTSTUP           ;CALL LOGIC TEST SETUP
4879 026474  012737  177777  002442           MOV     #-1,XERUUT       ;SET READ ERROR CODE STORAGE=1'S
4880 026502  004737  011340                   CALL    RDERCD           ;CALL READ ERROR CODE
4881 026506  022737  177777  002442  IBT18:   CMP     #-1,XERUUT       ;IF READ ERROR CODE STORAGE=1'S
4882 026514  001005                           BNE     EBT18            ;THEN
4883 026516  012737  000053  002520           MOV     #NPRERR,ERRNBR   ;SET ERR NUMBER=NPR ERROR
4884 026524  004737  003060                   CALL    ERROR            ;CALL ERROR
4885 026530  042737  000200  002476  EBT18:   BIC     #RECFLG,FLAGST   ;CLEAR RED ERR COD FLG = FLAGS TST
4886 026536  012737  000200  002370           MOV     #128.,WDCNT      ;SET DEVICE WORD COUNT=128
4887 026544  012737  000001  012660           MOV     #1,PAT           ;SET DATA PAT=ALL ZEROS
4888 026552  004737  012306                   CALL    STDATP           ;CALL SET DATA PATTERN
4889 026556  012702  177777                   MOV     #-1,R2           ;SET R2=ALL 1'S
4890 026562  013737  002370  002504           MOV     WDCNT,TTEMP1     ;SET TEMP1=WORD COUNT
4891 026570  006337  002504                   ASL     TTEMP1           ;DOUBLE IT FOR ADDRESSING WORDS IN MEM
4892 026574  162737  000004  002504           SUB     #4,TTEMP1        ;ADJUST TO END OF BUFFER
4893 026602  013701  002504                   MOV     TTEMP1,R1        ;SET R1=TEMP1
4894 026606  010237  036622                   MOV     R2,DATBUF        ;SET DATA BUFFER BEGIN=1'S
4895 026612  110261  036622                   MOVB    R2,DATBUF(R1)    ;SET DATA BUFFER END=1'S
4896 026616  005201                           INC     R1               ;BUMP INDEX
4897 026620  110261  036622                   MOVB    R2,DATBUF(R1)    ;SET DATA BUFFER END +1=1'S
4898 026624  012737  000400  002412           MOV     #DENBIT,DENSTY   ;SET DENSITY CONTROL=DOUBLE DENSITY
4899 026632  004737  010510                   CALL    FILBUF           ;CALL FILL BUFFER
4900 026636  004737  017724                   CALL    ERRCHK           ;CALL ERROR CHECK
4901 026642  004737  010626                   CALL    EMPBUF           ;CALL EMPTY BUFFER
4902 026646  004737  017724                   CALL    ERRCHK           ;CALL ERROR CHECK
4903 026652  005737  036622           ICT18:  TST     DATBUF           ;IF DATA BUFFER BEGIN
4904 026656  001406                           BEQ     ECT18            ;NOT=0, THEN
4905 026660  012737  000053  002520           MOV     #NPRERR,ERRNBR   ;SETUP ERRNBR=NPR ERR
4906 026666  004737  003060                   CALL    ERROR            ;CALL ERROR
4907 026672  000425                           BR      XT18             ;BR TO EXIT
4908 026674  013701  002504           ECT18:  MOV     TTEMP1,R1        ;SET R1=TEMP1
4909 026700  105761  036622           IDT18:  TSTB    DATBUF(R1)       ;IF DATA BUFFER END
4910 026704  001406                           BEQ     EDT18            ;NOT=0, THEN
4911 026706  012737  000053  002520           MOV     #NPRERR,ERRNBR   ;SETUP ERRNBR=NPR ERR
4912 026714  004737  003060                   CALL    ERROR            ;CALL ERROR
4913 026720  000412                           BR      XT18             ;BR TO EXIT
4914 026722  005201                   EDT18:  INC     R1               ;BUMP INDEX
4915 026724  126127  036622  177777           CMPB    DATBUF(R1),#-1   ;IF DATA BUFFER END +1
4916 026732  001405                           BEQ     XT18             ;NOT=1'S, THEN
4917 026734  012737  000053  002520           MOV     #NPRERR,ERRNBR   ;SETUP ERRNBR=NPR ERR
4918 026742  004737  003060                   CALL    ERROR            ;CALL ERROR
4919 026746                           XT18:   EXIT    TST
4920 026752                                   REGTBL  CSESND
     015076                                                           REGS1=CSESND
4921 026752                                   TTBL    REGCK,0
     026752  026432                                           T18TBL: .WORD   T18MSG
     026754  000001                                                   .WORD   REGCK
     026756  000000                                                   .WORD   0
     026760  177777                                                   .WORD   -1
     026762                                                   T18RTB:
     026762  015076                                                   .WORD   REGS1
     026764  177777                                                   .WORD   -1
4922 026766                                   FRUTBL  INFCTL
```

```
        026766                                          T18FTB:
        026766  006640                                          .WORD   INFCTL
        026770  177777                                          .WORD   -1
  4923  026772                          ENDTST
```

```
                                .SBTTL -  MOD U.SFT.NAT - ADDRESS NPR ADDRESS TEST
                                ;-------------------------------------------------------------------
                                ; BGNSUB        NAT
                                ;       NOP
                                ;       IF CTR < 2
                                ;       :  THEN-IF CTR=0
                                ;       :       :  THEN-CLEAR ADR
                                ;       :       :  ELSE-ADR=ADR+2
                                ;       :       ENDIF
                                ;       :       INCREMENT COUNTER
                                ;       :  ELSE-INCREMENT COUNTER
                                ;       :       DOUBLE ADR (ADR=2XADR)
                                ;       :       IF ADR > 40000
                                ;       :       :  THEN-SET DONE IN FLAGS
                                ;       :       :       CLEAR CTR
                                ;       :       :       CLEAR ADR
                                ;       :       :       SET DO LOOP DONE FLAG
                                ;       :       ENDIF
                                ;       ENDIF
                                ; ENDSUB
                                ;-------------------------------------------------------------------

026774  000240                  NAT:    NOP                     ;
026776  022737  000002  027100  IANAT:  CMP     #2,NATCTR       ;IF CTR
027004  103014                         BHIS    LANAT           ;LESS THAN 2, THEN
027006  005737  027100          IBNAT:  TST     NATCTR          ;IF CTR
027012  001003                         BNE     LBNAT           ;EQUALS 0, THEN
027014  005037  027102                 CLR     NATADR          ;CLEAR ADRS
027020  000403                         BR      EBNAT           ;BR TO END 'B'
027022  012737  000002  027102  LBNAT:  MOV     #2,NATADR       ;ELSE, SET ADR=2
027030  005237  027100          EBNAT:  INC     NATCTR          ;INCREMENT COUNTER
027034  000420                         BR      EANAT           ;BR TO END 'A'
027036  005237  027100          LANAT:  INC     NATCTR          ;INCREMENT COUNTER
027042  006337  027102                 ASL     NATADR          ;DOUBLE ADDRESS
027046  022737  040000  027102  ICNAT:  CMP     #40000,NATADR   ;IF ADDRESS
027054  101407                         BLOS    ECNAT           ;GREATER THAN 40000, THEN
027056  005037  027100                 CLR     NATCTR          ;CLEAR COUNTER
027062  005037  027102                 CLR     NATADR          ;CLEAR ADDRESS
027066  052737  000010  002476         BIS     #DLPDN,FLAGST   ;SET DO LOOP DONE FLAG
027074  000240                  ECNAT:  NOP                     ;
027076  000207                  EANAT:  RETURN                  ;RETURN
                                ;-------------------------------------------------------------------
027100  000000                  NATCTR: 0                       ;COUNTER
027102  000000                  NATADR: 0                       ;ADDRESS
                                ;-------------------------------------------------------------------
```

```
                                .SBTTL  TEST 19 -  NPR NON-EXISTENT MEM - LGC TST
027104  000420                  BR      BGNT19          ;BR TO BGN TST
027106     040     116     120  T19MSG: .ASCIZ  / NPR NON-EXISTENT MEM - LGC TST/
                                .EVEN

                                ;++
                                ; TEST TO VERIFY THAT THE NPR NON-EXISTEND MEMORY LOGIC WILL TIME OUT
                                ; WHEN GIVEN AN ILLEGAL ADDRESS.
                                ;-------------------------------------------------------------------------
                                ; BGNTST
                                ;       IF LOGIC TEST
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       IF NOT FONZ WITH 124K
                                ;       :       :  THEN-SETUP BUS TRAPS
                                ;       :       :       SETUP NON EXISTENT ADDRESS
                                ;       :       :       CALL READ ERROR CODE
                                ;       :       :       IF RXCSR ERROR BIT OR RXESR NON-EXISTENT MEMORY BIT NOT SET
                                ;       :       :       :  THEN-CALL LOGIC TEST ERROR
                                ;       :       :       ENDIF
                                ;       :       :       CLEAR ERROR SET BY TRAP
                                ;       :       :       CLEAR BUS TRAP VECTOR
                                ;       :       ENDIF
                                ;       ENDIF
                                ; ENDTST
                                ;-------------------------------------------------------------------------
                                ; BOARD CALLOUT:
                                ;       1.  INTERFACE
                                ;-------------------------------------------------------------------------
                                ;--
```

```
5001 027146                                TSETUP                          ;
     027146 012737 027316 002466 BGNT19:   MOV     #T19TBL,TSTID           ;SETUP TEST ID TBL-TEST# 19
     027154 032737 000001 002324 IAT19:    BIT     #LOGICT,TSTMOD          ;IF TEST MODE=LOGIC TEST
     027162 001447                         BEQ     XT19                    ;BIT SET, THEN
     027164 004737 020736                  CALL    LTSTUP                  ;CALL LOGIC TEST SETUP
5002 027170 032737 010000 002500 I3T19:    BIT     #FONZFG,FLAGSP          ;IF FONZ 124K FLAG
5003 027176 001041                         BNE     XT19                    ;NOT SET, THEN
5004 027200 005037 002452                  CLR     ABORT                   ;CLEAR ABORT FLAG
5005 027204                                SETVEC  #BTRP4,#TRAP,#PRI06
5006 027232 013737 002344 002364           MOV     NXMADR,RECADR           ;SETUP NON EXISTENT MEMORY ADR
5007 027240 004737 011340                  CALL    RDERCD                  ;CALL READ ERROR CODE
5008 027244 012737 000052 002464           MOV     #NXMERR,NGTSER          ;SETUP EXPECTED NEG TEST ERR=NXM ERR
5009 027252 042737 000200 002476           BIC     #RECFLG,FLAGST          ;CLEAR READ ERR CODE FLAG (SU ERR CODE NOT EVALUATED)
5010 027260 004737 017724                  CALL    ERRCHK                  ;CALL ERROR CHECK
5011 027264 005037 002452                  CLR     ABORT                   ;FLAG
5012 027270                                CLRVEC  #BTRP4
5013 027276 004737 010440                  CALL    INTIAL                  ;CALL PROG INITIALIZE
5014 027302                        XT19:   EXIT    TST
5015 027306                                REGTBL
5016 027306                                REGTB   1,4040,400,NXMBIT,173777        ;CHECK ERR BIT & NXM ERR SET
     027306 004040                                 T19RT1: .WORD   4040                    ;RXCSR SHOULD BE
     027310 000400                                         .WORD   400                     ;RXCSR DONT CARE
     027312 004000                                         .WORD   NXMBIT                  ;RXESR SHOULD BE
     027314 173777                                         .WORD   173777                  ;RXESR DONT CARE
5017 027316                                TTBL    REGCK!NEGTST,0
     027316 027106                                         T19TBL: .WORD   T19MSG
     027320 004001                                                 .WORD   REGCK!NEGTST
     027322 000000                                                 .WORD   0
     027324 177777                                                 .WORD   -1
     027326                                                T19RTB:
     027326 027306                                                 .WORD   T19RT1
     027330 177777                                                 .WORD   -1
5018 027332                                FRUTBL  INTONL
     027332                                                T19FTB:
     027332 006644                                                 .WORD   INTONL
     027334 177777                                                 .WORD   -1
5019 027336                                ENDTST
```

```
5022                                    .SBTTL  TEST 20 -  INTERRUPT - LGC TST
     027340  000413                             BR      BGNT20          ;BR TO BGN TST
     027342     040     111     116    T20MSG: .ASCIZ  / INTERRUPT - LGC TST/
                                               .EVEN
5023
5024                                    ;++
5025                                    ; TEST TO VERIFY THAT THE INTERRUPTS CAN BE SET AND THAT THE DEVICE
5026                                    ; RESPONDS AS EXPECTED.
5027                                    ;-------------------------------------------------------------------------
5028                                    ; BGNTST
5029                                    ;       IF LOGIC TEST
5030                                    ;       :  THEN-SETUP TEST IDENT
5031                                    ;       :       SET PROCESSOR PRIORITY-> -> NO INTERRUPTS
5032                                    ;       :       CAUSE RX INTERRUPT (WHEN PRIORITY LOWERED)
5033                                    ;       :       CALL WATCH DOG TO LOWER PRIORITY & WAIT FOR INTERRUPT
5034                                    ;       :       CALL ERROR
5035                                    ;       :       CLEAR RX INTERRUPT BIT
5036                                    ;       :       NOP
5037                                    ;       ENDIF
5038                                    ; ENDTST
5039                                    ;-------------------------------------------------------------------------
5040                                    ; BOARD CALLOUT:
5041                                    ;       1.  INTERFACE
5042                                    ;-------------------------------------------------------------------------
5043                                    ;--
5044 027370                                    TSETUP                          ;
     027370  012737  027462  002466    BGNT20: MOV     #T20TBL,TSTID   ;SETUP TEST ID TBL-TEST# 20
     027376  032737  000001  002324    IAT20:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     027404  001424                            BEQ     XT20            ;BIT SET, THEN
     027406  004737  020736                    CALL    LTSTUP          ;CALL LOGIC TEST SETUP
5045 027412  005037  012024                    CLR     DX              ;SET WATCH DOG MULTIPLIER=0
5046 027416                                    SETPRI  #PRI06          ;SET PROCESSOR PRI=NO INTERRUPTS
5047 027424  052777  000100  152716          BIS     #100,@RXCS      ;CAUSE RX TO INTERRUPT-WHEN PRI LOWERED
5048 027432  004737  011662                    CALL    WATCH           ;CALL WATCH DOG-LOWER PRI & WAIT FOR INTERRUPT
5049 027436  004737  003060                    CALL    ERROR           ;CALL ERROR
5050 027442  042777  000100  152700          BIC     #100,@RXCS      ;CLEAR RX INTERRUPT BIT
5051 027450  012737  000010  012024          MOV     #10,DX          ;RESET WATCH DOG MULTIPLIER
5052 027456                            XT20:   EXIT    TST
5053 027462                                    REGTBL
5054 027462                                    TTBL    0,0
     027462  027342                                            T20TBL: .WORD   T20MSG
     027464  000000                                                    .WORD   0
     027466  000000                                                    .WORD   0
     027470  177777                                                    .WORD   -1
     027472                                                     T20RTB:
     027472  177777                                                    .WORD   -1
5055 027474                                    FRUTBL  INTONL
     027474                                                     T20FTB:
     027474  006644                                                    .WORD   INTONL
     027476  177777                                                    .WORD   -1
5056 027500                                    ENDTST
```

```
5059                                    .SBTTL  TEST 21 -  PRIORITY LVL - LGC TST
     027502  000414                             BR      BGNT21          ;BR TO BGN TST
     027504     040     120     122  T21MSG: .ASCIZ  / PRIORITY LVL - LGC TST/
                                             .EVEN
5060
5061                                    ;++
5062                                    ; TEST TO VERIFY THAT THE DEVICE PRIORITY IS SET TO THE CORRECT LEVEL.
5063                                    ;-------------------------------------------------------------------------
5064                                    ; BGNTST
5065                                    ;       IF LOGIC TEST
5066                                    ;       :  THEN-SETUP TEST IDENT
5067                                    ;       :       LOWER WATCH DOG TIMEOUT MULTIPLIER
5068                                    ;       :       SETUP PROCESSOR PRIORITY=6 (PRESET VALUE)
5069                                    ;       :       BGNDO
5070                                    ;       :       :  SET PROCESSOR PRIORITY (PRESET VALUE)
5071                                    ;       :       :  SET DEVICE INTERRUPT BIT TO ENABLE INTERRUPT
5072                                    ;       :       :  IF INTERRUPT OR ERROR OCCURRED
5073                                    ;       :       :  :  THEN-SET DO LOOP DONE BIT -> FLAGS
5074                                    ;       :       :  :  ELSE-LOWER SETUP PROCESSOR PRIORITY
5075                                    ;       :       :  :       CLEAR DEVICE INTERRUPT BIT
5076                                    ;       :       :  ENDIF
5077                                    ;       :       DOUNTIL DO LOOP DONE BIT SET, PROCESSOR PRI=0 OR NO DONE BIT ESR
5078                                    ;       :       IF SETUP PROCESSOR PRI NOT=DEVICE PRIORITY
5079                                    ;       :       :  THEN-CALL LOGIC TEST ERROR
5080                                    ;       :       ENDIF
5081                                    ;       ENDIF
5082                                    ; ENDTST
5083                                    ;-------------------------------------------------------------------------
5084                                    ; BOARD CALLOUT:
5085                                    ;       1.  INTERFACE
5086                                    ;-------------------------------------------------------------------------
5087                                    ;--
```

```
5090 027534                                    TSETUP                  ;
     027534  012737  030106  002466  BGNT21:  MOV     #T21TBL,TSTID    ;SETUP TEST ID TBL-TEST# 21
     027542  032737  000001  002324  IAT21:   BIT     #LOGICT,TSTMOD   ;IF TEST MODE=LOGIC TEST
     027550  001511                           BEQ     XT21             ;BIT SET, THEN
     027552  004737  020736                   CALL    LTSTUP           ;CALL LOGIC TEST SETUP
5091 027556  004737  010440                   CALL INTIAL              ;CALL PROG INITIALIZE
5092 027562  012737  000001  012024           MOV     #1,DX            ;SET WATCH DOG MULTIPLIER=1
5093 027570                                    SETPRI  #PRI06           ;SET PROCESSOR PRI=06 (NO INTERRUPTS)
5094 027576  005005                           CLR     R5               ;SET PRIORITY TABLE INDEX
5095 027600  005037  002520           BBT21:  CLR     ERRNBR           ;CLEAR ERROR NUMBER INDICATOR
5096 027604  116537  021741  002416           MOVB    PRITAB+7(R5),PRIORT ;SET PROCESSOR PRIORITY TO NEW LEVEL
5097 027612  013737  002416  002504           MOV     PRIORT,TTEMP1    ;SETUP TEMP1 = PROCESSOR PRI
5098 027620  062737  000040  002504           ADD     #40,TTEMP1       ;NOW SETUP FOR COMPARE, I.E. ONE PRI LVL HIGHER
5099 027626  052777  000100  152514           BIS     #100,@RXCS       ;SET RX INTERRUPT BIT,AS PROCESSOR PRI LOWERED, INTERRUPTS
5100 027634  004737  011662                   CALL    WATCH            ;CALL WATCH DOG TO WAIT FOR INTERRUPT
5101 027640  022737  000015  002520  ICT21:   CMP     #DNNINT,ERRNBR   ;IF INTERRUPT OR ERROR
5102 027646  001404                           BEQ     ECT21            ;OCCURRED  THEN
5103 027650  052737  000010  002476           BIS     #DLPDN,FLAGST    ;SET DO LOOP DONE FLAG
5104 027656  000404                           BR      UBT21            ;BR TO DOUNTIL 'B'
5105 027660  005305                   ECT21:  DEC     R5               ;SET INDEX TO  NEXT LOWER PROCESSOR PRI
5106 027662  042777  000100  152460   EDT21:  BIC     #100,@RXCS       ;CLEAR DEVICE INTERRUPT BIT
5107 027670  020527  177770           UBT21:  CMP     R5,#-8.          ;DO UNTIL PROCESSOR PRI TABLE ALL DONE
5108 027674  001404                           BEQ     IET21            ;OR
5109 027676  032737  000010  002476           BIT     #DLPDN,FLAGST    ;DOUNTIL FLAGST DO LOOP DONE FLAG
5110 027704  001735                           BEQ     BBT21            ;SET
5111 027706  005737  002520           IET21:  TST     ERRNBR           ;IF INTERRUPT OCCURRED
5112 027712  001026                           BNE     LET21            ;THEN
5113 027714  032737  000400  002500   IFT21:  BIT     #LSIFLG,FLAGSP   ;IF FLAGSP=LSI FLAG
5114 027722  001024                           BNE     XT21             ;NOT SET, THEN
5115 027724  023737  002504  002356   IGT21:  CMP     TTEMP1,RXPRI     ;IF SETUP PROCESSOR PRIORITY & RX PRIORITY
5116 027732  001420                           BEQ     XT21             ;DONT MATCH
5117 027734  012737  000054  002520           MOV     #PRILEV,ERRNBR   ;SETUP ERR NBR=PRI LEV ERR
5118 027742  004737  003060                   CALL    ERROR            ;CALL ERROR
5119 027746  013703  002416                   MOV     PRIORT,R3        ;SETUP INTERRUPT PRI LEV FOR PRT
5120 027752  013702  002356                   MOV     RXPRI,R2         ;SETUP RX PRI LEV FOR PRINT
5121 027756  012701  030006                   MOV     #PRIMSG,R1       ;SETUP PRI LEV MSG
5122 027762  004737  002756                   CALL    PRTX2S           ;PRINT MSG
5123 027766  000402                           BR      XT21             ;BR TO TEXT EXIT
5124 027770  004737  003060           LET21:  CALL    ERROR            ;CALL ERROR
5125 027774  012737  000010  012024   XT21:   MOV     #10,DX           ;RESET WATCHDOG MULTIPLIER
5126 030002                                    EXIT    TST
5127 030006     045     116     045   PRIMSG: .ASCIZ  /%N%S6%A RX SET AT PRI LEV=%03%N%S6%A INTERRUPTED AT PRI LEV=%03/
5128                                           .EVEN
5129 030106                                    REGTBL
5130 030106                                    TTBL    0,0
     030106  027504                                            T21TBL: .WORD   T21MSG
     030110  000000                                                    .WORD   0
     030112  000000                                                    .WORD   0
     030114  177777                                                    .WORD   -1
     030116                                                    T21RTB:
     030116  177777                                                    .WORD   -1
5131 030120                                    FRUTBL  INTONL
     030120                                                    T21FTB:
     030120  006644                                                    .WORD   INTONL
     030122  177777                                                    .WORD   -1
5132 030124                                    ENDTST
```

```
                                .SBTTL  TEST 22 -  INITIALIZE CONTROL - LGC TST
030126  000417                        BR      BGNT22          ;3R TO BGN TST
030130     040     111     116  T22MSG: .ASCIZ  / INITIALIZE CONTROL - LGC TST/
                                .EVEN

                                ;++
                                ; TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE INITIALIZE.
                                ;-------------------------------------------------------------------------
                                ; BGNTST
                                ;       IF LOGIC TEST
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       ISSUE DEVICE PROGRAMMED INITIALIZE
                                ;       :       CALL ERRCHK
                                ;       ENDIF
                                ; ENDTST
                                ;-------------------------------------------------------------------------
                                ; BOARD CALLOUT:
                                ;       1.  CONTROLLER
                                ;       2.  INTERFACE
                                ;-------------------------------------------------------------------------
                                ;--
030166                          TSETUP                          ;
030166  012737  030224  002466  BGNT22: MOV     #T22TBL,TSTID   ;SETUP TEST ID TBL-TEST# 22
030174  032737  000001  002324  IAT22:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
030202  001406                        BEQ     XT22            ;BIT SET, THEN
030204  004737  020736                CALL    LTSTUP          ;CALL LOGIC TEST SETUP
030210  004737  010440                CALL    INTIAL          ;CALL INITIALIZE
030214  004737  017724                CALL    ERRCHK          ;CALL ERROR CHECK
030220                          XT22:   EXIT    TST
030224                          REGTBL  CEINIT
        015046                                                  REGS1=CEINIT
030224                          TTBL    REGCK,RGPRT
030224  030130                                  T22TBL: .WORD   T22MSG
030226  000001                                          .WORD   REGCK
030230  000004                                          .WORD   RGPRT
030232  177777                                          .WORD   -1
030234                                          T22RTB:
030234  015046                                          .WORD   REGS1
030236  177777                                          .WORD   -1
030240                          FRUTBL  CTLINF
030240                                          T22FTB:
030240  006646                                          .WORD   CTLINF
030242  177777                                          .WORD   -1
030244                          ENDTST
```

```
5163                                    .SBTTL  TEST 23 -  DATA BUF INTEGRITY - LGC TST
     030246  000417                             BR      BGNT23          ;BR TO BGN TST
     030250     040     104     101     T23MSG: .ASCIZ  / DATA BUF INTEGRITY - LGC TST/
                                                .EVEN
5164
5165                                    ;++
5166                                    ; TEST TO VERIFY ALL BITS OF DATA BUFFER, VARIOUS PATTERNS WILL BE USED.
5167                                    ;-------------------------------------------------------------------------
5168                                    ; BGNTST
5169                                    ;       IF LOGIC TEST
5170                                    ;       :  THEN-SETUP TEST IDENT
5171                                    ;       :       SETUP RANDOM DATA PATTERN
5172                                    ;       :       NOP
5173                                    ;       :       BGNDO
5174                                    ;       :       :  CALL DATA PATTERN SETUP
5175                                    ;       :       :  CALL FILL BUFFER
5176                                    ;       :       :  IF NO ERROR (ESCAPE TEST)
5177                                    ;       :       :  :  THEN-CALL EMPTY BUFFER
5178                                    ;       :       :  :       IF NO ERROR (ESCAPE TEST)
5179                                    ;       :       :  :       :  THEN-SET EMPTY BUFFER FLAG
5180                                    ;       :       :  :       :       CALL DATA CHECK
5181                                    ;       :       :  :       :       ADVANCE PATTERN COUNT
5182                                    ;       :       :  :       :       GET NEW PATTERN #
5183                                    ;       :       :  :       :       IF FOUR PATTERNS DONE
5184                                    ;       :       :  :       :       :  THEN-SET DO LOOP DONE
5185                                    ;       :       :  :       :       ENDIF
5186                                    ;       :       :  :       ENDIF
5187                                    ;       :       :  ENDIF
5188                                    ;       :       DOUNTIL DO LOOP DONE FLAG SET
5189                                    ;       :       NOP
5190                                    ;       ENDIF
5191                                    ; ENDTST
5192                                    ;-------------------------------------------------------------------------
5193                                    ; BOARD CALLOUT:
5194                                    ;       1.  CONTROLLER
5195                                    ;       2.  INTERFACE
5196                                    ;-------------------------------------------------------------------------
5197                                    ;--
```

```
030306                                     TSETUP                       ;
030306  012737  030430  002466  BGNT23:    MOV     #T23TBL,TSTID        ;SETUP TEST ID TBL-TEST# 23
030314  032737  000001  002324  IAT23:     BIT     #LOGICT,TSTMOD       ;IF TEST MODE=LOGIC TEST
030322  001440                             BEQ     XT23                 ;BIT SET, THEN
030324  004737  020736                     CALL    LTSTUP               ;CALL LOGIC TEST SETUP
030330  012737  000001  012660             MOV     #1,PAT               ;SET DATA PATTERN = 0'S
030336  004737  012306          BBT23:     CALL    STDATP               ;CALL SET DATA PATTERN
030342  004737  010510                     CALL    FILBUF               ;CALL FILL BUFFER
030346                                     ESCAPE  TST                  ;IF NO ERROR, THEN
030352  004737  010626                     CALL    EMPBUF               ;CALL EMPTY BUFFER
030356                                     ESCAPE  TST                  ;IF NO ERROR, THEN
030362  004737  013246                     CALL    DATACK               ;CALL DATA CHECK
030366  005237  012660                     INC     PAT                  ;ADVANCE TO NEXT DATA PATTERN
030372  022737  000010  012660  ICT23:     CMP     #8.,PAT              ;IF ALL DATA PATTERNS
030400  001003                             BNE     UBT23                ;DONE, THEN
030402  052737  000010  002476             BIS     #DLPDN,FLAGST        ;SET FLAGST=DO_LOOP_DONE_FLAG
030410  032737  000010  002476  UBT23:     BIT     #DLPDN,FLAGST        ;DOUNTIL FLAGST-DO_LOOP_DONE_FLAG
030416  001747                             BEQ     BBT23                ;IS SET
030420  005037  012660                     CLR     PAT                  ;RESET DATA PATTERN
030424                          XT23:      EXIT    TST
030430                                     REGTBL
030430                                     TTBL    EMBUFF,0
030430  030250                                              T23TBL: .WORD   T23MSG
030432  000020                                                      .WORD   EMBUFF
030434  000000                                                      .WORD   0
030436  177777                                                      .WORD   -1
030440                                                      T23RTB:
030440  177777                                                      .WORD   -1
030442                                     FRUTBL  CTLINF
030442                                                      T23FTB:
030442  006646                                                      .WORD   CTLINF
030444  177777                                                      .WORD   -1
030446                                     ENDTST
```

HA
TE

```
                                .SBTTL  TEST 24 -  WRD CNT INTEGRITY - LGC TST
030450  000417                  BR      BGNT24          ;BR TO BGN TST
030452     040     127     122  T24MSG: .ASCIZ  / WRD CNT INTEGRITY - LGC TST/
                                .EVEN

                                ;++
                                ; TEST TO VERIFY ALL BITS OF WORD COUNT REGISTER AND CHECK THAT EXCEEDING
                                ; THE WORD COUNT FOR DISKETTE DENSITY WILL BE DETECTED.
                                ;-------------------------------------------------------------------------
                                ; BGNTST
                                ;       IF LOGIC TEST
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       SET DENSITY CONTROL=DOUBLE
                                ;       :       SET BUFFER LENGTH=128.
                                ;       :       BGNDO
                                ;       :       CALL FILL BUFFER
                                ;       :       :  IF NO ERROR (ESCAPE TEST)
                                ;       :       :  :  THEN-CALL READ ERROR CODE
                                ;       :       :  :       IF NO ERROR (ESCAPE TEST)
                                ;       :       :  :       :  THEN-IF WORD COUNTS NOT EQUAL
                                ;       :       :  :       :       :  THEN-SETUP WORD COUNT ERROR
                                ;       :       :  :       :       :       CALL ERROR
                                ;       :       :  :       :       :  ELSE-UPDATE WORD COUNT
                                ;       :       :  :       :       :       IF WORD COUNT=0
                                ;       :       :  :       :       :       :  THEN-SET DO LOOP DONE FLAG
                                ;       :       :  :       :       :       ENDIF
                                ;       :       :  :       :       ENDIF
                                ;       :       :  :       ENDIF
                                ;       :       :  ENDIF
                                ;       :       DOUNTIL DO LOOP DONE FLAG SET
                                ;       :       NOP
                                ;       ENDIF
                                ; ENDTST
                                ;-------------------------------------------------------------------------
                                ; BOARD CALLOUT:
                                ;       1.  CONTROLLER
                                ;-------------------------------------------------------------------------
                                ;--
```

```
HARDWARE TESTS  MACRO M1200  14-DEC-82 16:33  PAGE 197
TEST 24 -  WRD CNT INTEGRITY - LGC TST

                                                TSETUP                  ;
 5259 030510                                                            ;
      030510  012737  030670  002466  BGNT24:  MOV     #T24TBL,TSTID    ;SETUP TEST ID TBL-TEST# 24
      030516  032737  000001  002324  IAT24:   BIT     #LOGICT,TSTMOD   ;IF TEST MODE=LOGIC TEST
      030524  001457                           BEQ     XT24             ;BIT SET, THEN
      030526  004737  020736                   CALL    LTSTUP           ;CALL LOGIC TEST SETUP
 5260 030532  012737  000400  002412           MOV     #DENBIT,DENSTY   ;SET DENSITY CONTROL=DOUBLE
 5261 030540  012737  000200  002370           MOV     #128.,WDCNT      ;SET WORD COUNT=128.
 5262 030546  004737  010510          BBT24:   CALL    FILBUF           ;CALL FILL BUFFER
 5263 030552                                    ESCAPE  TST              ;IF NO ERROR THEN
 5264 030556  004737  011340                   CALL    RDERCD           ;CALL READ ERROR CODE
 5265 030562                                    ESCAPE  TST              ;IF NO ERROR THEN
 5266 030566  105737  002443          ICT24:   TSTB    WC               ;IF WORD COUNT
 5267 030572  001420                           BEQ     LCT24            ;NOT EQUAL 0, THEN
 5268 030574  012737  000023  002520           MOV     #WCERR,ERRNBR    ;SETUP ERR NBR=WORD COUNT ERROR
 5269 030602  005037  002440                   CLR     REGACT           ;CLEAR REG ACTUAL
 5270 030606  113737  002443  002440           MOVB    WC,REGACT        ;SETUP WORD COUNT ACTUAL
 5271 030614  005037  002436                   CLR     REGEXP           ;SETUP WORD COUNT EXPECTED
 5272 030620  004737  003060                   CALL    ERROR            ;CALL ERROR
 5273 030624  052737  000010  002476           BIS     #DLPDN,FLAGST    ;SET FLAGST=DO LOOP DONE FLAG
 5274 030632  000410                           BR      UBT24            ;BR TO DOUNTIL 'B'
 5275 030634  005337  002370          LCT24:   DEC     WDCNT            ;DECREMENT WORD COUNT
 5276 030640  005737  002370          IDT24:   TST     WDCNT            ;IF WORD COUNT
 5277 030644  001003                           BNE     UBT24            ;EQUALS ZERO, THEN
 5278 030646  052737  000010  002476           BIS     #DLPDN,FLAGST    ;SET FLAGST=DO_LOOP_DONE_FLAG
 5279 030654  032737  000010  002476  UBT24:   BIT     #DLPDN,FLAGST    ;DOUNTIL FLAGST=DO_LOOP_DONE_FLAG
 5280 030662  001731                           BEQ     BBT24            ;SET
 5281 030664                          XT24:    EXIT    TST
 5282 030670                                   REGTBL
 5283 030670                                   TTBL    0,RGPRT
      030670  030452                                           T24TBL: .WORD   T24MSG
      030672  000000                                                   .WORD   0
      030674  000004                                                   .WORD   RGPRT
      030676  177777                                                   .WORD   -1
      030700                                                   T24RTB:
      030700  177777                                                   .WORD   -1
 5284 030702                                   FRUTBL  CTLINF
      030702                                                   T24FTB:
      030702  006646                                                   .WORD   CTLINF
      030704  177777                                                   .WORD   -1
 5285 030706                                   ENDTST
```

```
5288                                    .SBTTL  TEST 25 -  CONTROLLER-READ*WRITE ELECT - LGC TST
     030710  000424                             BR      BGNT25          ;BR TO BGN TST
     030712     040     103     117    T25MSG: .ASCIZ  / CONTROLLER-READ*WRITE ELECT - LGC TST/
                                               .EVEN
5289
5290                                    ;++
5291                                    ; TEST TO VERIFY MINIMAL CONTROLLER BOARD-READ/WRITE ELECTRONICS BOARD
5292                                    ; INTERFACE VIA INITIALIZE OF A SELECTED DRIVE.
5293                                    ;-------------------------------------------------------------------------
5294                                    ; BGNTST
5295                                    ;       IF LOGIC TEST
5296                                    ;       :  THEN-SETUP TEST IDENT
5297                                    ;       :       NOP
5298                                    ;       :       ISSUE PROGRAMMED INITIALIZE
5299                                    ;       :       CALL ERROR CK
5300                                    ;       :       CALL READ ERROR CODE
5301                                    ;       :       IF NO ERROR (ESCAPE TEST)
5302                                    ;       :       :  THEN-CALL ERROR CK
5303                                    ;       :       ENDIF
5304                                    ;       :       NOP
5305                                    ;       ENDIF
5306                                    ; ENDTST
5307                                    ;-------------------------------------------------------------------------
5308                                    ; BOARD CALLOUT:
5309                                    ;       1.  CONTROLLER
5310                                    ;       2.  R/W ELECTRONICS
5311                                    ;-------------------------------------------------------------------------
5312                                    ;--
```

```
5315 030762                                   TSETUP                         ;
     030762  012737  031054  002466  BGNT25:  MOV     #T25TBL,TSTID         ;SETUP TEST ID TBL-TEST# 25
     030770  032737  000001  002324  IAT25:   BIT     #LOGICT,TSTMOD        ;IF TEST MODE=LOGIC TEST
     030776  001424                           BEQ     XT25                  ;BIT SET, THEN
     031000  004737  020736                   CALL    LTSTUP                ;CALL LOGIC TEST SETUP
5316 031004  004737  010440                   CALL    INTIAL                ;CALL INITIALIZE
5317 031010  004737  017724                   CALL    ERRCHK                ;CALL ERROR CHECK
5318 031014  005237  002470                   INC     TCMDCT                ;INCREMENT TST CMD CTR   *****
5319 031020  052737  000200  002500           BIS     #RECTST,FLAGSP        ;SET READ ERROR CODE TEST=FLAGSP
5320 031026  004737  011340                   CALL    RDERCD                ;CALL READ ERROR CODE
5321 031032                                   ESCAPE  TST                   ;IF NO ERROR
5322 031036  004737  017724                   CALL    ERRCHK                ;CALL ERROR CHECK
5323 031042  042737  000200  002500           BIC     #RECTST,FLAGSP        ;CLEAR READ ERROR CODE TEST=FLAGSP
5324 031050                          XT25:    EXIT    TST
5325 031054                                   REGTBL  CEINIT,CSESND
             015046                                                         REGS1=CEINIT
             015076                                                         REGS2=CSESND
5326 031054                                   TTBL    REGCK,0
     031054  030712                                           T25TBL:  .WORD   T25MSG
     031056  000001                                                    .WORD   REGCK
     031060  000000                                                    .WORD   0
     031062  177777                                                    .WORD   -1
     031064                                                   T25RTB:
     031064  015046                                                    .WORD   REGS1
     031066  015076                                                    .WORD   REGS2
     031070  177777                                                    .WORD   -1
5327 031072                                   FRUTBL  CTLRWE
     031072                                                   T25FTB:
     031072  006651                                                    .WORD   CTLRWE
     031074  177777                                                    .WORD   -1
5328 031076                                   ENDTST
```

```
5331                                    .SBTTL  TEST 26 -  READ SECTOR-PRT:1 - LGC TST
     031100  000417                               BR      BGNT26          ;BR TO BGN TST
     031102     040     122     105     T26MSG: .ASCIZ  / READ SECTOR-PRT:1 - LGC TST/
                                                .EVEN
5332
5333                                    ;++
5334                                    ; TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE A READ SECTOR IN
5335                                    ; BOTH DENSITIES AND RETURN A VALID ERROR CODE.
5336                                    ;-------------------------------------------------------------------------
5337                                    ; BGNTST
5338                                    ;       IF LOGIC TEST
5339                                    ;       :  THEN-SETUP TEST IDENT
5340                                    ;       :       CALL DEVICE DENSITY CK
5341                                    ;       :       SET DENSITY CONTROL=DISK DEN
5342                                    ;       :       CALL READ SECTOR
5343                                    ;       :       CALL READ ERROR CODE
5344                                    ;       :       IF NO COMMAND ERRORS
5345                                    ;       :       :  THEN-CALL ERROR CK
5346                                    ;       :       :       CALL COMPLIMENT DENSITY
5347                                    ;       :       :       CALL READ SECTOR
5348                                    ;       :       :       CALL READ ERROR CODE
5349                                    ;       :       :       IF NO COMMAND ERRORS
5350                                    ;       :       :       :  THEN-CALL ERROR CK
5351                                    ;       :       :       ENDIF
5352                                    ;       :       NOP
5353                                    ;       :       ENDIF
5354                                    ;       ENDIF
5355                                    ; ENDTST
5356                                    ;-------------------------------------------------------------------------
5357                                    ; BOARD CALLOUT:
5358                                    ;       1.  CONTROLLER
5359                                    ;       2.  R/W ELECTRONICS
5360                                    ;-------------------------------------------------------------------------
5361                                    ;--
```

```
5364 031140                                     TSETUP                          ;
     031140  012737  031256  002466  BGNT26: MOV     #T26TBL,TSTID           ;SETUP TEST ID TBL-TEST# 26
     031146  032737  000001  002324  IAT26:  BIT     #LOGICT,TSTMOD          ;IF TEST MODE=LOGIC TEST
     031154  001436                          BEQ     XT26                    ;BIT SET, THEN
     031156  004737  020736                  CALL    LTSTUP                  ;CALL LOGIC TEST SETUP
5365 031162  004737  017350                  CALL    DENCHK                  ;CALL DENSITY CHECK
5366 031166  004737  020472                  CALL    SDENC                   ;CALL SET DENSITY CONTROL=DENSITY STATUS
5367 031172  004737  011062                  CALL    READ                    ;CALL READ SECTOR
5368 031176  004737  011340                  CALL    RDERCD                  ;CALL READ ERROR CODE
5369 031202                                  ESCAPE  TST                     ;IF NO COMMAND ERRORS, THEN
5370 031206  004737  017724                  CALL    ERRCHK                  ;CALL ERROR CHECK
5371 031212  004737  020430                  CALL    CDENC                   ;CALL COMPLIMENT DENSITY CONTROL
5372 031216  052737  004000  002476          BIS     #NEGTST,FLAGST          ;SET FLAGST=NEG TEST FLAG
5373 031224  012737  000030  002464          MOV     #DENERR,NGTSER          ;SETUP NEGTEST SET ERROR=DEN ERROR
5374 031232  004737  011062                  CALL    READ                    ;CALL READ SECTOR
5375 031236  004737  011340                  CALL    RDERCD                  ;CALL READ ERROR CODE
5376 031242                                  ESCAPE  TST                     ;IF NO COMMAND ERRORS, THEN
5377 031246  004737  017724                  CALL    ERRCHK                  ;CALL ERROR CHECK
5378 031252                          XT26:   EXIT    TST
5379 031256                                  REGTBL  CSESAL
             015036                                                          REGS1=CSESAL
5380 031256                                  TTBL    REGCK,0
     031256  031102                                          T26TBL: .WORD   T26MSG
     031260  000001                                                  .WORD   REGCK
     031262  000000                                                  .WORD   0
     031264  177777                                                  .WORD   -1
     031266                                                  T26RTB:
     031266  015036                                                  .WORD   REGS1
     031270  177777                                                  .WORD   -1
5381 031272                                  FRUTBL  CTLRWE
     031272                                                  T26FTB:
     031272  006651                                                  .WORD   CTLRWE
     031274  177777                                                  .WORD   -1
5382 031276                                  ENDTST
```

```
5385                                    .SBTTL  TEST 27 -  POSITIONING - LGC TST
     031300  000414                       BR      BGNT27          ;BR TO BGN TST
     031302     040     120     117  T27MSG: .ASCIZ  / POSITIONING - LGC TST/
                                             .EVEN
5386
5387                                    ;++
5388                                    ; TEST TO VERIFY THAT THE DRIVE WILL READ THE HEADERS ON ALL TRACKS OF
5389                                    ; THE DEIVE AS EXPECTED.
5390                                    ;-------------------------------------------------------------------------
5391                                    ; BGNTST
5392                                    ;       IF LOGIC TEST
5393                                    ;       :  THEN-SETUP TEST IDENT
5394                                    ;       :       SET TRACK INIT FLAG
5395                                    ;       :       SET SECTOR=10
5396                                    ;       :       BGNDO
5397                                    ;       :       :  CALL GET TRACK
5398                                    ;       :       :  CALL READ ERROR CODE
5399                                    ;       :       :  CALL READ SECTOR
5400                                    ;       :       :  IF NO COMMAND ERRORS (ESCAPE TST)
5401                                    ;       :       :  :  THEN-CALL ERROR CHECK
5402                                    ;       :       :  :       CALL TRACKS ERROR CK
5403                                    ;       :       :  :       CLEAR TRACK INIT FLAG
5404                                    ;       :       :  :       NOP
5405                                    ;       :       :  ENDIF
5406                                    ;       :       DOUNTIL TRACKS DONE, ABORT FLAG SET, OR TRACK ERRORS=10
5407                                    ;       :       NOP
5408                                    ;       ENDIF
5409                                    ; ENDTST
5410                                    ;-------------------------------------------------------------------------
5411                                    ; BOARD CALLOUT:
5412                                    ;       1.  CONTROLLER
5413                                    ;       2.  R/W ELECTRONICS
5414                                    ;-------------------------------------------------------------------------
5415                                    ;--
```

```
                                                TSETUP                  ;
5418 031332                                     TSETUP
     031332  012737  031446  002466  BGNT27:  MOV     #T27TBL,TSTID    ;SETUP TEST ID TBL-TEST# 27
     031340  032737  000001  002324  IAT27:   BIT     #LOGICT,TSTMOD   ;IF TEST MODE=LOGIC TEST
     031346  001435                           BEQ     XT27             ;BIT SET, THEN
     031350  004737  020736                   CALL    LTSTUP           ;CALL LOGIC TEST SETUP
5419 031354  012737  000400  002510          MOV     #ITK!RTK,TKSCFG  ;SET TRK/SEC FLAG-->TRACK=INIT & RANDOM
5420 031362  004737  017350                   CALL    DENCHK           ;CALL DENSITY CHECK
5421 031366  004737  020472                   CALL    SDENC            ;CALL SET DENSITY CONTROL=DENSITY STATUS
5422 031372  012737  000010  002376          MOV     #10,SECTOR       ;SET SECTOR=10
5423 031400  004737  012662          BBT27:   CALL    GETTRK           ;CALL GET TRACK
5424 031404  004737  011062                   CALL    READ             ;CALL READ SECTOR
5425 031410  004737  011340                   CALL    RDERCD           ;CALL READ ERROR CODE
5426 031414                                   ESCAPE  TST              ;IF NO COMMAND ERRORS, THEN
5427 031420  004737  017516                   CALL    TKERCK           ;CALL TRACK ERROR CHECK
5428 031424  042737  000400  002510          BIC     #ITK,TKSCFG      ;CLEAR INT TRK FLAG
5429 031432  032737  001000  002476  UBT27:   BIT     #TRKDON,FLAGST   ;DO UNTIL FLAGST-TRACK DONE FLAG
5430 031440  001757                           BEQ     BBT27            ;SET,
5431 031442                          XT27:    EXIT    TST
5432 031446                                   REGTBL  CSESAL
     031446  015036                                                   REGS1=CSESAL
5433 031446                                   TTBL    REGCK,0
     031446  031302                                           T27TBL: .WORD   T27MSG
     031450  000001                                                   .WORD   REGCK
     031452  000000                                                   .WORD   0
     031454  177777                                                   .WORD   -1
     031456                                                   T27RTB:
     031456  015036                                                   .WORD   REGS1
     031460  177777                                                   .WORD   -1
5434 031462                                   FRUTBL  CTLRWE
     031462                                                   T27FTB:
     031462  006651                                                   .WORD   CTLRWE
     031464  177777                                                   .WORD   -1
5435 031466                                   ENDTST
```

```
 5438                                   .SBTTL  TEST 28 -  WRITE SECTOR-PRT:1 - LGC TST
     031470  000417                              BR      BGNT28          ;BR TO BGN TST
     031472     040     127     122  T28MSG: .ASCIZ  / WRITE SECTOR-PRT:1 - LGC TST/
                                             .EVEN
 5439
 5440                                   ;++
 5441                                   ; TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE A WRITE SECTOR IN
 5442                                   ; BOTH DENSITIES AND RETURN A VALID ERROR CODE.
 5443                                   ;-------------------------------------------------------------------------
 5444                                   ; BGNTST
 5445                                   ;       IF LOGIC TEST
 5446                                   ;       :  THEN-SETUP TEST IDENT
 5447                                   ;       :       CALL DEVICE DENSITY CHECK
 5448                                   ;       :       SET DENSITY CONTROL=DISK DEN
 5449                                   ;       :       CALL WRITE SECTOR
 5450                                   ;       :       IF NO COMMAND ERROR (ESCAPE TEST)
 5451                                   ;       :       :  THEN-CALL ERROR CHECK
 5452                                   ;       :       :       CALL COMPLIMENT DENSITY CONTROL
 5453                                   ;       :       :       CALL WRITE SECTOR
 5454                                   ;       :       :       IF NO COMMAND ERROR (ESCAPE TEST)
 5455                                   ;       :       :       :  THEN-CALL ERROR CHECK
 5456                                   ;       :       :       ENDIF
 5457                                   ;       :       NOP
 5458                                   ;       :       ENDIF
 5459                                   ;       :       NOP
 5460                                   ;       ENDIF
 5461                                   ; ENDTST
 5462                                   ;-------------------------------------------------------------------------
 5463                                   ; BOARD CALLOUT:
 5464                                   ;       1.  CONTROLLER
 5465                                   ;       2.  R/W ELECTRONICS
 5466                                   ;-------------------------------------------------------------------------
 5467                                   ;--
```

```
                                                TSETUP                          ;
 5470 031530                                    TSETUP                          ;
      031530  012737  031642  002466  BGNT28:  MOV     #T28TBL,TSTID   ;SETUP TEST ID TBL-TEST# 28
      031536  032737  000001  002324  IAT28:   BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
      031544  001434                           BEQ     XT28            ;BIT SET, THEN
      031546  004737  020736                   CALL    LTSTUP          ;CALL LOGIC TEST SETUP
 5471 031552  004737  017350                   CALL    DENCHK          ;CALL DENSITY CHECK
 5472 031556  004737  020472                   CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
 5473 031562  004737  010744                   CALL    WRITE           ;CALL WRITE SECTOR
 5474 031566                                    ESCAPE  TST             ;IF NO COMMAND ERROR, THEN
 5475 031572  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 5476 031576  004737  020430                   CALL    CDENC           ;CALL COMPLIMENT DENSITY CONTROL
 5477 031602  052737  004000  002476           BIS     #NEGTST,FLAGST  ;SET FLAGST-NEG TEST FLAG
 5478 031610  012737  000030  002464           MOV     #DENERR,NGTSER  ;SETUP NEG TEST ERR ERR=DENSITY ERR
 5479 031616  004737  010744                   CALL    WRITE           ;CALL WRITE
 5480 031622  004737  011340                   CALL    RDERCD          ;CALL READ ERROR CODE
 5481 031626                                    ESCAPE  TST             ;IF NO COMMAND ERROR
 5482 031632  004737  017724                   CALL    ERRCHK          ;CALL ERROR CHECK
 5483 031636                          XT28:     EXIT    TST
 5484 031642                                    REGTBL  CSESAL
      015036                                                    REGS1=CSESAL
 5485 031642                                    TTBL    REGCK,0
      031642  031472                                   T28TBL: .WORD   T28MSG
      031644  000001                                           .WORD   REGCK
      031646  000000                                           .WORD   0
      031650  177777                                           .WORD   -1
      031652                                            T28RTB:
      031652  015036                                           .WORD   REGS1
      031654  177777                                           .WORD   -1
 5486 031656                                    FRUTBL  CTLRWE
      031656                                            T28FTB:
      031656  006651                                           .WORD   CTLRWE
      031660  177777                                           .WORD   -1
 5487 031662                                    ENDTST
```

```
5490                                    .SBTTL  TEST 29 -  DELETED DATA WRITE PRT:1 - LGC TST
     031664  000422                             BR      BGNT29          ;BR TO BGN TST
     031666     040     104     105    T29MSG: .ASCIZ  / DELETED DATA WRITE PRT:1 - LGC TST/
                                               .EVEN
5491
5492                                    ;++
5493                                    ; TEST TO VERIFY THAT THE DEVICE SET A DELETED DATA MARK ON THE DISKETTE
5494                                    ; HEADER AND RETRIEVE THIS DATA ON A KNOWN GOOD DISKETTE.
5495                                    ;-------------------------------------------------------------------------
5496                                    ; BGNTST
5497                                    ;       IF LOGIC TEST
5498                                    ;       :  THEN-SETUP TEST IDENT
5499                                    ;       :       CALL DEVICE DENSITY CK
5500                                    ;       :       SET DENSITY CONTROL=DENSITY STATUS
5501                                    ;       :       SET DELETED DATA FLAG (BIT#3-CMD)
5502                                    ;       :       CALL WRITE SECTOR
5503                                    ;       :       IF NO COMMAND ERROR (ESCAPE TEST)
5504                                    ;       :       :  THEN-CALL READ SECTOR
5505                                    ;       :       :       IF NO COMMAND ERROR (ESCAPE TEST)
5506                                    ;       :       :       :  THEN-IF RXESR-DELETED DATA BIT NOT SET
5507                                    ;       :       :       :       :  THEN-SET ERROR NUMBER=DELETED DATA ERR
5508                                    ;       :       :       :       :       CALL ERROR
5509                                    ;       :       :       :       ENDIF
5510                                    ;       :       :       ENDIF
5511                                    ;       :       ENDIF
5512                                    ;       ENDIF
5513                                    ; ENDTST
5514                                    ;-------------------------------------------------------------------------
5515                                    ; BOARD CALLOUT:
5516                                    ;       1.  CONTROLLER
5517                                    ;       2.  R/W ELECTRONICS
5518                                    ;-------------------------------------------------------------------------
5519                                    ;--
```

```
 5522 031732                                  TSETUP                       ;
      031732  012737  032056  002466  BGNT29: MOV     #T29TBL,TSTID         ;SETUP TEST ID TBL-TEST# 29
      031740  032737  000001  002324  IAT29:  BIT     #LOGICT,TSTMOD        ;IF TEST MODE=LOGIC TEST
      031746  001441                          BEQ     XT29                  ;BIT SET, THEN
      031750  004737  020736                  CALL    LTSTUP                ;CALL LOGIC TEST SETUP
 5523 031754  004737  017350                  CALL    DENCHK                ;CALL DEVICE DENSITY CHECK
 5524 031760  004737  020472                  CALL    SDENC                 ;CALL SET DENSITY CONTROL=DENSITY STATUS
 5525 031764  012737  000010  002402          MOV     #DLDCMD,DELDAT        ;SET DELETED DATA FLAG
 5526 031772  004737  010744                  CALL    WRITE                 ;CALL WRITE SECTOR
 5527 031776                          IBT29:  ESCAPE  TST                   ;IF NO COMMAND ERROR, THEN
 5528 032002  004737  017724                  CALL    ERRCHK                ;CALL ERROR CHECK
 5529 032006  004737  011062                  CALL    READ                  ;CALL READ SECTOR
 5530 032012                          ICT29:  ESCAPE  TST                   ;IF NO COMMAND ERROR, THEN
 5531 032016  032777  000100  150326  IDT29:  BIT     #DLDBIT,@RXDB         ;IF RXESR-DELETED DATA BIT
 5532 032024  001006                          BNE     LCT29                 ;NOT SET, THEN
 5533 032026  012737  000032  002520          MOV     #DLDTER,ERRNBR        ;SETUP ERROR NUMBER=DELETED DATA ERROR
 5534 032034  004737  003060                  CALL    ERROR                 ;CALL ERROR
 5535 032040  000404                          BR      XT29                  ;EXIT TST
 5536 032042  005037  002402          LCT29:  CLR     DELDAT                ;CLEAR DEL DATA MODE
 5537 032046  004737  010744                  CALL    WRITE                 ;CALL WRITE SECTOR - CLR DATA FIELD
 5538 032052                          XT29:   EXIT    TST
 5539 032056                                  REGTBL  CSESAL
              015036                                                        REGS1=CSESAL
 5540 032056                                  TTBL    REGCK,0
      032056  031666                                            T29TBL: .WORD   T29MSG
      032060  000001                                                    .WORD   REGCK
      032062  000000                                                    .WORD   0
      032064  177777                                                    .WORD   -1
      032066                                                    T29RTB:
      032066  015036                                                    .WORD   REGS1
      032070  177777                                                    .WORD   -1
 5541 032072                                  FRUTBL  CTLRWE
      032072                                                    T29FTB:
      032072  006651                                                    .WORD   CTLRWE
      032074  177777                                                    .WORD   -1
 5542 032076                                  ENDTST
```

```
5545                                    .SBTTL  TEST 30 -  SET DENSITY - LGC TST
     032100  000414                     BR      BGNT30          ;BR TO BGN TST
     032102     040     123     105     T30MSG: .ASCIZ  / SET DENSITY - LGC TST/
                                        .EVEN
5546
5547                                    ;++
5548                                    ; TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE SET DENSITY IN BOTH
5549                                    ; DENSITIES.  THE VALID WORD WILL ALSO BE CHECKED.  ALSO TO VERIFY THAT
5550                                    ; THE DRIVE WILL READ IN THE NEW DENSITY WITHOUT ERROR.
5551                                    ;-------------------------------------------------------------------------
5552                                    ; BGNTST
5553                                    ;       IF LOGIC TEST
5554                                    ;       :  THEN-SETUP TEST IDENT
5555                                    ;       :       CALL DEVICE DENSITY CHECK
5556                                    ;       :       SAVE DEVICE DENSITY
5557                                    ;       :       SET DENSITY CONTROL=SINGLE DEN
5558                                    ;       :       CALL SET DENSITY
5559                                    ;       :       IF NO COMMAND ERROR (ESCAPE TST)
5560                                    ;       :       :  THEN-CALL ERROR CHECK
5561                                    ;       :       :       SET VALIDITY WORD=ASCII 'K'
5562                                    ;       :       :       CALL SET DENSITY
5563                                    ;       :       :       CALL READ ERROR CODE
5564                                    ;       :       :       IF NO COMMAND ERROR (ESCAPE TST)
5565                                    ;       :       :       :  THEN-SET FLAGST NEG TEST FLAG
5566                                    ;       :       :       :       SETUP EXPECTED ERR=S.D. KEY WD ERR
5567                                    ;       :       :       :       CALL ERROR CHECK
5568                                    ;       :       :       :       SET DENSITY CONTROL=DOUBLE DENSITY
5569                                    ;       :       :       :       SET VALIDITY WORD=ASCII 'I'
5570                                    ;       :       :       :       CALL SET DENSITY
5571                                    ;       :       :       :       IF NO COMMAND ERROR (ESCAPE TST)
5572                                    ;       :       :       :       :  THEN-CALL ERROR CHECK
5573                                    ;       :       :       :       :       CALL DEVICE DENSITY CHECK
5574                                    ;       :       :       :       :       IF DEVICE DENSITY NOT=SET DENSITY
5575                                    ;       :       :       :       :       :  THEN-SET ERR MSG=DENSITY NOT SET
5576                                    ;       :       :       :       :       :       CALL ERROR CHECK
5577                                    ;       :       :       :       :       ENDIF
5578                                    ;       :       :       :       :       IF SAVED DEVICE DENSITY=DOUBLE DENSITY
5579                                    ;       :       :       :       :       :  THEN-SET DENSITY CONTROL=SINGLE DEN
5580                                    ;       :       :       :       :       ENDIF
5581                                    ;       :       :       :       ENDIF
5582                                    ;       :       :       ENDIF
5583                                    ;       :       ENDIF
5584                                    ;       ENDIF
5585                                    ; ENDTST
5586                                    ;-------------------------------------------------------------------------
5587                                    ; BOARD CALLOUT:
5588                                    ;       1.  CONTROLLER
5589                                    ;       2.  R/W ELECTRONICS
5590                                    ;-------------------------------------------------------------------------
5591                                    ;--
```

```
                                        TSETUP                  ;
5594 032132                             BGNT30: MOV     #T30TBL,TSTID   ;SETUP TEST ID TBL-TEST# 30
     032132 012737 032356 002466        IAT30:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     032140 032737 000001 002324                BEQ     XT30            ;BIT SET, THEN
     032146 001501                              CALL    LTSTUP          ;CALL LOGIC TEST SETUP
     032150 004737 020736                       CALL    DENCHK          ;CALL DENSITY CHECK
5595 032154 004737 017350                       MOV     DENSTA,TSAVE1   ;SAVE DEVICE DENSITY
5596 032160 013737 002414 002506                CLR     DENSTY          ;SET DENSITY CONTROL=SINGLE DENSITY
5597 032166 005037 002412                       CALL    SETDN           ;CALL SET DENSITY
5598 032172 004737 011172                       ESCAPE  TST             ;IF NO COMMAND ERROR, THEN
5599 032176                                     CALL    ERRCHK          ;CALL ERROR CHECK
5600 032202 004737 017724                       MOV     #'K,VARIFY      ;SET VALIDITY WORD=ASCII 'K'
5601 032206 012737 000113 002372                CALL    SETDN           ;CALL SET DENSITY
5602 032214 004737 011172                       CALL    RDERCD          ;CALL READ ERROR CODE
5603 032220 004737 011340                       ESCAPE  TST             ;IF NO COMMAND ERROR
5604 032224                                     BIS     #NEGTST,FLAGST  ;SET FLAGST-NEG TEST FLAG
5605 032230 052737 004000 002476                MOV     #SDKYWD,NGTSER  ;SETUP EXPECTED ERROR=SET DEN KEYWORD ERROR
5606 032236 012737 000036 002464                CALL    ERRCHK          ;CALL ERROR CHECK
5607 032244 004737 017724                       MOV     #DENBIT,DENSTY  ;SET DENSITY CONTROL=DOUBLE DENSITY
5608 032250 012737 000400 002412                MOV     #'I,VARIFY      ;SET VALIDITY WORD=ASCII 'I'
5609 032256 012737 000111 002372                BIC     #NEGTST,FLAGST  ;CLEAR FLAGST-NEG TEST FLAG
5610 032264 042737 004000 002476                CALL    SETDN           ;CALL SET DENSITY
5611 032272 004737 011172                       ESCAPE  TST             ;IF NO COMMAND ERROR, THEN
5612 032276                                     CALL    ERRCHK          ;CALL ERROR CHECK
5613 032302 004737 017724                       CALL    DENCHK          ;CALL DENSITY CHECK
5614 032306 004737 017350                       CMP     DENSTA,DENSTY   ;IF DENSITY DID
5615 032312 023737 002414 002412                BEQ     IBT30           ;NOT SET, THEN
5616 032320 001405                              MOV     #STDNER,ERRNBR  ;SET ERROR NBR=DENSITY DIDN'T SET ERROR
5617 032322 012737 000035 002520                CALL    ERROR           ;CALL ERROR
5618 032330 004737 003060                       TST     TSAVE1          ;IF SAVED DENSITY
5619 032334 005737 002506               IBT30:  BEQ     XT30            ;EQUALS DOUBLE DEN, THEN
5620 032340 001404                              CLR     DENSTY          ;SET DENSITY CONTROL=SINGLE DEN
5621 032342 005037 002412                       CALL    SETDN           ;CALL SET DENSITY
5622 032346 004737 011172               XT30:   EXIT    TST
5623 032352                             
5624 032356                                     REGTBL  CSESAL
     032356 015036                                                      REGS1=CSESAL
5625 032356                                     TTBL    REGCK,0
     032356 032102                                      T30TBL: .WORD   T30MSG
     032360 000001                                              .WORD   REGCK
     032362 000000                                              .WORD   0
     032364 177777                                              .WORD   -1
     032366                                             T30RTB:
     032366 015036                                              .WORD   REGS1
     032370 177777                                              .WORD   -1
5626 032372                                     FRUTBL  CTLRWE
     032372                                             T30FTB:
     032372 006651                                              .WORD   CTLRWE
     032374 177777                                              .WORD   -1
5627 032376                                     ENDTST
```

```
5630                                    .SBTTL  TEST 31 -  SECTOR ADR - LGC TST
     032400  000413                               BR      BGNT31          ;BR TO BGN TST
     032402     040     123     105     T31MSG: .ASCIZ  / SECTOR ADR - LGC TST/
                                                .EVEN
5631
5632                                    ;++
5633                                    ; TEST TO VERIFY THAT THE CONTROLLER WILL HANDLE ALL LEGAL AND ILLEGAL
5634                                    ; SECTOR ADDRESSES PROPERLY.
5635                                    ;-------------------------------------------------------------------------
5636                                    ; BGNTST
5637                                    ;       IF LOGIC TEST
5638                                    ;       :  THEN-SETUP TEST IDENT
5639                                    ;       :       SET TRACK ADR=0
5640                                    ;       :       SET SECTOR LEGAL FALG
5641                                    ;       :       SET SECTOR INIT
5642                                    ;       :       BGNDO
5643                                    ;       :       :  CALL GET SECTOR ADR
5644                                    ;       :       :  CALL READ SECTOR
5645                                    ;       :       :  CALL READ ERROR CODE
5646                                    ;       :       :  IF FINI FLAG NOT SET
5647                                    ;       :       :  :  THEN-
5648                                    ;       :       :  :     IF SECTOR ADR NOT=TARGET SECTOR ADR
5649                                    ;       :       :  :     :  THEN-SETUP TO PRINT ERROR
5650                                    ;       :       :  :     :       CALL ERROR
5651                                    ;       :       :  :     :  ELSE-CALL ERROR CK
5652                                    ;       :       :  :     ENDIF
5653                                    ;       :       :  ENDIF
5654                                    ;       :       DOUNTIL SECTORS DONE FLAG SET OR ABORT FLAG SET
5655                                    ;       :       CLEAR SECTORS DONE FLAG
5656                                    ;       :       SET DONE TIME OUT MULTIPLIER=100
5657                                    ;       :       SET NEG TEST FLAG
5658                                    ;       :       BGNDO
5659                                    ;       :       :  CALL READ SECTOR
5660                                    ;       :       :  CALL READ ERROR CODE
5661                                    ;       :       :  IF FINI FLAG NOT SET
5662                                    ;       :       :  :  THEN-IF SECTOR ADR NOT=TARGET SECTOR ADR
5663                                    ;       :       :  :        :  THEN-SET ERR=SECTOR ADR ERROR
5664                                    ;       :       :  :        :       CALL ERROR
5665                                    ;       :       :  :        :  ELSE-CALL ERROR CHECK
5666                                    ;       :       :  :        ENDIF
5667                                    ;       :       :  ENDIF
5668                                    ;       :       DOUNTIL SECTORS DONE FLAG SET OR FINI FLAG SET
5669                                    ;       :       NOP
5670                                    ;       ENDIF
5671                                    ; ENDTST
5672                                    ;-------------------------------------------------------------------------
5673                                    ; BOARD CALLOUT:
5674                                    ;       1.  CONTROLLER
5675                                    ;-------------------------------------------------------------------------
5676                                    ;--
```

```
 5679 032430                                   TSETUP                     ;
      032430 012737  032730  002466  BGNT31:  MOV     #T31TBL,TSTID     ;SETUP TEST ID TBL-TEST# 31
      032436 032737  000001  002324  IAT31:   BIT     #LOGICT,TSTMOD    ;IF TEST MODE=LOGIC TEST
      032444 001527                            BEQ     XT31              ;BIT SET, THEN
      032446 004737  020736                    CALL    LTSTUP            ;CALL LOGIC TEST SETUP
 5680 032452 004737  010440                    CALL    INTIAL            ;CALL INITAILIZE
 5681 032456 004737  017350                    CALL    DENCHK            ;CALL DENSITY CHECK
 5682 032462 004737  020472                    CALL    SDENC             ;CALL SET DENSITY CONTROL=DENSITY STATUS
 5683 032466 012737  001002  002510            MOV     #ISC!SSC,TKSCFG   ;SETUP SECTOR FLAGS=INITIALIZE & SEQUENCE
 5684 032474 004737  013104          BBT31:   CALL    GETSEC            ;CALL GET SECTOR
 5685 032500 004737  011062                    CALL    READ              ;CALL READ SECTOR
 5686 032504 004737  011340                    CALL    RDERCD            ;CALL READ ERROR CODE
 5687 032510 005737  002454          ICT31:   TST     FIN               ;IF FINI FLAG
 5688 032514 001024                            BNE     UBT31             ;NOT SET, THEN
 5689 032516 123737  002376  002447  IDT31:   CMPB    SECTOR,TSEC       ;IF SECTOR ADR & DEVICE TARGET SECTOR
 5690 032524 001416                            BEQ     LDT31             ;NOT =, THEN
 5691 032526 012737  000042  002520            MOV     #SECAER,ERRNBR    ;SETUP ERR NBR=SECTOR ADDRESS ERROR
 5692 032534 052737  000002  002500            BIS     #SCPRT,FLAGSP     ;SET FLAGSP=-PRINT SECTOR ADDRESS FLAG
 5693 032542 004737  003060                    CALL    ERROR             ;CALL ERROR
 5694 032546 042737  000002  002500            BIC     #SCPRT,FLAGSP     ;CLEAR FLAGSP-PRINT SECTOR ADDRESS FLAG
 5695 032554 004737  010440                    CALL    INTIAL            ;CALL INITAILIZE
 5696 032560 000402                            BR      UBT31             ;BR TO DOUNTIL 'B'
 5697 032562 004737  017724          LDT31:   CALL    ERRCHK            ;CALL ERROR CHFCK
 5698 032566 005737  002452          UBT31:   TST     ABORT             ;DOUNTIL ABORT FLAG
 5699 032572 001004                            BNE     EBT31             ;SET OR
 5700 032574 032737  002000  002476            BIT     #SECDON,FLAGST    ;FLAGST-SECTOR DONE FLAG
 5701 032602 001734                            BEQ     BBT31             ;SET
 5702 032604 042737  002000  002476  EBT31:   BIC     #SECDON,FLAGST    ;CLEAR FLAGST-SECTOR DONE FLAG
 5703 032612 052737  004000  002476            BIS     #NEGTST,FLAGST    ;SET FLAGST-NEG TEST FLAG
 5704 032620 012737  000003  002464            MOV     #RDERR,NGTSER     ;SETUP EXPECTED ERROR=READ ERROR (SECTOR NOT FOUND EC=70)
 5705 032626 012737  000100  002474            MOV     #100,DNWTMT       ;SET DONE WAIT MULTIPLIER SO NO TIME OUT
 5706 032634 012737  000000  002376            MOV     #0,SECTOR         ;SET SECTOR ADR=0
 5707 032642 004737  011062          BET31:   CALL    READ              ;CALL READ SECTOR
 5708 032646 004737  011340                    CALL    RDERCD            ;CALL READ ERROR CODE
 5709 032652 005737  002454          IFT31:   TST     FIN               ;IF FINI FLAG
 5710 032656 001017                            BNE     EFT31             ;NOT SET, THEN
 5711 032660 123737  002376  002447  IGT31:   CMPB    SECTOR,TSEC       ;IF SECTOR ADR AND TARGET SECTOR
 5712 032666 001411                            BEQ     LGT31             ;NOT EQUAL, THEN
 5713 032670 052737  000002  002500            BIS     #SCPRT,FLAGSP     ;SET FLAGSP=-PRINT SECTOR ADDRESS FLAG
 5714 032676 012737  000042  002520            MOV     #SECAER,ERRNBR    ;SETUP ERR NBR=SECTOR ADDRESS ERROR
 5715 032704 004737  003060                    CALL    ERROR             ;CALL ERROR
 5716 032710 000402                            BR      EFT31             ;CALL TO END 'G'
 5717 032712 004737  017724          LGT31:   CALL    ERRCHK            ;CALL ERROR CHECK
 5718 032716 012737  000004  002474  EFT31:   MOV     #4,DNWTMT         ;RESET DONE WAIT MUTIPLIER TO NORMAL
 5719 032724                          XT31:    EXIT    TST
 5720 032730                                   REGTBL  CSESAL
             015036                                                     REGS1=CSESAL
 5721 032730                                   TTBL    REGCK,0
      032730 032402                                             T31TBL: .WORD   T31MSG
      032732 000001                                                     .WORD   REGCK
      032734 000000                                                     .WORD   0
      032736 177777                                                     .WORD   -1
      032740                                                    T31RTB:
      032740 015036                                                     .WORD   REGS1
      032742 177777                                                     .WORD   -1
 5722 032744                                   FRUTBL  CTLRWE
      032744                                                    T31FTB:
```

```
        032744  006651                          .WORD   CTLRWE
        032746  177777                          .WORD   -1
   5723 032750                          ENDTST
```

```
5726                                    .SBTTL  TEST 32 -  TRACK ADR - LGC TST
     032752  000413                             BR      BGNT32          ;BR TO BGN TST
     032754     040     124     122  T32MSG: .ASCIZ  / TRACK ADR - LGC TST/
                                             .EVEN
5727
5728                                    ;++
5729                                    ; TEST TO VERIFY THAT THE CONTROLLER WILL HANDLE ALL LEGAL AND ILLEGAL
5730                                    ; TRACK ADDRESSES PROPERLY.
5731                                    ;-------------------------------------------------------------------------
5732                                    ; BGNTST
5733                                    ;       IF LOGIC TEST
5734                                    ;       :  THEN-SETUP TEST IDENT
5735                                    ;       :       SET TRACK INIT & SEQUENCE FLAGS
5736                                    ;       :       BGNDO
5737                                    ;       :       :  BGNDO
5738                                    ;       :       :  :  CALL GET TRACK ADR
5739                                    ;       :       :  :  CLEAR TRACK INIT FLAG
5740                                    ;       :       :  :  CALL READ SECTOR
5741                                    ;       :       :  :  CALL READ ERROR CODE
5742                                    ;       :       :  :  IF FINI FLAG NOT SET
5743                                    ;       :       :  :  :  THEN-
5744                                    ;       :       :  :  :     IF TRACK ADR NOT=TARGET TRACK ADR
5745                                    ;       :       :  :  :     :  THEN-CALL LOGIC TEST ERROR
5746                                    ;       :       :  :  :     ENDIF
5747                                    ;       :       :  :  :     IF ILLEGAL FLAG NOT SET
5748                                    ;       :       :  :  :     :  THEN-IF TRACK ADR NOT=UNIT TRACK ADR
5749                                    ;       :       :  :  :     :        :  THEN-SETUP TRACK ADR ERR & CALL ERROR
5750                                    ;       :       :  :  :     :        :  ELSE-IF ERROR CODE=40
5751                                    ;       :       :  :  :     :        :        :  THEN-CALL LOGIC TEST ERROR
5752                                    ;       :       :  :  :     :        :     ENDIF
5753                                    ;       :       :  :  :     :     ENDIF
5754                                    ;       :       :  :  :     :  ELSE-IF TRACK ADR=UNIT TRACK ADR
5755                                    ;       :       :  :  :     :        :  THEN-SETUP TRACK ADR ERR & CALL ERROR
5756                                    ;       :       :  :  :     :        :  ELSE-IF ERROR CODE NOT=40
5757                                    ;       :       :  :  :     :        :        :  THEN-CALL LOGIC TEST ERROR
5758                                    ;       :       :  :  :     :        :     ENDIF
5759                                    ;       :       :  :  :     :     ENDIF
5760                                    ;       :       :  :  :     ENDIF
5761                                    ;       :       :  :  ENDIF
5762                                    ;       :       :  DOUNTIL TRACKS DONE FLAG SET OR ABORT FLAG SET
5763                                    ;       :       :  SET TRACK INIT FLAG
5764                                    ;       :       :  IF TRACKS LEGAL FLAG SET
5765                                    ;       :       :  :  THEN-SET TRACKS ILLEGAL FLAG
5766                                    ;       :       :  :  ELSE-SET TRACKS LEGAL FLAG
5767                                    ;       :       :  ENDIF
5768                                    ;       :       DOUNTIL TRACKS LEGAL FLAG SET
5769                                    ;       ENDIF
5770                                    ; ENDTST
5771                                    ;-------------------------------------------------------------------------
5772                                    ; BOARD CALLOUT:
5773                                    ;       1.  CONTROLLER
5774                                    ;-------------------------------------------------------------------------
5775                                    ;--
```

```
5778 033002                                    TSETUP                          ;
     033002  012737  033336  002466  BGNT32:  MOV     #T32TBL,TSTID           ;SETUP TEST ID TBL-TEST# 32
     033010  032737  000001  002324  IAT32:   BIT     #LOGICT,TSTMOD          ;IF TEST MODE=LOGIC TEST
     033016  001545                           BEQ     XT32                    ;BIT SET, THEN
     033020  004737  020736                   CALL    LTSTUP                  ;CALL LOGIC TEST SETUP
5779 033024  004737  017350                   CALL    DENCHK                  ;CALL DENSITY CHECK
5780 033030  004737  020472                   CALL    SDENC                   ;CALL SET DENSITY CONTROL=DENSITY STATUS
5781 033034  012737  000401  002510           MOV     #ITK!STK,TKSCFG         ;SET INITIALIZE & SEQUENCE TRACKS FLAG (TRACK/SECTOR FLAGS)
5782 033042  000240                   BBT32:   NOP                             ;
5783 033044  004737  012662           BCT32:   CALL    GETTRK                  ;CALL GET TRACK ADR
5784 033050  042737  000401  002510           BIC     #ITK!STK,TKSCFG         ;CLEAR INITIALIZE TRACKS FLAG
5785 033056  004737  011062                   CALL    READ                    ;CALL READ SECTOR
5786 033062  004737  011340                   CALL    RDERCD                  ;CALL READ ERROR CODE
5787 033066  005737  002454           IDT32:   TST     FIN                     ;IF FINI FLAG
5788 033072  001062                           BNE     UCT32                   ;NOT SET, THEN
5789 033074  123737  002374  002446  IET32:   CMPB    TRACK,TTRK              ;IF TRACK ADR & TARGET TRACK
5790 033102  001405                           BEQ     EET32                   ;NOT EQUAL, THEN
5791 033104  012737  000041  002520           MOV     #TRKAER,ERRNBR          ;SETUP ERR NBR=TRACK ADDRESS ERROR
5792 033112  004737  003060                   CALL    ERROR                   ;CALL ERROR
5793 033116  013705  002420           EET32:   MOV     DRVOFF,R5               ;SET R5=DRIVE BYTE OFFSET
5794 033122  032737  010000  002476  IFT32:   BIT     #ILLGAL,FLAGST          ;IF ILLEGAL FLAG
5795 033130  001024                           BNE     IIT32                   ;NOT SET, THEN
5796 033132  123765  002374  002444  IGT32:   CMPB    TRACK,CTKO(R5)          ;IF TRACK ADR & CURRENT TRACK OF SELECTED DRV (R5)
5797 033140  001406                           BEQ     IHT32                   ;NOT EQUAL, THEN
5798 033142  012737  000041  002520           MOV     #TRKAER,ERRNBR          ;SETUP ERR NBR=TRACK ADDRESS ERROR
5799 033150  004737  003060                   CALL    ERROR                   ;CALL ERROR
5800 033154  000431                           BR      UCT32                   ;BR TO DOUNTIL 'C'
5801 033156  122737  000040  002442  IHT32:   CMPB    #40,XERUUT              ;IF ERR CODE
5802 033164  001025                           BNE     UCT32                   ;SET=40, THEN
5803 033166  012737  000021  002520           MOV     #RECERR,ERRNBR          ;SETUP ERRNBR=READ ERR CODE-ERR WRG
5804 033174  004737  003060                   CALL    ERROR                   ;CALL ERROR
5805 033200  000417                           BR      UCT32                   ;BR TO DOUNTIL 'C'
5806 033202  123765  002374  002444  IIT32:   CMPB    TRACK,CTKO(R5)          ;IF TRACK ADR & CURRENT TRACK OF SELECTED DRV (R5)
5807 033210  001004                           BNE     IJT32                   ;EQUAL, THEN
5808 033212  012737  000041  002520           MOV     #TRKAER,ERRNBR          ;SETUP ERR NBR=TRACK ADR ERROR
5809 033220  000407                           BR      UCT32                   ;BR TO DOUNTIL 'C'
5810 033222  122737  000040  002442  IJT32:   CMPB    #40,XERUUT              ;IF ERR CODE NOT
5811 033230  001403                           BEQ     UCT32                   ;SET=40
5812 033232  012737  000021  002520           MOV     #RECERR,ERRNBR          ;SETUP ERR NBR=READ ERR CODE-ERR WRG
5813 033240  005737  002454           UCT32:   TST     FIN                     ;DOUNTIL FINI FLAG
5814 033244  001004                           BNE     ECT32                   ;SET OR
5815 033246  032737  001000  002476           BIT     #TRKDON,FLAGST          ;TRACKS DONE FLAG
5816 033254  001673                           BEQ     BCT32                   ;SET
5817 033256  042737  001000  002476  ECT32:   BIC     #TRKDON,FLAGST          ;CLEAR TRACKS DONE FLAG
5818 033264  005037  002510                   CLR     TKSCFG                  ;CLR TRACK FLAGS
5819 033270  052737  000004  002510           BIS     #ILTK,TKSCFG            ;SETUP ILLEGAL TRACKS FLAG
5820 033276  032737  010000  002476  IKT32:   BIT     #ILLGAL,FLAGST          ;IF ILLEGAL FLAG
5821 033304  001004                           BNE     LKT32                   ;NOT SET, THEN
5822 033306  052737  010000  002476           BIS     #ILLGAL,FLAGST          ;SET ILLEGAL FLAG
5823 033314  000403                           BR      UBT32                   ;BR TO DOUNTIL 'C'
5824 033316  042737  010000  002476  LKT32:   BIC     #ILLGAL,FLAGST          ;CLEAR ILLEGAL FLAG
5825 033324  032737  010000  002476  UBT32:   BIT     #ILLGAL,FLAGST          ;DOUNTIL ILLEGAL FLAG CLEAR
5826 033332                           XT32:    EXIT    TST
5827 033336                                    REGTBL
5828 033336                                    TTBL    0,0
     033336  032754                                    T32TBL: .WORD   T32MSG
     033340  000000                                            .WORD   0
```

```
        033342  000000                                          .WORD   0
        033344  177777                                          .WORD   -1
        033346                                          T32R1B:
        033346  177777                                          .WORD   -1
  5829  033350                        FRUTBL  CTLONL
        033350                                          T32FTB:
        033350  006654                                          .WORD   CTLONL
        033352  177777                                          .WORD   -1
  5830  033354                        ENDTST
```

```
 5833                                   .SBTTL  TEST 33 -  READ SECTOR-PRT:2 - LGC TST
     033356  000417                              BR      BGNT33          ;BR TO BGN TST
     033360     040     122     105  T33MSG: .ASCIZ  / READ SECTOR-PRT:2 - LGC TST/
                                              .EVEN
 5834
 5835                                   ;++
 5836                                   ; TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE A READ SECTOR IN
 5837                                   ; BOTH DENSITIES & RETURN A VALID ERROR CODE. SIMILAR TO
 5838                                   ; READ SECTOR PRT:1, BUT WITH DISKETTE IN OPPOSITE DENSITY.
 5839                                   ;-----------------------------------------------------------------------
 5840                                   ; BGNTST
 5841                                   ;       IF LOGIC TEST
 5842                                   ;       :  THEN-SETUP TEST IDENT
 5843                                   ;       :       CALL DEVICE DENSITY CK
 5844                                   ;       :       SET DENSITY CONTROL=DISK DEN
 5845                                   ;       :       CALL READ SECTOR
 5846                                   ;       :       CALL READ ERROR CODE
 5847                                   ;       :       IF NO COMMAND ERRORS
 5848                                   ;       :       :  THEN-CALL ERROR CK
 5849                                   ;       :       :       CALL COMPLIMENT DENSITY
 5850                                   ;       :       :       CALL READ SECTOR
 5851                                   ;       :       :       CALL READ ERROR CODE
 5852                                   ;       :       :       IF NO COMMAND ERRORS
 5853                                   ;       :       :       :  THEN-CALL ERROR CK
 5854                                   ;       :       :       ENDIF
 5855                                   ;       :       NOP
 5856                                   ;       ENDIF
 5857                                   ; ENDTST
 5858                                   ;-----------------------------------------------------------------------
 5859                                   ; BOARD CALLOUT:
 5860                                   ;       1.  CONTROLLER
 5861                                   ;       2.  R/W ELECTRONICS
 5862                                   ;-----------------------------------------------------------------------
 5863                                   ;--
 5864
```

```
5867 033416                                        TSETUP
     033416  012737  033534  002466  BGNT33: MOV     #T33TBL,TSTID   ;SETUP TEST ID TBL-TEST# 33
     033424  032737  000001  002324  IAT33:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     033432  001436                          BEQ     XT33            ;BIT SET, THEN
     033434  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
5868 033440  004737  017350                  CALL    DENCHK          ;CALL DENSITY CHECK
5869 033444  004737  020472                  CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
5870 033450  004737  011062                  CALL    READ            ;CALL READ SECTOR
5871 033454  004737  011340                  CALL    RDERCD          ;CALL READ ERROR CODE
5872 033460                                  ESCAPE  TST             ;IF NO COMMAND ERRORS, THEN
5873 033464  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
5874 033470  004737  020430                  CALL    CDENC           ;CALL COMPLIMENT DENSITY CONTROL
5875 033474  052737  004000  002476          BIS     #NEGTST,FLAGST  ;SET FLAGST=NEG TEST FLAG
5876 033502  012737  000030  002464          MOV     #DENERR,NGTSER  ;SETUP NEGTEST SET ERROR=DEN ERROR
5877 033510  004737  011062                  CALL    READ            ;CALL READ SECTOR
5878 033514  004737  011340                  CALL    RDERCD          ;CALL READ ERROR CODE
5879 033520                                  ESCAPE  TST             ;IF NO COMMAND ERRORS, THEN
5880 033524  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
5881 033530                          XT33:   EXIT    TST
5882 033534                                  REGTBL  CSESAL
             015036                                                 REGS1=CSESAL
5883 033534                                  TTBL    REGCK,0
     033534  033360                                          T33TBL: .WORD   T33MSG
     033536  000001                                                  .WORD   REGCK
     033540  000000                                                  .WORD   0
     033542  177777                                                  .WORD   -1
     033544                                                  T33RTB:
     033544  015036                                                  .WORD   REGS1
     033546  177777                                                  .WORD   -1
5884 033550                                  FRUTBL  CTLRWE
     033550                                                  T33FTB:
     033550  006651                                                  .WORD   CTLRWE
     033552  177777                                                  .WORD   -1
5885
5886 033554                                  ENDTST
```

```
                                .SBTTL  TEST 34 -  WRITE SECTOR-PRT:2 - LGC TST
033556  000417                        BR      BGNT34          ;BR TO BGN TST
033560    040     127     122 T34MSG: .ASCIZ  / WRITE SECTOR-PRT:2 - LGC TST/
                                      .EVEN

                                ;++
                                ; TEST TOVERIFY THAT THE CONTROLLER WILL COMPLETE A WRITE SECTOR IN
                                ; BOTH DENSITIES & RETURN A VALID ERROR CODE, SIMILAR TO WRITE
                                ; SECTOR PRT:1, BUT WITH DISKETTE IN OPPOSITE DENSITY.
                                ;-------------------------------------------------------------------------
                                ; BGNTST
                                ;       IF LOGIC TEST
                                ;       :  THEN-SETUP TEST IDENT
                                ;       :       CALL DEVICE DENSITY CHECK
                                ;       :       SET DENSITY CONTROL=DISK DEN
                                ;       :       CALL WRITE SECTOR
                                ;       :       IF NO COMMAND ERROR (ESCAPE TEST)
                                ;       :       :  THEN-CALL ERROR CHECK
                                ;       :       :       CALL COMPLIMENT DENSITY CONTROL
                                ;       :       :       CALL WRITE SECTOR
                                ;       :       :       IF NO COMMAND ERROR (ESCAPE TEST)
                                ;       :       :       :  THEN-CALL ERROR CHECK
                                ;       :       :       ENDIF
                                ;       :       NOP
                                ;       :       ENDIF
                                ;       :       NOP
                                ;       ENDIF
                                ; ENL OT
                                ;-------------------------------------------------------------------------
                                ; BOARD CALLOUT:
                                ;       1.  CONTROLLER
                                ;       2.  R/W ELECTRONICS
                                ;-------------------------------------------------------------------------
                                ;--
```

```
5923 033616                                    TSETUP
     033616  012737  033730  002466  BGNT34: MOV     #T34TBL,TSTID   ;SETUP TEST ID TBL-TEST# 34
     033624  032737  000001  002324  IAT34:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     033632  001434                          BEQ     XT34            ;BIT SET, THEN
     033634  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
5924
5925 033640  004737  017350                  CALL    DENCHK          ;CALL DENSITY CHECK
5926 033644  004737  020472                  CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
5927 033650  004737  010744                  CALL    WRITE           ;CALL WRITE SECTOR
5928 033654                                  ESCAPE  TST             ;IF NO COMMAND ERROR, THEN
5929 033660  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
5930 033664  004737  020430                  CALL    CDENC           ;CALL COMPLIMENT DENSITY CONTROL
5931 033670  052737  004000  002476          BIS     #NEGTST,FLAGST  ;SET FLAGST-NEG TEST FLAG
5932 033676  012737  000030  002464          MOV     #DENERR,NGTSER  ;SETUP NEG TEST ERR ERR=DENSITY ERR
5933 033704  004737  010744                  CALL    WRITE           ;CALL WRITE
5934 033710  004737  011340                  CALL    RDERCD          ;CALL READ ERROR CODE
5935 033714                                  ESCAPE  TST             ;IF NO COMMAND ERROR
5936 033720  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
5937 033724                          XT34:   EXIT    TST
5938 033730                                  REGTBL  CSESAL
     015036                                                      REGS1=CSESAL
5939 033730                                  TTBL    REGCK,0
     033730  033560                                      T34TBL: .WORD   T34MSG
     033732  000001                                              .WORD   REGCK
     033734  000000                                              .WORD   0
     033736  177777                                              .WORD   -1
     033740                                              T34RTB:
     033740  015036                                              .WORD   REGS1
     033742  177777                                              .WORD   -1
5940 033744                                  FRUTBL  CTLRWE
     033744                                              T34FTB:
     033744  006651                                              .WORD   CTLRWE
     033746  177777                                              .WORD   -1
5941
5942 033750                                  ENDTST
```

```
5945                                    .SBTTL  TEST 35 -  DELETED DATA WRITE PRT:2 - LGC TST
     033752  000422                             BR      BGNT35          ;BR TO BGN TST
     033754     040     104     105    T35MSG: .ASCIZ  / DELETED DATA WRITE PRT:2 - LGC TST/
                                               .EVEN
5946
5947                                    ;++
5948                                    ; TEST TO VERIFY THAT THE DEVICE SET A DELETED DATA MARK ON THE DISKETTE
5949                                    ; HEADER AND RETRIEVE THIS DATA ON A KNOWN GOOD DISKETTE.  THIS IS DONE
5950                                    ; IN OPPOSITE DENSITY OF TEST 1.
5951                                    ;-------------------------------------------------------------------------
5952                                    ; BGNTST
5953                                    ;       IF LOGIC TEST
5954                                    ;       :  THEN-SETUP TEST IDENT
5955                                    ;       :       CALL DEVICE DENSITY CK
5956                                    ;       :       SET DENSITY CONTROL=DENSITY STATUS
5957                                    ;       :       SET DELETED DATA FLAG (BIT#3-CMD)
5958                                    ;       :       CALL WRITE SECTOR
5959                                    ;       :       IF NO COMMAND ERROR (ESCAPE TEST)
5960                                    ;       :       :  THEN-CALL READ SECTOR
5961                                    ;       :       :       IF NO COMMAND ERROR (ESCAPE TEST)
5962                                    ;       :       :       :  THEN-IF RXESR-DELETED DATA BIT NOT SET
5963                                    ;       :       :       :       :  THEN-SET ERROR NUMBER=DELETED DATA ERR
5964                                    ;       :       :       :       :       CALL ERROR
5965                                    ;       :       :       :       ENDIF
5966                                    ;       :       :       ENDIF
5967                                    ;       :       ENDIF
5968                                    ;       ENDIF
5969                                    ; ENDTST
5970                                    ;-------------------------------------------------------------------------
5971                                    ; BOARD CALLOUT:
5972                                    ;       1.  CONTROLLER
5973                                    ;       2.  R/W ELECTRONICS
5974                                    ;-------------------------------------------------------------------------
5975                                    ;--
5976
```

```
                                                    TSETUP
5979 034020                                         
     034020  012737  034150  002466  BGNT35: MOV     #T35TBL,TSTID   ;SETUP TEST ID TBL-TEST# 35
     034026  032737  000001  002324  IAT35:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     034034  001443                          BEQ     XT35            ;BIT SET, THEN
     034036  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
5980 034042  004737  017350                  CALL    DENCHK          ;CALL DEVICE DENSITY CHECK
5981 034046  004737  020472                  CALL    SDENC           ;CALL SET DENSITY CONTROL=DENSITY STATUS
5982 034052  012737  000010  002402          MOV     #DLDCMD,DELDAT  ;SET DELETED DATA FLAG
5983 034060  004737  010744                  CALL    WRITE           ;CALL WRITE SECTOR
5984 034064  004737  011340                  CALL    RDERCD          ;CALL READ ERROR CODE
5985 034070                          IBT35:  ESCAPE  TST             ;IF NO COMMAND ERROR, THEN
5986 034074  004737  017724                  CALL    ERRCHK          ;CALL ERROR CHECK
5987 034100  004737  011062                  CALL    READ            ;CALL READ SECTOR
5988 034104                          ICT35:  ESCAPE  TST             ;IF NO COMMAND ERROR, THEN
5989 034110  032777  000100  146234  IDT35:  BIT     #DLDBIT,@RXDB   ;IF RXESR-DELETED DATA BIT
5990 034116  001006                          BNE     LDT35           ;NOT SET, THEN
5991 034120  012737  000032  002520          MOV     #DLDTER,ERRNBR  ;SETUP ERROR NUMBER=DELETED DATA ERROR
5992 034126  004737  003060                  CALL    ERROR           ;CALL ERROR
5993 034132  000404                          BR      XT35            ;BR TO EXIT TST
5994 034134  005037  002402          LDT35:  CLR     DELDAT          ;CLEAR DELETED DATA MODE
5995 034140  004737  010744                  CALL    WRITE           ;CALL WRITE SECTOR - CLR DEL DAT FIELD
5996 034144                          XT35:   EXIT    TST
5997 034150                                  REGTBL  CSESAL
     015036                                                          REGS1=CSESAL
5998 034150                                  TTBL    REGCK,0
     034150  033754                                      T35TBL: .WORD   T35MSG
     034152  000001                                              .WORD   REGCK
     034154  000000                                              .WORD   0
     034156  177777                                              .WORD   -1
     034160                                              T35RTB:
     034160  015036                                              .WORD   REGS1
     034162  177777                                              .WORD   -1
5999 034164                                  FRUTBL  CTLRWE
     034164                                              T35FTB:
     034164  006651                                              .WORD   CTLRWE
     034166  177777                                              .WORD   -1
6000
6001 034170                                  ENDTST
```

```
6004                                    .SBTTL  TEST 36 -  DISKETTE & DENSITY DATA CHECK - LGC TST
     034172  000425                             BR      BGNT36          ;BR TO BGN TST
     034174     040     104     111     T36MSG: .ASCIZ  / DISKETTE & DENSITY DATA CHECK - LGC TST/
                                                .EVEN
6005
6006                                    ;++
6007                                    ; TEST TO VERIFY WITH A KNOWN GOOD DISKETTE THAT THE DEVICE WILL READ
6008                                    ; AND WRITE TO THE DISKETTE WITHOUT DATA ERRORS.  BOTH DENSITIES WILL
6009                                    ; BE DONE.
6010                                    ;-------------------------------------------------------------------------
6011                                    ; BGNTST
6012                                    ;       IF LOGIC TEST
6013                                    ;       :  THEN-SETUP TEST IDENT
6014                                    ;       :       CALL DENSITY CHECK
6015                                    ;       :       CALL SETUP DENSITY CONTROL=DENSITY STATUS
6016                                    ;       :       CLEAR DO FLAG
6017                                    ;       :       BGNDO
6018                                    ;       :       :  SET DATA PATTERN=RANDOM
6019                                    ;       :       :  CALL DATA PATTERN GENERATOR
6020                                    ;       :       :  SET TRACK & SECTOR INITIALIZE FLAG
6021                                    ;       :       :  SET TRACK & SECTOR=SEQUENCE MODE
6022                                    ;       :       :  BGNDO
6023                                    ;       :       :  :  CALL GET TRACK & GET SECTOR
6024                                    ;       :       :  :  CALL FILL BUFFER
6025                                    ;       :       :  :  CALL WRITE SECTOR
6026                                    ;       :       :  :  SETUP TO CLEAR RX INTERNAL BUFFER
6027                                    ;       :       :  :  CALL FILL BUFFER-CLEAR INTERNAL BUFFER
6028                                    ;       :       :  :  SETUP DATA BUFFER
6029                                    ;       :       :  :  CALL READ SECTOR
6030                                    ;       :       :  :  CALL EMPTY BUFFER
6031                                    ;       :       :  :  CALL DATA CHECK
6032                                    ;       :       :  :  IF ERROR
6033                                    ;       :       :  :  :  THEN-CALL DATA ANYLSIS ERROR
6034                                    ;       :       :  :  ENDIF
6035                                    ;       :       :  DOUNTIL TRACK & SECTOR DONE OR DATA ERRORS=10
6036                                    ;       :       :  CALL CHANGE DENSITY
6037                                    ;       :       :  SET DENSITY CONTROL=DENSITY STATUS
6038                                    ;       :       :  INCREMENT DO FLAG
6039                                    ;       :       DOUNTIL DO FLAG=2 OR ABORT FLAG SET
6040                                    ;       :       NOP
6041                                    ;       ENDIF
6042                                    ; ENDTST
6043                                    ;-------------------------------------------------------------------------
6044                                    ; BOARD CALLOUT:
6045                                    ;       1.  CONTROLLER
6046                                    ;       2.  R/W ELECTRONICS
6047                                    ;-------------------------------------------------------------------------
6048                                    ;--
```

```
6051
6052 034246                                        TSETUP
     034246  012737  034504  002466  BGNT36: MOV     #T36TBL,TSTID   ;SETUP TEST ID TBL-TEST# 36
     034254  032737  000001  002324  IAT36:  BIT     #LOGICT,TSTMOD  ;IF TEST MODE=LOGIC TEST
     034262  001506                          BEQ     XT36            ;BIT SET, THEN
     034264  004737  020736                  CALL    LTSTUP          ;CALL LOGIC TEST SETUP
6053 034270  005037  002504                  CLR     TTEMP1          ;CLEAR COUNTER (TEST TEMP #1)
6054 034274  004737  017350                  CALL    DENCHK          ;CALL DENSITY CHECK
6055 034300  004737  020472                  CALL    SDENC           ;CALL SETUP DENSITY CONTROL=DENSITY STATUS
6056 034304  005037  012660          BBT36:  CLR     PAT             ;SETUP DATA PATTERN=RANDOM
6057 034310  004737  012306                  CALL    STDATP          ;CALL SET DATA PATTERN
6058 034314  052737  001400  002510          BIS     #ITK!ISC,TKSCFG ;SET TRACK & SECTOR INITIALIZE FLAGS
6059 034322  052737  000003  002510          BIS     #STK!SSC,TKSCFG ;SET TRACK & SECTOR SEQUENCE MODE FLAGS
6060 034330  004737  012662          BCT36:  CALL    GETTRK          ;CALL GET TRACK
6061 034334  004737  013104                  CALL    GETSEC          ;CALL GET SECTOR
6062 034340  004737  010510                  CALL    FILBUF          ;CALL FULL BUFFER
6063 034344  004737  010744                  CALL    WRITE           ;CALL WRITE SECTOR
6064 034350  004737  013642                  CALL    CLRDAT          ;CALL CLEAR DATA BUFFER
6065 034354  012737  036622  002362          MOV     #DATBUF,FILADR  ;SETUP TO CLEAR RX INTERNAL BUFFER
6066 034362  004737  010510                  CALL    FILBUF          ;CLEAR THE BUFFER
6067 034366  012737  036222  002362          MOV     #DATPAT,FILADR  ;SETUP DATA BUFFER ADDRESS
6068 034374  004737  011062                  CALL    READ            ;CALL READ SECTOR
6069 034400  004737  010626                  CALL    EMPBUF          ;CALL EMPTY BUFFER
6070 034404  004737  013246                  CALL    DATACK          ;CALL DATA CHECK
6071 034410  022737  000012  013520  UCT36:  CMP     #10.,DAERCT     ;DOUNTIL DATA ERROR COUNT
6072 034416  001410                          BEQ     ECT36           ;EQUALS 10, OR
6073 034420  032737  001000  002476          BIT     #TRKDON,FLAGST  ;TRACKS DONE FLAG
6074 034426  001740                          BEQ     BCT36           ;SET, AND
6075 034430  032737  002000  002476          BIT     #SECDON,FLAGST  ;SECTORS DONE FLAG
6076 034436  001734                          BEQ     BCT36           ;SET
6077 034440  004737  020430          ECT36:  CALL    CDENC           ;CALL COMPLIMENT DENSITY CONTROL
6078 034444  004737  011172                  CALL    SETDN           ;CALL SET DENSITY
6079 034450  005237  002504                  INC     TTEMP1          ;INCREMENT COUNTER
6080 034454  012737  000100  002370          MOV     #64.,WDCNT      ;SET WORD COUNT
6081 034462  005737  002454          UBT36:  TST     FIN             ;DOUNTIL FIN FLAG
6082 034466  001004                          BNE     XT36            ;SET OR
6083 034470  022737  000002  002504          CMP     #2,TTEMP1       ;COUNT
6084 034476  001302                          BNE     BBT36           ;EAUALS 2
6085 034500                          XT36:   EXIT    TST
6086
6087 034504                          REGTBL  CSESAL
     015036                                                         REGS1=CSESAL
6088 034504                          TTBL    REGCK,0
     034504  034174                                      T36TBL: .WORD   T36MSG
     034506  000001                                              .WORD   REGCK
     034510  000000                                              .WORD   0
     034512  177777                                              .WORD   -1
     034514                                              T36RTB:
     034514  015036                                              .WORD   REGS1
     034516  177777                                              .WORD   -1
6089 034520                          FRUTBL  CTLRWE
     034520                                              T36FTB:
     034520  006651                                              .WORD   CTLRWE
     034522  177777                                              .WORD   -1
6090
6091 034524                                  ENDTST
```

```
6099 034526                                    ENDMOD
6100
```

```
                                .NLIST  BEX,ME
                                .TITLE PARAMETER CODING

                                .SBTTL  HARDWARE PARAMETER CODING SECTION

034526                                  BGNMOD

                                ;++
                                ; THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;--

034526                                  BGNHRD

034530                                  GPRMA   MSG1,0,0,0,177777,YES
034540                                  GPRMA   MSG2,2,0,0,177777,YES
034550                                  GPRMD   MSG3,4,0,177777,0,,1,,YES
034562                                  GPRMD   MSG4,6,0,177777,0,,1,,YES
034574                                  GPRMD   MSG4A,10,0,177777,0,7,YES

034606                                  ENDHRD
                                ;-----------------------------------------------------------------
034606  122  130  040  MSG1:   .ASCIZ  /RX BUS ADR/
034621  126  105  103  MSG2:   .ASCIZ  /VECTOR ADR/
034634  104  122  111  MSG3:   .ASCIZ  /DRIVE #   /
034647  105  130  120  MSG4:   .ASCIZ  /EXP WRD-CR/
034662  102  122  055  MSG4A:  .ASCIZ  /BR-LEVEL  /
                                .EVEN
                                ;-----------------------------------------------------------------
```

```
PARAMETER CODING        MACRO M1200  14-DEC-82 16:33  PAGE 238
SOFTWARE PARAMETER CODING SECTION


                                .SBTTL  SOFTWARE PARAMETER CODING SECTION

                                ;++
                                ; THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ; THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES.  THE
                                ; MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
                                ; INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES.  THE
                                ; MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
                                ; WITH THE OPERATOR.
                                ;--

034676                          BGNSFT

034700                          GPRML   MSG6,2,1,YES
034706                          XFERF   1$
034710                          GPRML   MSG7,2,2,YES
034716                  1$:     GPRML   MSG8,4,LOGICT,YES
034724                          GPRML   MSG9,4,FUNCTT,YES
034732                          GPRMD   MSG10,0,0,177777,1,177777,YES
034744                          GPRMA   MSG14,24,0,0,177777,YES
034754                          GPRMD   MSG15,26,0,030000,0,3,YES
034766                          GPRML   MSG17,2,100,YES
034774                          XFERF   6$
034776                          GPRML   MSG20,12,20,YES
035004                  6$:     GPRML   MSG5,12,SIDFLG,YES
035012                          ENDSFT
                                ;-------------------------------------------------------------------------
        000015                  CR==15                  ;CARRIAGE RETURN
        000012                  LF==12                  ;LINE FEED
035012     105     130     120  MSG5:   .ASCIZ  /EXPANSION WORD TYPE <CR> /
035044     124     105     123  MSG6:   .ASCIZ  /TEST HELP /
035057     104     111     101  MSG7:   .ASCII  /DIAGNOSTIC MODES ARE:/<CR><LF>
035106     040     040     040          .ASCII  /      LOGIC TEST, FUNCTION TEST, OR BOTH/<CR><LF>
035160     040     040     040          .ASCII  /   -FUNCTION TESTS (1-10)/<CR><LF>
035213     040     040     040          .ASCII  /      ACT AS QUICK VERIFY & REPORT FAILING FUNCTIONS/<CR><LF>
035301     040     040     040          .ASCII  /   -LOGIC TESTS (11-36)/<CR><LF>
035332     040     040     040          .ASCII  /      ANALYZE FAILURE & GIVE ERROR INFO/<CR><LF>
035403     040     040     040          .ASCII  /      REPORT FIELD REPLACEABLE UNITS "FRU'S"/<CR><LF>
035461     040     040     040          .ASCII  /       ->DEVICE FATAL THRESHOLD LEVEL (DVTL) IS SET = 1/<CR><LF>
035552     040     040     040          .ASCII  /         "DVTL" = NO. OF HARD ERRS THAT CAUSE DEVICE FATAL ERR/<CR><LF>
035651     124     131     120          .ASCIZ  /TYPE "CR" TO CONTINUE/
035677     114     117     107  MSG8:   .ASCIZ  /LOGIC TEST MODE   /
035722     106     125     116  MSG9:   .ASCIZ  /FUNCTION TEST MODE/
035745     110     101     122  MSG10:  .ASCIZ  /HARD ERR -> DEVICE FATAL THRESHOLD LVL/
036014     116     117     116  MSG14:  .ASCIZ  /NON-EXISTANT MEM ADR (NXM TST)/
036053     105     130     124  MSG15:  .ASCIZ  /EXTENDED ADR BITS: 13 & 12 (NPR-NXM TST)/
036124     124     105     123  MSG17:  .ASCIZ  /TEST CONTROL FLAGS /
036150     040     040     040  MSG20:  .ASCIZ  /   PRINT ONLY 10 DATA ERRORS & CONTINUE /
                                ;-------------------------------------------------------------------------
                                        .EVEN
```

```
6249
6250                                    .SBTTL  -    RX02 FILL BUFFER AREA
6251
6252                                    ;-------------------------------------------------------------------------
6253 036222  000400                    DATPAT: .REPT   256.            ;DATA PATTERN - RX02 FILL BUFFER
6256                                    ;-------------------------------------------------------------------------
6257
6258                                    .SBTTL  -    RX02 EMPTY BUFFER AREA
6259
6260                                    ;-------------------------------------------------------------------------
6261 036622  000400                    DATBUF: .REPT   256.            ;DATA BUFFER - RX02 EMPTY BUFFER
6264 037222  000000                            .WORD   0
6265 037224  000000                            .WORD   0
6266                                    ;-------------------------------------------------------------------------
6273                                    .SBTTL  -    PATCH AREA
6274                                    ;-------------------------------------------------------------------------
6275 037226  000000                    PATCH:  0                       ;PATCH AREA
6276         037630                    .=.+400
6277                                    ;-------------------------------------------------------------------------
6278 037630                                    LASTAD
     037634                            L$LAST::
6279 037634                                    ENDMOD
6280
6281 037634                                    BGNSETUP        2
6282 037634                                    BGNPTAB
6283 037640  177170                            177170
6284 037642  000264                            264
6285 037644  000000                            0
6286 037646  000000                            0
6287 037650  000005                            5
6288 037652                                    ENDPTAB
6289 037652                                    BGNPTAB
6290 037656  177170                            177170
6291 037660  000264                            264
6292 037662  000001                            1
6293 037664  000000                            0
6294 037666  000005                            5
6295 037670                                    ENDPTAB
6296 037670                                    ENDSETUP
6297         000001                    .END
```

PARAMETER CODING MACRO M1200 14-DEC-82 16:33 PAGE 240-1
SYMBOL TABLE

```
ABORT   002452          BGNT35  034020          CMDERR= 000020          C$ESCA= 000010          DISKSP= 000030
ACLOW = 000010          BGNT36  034246          CMDMSG  007164          C$ESEG= 000005          DLDBIT= 000100
ACLOWD= 000037          BGNT4   022766          CMDM0   007237          C$ESUB= 000003          DLDCMD= 000010
ACLOWF= 000050          BGNT5   023102          CMDM1   007255          C$ETST= 000001          DLDERR= 000007
ADR   = 000020 G        BGNT6   023230          CMDM2   007274          C$EXIT= 000032          DLDTER= 000032
ADRTST  022066          BGNT7   023414          CMDM3   007313          C$GETB= 000026          DLPDN = 000010
ADSCMS  007760          BGNT8   023664          CMDM4   007331          C$GETW= 000027          DLY     012026
ADTKMS  010257          BGNT9   024036          CMDM5   007347          C$GMAN= 000043          DMSG1   013561
ALGO2E= 000040          BITCNT  014672          CMDM6   007374          C$GPHR= 000042          DMSG1B  013526
ASSEMB= 000010          BITLIM  014674          CMDM7   007430          C$GPLO= 000030          DMSG2   013615
AWDN    012032          BITOFF  014676          CMDM8   007452          C$GPRI= 000040          DNBIT = 000040
AWTR    012110          BIT0  = 000001 G        CMDPE   007502          C$INIT= 000011          DNFLAG  012030
BACDB   013652          BIT00 = 000001 G        CMERMS  007216          C$INLP= 000020          DNNINT= 000015
BADCK   013276          BIT01 = 000002 G        CMFTMS  007204          C$MANI= 000050          DNNOTR= 000063
BADWRD  014702          BIT02 = 000004 G        CMPWRD  014700          C$MEM = 000031          DNWTMT  002474
BAUWCH  011700          BIT03 = 000010 G        CONTRL= 000002          C$MSG = 000023          DOOROP= 000026
BBT10   024314          BIT04 = 000020 G        CONTSW= 000022          C$OPEN= 000034          DRIVE   002406
BBT21   027600          BIT05 = 000040 G        CR    = 000015 G        C$PNTB= 000014          DRIVE1= 000400
BBT23   030336          BIT06 = 000100 G        CRCERB= 000001          C$PNTF= 000017          DRVDEN= 000040
BBT24   030546          BIT07 = 000200 G        CRCERR= 000004          C$PNTS= 000016          DRVOFF  002420
BBT27   031400          BIT08 = 000400 G        CSERTB  014776          C$PNTX= 000015          DRVPRT  002514
BBT31   032474          BIT09 = 001000 G        CSESAL= 015036          C$QIO = 000377          DRVRDY= 000200
BBT32   033042          BIT1  = 000002 G        CSESIT= 015056          C$RDBU= 000007          DRVWRG= 000027
BBT36   034304          BIT10 = 002000 G        CSESND= 015076          C$REFG= 000047          DRV1  = 000020
BBT7    023460          BIT11 = 004000 G        CSESRS= 015066          C$RESE= 000033          DUMSG1  022012
BCGSC   013202          BIT12 = 010000 G        CSONLY= 015026          C$REVI= 000003          DVDNCK  011634
BCT32   033044          BIT13 = 020000 G        CSRCHK  013750          C$RFLA= 000021          DVFERR= 004000
BCT36   034330          BIT14 = 040000 G        CSRCMP  014260          C$RPT = 000025          DVRDYE= 000025
BET31   032642          BIT15 = 100000 G        CSRERR= 000033          C$SEFG= 000046          DVRYCK  017310
BGNT1   022364          BIT2  = 000004 G        CSRMSK  014262          C$SPRI= 000041          DVSTCK  017140
BGNT10  024254          BIT3  = 000010 G        CSRSET  014270          C$SVEC= 000037          DVTL    002320
BGNT11  024412          BIT4  = 000020 G        CTK0    002444          C$TPRI= 000013          DX      012024
BGNT12  024650          BIT5  = 000040 G        CTK1    002445          DAERCT  013520          EADDC   017514
BGNT13  025074          BIT6  = 000100 G        CTLINF= 006646          DATABF= 000055          EADRC   017346
BGNT14  025316          BIT7  = 000200 G        CTLONL= 006654          DATACK  013246          EADSC   017220
BGNT15  025546          BIT8  = 000400 G        CTLRWE= 006651          DATASB  013522          EAERR   003256
BGNT16  025662          BIT9  = 001000 G        C$AU  = 000052          DATAWS  013524          EAFRU   005506
BGNT17  026276          BOE   = 000400 G        C$AUTO= 000061          DATA0   012430          EANAT   027076
BGNT18  026452          BRONPT  012372          C$BRK = 000022          DATA1   012446          EAPCE   007106
BGNT19  027146          BTRK    002451          C$BSEG= 000004          DATBUF  036622          EARCR   014240
BGNT2   022514          BTRP4 = 000004          C$BSUB= 000002          DATBYT  012656          EASRC   014400
BGNT20  027370          BTRP6 = 000006          C$CEFG= 000045          DATCK = 000004          EATKE   017712
BGNT21  027534          BYTCNT  013514          C$CLCK= 000062          DATER = 000005          EBCMD = 000002
BGNT22  030166          BYTNUM  013516          C$CLEA= 000012          DATPAT  036222          EBDCK   013470
BGNT23  030306          CABLES= 000010          C$CLOS= 000035          DBRERR= 000034          EBDDC   017434
BGNT24  030510          CDENC   020430          C$CLP1= 000006          DDCFLG= 000002          EBGEN   015152
BGNT25  030762          CDERCK  011544          C$CVEC= 000036          DELDAT  002402          EBGTK   013062
BGNT26  031140          CDMS    010177          C$DCLN= 000044          DENBIT= 000400          EBI1    021720
BGNT27  031332          CEINIT= 015046          C$DODU= 000051          DENCHK  017350          EBNAT   027030
BGNT28  031530          CKBITS  014522          C$DRPT= 000024          DENDSK= 000020          EBRCR   013716
BGNT29  031732          CKERR = 020000          C$DU  = 000053          DENERR= 000030          EBTKP   010062
BGNT3   022650          CLRCR   021122          C$EDIT= 000003          DENMIX= 000031          EBT11   024532
BGNT30  032132          CLRDAT  013642          C$ERDF= 000055          DENSTA  002414          EBT12   024744
BGNT31  032430          CLRDEV  010472          C$ERHR= 000056          DENSTY  002412          EBT13   025176
BGNT32  033002          CLRERR  010300          C$ERRO= 000060          DFPTBL  002276 G        EBT18   026530
BGNT33  033416          CLRRGS  017124          C$ERSF= 000054          DIAGMC= 000000          EBT31   032604
BGNT34  033616          CMD     002400          C$ERSO= 000057          DISKET= 000014          ECERNB  020164
```

SYMBOL TABLE

ECERNT	015164	END131	012612	ERRNST=	000016	F$DU =	000016	IAGEN	015110		
ECERR	003230	EPECK	020140	ERROLD	003340	F$END =	000041	IAGSC	013106		
ECNAT	027074	ERIDNT	003502 G	ERROR	003060	F$HARD=	000004	IAGTK	012664		
ECSTA	015330	ERMSTB	003534	ERRREG	015444	F$HW =	000013	IAI1	021622		
ECTAB	016044	ERMS0	003706	ERRSAV	003336	F$INIT=	000006	IANAT	026776		
ECT18	026674	ERMS10	004015	ERRTYP	002516 G	F$JMP =	000050	IAPCE	007056		
ECT21	027660	ERMS11	004035	ERTKMS	010241	F$MOD =	000000	IARCR	013672		
ECT32	033256	ERMS12	004056	ESERTB	014746	F$MSG =	000011	IASCP	007676		
ECT36	034440	ERMS13	004112	ESRCHK	014112	F$PROT=	000021	IASDC	020500		
EC0	016116	ERMS14	004146	ESRCMP	014264	F$PWR =	000017	IASRC	014340		
EC1	016136	ERMS15	004177	ESRMSK	014266	F$RPT =	000012	IASTA	015334		
EC11	016407	ERMS16	004226	ESRSET	014272	F$SEG =	000003	IATKE	017520		
EC12	016451	ERMS17	004264	EVL =	000004 G	F$SOFT=	000005	IATKP	010006		
EC13	016477	ERMS19	004314	EXMS	010156	F$SRV =	000010	IAT1	022372		
EC14	016550	ERMS2	003717	EXTADR	002366	F$SUB =	000002	IAT10	024262		
EC15	016567	ERMS20	004333	E$END =	002100	F$SW =	000014	IAT11	024420		
EC16	016640	ERMS21	004356	E$LOAD=	000035	F$TEST=	000001	IAT12	024656		
EC17	016670	ERMS22	004402	FBCMD =	000000	GETREG	012244	IAT13	025102		
EC2	016175	ERMS23	004434	FILADR	002362	GETSEC	013104	IAT14	025324		
EC20	016716	ERMS24	004467	FILBUF	010510	GETTRK	012662	IAT15	025554		
EC22	016753	ERMS25	004503	FILERR=	000012	GTECEN	015106	IAT16	025670		
EC23	017013	ERMS26	004532	FIN	002454	GTECOF	017106	IAT17	026304		
EC24	017033	ERMS27	004553	FLAGSP	002500	G$CNTO=	000200	IAT18	026460		
EC25	017052	ERMS28	004564	FLAGST	002476	G$DELM=	000372	IAT19	027154		
EC4	016234	ERMS29	004575	FLGDRS	002502	G$DISP=	000003	IAT2	022522		
EC5	016274	ERMS3	003731	FLOAT0	012456	G$EXCP=	000400	IAT20	027376		
EC7	016337	ERMS30	004625	FLOAT1	012524	G$HILI=	000002	IAT21	027542		
EDECK	020122	ERMS31	004655	FONZFG=	010000	G$LOLI=	000001	IAT22	030174		
EDGSC	013236	ERMS32	004670	FRUM0A	005713	G$NO =	000000	IAT23	030314		
EDSRC	014462	ERMS33	004711	FRUM0B	005746	G$OFFS=	000400	IAT24	030516		
EDT18	026722	ERMS34	004733	FRUM00	005650	G$OFSI=	000376	IAT25	030770		
EDT21	027662	ERMS4	003742	FRUM1	006001	G$PRMA=	000001	IAT26	031146		
EEECK	020072	ERMS40	004756	FRUM10	006361	G$PRMD=	000002	IAT27	031340		
EEFRU	005604	ERMS41	004777	FRUM11	006426	G$PRML=	000000	IAT28	031536		
EESRC	014516	ERMS42	005027	FRUM12	006451	G$RADA=	000140	IAT29	031740		
EET32	033116	ERMS43	005054	FRUM13	006504	G$RADB=	000000	IAT3	022656		
EFENV	003466	ERMS44	005102	FRUM14	006544	G$RADD=	000040	IAT30	032140		
EFERR	003330	ERMS45	005125	FRUM2	006035	G$RADL=	000120	IAT31	032436		
EFFRU	005576	ERMS46	005153	FRUM3	006070	G$RADO=	000020	IAT32	033010		
EFT31	032716	ERMS47	005202	FRUM4	006120	G$XFER=	000004	IAT33	033424		
EF.CON=	000036 G	ERMS48	005230	FRUM5	006140	G$YES =	000010	IAT34	033624		
EF.NEW=	000035 G	ERMS49	005260	FRUM6	006173	HDRPRT=	000100	IAT35	034026		
EF.PWR=	000034 G	ERMS5	003752	FRUM7	006221	HDSFDG=	000056	IAT36	034254		
EF.RES=	000037 G	ERMS50	005307	FRUM8	006255	HELP =	000000	IAT4	022774		
EF.STA=	000040 G	ERMS51	005337	FRUM9	006324	HETLCT	003472	IAT5	023110		
EGFRU	005554	ERMS6	003763	FRUS1 =	000000	HOE =	100000 G	IAT6	023236		
EGSRC	014330	ERMS7	003774	FRUTAD	005610	HRDERR=	040000	IAT7	023422		
EIECK	020070	ERNBEV	003344	FRUTBM	005612	IACDC	020432	IAT8	023672		
EMBUFF=	000020	ERNTCK	020170	FTERCT	014274	IADDC	017402	IAT9	024044		
EMDCK	013444	ERRBIT=	100000	FTSTUP	020700	IADID	020614	IBDCK	013312		
EMPADR	002360	ERRBLK	002524 G	FUNCT =	000000	IADRC	017316	IBDDC	017410		
EMPBUF	010626	ERRCHK	017724	FUNCTT=	000002	IADSC	017144	IBDSC	017152		
EMPERR=	000013	ERRCMD	002422	FUNTST=	000040	IAECK	017726	IBE =	010000 G		
ENDCK	013434	ERRCTR	003342	F$AU =	000015	IAENC	020172	IBECK	017742		
ENDDCK	013506	ERRFLG=	100000	F$AUTO=	000020	IAENV	003346	IBEMB	010672		
ENDLD	012652	ERRMSG	002522 G	F$BGN =	000040	IAERR	003154	IBENC	020204		
ENDXER	016012	ERRNBR	002520 G	F$CLEA=	000007	IAFRU	005406	IBENV	003364		

PARAMETER CODING MACRO M1200 14-DEC-82 16:33 PAGE 240-3
SYMBOL TABLE

IBERR	003140	ID	002336 G	IJT32	033222	LBDDC	017430	L$EXP4	002064 G		
IBFLB	010554	IDCOMP	013020	IKERR	003260	LBFRU	005456	L$EXP5	002066 G		
IBFRU	005424	IDDDC	017354	IKT32	033276	LBGEN	015134	L$HARD	034530 G		
IBGEN	015116	IDDSMS	020642	ILERR	003274	LBGTK	013006	L$HIME	002120 G		
IBGSC	013140	IDECK	020022	ILLERC=	000017	LBI1	021704	L$HPCP	002016 G		
IBGTK	012770	IDENC	020226	ILLGAL=	010000	LBNAT	027022	L$HPTP	002022 G		
IBI1	021666	IDENT1	015446	ILTK =	000004	LBTKP	010056	L$HW	002276 G		
IBNAT	027006	IDENV	003404	IMDCK	013352	LBUWCH	011740	L$ICP	002104 G		
IBPCE	007122	IDERR	003242	IMECK	020074	LCMD	002424	L$INIT	021214 G		
IBREC	011414	IDGSC	013224	INDCK	013402	LCSTA	015314	L$LADP	002026 G		
IBRED	011124	IDSRC	014446	INECK	017752	LCT24	030634	L$LAST	037634 G		
IBSDN	011234	IDSSMS	020657	INFCTL=	006640	LCT29	032042	L$LOAD	002100 G		
IBSRC	014416	IDTKE	017556	INIT	021214	LDT11	024474	L$LUN	002074 G		
IBSTA	015270	IDT11	024454	INITDN=	000004	LDT31	032562	L$MREV	002050 G		
IBTKE	017540	IDT14	025376	INITER	021462	LDT35	034134	L$NAME	002000 G		
IBTKP	010042	IDT16	026050	INITTK	013102	LET14	025446	L$PRIO	002042 G		
IBT11	024502	IDT18	026700	INTERF=	000000	LET21	027770	L$PROT	002310 G		
IBT12	024714	IDT24	030640	INTERT	002404	LEUWCH	012000	L$PRT	002112 G		
IBT13	025140	IDT29	032016	INTER1	021530	LF =	000012 G	L$REPP	002062 G		
IBT14	025342	IDT31	032516	INTFCB=	000024	LFFRU	005562	L$REV	002010 G		
IBT16	025710	IDT32	033066	INTFSW=	000016	LGFRU	005550	L$RPT	021212 G		
IBT18	026506	IDT35	034110	INTIAL	010440	LGT31	032712	L$SOFT	034700 G		
IBT19	027170	IDU =	000040 G	INTNDN=	000014	LKERR	003312	L$SPC	002056 G		
IBT29	031776	IEDCK	013322	INTONL=	006644	LKT32	033316	L$SPCP	002020 G		
IBT30	032334	IEERR	003164	INTRHD	012276	LMECK	020114	L$SPTP	002024 G		
IBT35	034070	IER =	020000 G	INTTBL	021742	LOAD	012614	L$STA	002030 G		
IBUWCH	011704	IESRC	014466	IOECK	017762	LOE =	040000 G	L$SW	002320 G		
IBWRT	011014	IETKE	017566	IPECK	020124	LOGICT=	000001	L$TEST	002114 G		
ICDDC	017464	IET14	025422	ISC =	001000	LOT =	000010 G	L$TIML	002014 G		
ICDSC	017160	IE121	027706	ISR =	000100 G	LRXCSR	002426	L$UNIT	002012 G		
ICECK	020012	IET32	033074	ITK =	000400	LRXESR	002430	L10000	002310		
ICEMB	010712	IEUWCH	011752	IXE =	004000 G	LSIFLG=	000400	L10002	002350		
ICENC	020214	IFDCK	013332	I$AU =	000041	LTSTUP	020736	L10003	002532		
ICERR	003214	IFENV	003420	I$AUTO=	000041	L$ACP	002110 G	L10004	002540		
ICFLB	010574	IFERR	003062	I$CLN =	000041	L$APT	002036 G	L10005	002546		
ICGTK	012742	IFFRU	005524	I$DU =	000041	L$AU	022062 G	L10006	003532		
ICNAT	027046	IFSRC	014346	I$HRD =	000041	L$AUT	002070 G	L10007	021212		
ICPCE	007130	IFTKE	017612	I$INIT=	000041	L$AUTO	022054 G	L10010	021522		
ICREC	011434	IFT21	027714	I$MOD =	000041	L$CCP	002106 G	L10011	021774		
ICRED	011144	IFT31	032652	I$MSG =	000041	L$CLEA	021764 G	L10012	022010		
ICSRC	014432	IFT32	033122	I$PROT=	000040	L$CO	002032 G	L10013	022060		
ICSTA	015276	IGENV	003430	I$PTAB=	000041	L$DEPO	002011 G	L10014	022064		
ICTKE	017550	IGERR	003200	I$PWR =	000041	L$DESC	002122 G	L10015	022454		
ICT11	024546	IGFRU	005532	I$RPT =	000041	L$DESP	002076 G	L10016	022614		
ICT12	024756	IGSRC	014304	I$SEG =	000041	L$DEVP	002060 G	L10017	022730		
ICT13	025210	IGTKE	017622	I$SETU=	000041	L$DISP	002164 G	L10020	023046		
ICT14	025352	IGT21	027724	I$SFT =	000041	L$DLY	002116 G	L10021	023164		
ICT16	025754	IGT31	032660	I$SRV =	000041	L$DTP	002040 G	L10022	023350		
ICT18	026652	IGT32	033132	I$SUB =	000041	L$DTYP	002034 G	L10023	023612		
ICT21	027640	IHENV	003444	I$TST =	000041	L$DU	021776 G	L10024	024002		
ICT23	030372	IHTKE	017654	J$JMP =	000167	L$DUT	002072 G	L10025	024220		
ICT24	030566	IHT32	033156	LACDC	020454	L$DVTY	002154 G	L10026	024362		
ICT29	032012	IIECK	020056	LAI1	021644	L$EF	002052 G	L10027	024620		
ICT31	032510	IIERR	003124	LANAT	027036	L$ENVI	002044 G	L10030	025030		
ICT35	034104	IITKE	017662	LAPCE	007076	L$ERRT	002516 G	L10031	025260		
ICUWCH	011712	IIT32	033202	LASDC	020524	L$ETP	002102 G	L10032	025500		
ICWRT	011034	IJERR	003114	LATKP	010130	L$EXP1	002046 G	L10033	025630		

PARAMETER CODING MACRO M1200 14-DEC-82 16:33 PAGE 240-4
SYMBOL TABLE

```
L10034  026252          NOTRBT= 000057          PRTREG  007564          RXPRI   002356            KAER= 000041
L10035  026426          NPRERR= 000053          PRTSEC  007674          RX2BIT= 004000          TRKCNT  013100
L10036  026772          NPRJPR= 000020          PRTSTA  015240          SCPRT = 000002          TRKDON= 001000
L10037  027336          NXMADR  002344 G        PRTTRA  010002          SDCMD = 000010          TRKSEQ  002330 G
L10041  030124          NXMERR= 000052          PRTX1S  002734          SDKYWD= 000036          TSAVE1  002506
L10042  030244          OD      002334 G        PRTX2S  002756          SDRDYE= 000024          TSDGMS  020306
L10043  030446          ODCOMP  013032          PRTX3S  003002          SECAER= 000042          TSDGM1  020364
L10044  030706          ODTNOT= 000001          PRTX4S  003030          SECDON= 002000          TSEC    002447
L10045  031076          ONEFIL= 000000          PTERTY  003474          SECTOR  002376          TSTDBG  020240
L10046  031276          O$APTS= 000000          PTUTMS  020560          SEKERR= 000006          TSTID   002466
L10047  031466          O$AU  = 000001          PWDNRY  026175          SETDCD  011462          TSTMOD  002324 G
L10050  031662          O$BGNR= 000000          PWRMS   026122          SETDN   011172          TSTPAT  002326 G
L10051  032076          O$BGNS= 000001          PWUPRY  026214          SETSCD  011502          TTEMP1  002504
L10052  032376          O$DU  = 000001          RANDAT  012566          SETUP   021362          TTRK    002446
L10053  032750          O$ERRT= 000001          RANGEN  010344          SFPTBL  002320 G        TYPERR  002460
L10054  033354          O$GNSW= 000001          RANUM   010436          SFTSTS  002450          T$ARGC= 000002
L10055  033554          O$POIN= 000001          RAN1    010432          SIDE    002410          T$CODE= 005130
L10056  033750          O$SETU= 000001          RAN2    010434          SIDE1 = 001000          T$ERRN= 000074
L10057  034170          PAT     012660          RDERCD  011340          SIDFLG= 010000          T$EXCP= 000000
L10060  034524          PATCH   037226          RDERR = 000003          SIDPRT  002515          T$FLAG= 000040
L10061  034606          PAT125  012532          RDSTAT  011266          SIDRDY= 000002          T$FREE= 037670
L10062  035012          PAT333  012556          READ    011062          SIDWRG= 000026          T$GMAN= 000000
L10063  037640          PG      012434          READ1   011112          SSC   = 000002          T$HILI= 000003
L10064  037656          PHYDRV= 000006          RECADR  002364          STAFLG= 100000          T$LAST= 000001
L10065  037652          PLOC    021524          RECCMD= 000016          START   021252          T$LOLI= 000000
L10067  037670          PNT   = 001000 G        RECERN  002462          START0  021262          T$LSYM= 010000
MAXSEC  002342 G        POWRSP= 000012          RECERR= 000021          START1  021322          T$LTNO= 000044
MINSEC  002340 G        PRESCK  013044          RECFLG= 000200          STATER  017222          T$NEST= 177777
MOTOR = 000032          PRI   = 002000 G        RECTST= 000200          STCMD = 000012          T$NSO = 000000
MSG1    034606          PRILEV= 000054          REGACT  002440          STDATP  012306          T$NS1 = 000005
MSG10   035745          PRIMSG  030006          REGCK = 000001          STDNER= 000035          T$PCNT= 000000
MSG14   036014          PRIORT  002416          REGEXP  002436          STK   = 000001          T$PTAB= 010066
MSG15   036053          PRITAB  021732          REGSCK  013664          STTK76  021174          T$PTHV= 000002
MSG17   036124          PRI00 = 000000 G        REGS1 = 015036          SUDVCD  021014          T$PTNU= 000002
MSG2    034621          PRI01 = 000040 G        REGS2 = 000000          SUM     012654          T$SAVL= 177777
MSG20   036150          PRI02 = 000100 G        REGS3 = 000000          SURGCK  014276          T$SEGL= 177777
MSG3    034634          PRI03 = 000140 G        REGS4 = 000000          SUTSFG  020772          T$SIZE= 000016
MSG4    034647          PRI04 = 000200 G        REGS5 = 000000          SVCGBL= 000000          T$SUBN= 000000
MSG4A   034662          PRI05 = 000240 G        REGS6 = 000000          SVCINS= 177777          T$TAGL= 177777
MSG5    035012          PRI06 = 000300 G        RESFLG= 040000          SVCSUB= 177777          T$TAGN= 010070
MSG6    035044          PRI07 = 000340 G        RESTAR  021332          SVCTAG= 177777          T$TEMP= 000000
MSG7    035057          PROPRT= 000010          REVC  = 000000          SVCTST= 177777          T$TEST= 000044
MSG8    035677          PROTCT  002472          RGERNB  020166          SWREG   002332 G        T$TSTM= 177777
MSG9    035722          PRTB0   002526 G        RGERTB  014706          SYFERR= 002000          T$TSTS= 000001
NAT     026774          PRTB0S  002550          RGETPT  014670          SYSERR  002456          T$$AU = 010014
NATADR  027102          PRTB1   002534 G        RGPRT = 000004          S$LSYM= 010000          T$$AUT= 010013
NATCTR  027100          PRTB1S  002570          RSC   = 000000          TCMDCT  002470          T$$CLE= 010011
NCMD    011542          PRTB2   002542 G        RSCMD = 000006          TFDCK   013342          T$$DAT= 010067
NEGTST= 004000          PRTB2S  002612          RTBADR  014704          TGMS    010220          T$$DU = 010012
NEW     021352          PRTB3S  002636          RTK   = 000000          TKERCK  017516          T$$HAR= 010061
NEXT    021370          PRTB4S  002664          RWELEC= 000004          TKPRT = 000001          T$$HW = 010000
NGTSER  002464          PRTCDE  007040          RXCS    002350          TKSCFG  002510          T$$INI= 010010
NODNBT= 000060          PRTDID  020600          RXCSR   002432          TN    = 000044          T$$MSG= 010006
NOITDB= 000061          PRTECD  015744          RXDB    002352          TRACK   002374          T$$PC = 000002
NOITDP= 000062          PRTFRU  005404          RXESR   002434          TRAP    022324          T$$PRO= 010001
NOPWR = 000034          PRTGMS  007620          RXINIT= 040000          TRBIT = 000200          T$$PTA= 010066
```

SYMBOL TABLE

```
T$$RPT= 010007          T14FTB  025474          T24RTB  030700          T35FTB  034164          WAIT    011610
T$$SOF= 010062          T14MSG  025264          T24TBL  030670          T35MSG  033754          WATCH   011662
T$$SW = 010002          T14RTB  025472          T25     030710 G        T35RTB  034160          WC      002443
T$$TES= 010060          T14TBL  025462          T25FTB  031072          T35TBL  034150          WCERR = 000023
TOFTB   006660          T15     025502 G        T25MSG  030712          T36     034172 G        WCFRU   005462
TOFTO   006640          T15FTB  025624          T25RTB  031064          T36FTB  034520          WCOVFE= 000051
TOFT1   006736          T15MSG  025504          T25TBL  031054          T36MSG  034174          WCOVRF= 002000
TOFT11  006763          T15RTB  025620          T26     031100 G        T36RTB  034514          WDCNT   002370
TOFT12  006770          T15TBL  025610          T26FTB  031272          T36TBL  034504          WDDCMD= 000014
TOFT13  006776          T16     025632 G        T26MSG  031102          T4      022732 G        WDFRU   005466
TOFT15  007002          T16FTB  026116          T26RTB  031266          T4MSG   022734          WEECK   020040
TOFT16  007006          T16MSG  025634          T26TBL  031256          T4RTB   023042          WEFRU   005516
TOFT17  007012          T16RTB  026112          T27     031300 G        T4TBL   023036          WRITE   010744
TOFT2   006742          T16TBL  026102          T27FTB  031462          T5      023050 G        WRITE1  011002
TOFT20  007016          T17     026234 G        T27MSG  031302          T5MSG   023052          WRTERR= 000002
TOFT22  007022          T17FTB  026422          T27RTB  031456          T5RTB   023160          WSCMD = 000004
TOFT23  007025          T17MSG  026236          T27TBL  031446          T5TBL   023154          XADBIT  002346 G
TOFT24  007030          T17RTB  026414          T28     031470 G        T6      023166 G        XCDENC  020470
TOFT25  007035          T17TBL  026404          T28FTB  031656          T6MSG   023170          XCEC    011606
TOFT4   006746          T18     026430 G        T28MSG  031472          T6RTB   023344          XCRBIT  014666
TOFT40  006644          T18FTB  026766          T28RTB  031652          T6TBL   023340          XCSRCK  014106
TOFT41  006646          T18MSG  026432          T28TBL  031642          T7      023352 G        XDVRCK  011660
TOFT42  006651          T18RTB  026762          T29     031664 G        T7MSG   023354          XEMPBF  010732
TOFT43  006654          T18TBL  026752          T29FTB  032072          T7RTB   023606          XENTCK  020236
TOFT5   006751          T19     027104 G        T29MSG  031666          T7TBL   023602          XERNBE  003470
TOFT7   006755          T19FTB  027332          T29RTB  032066          T8      023614 G        XERRCK  020162
TOMSG   022172          T19MSG  027106          T29TBL  032056          T8MSG   023616          XERROR  003334
TORT1   015026          T19RTB  027326          T3      022616 G        T8RTB   023776          XERUUT  002442
TORT2   015036          T19RT1  027306          T3MSG   022620          T8TBL   023772          XER1    016014
TORT3   015046          T19TBL  027316          T3RTB   022724          T9      024004 G        XER2    015531
TORT4   015056          T2      022456 G        T3TBL   022720          T9MSG   024006          XER3    015627
TORT5   015066          T2MSG   022460          T30     032100 G        T9RTB   024214          XESRCK  014234
TORT6   015076          T2RTB   022610          T30FTB  032372          T9TBL   024210          XFILBF  010614
T1      022332 G        T2TBL   022604          T30MSG  032102          UACDB   013660          XGSC    013244
T1MSG   022334          T20     027340 G        T30RTB  032366          UADCK   013500          XGTECN  015162
T1RTB   022450          T20FTB  027474          T30TBL  032356          UAM   = 000200 G        XGTK    013076
T1TBL   022444          T20MSG  027342          T31     032400 G        UAUWCH  011750          XINIT   021512
T10     024222 G        T20RTB  027472          T31FTB  032744          UBRCR   013710          XINT    010460
T10MSG  024224          T20TBL  027462          T31MSG  032402          UBT10   024334          XPCE    007162
T10RTB  024356          T21     027502 G        T31RTB  032740          UBT21   027670          XPG     012464
T10TBL  024352          T21FTB  030120          T31TBL  032730          UBT23   030410          XPTDID  020640
T11     024364 G        T21MSG  027504          T32     032752 G        UBT24   030654          XPTFRU  005606
T11FTB  024614          T21RTB  030116          T32FTB  033350          UBT27   031432          XPTSTA  015436
T11MSG  024366          T21TBL  030106          T32MSG  032754          UBT31   032566          XRDERC  011454
T11RTB  024612          T22     030126 G        T32RTB  033346          UBT32   033324          XRDSTA  011336
T11TBL  024602          T22FTB  030240          T32TBL  033336          UBT36   034462          XREAD   011164
T12     024622 G        T22MSG  030130          T33     033356 G        UBT7    023570          XREGCK  014256
T12FTB  025024          T22RTB  030234          T33FTB  033550          UCGSC   013214          XSCP    007756
T12MSG  024624          T22TBL  030224          T33MSG  033360          UCT32   033240          XSDC    020540
T12RTB  025022          T23     030246 G        T33RTB  033544          UCT36   034410          XSETDN  011254
T12TBL  025012          T23FTB  030442          T33TBL  033534          UDUWCH  011744          XSRC    014520
T13     025032 G        T23MSG  030250          T34     033556 G        UNIT    021526          XTKECK  017722
T13FTB  025254          T23RTB  030440          T34FTB  033744          UNPKHP  021572          XTKPRT  010154
T13MSG  025034          T23TBL  030430          T34MSG  033560          UNTPRT  002512          XT1     022440
T13RTB  025252          T24     030450 G        T34RTB  033740          UN1     021314          XT10    024346
T13TBL  025242          T24FTB  030702          T34TBL  033730          VARIFY  002372          XT11    024576
T14     025262 G        T24MSG  030452          T35     033752 G        VECT    002354          XT12    025006
```

PARAMETER CODING MACRO M1200 14-DEC-82 16:33 PAGE 240-6
SYMBOL TABLE

XT13	025236	XT20	027456	XT28	031636	XT35	034144	XUWCH	012014
XT14	025456	XT21	027774	XT29	032052	XT36	034500	XWAIT	011632
XT15	025604	XT22	030220	XT3	022714	XT4	023032	XWRITE	011054
XT16	026076	XT23	030424	XT30	032352	XT5	023150	XXPG	012540
XT17	026400	XT24	030664	XT31	032724	XT6	023334	X$ALWA=	000000
XT18	026746	XT25	031050	XT32	033332	XT7	023576	X$FALS=	000040
XT19	027302	XT26	031252	XT33	033530	XT8	023766	X$OFFS=	000400
XT2	022600	XT27	031442	XT34	033724	XT9	024204	X$TRUE=	000020

. ABS. 037670 000
ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 31264 WORDS (123 PAGES)
DYNAMIC MEMORY: 19748 WORDS (75 PAGES)
ELAPSED TIME: 00:05:01
CNRXFA.BIN/DS:GBL/EN:AMA:ABS,CNRXFA.LST/CR/-SP/NL:CND:MD:BEX=SVC34/MLB,CNRXFA.MAC