

RX02

FCTN/LGC
CNRXFA0

AH-T478A-MC
FICHE 1 OF 1

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IDENTIFICATION

PRODUCT CODE: AC-T477A-MC
PRODUCT NAME: CNRXFA0 RX02 FCTN/LGC
PRODUCT DATE: DEC, 1982
MAINTAINER: DIAGNOSTICS SERVICES/ISS
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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 HIERARCHY 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

	ADDRESS
XXDP + MONITOR	77777
DRS	72000
FUNCTION/LOGIC TEST DIAGNOSTIC	41000
STACKS	2000
VECTOR AREA	400
	0

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 INSTRUCTIONS, 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.

NS

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 OF 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:

```
CZRFXAO 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,
INCLUDING A DATA BUFFER DUMP IF DATA WAS BAD.

EXAMPLE ERROR PRINTOUT:

```
CNRXFAO 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 OVFL.
WORD CNT=020
CUR TRK DVO=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

	! <FUNCTION>!															
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
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	SID	DRV	DRV	DEL	DSK	DEN	AC	INT	SID	CRC
						OVF	#1	#1	RDY	DAT	DEN	ERR	LOW	DON	RDY	
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 LABEL '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	DV1	HD	DVO	X	X	X	LCD
									SEL	DEN	LD	DEN				DEN

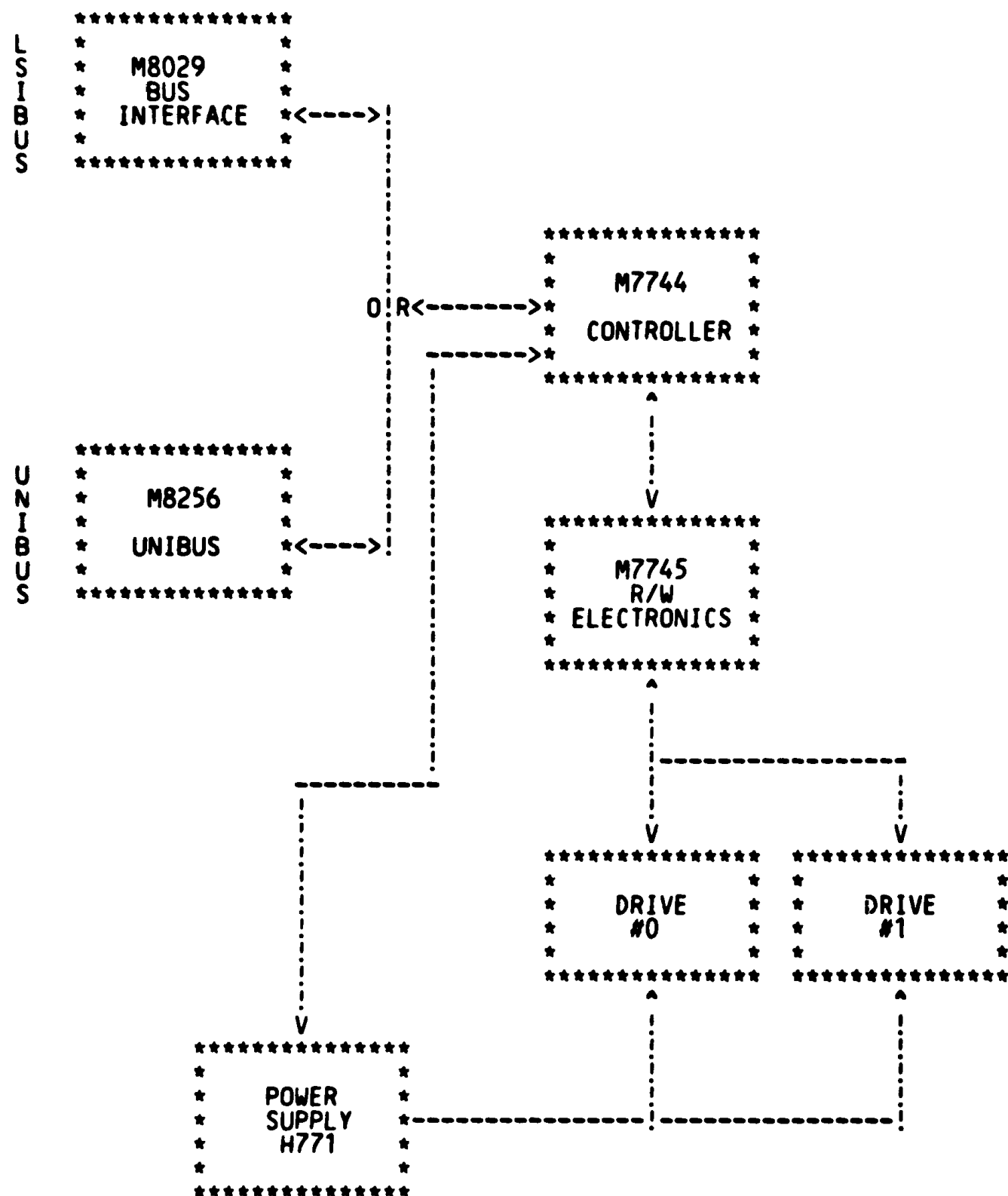
5.2 DEVICE PROTOCOL

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 PROGRAMMED 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.

DESCRIPTION:

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. WRITE 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.

DESCRIPTION:

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.

DESCRIPTION:

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 PRIORITY = 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 DRIVE 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.

DESCRIPTION:

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

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63-	2060	- MOD U.DEV.RST - READ STATUS
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71-	2199	- MOD U.DEV.WAT - WAIT SUBROUTINE
71-	2223	- MOD U.DEV.DRC - DEVICE DONE CHECK
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91-	2655	- MOD U.SFT.RCR - REGISTER CHECK & REPORT
93-	2766	- MOD U.SFT.SRC - SETUP REGISTER CHECK
95-	2808	- MOD U.SFT.BTK - BITS SET/NOT SET CHECK
99-	2909	- PRESETUP REGISTER TABLES
101-	2929	- MOD U.SET.GEN - GET ERROR CODE-ERR #
103-	2975	- MOD U.PRT.STA - PRINT UNIT STATUS

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107-	3101	- MOD U.SFT.CRS - CLEAR REGISTERS
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110-	3152	- MOD U.SFT.DRC - DEVICE READY CHECK
112-	3175	- MOD U.SFT.DDC - DEVICE DENSITY CK
114-	3230	- MOD U.SFT.TKE - TRACK ERROR CHECK
118-	3305	- MOD U.SFT.ECK - ERROR CHECK
122-	3389	- MOD U.SFT.ENC - ERROR NEG TEST CHECK
124-	3423	- MOD U.SFT.DBG - TEST STATUS
124-	3442	- MOD U.SFT.CDC - COMPLIMENT DENSITY CONTROL
124-	3456	- MOD U.SFT.SDC - SETUP DENSITY CONTROL
126-	3471	- MOD U.PRT.UNT - PRINT UNIT IDENT
126-	3489	- MOD U.PRT.DID - PRINT DRIVE IDENT
128-	3519	- MOD U.TST.FTS - FUNCTION TEST SETUP
128-	3537	- MOD U.TST.LTS - LOGIC TEST SETUP
128-	3558	- MOD U.TST.SFG - SETUP TEST FLAGS
130-	3569	- MOD U.SFT.SDC - SETUP DEVICE COMMANDS
130-	3588	- MOD U.TST.CCR - CLEAR TEST CTRS & ERROR REGS
130-	3610	- MOD U.TST.T76 - SET TRACK=76
131-	3633	REPORT CODING SECTION
132-	3690	INITIALIZE SECTION
133-	3779	- MOD I.1 - UNPACK HARDWARE P-TABLES
133-	3817	- MOD I.2 - INITIALIZE TABLES
134-	3829	CLEANUP CODING SECTION
134-	3859	DROP UNIT SECTION
134-	3896	AUTO DROP UNIT SECTION
134-	3905	ADD UNIT SECTION
135-	3985	TEST 0 - ADDRESSING TEST
136-	4028	- MOD U.SFT.TRP - BUS TRAP HANDLER
137-	4053	TEST 1 - INITIALIZE - FNC TST
139-	4087	TEST 2 - READ ERROR CODE - FNC TST
141-	4120	TEST 3 - FILL BUFFER - FNC TST
143-	4147	TEST 4 - EMPTY BUFFER - FNC TST
145-	4175	TEST 5 - READ STATUS - FNC TST
147-	4205	TEST 6 - FILL & EMPTY BUFFER - FNC TST
149-	4246	TEST 7 - READ & WRITE SECTOR - FNC TST
153-	4310	TEST 8 - WRITE SECTOR DELETED DATA - FNC TST
155-	4352	TEST 9 - SET DENSITY - FNC TST
159-	4415	TEST 10 - POSITIONING - FNC TST
160-	4456	TEST 11 - CSR BITS - LGC TST
163-	4518	TEST 12 - DBR BITS - LGC TST
166-	4574	TEST 13 - CSR-DPR COMMON BYTE - LGC TST
169-	4633	TEST 14 - BUS INITIALIZE - LGC TST
172-	4689	TEST 15 - PROGRAMMED INITIALIZE - LGC TST
173-	4723	TEST 16 - POWER FAIL - LGC TST
176-	4788	TEST 17 - CONTROLLER-INTERFACE - LGC TST
179-	4837	TEST 18 - NPR - LGC TST
183-	4926	- MOD U.SFT.NAT - ADDRESS NPR ADDRESS TEST
184-	4973	TEST 19 - NPR NON-EXISTENT MEM - LGC TST
187-	5022	TEST 20 - INTERRUPT - LGC TST
188-	5059	TEST 21 - PRIORITY LVL - LGC TST
191-	5135	TEST 22 - INITIALIZE CONTROL - LGC TST
192-	5163	TEST 23 - DATA BUF INTEGRITY - LGC TST
195-	5222	TEST 24 - WRD CNT INTEGRITY - LGC TST
198-	5288	TEST 25 - CONTROLLER-READ*WRITE ELECT - LGC TST

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210- 5490	TEST 29 -	DELETED DATA WRITE PRT:1 - LGC TST
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219- 5726	TEST 32 -	TRACK ADR - LGC TST
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228- 5945	TEST 35 -	DELETED DATA WRITE PRT:2 - LGC TST
231- 6004	TEST 36 -	DISKETTE & DENSITY DATA CHECK - LGC TST
236- 6116	HARDWARE PARAMETER CODING SECTION	
238- 6188	SOFTWARE PARAMETER CODING SECTION	
240- 6250	-	RX02 FILL BUFFER AREA
240- 6258	-	RX02 EMPTY BUFFER AREA
240- 6273	-	PATCH AREA

PARAMETER CODING

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.NLIST SEQ,LD,BIN,CND

.REPT 0

```

9      .LIST  SEQ,BIN
22     .TITLE PROGRAM HEADER AND TABLES
23     .SBTTL PROGRAM HEADER
29
51     .ENABL  ABS,AMA
52     002000 .=2000
53     .NLIST  BEX,MD
55
56 002000 BGNMOD
57
58     ;++
59     ; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
60     ; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
61     ;--
62
63 002000     POINTER BGNSW,BGNSFT,BGNAU,BGNDU,ERRTBL,BGNSETUP
64
74
75 002000     HEADER CNRXFA0,0,0,170,0
76 002122     DESCRIPT <RX02 FUNCTION-LOGIC TEST>
77
86 002154     DEVTYP <RX02>
87
88
89
90
91
92     .SBTTL  DISPATCH TABLE
93
94     ;++
95     ; THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
96     ; IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
97     ;--
98
99 002162     DISPATCH 36
100

```

PROGRAM HEADER AND TABLES
DEFAULT HARDWARE P-TABLE

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108
109
110
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172
173
174002274
002276 177170
002300 000264
002302 000000
002304 000000
002306 000005
002310002310
002310 000000
002312 177777
002314 000004
002316002316
002320 000001
002322 000000
002324 000001
002326 000000
002330 000000
002332 000020
002334 000000
002336 000114
002340 000001
002342 000032
002344 160000
002346 000000
002350

.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.
:--

```

```

      BGNHW      DFPTBL
      .WORD      177170      ;UNIBUS ADDRESS
      .WORD      264         ;VECTOR ADDRESS
      .WORD      0           ;DRIVE #
      .WORD      0           ;FUTURE EXPANSION
      .WORD      5           ;BR LEVEL #'S
      ENDSHW

```

.SBTTL LOAD DEVICE PROTECTION

```

:++
: LOAD DEVICE PROTECTION TABLE - USED TO CHECK HARDWARE P-TABLE
: AGAINST LOAD DEVICE.
:--

```

```

      BGNPROT
      .WORD      0           ;P-TABLE OFFSET->CSR
      .WORD      -1          ;P-TABLE OFFSET->VECTOR-DON'T CARE
      .WORD      4           ;P-TABLE OFFSET->DRIVE
      ENDPROT

```

.SBTTL SOFTWARE P-TABLE

```

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

```

```

      BGNSW      SFPTBL
      DVTL:      .WORD      1           ;HARD ERROR->DEVICE FATAL THRESHOLD LEVEL
      .WORD      0           ;CONTROL WORD FOR SOFTWARE P-TABLES
      TSTM0D::   .WORD      1           ;TEST MODE
      TSTPAT::   .WORD      0           ;TEST PATTERN #
      TRKSEQ::   .WORD      0           ;TRACK SEQUENCE #
      SWREG::    .WORD      20          ;SOFTWARE SWITCH REG
      OD::       .WORD      0           ;OUTSIDE DIA. TRACK LIMIT
      ID::       .WORD      114         ;INSIDE DIA. TRACK LIMIT.
      MINSEC::   .WORD      1           ;MINIMUM SECTOR LIMIT
      MAXSEC::   .WORD      32          ;MAXIMUM SECTOR LIMIT
      NXMADR::   .WORD      160000      ;NON-EXISTENT MEMORY-ADR
      XADBIT::   .WORD      0           ;EXTENDED ADDRESS BITS
      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			

ENDMOD

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 5
SOFTWARE P-TABLE

```

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

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 5-1
GLOBAL EQUATES SECTION

000040	EF.START==	32.	:	BIT POSITION IN SECOND STATUS WORD
000037	EF.RESTART==	31.	:	(100000) START COMMAND WAS ISSUED
000036	EF.CONTINUE==	30.	:	(040000) RESTART COMMAND WAS ISSUED
000035	EF.NEW==	29.	:	(020000) CONTINUE COMMAND WAS ISSUED
000034	EF.PWR==	28.	:	(010000) A NEW PASS HAS BEEN STARTED
			:	(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

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 6
GLOBAL EQUATES SECTION

```

497          ;***** PROGRAM EQUIVALENTS *****
498
499          000010      DLDCMD      =      BIT3      ;DEL. DATA CMD BIT-----<CSR>
500          100000      ERRBIT      =      BIT15     ;ERROR BIT-----<CSR>
501          040000      RXINIT      =      BIT14     ;RXINIT BIT-----<CSR>
502          004000      RX2BIT      =      BIT11     ;RX02 BIT-----<CSR>
503          001000      SIDE1       =      BIT9      ;SIDE #1 BIT-----<CSR> & <CSR>
504          000400      DENBIT      =      BIT8      ;DENSITY BIT-----<CSR>
505          000200      TRBIT       =      BIT7      ;TR BIT-----<CSR>
506          000040      DNBIT       =      BIT5      ;DONE BIT-----<CSR>
507          000020      DRV1        =      BIT4      ;DRIVE 1-----<CSR>
508          004000      NXMBIT      =      BIT11     ;NON-EXISTENT MEM-----<CSR>
509          002000      WCOVRF      =      BIT10     ;WORD COUNT OVERFLOW-----<CSR>
510          000400      DRIVE1      =      BIT8      ;DRIVE #1 BIT-----<CSR>
511          000200      DRVRDY      =      BIT7      ;DRIVE READY BIT-----<CSR>
512          000100      DLDBIT      =      BIT6      ;DEL. DATA BIT-----<CSR>
513          000040      DRVDEN      =      BIT5      ;DRIVE DENSITY-----<CSR>
514          000020      DENERR      =      BIT4      ;DENSITY ERROR-----<CSR>
515          000010      ACLOW       =      BIT3      ;AC LOW BIT-----<CSR>
516          000004      INITDN      =      BIT2      ;INITIALIZE DONE BIT-----<CSR>
517          000002      SIDRDY      =      BIT1      ;SIDE READY BIT-----<CSR>
518          000001      CRCERB      =      BIT0      ;CRC ERROR BIT-----<CSR>
519          000004      BTRP4       =      4          ;BUS TRAP LOC #4 - TRAP HANDLER
520          000006      BTRP6       =      6          ;BUS TRAP LOC #4 - PSW
521          000001      LOGICT      =      BIT0      ;LOGIC TEST BIT-----<SWREG>
522          000002      FUNCTT      =      BIT1      ;FUNCTION TEST BIT-----<SWREG>
523          010000      SIDFLG      =      BIT12     ;SIDE FLAG SOFT-P TABLE-<SWREG>
524          000400      ITK         =      BIT8      ;INITIALIZE TRACKS FLAG      <TKSCFG>
525          001000      ISC         =      BIT9      ;INITIALIZE SECTORS FLAG     <TKSCFG>
526          000001      STK         =      BIT0      ;SEQUENCE TRACKS FLAG       <TKSCFG>
527          000002      SSC         =      BIT1      ;SEQUENCE SECTORS FLAG      <TKSCFG>
528          000000      RTK         =      0          ;RANDOM TRACKS FLAG          <TKSCFG>
529          000000      RSC         =      0          ;RANDOM SECTORS FLAG         <TKSCFG>
530          000004      ILTK        =      BIT2      ;ILLEGAL TRACKS FLAG        <TKSCFG>
531
532          ;***** DEVICE COMMANDS *****
533
534          000000      FBCMD        =      0          ;FILL BUFFER CMD
535          000002      EBCMD        =      2          ;EMPTY BUFFER CMD
536          000004      WSCMD        =      4          ;WRITE SECTOR
537          000006      RSCMD        =      6          ;READ SECTOR
538          000010      SDCMD        =      10         ;SET DENSITY
539          000012      STCMD        =      12         ;STATUS
540          000014      WDDCMD       =      14         ;WRITE DELETED DATA CMD
541          000016      RECCMD       =      16         ;READ ERROR CODE CMD

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 8
GLOBAL EQUATES SECTION

```

544 ;***** ERROR NUMBER EQUIVALENTS *****
545
546 000002 WRTERR = 2. ;WRITE ERR -HRD
547 000003 RDERR = 3. ;READ ERR -HRD
548 000004 CRCERR = 4. ;CRC ERR -HRD
549 000005 DATERR = 5. ;DATA ERR -HRD
550 000006 SEKERR = 6. ;SEEK ERR -HRD
551 000007 DLDERR = 7. ;DELETED DATA ERR -HRD
552 ;-----
553
554 000012 FILERR = 10. ;FILL BUFFER ERR -HRD
555 000013 EMPERR = 11. ;EMPTY BUFFER ERR -HRD
556 000014 INTNDN = 12. ;INTERRUPT, NO DONE ERR -HRD
557 000015 DNNINT = 13. ;DONE, NO INTERRUPT ERR -HRD
558 000016 ERRNST = 14. ;ERROR NOT SET ERR -HRD
559 000017 ILLERC = 15. ;ILLEGAL ERROR CODE -HRD
560 000020 DENDSK = 16. ;DENSITY OF DISK-NOT ERR -HRD
561 000021 RECERR = 17. ;READ ERROR CODE ERR -HRD
562 ;-----
563
564 000023 WCERR = 19. ;WORD COUNT ERROR -DVCFTL
565 000024 SDRDYE = 20. ;SIDE READY -DVCFTL
566 000025 DVRDYE = 21. ;DRIVE READY -DVCFTL
567 000026 SIDWRG = 22. ;SIDE WRONG -DVCFTL
568 000027 DRVWRG = 23. ;DRIVE WRONG -DVCFTL
569 000030 DENERR = 24. ;DENSITY ERR -DVCFTL
570 000031 DENMIX = 25. ;DENSITY MIXED ON DISK ERR -DVCFTL
571 000032 DLDTER = 26. ;DELETED DATA ERR -DVCFTL
572 000033 CSRERR = 27. ;RXCSR-ERR -DVCFTL
573 000034 DBRERR = 28. ;RXESR-ERR -DVCFTL
574 000035 STDNER = 29. ;SET DENSITY ERR -DVCFTL
575 000036 SDKYWD = 30. ;SET DENSITY KEYWORD (VARIFY) -DVCFTL
576 000037 ACLOWD = 31. ;AC LOW -DVCFTL
577 000040 ALGO2E = 32. ;ALGO2 ERROR -DVCFTL
578 000041 TRKAER = 33. ;TRACK ADDRESS -DVCFTL
579 000042 SECAER = 34. ;SECTOR ADDRESS -DVCFTL
580 ;-----
581
582 000050 ACLOWF = 40. ;AC LOW FATAL ERR -SYSFTL
583 000051 WCOVFE = 41. ;WORD COUNT OVERFLOW ERR -SYSFTL
584 000052 NXMERR = 42. ;NON-EXISTENT MEMORY ERR -SYSFTL
585 000053 NPRERR = 43. ;NPR LOGIC ERR -SYSFTL
586 000054 PRILEV = 44. ;PRIORITY LEVEL ERR -SYSFTL
587 000055 DATABF = 45. ;DATA BUFFER INTEG ERR -SYSFTL
588 000056 HDSFDG = 46. ;HARDWARE SELF DIAC ERR -SYSFTL
589 000057 NOTRBT = 47. ;"TR" BIT TIME OUT ERR -SYSFTL
590 000060 NODNBT = 48. ;"DONE" BIT TIBIT TIME OUT ERR -SYSFTL
591 000061 NOITDB = 49. ;NO "INIT DONE" BIT ERR -SYSFTL
592 000062 NOITDP = 50. ;NO PROG "INIT DONE" BIT ERR -SYSFTL
593 000063 DNNOTR = 51. ;"DONE" BIT, NO "TR" BIT -SYSFTL
594 ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 10
GLOBAL EQUATES SECTION

```

597          ;***** FRU CALLOUT MESSAGE EQUIVALENTS *****
598          000000 INTERF = 0 ;INTERFACE=0
599          000002 CONTRL = 2*1. ;FRUM1 ;CONTROLLER
600          000004 RWELEC = 2*2. ;FRUM2 ;R-W ELECTRONICS
601          000006 PHYDRV = 2*3. ;FRUM3 ;PHYSICAL DRIVE
602          000010 CABLES = 2*4. ;FRUM4 ;CABLES
603          000012 POWRSP = 2*5. ;FRUM5 ;POWER SUPPLY
604          000014 DISKET = 2*6. ;FRUM6 ;DISKETTE
605          000016 INTFSW = 2*7. ;FRUM7 ;INTERFACE SWITCHES
606          000020 NPRJPR = 2*8. ;FRUM8 ;NPR JUMPER
607          000022 CONTSW = 2*9. ;FRUM9 ;CONTROLLER SWITCHES
608          000024 INTFCB = 2*10. ;FRUM10 ;INTERFACE CABLE
609          000026 DOOROP = 2*11. ;FRUM11 ;DOOR OPEN
610          000030 DISKSP = 2*12. ;FRUM12 ;DISK SPINNING-DRIVE BELT
611          000032 MOTOR = 2*13. ;FRUM13 ;MOTOR AC POWER NOT ROTATING
612          000034 NOPWR = 2*14. ;FRUM14 ;POWER CORD, BLOWN FUSE, DRIVE POWER
613          ;CONNECTOR POWER SUPPLY FAULT.
614
615          ;***** TEST FLAGS REGISTER EQUIVALENTS (FLAGST) *****
616          000001 REGCK = BIT0 ;REGISTER CHECK
617          000002 DDCFLG = BIT1 ;DOUBLE DENSITY CONTROL FLAG (DD=1)
618          000004 DATCK = BIT2 ;DATA CHECK
619          000010 DLPDN = BIT3 ;DO LOOP DONE
620          000020 EMBUFF = BIT4 ;EMPTY BUFFER-<USED BY DATA CHECK>
621          000040 FUNTST = BIT5 ;FUNCTION TEST FLAG
622          000100 HDRPRT = BIT6 ;ERROR CALL HEADER PRINT
623          000200 RECFLG = BIT7 ;READ ERROR CODE FLAG
624          001000 TRKDON = BIT9 ;TRACK DONE
625          002000 SECDON = BIT10 ;SECTOR DONE
626          004000 NEGST = BIT11 ;NEGATIVE TEST FLAG
627          010000 ILLGAL = BIT12 ;ILLEGAL FLAG
628          020000 CKERR = BIT13 ;CHECK ERROR WORDS FLAG
629          040000 HRDERR = BIT14 ;HARD ERROR
630          100000 ERRFLG = BIT15 ;ERROR
631
632          ;***** PROGRAM/PRINT FLAGS REGISTER EQUIV (FLAGSP) *****
633
634          000001 TKPRT = BIT0 ;TRACKS PRINT
635          000002 SCPRT = BIT1 ;SECTORS PRINT
636          000004 RGPRT = BIT2 ;REGISTERS PRINT
637          000010 PROPRT = BIT3 ;PROTOCOL LEVEL PRINT
638          000100 HDRPRT = BIT6 ;HEADER PRINT
639          000200 RECTST = BIT7 ;ERROR CODE TEST (INVOKE ERROR CODE)
640          000400 LSIFLG = BIT8 ;LSI FLAG
641          010000 FONZFG = BIT12 ;FONZ FLAG
642          040000 RESFLG = BIT14 ;RESTART FLAG
643          100000 STAFLG = BIT15 ;START FLAG
644
645          ;***** "SYS ERR" & "TYP ERR" REGISTER EQUIVALENTS *****
646
647          000020 CMDERR = BIT4 ;COMMAND ERROR
648          004000 DVFERR = BIT11 ;DEVICE FATAL ERROR
649          002000 SYFERR = BIT10 ;SYSTEM FATAL ERROR
650

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 12
GLOBAL DATA SECTION

```

664 .SBTTL GLOBAL DATA SECTION
665
666 :++
667 : THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
668 : IN MORE THAN ONE TEST.
669 :--
670 : STORAGE FOR DEVICE REGISTERS
671
676 -----
677 002350 000000 RXCS: .WORD 0 :UNIT BUS ADR-CSR <UUT *>
678 002352 000000 RXDB: .WORD 0 :UNIT BUS ADR-DBR <UUT *>
679 002354 000000 VECT: .WORD 0 :UNIT VECTOR <UUT *>
680 002356 000000 RXPRI: .WORD 0 :PRIORITY FOR DEVICE INTERRUPTS <UUT *>
681 002360 000000 EMPADR: .WORD 0 :EMPTY BUFFER ADDRESS
682 002362 000000 FILADR: .WORD 0 :FILL BUFFER ADDRESS
683 002364 000000 RECADR: .WORD 0 :READ ERROR CODE ADDRESS
684 002366 000000 EXTADR: .WORD 0 :EXTENDED ADDRESS (BITS: #12 & #13)
685 002370 000000 WDCNT: .WORD 0 :WORD COUNT
686 002372 000000 VARIFY: .WORD 0 :VARIFY WORD
687 002374 000000 TRACK: .WORD 0 :TRACK ADR
688 002376 000000 SECTOR: .WORD 0 :SECTOR ADR
689 -----
690 002400 000000 CMD: .WORD 0 :COMMAND WORD-TO DEVICE
691 002402 000000 DELDAT: .WORD 0 :DELETED DATA FLAG & WORD <CMD>
692 002404 000000 INTERT: .WORD 0 :INTERRUPT WORD <CMD>
693 002406 000000 DRIVE: .WORD 0 :DRIVE WORD <CMD*>
694 002410 000000 SIDE: .WORD 0 :SIDE WORD <CMD*>
695 002412 000000 DENSITY: .WORD 0 :DENSITY CONTROL WORD <CMD>
696 002414 000000 DENSTA: .WORD 0 :DENSITY STATUS WORD-DRIVE DENSITY
697 002416 000000 PRIORT: .WORD 0 :PRIORITY OF INTERRUPT HANDLER-WATCH DOG
698 002420 000000 DRVOFF: .WORD 0 :DRIVE BYTE OFFSET
699 -----
700 002422 000000 ERRCMD: .WORD 0 :ERROR COMMAND
701 002424 000000 LCMD: .WORD 0 :LAST COMMAND
702 002426 000000 LRXCSR: .WORD 0 :LAST RX CSR STORAGE
703 002430 000000 LRXESR: .WORD 0 :LAST RX ESR STORAGE
704 002432 000000 RXCSR: .WORD 0 :RX CSR STORAGE
705 002434 000000 RXESR: .WORD 0 :RX ESR STORAGE
706 002436 000000 REGEXP: .WORD 0 :REGISTER EXPECTED
707 002440 000000 REGACT: .WORD 0 :REGISTER ACTUAL
708 -----
709 :
710 : * = INFO FROM HARDWARE P-TABLES
711 :
712 :
713 .SBTTL - READ ERROR CODE BUFFER
714
715 002442 000 XERUUT: .BYTE 0 :ERROR CODE UUT
716 002443 000 WC: .BYTE 0 :WORD COUNT UUT
717 002444 000 CTK0: .BYTE 0 :CUR TRK DRV#0
718 002445 000 CTK1: .BYTE 0 :CUR TRK DRV#1
719 002446 000 TTRK: .BYTE 0 :TARGET TRACK
720 002447 000 TSEC: .BYTE 0 :TARGET SECTOR
721 002450 000 SFTSTS: .BYTE 0 :MICRO CODE SOFT STATUS
722 002451 000 BTRK: .BYTE 0 :BAD TRACK ADR (ONLY APPLIES IF ERR CODE = 150)
723 -----

```

ABORT:	.WORD	0	:ABORT FLAG	TEST												
FIN:	.WORD	0	:FINI COMMAND FLAG	ERROR												
SYSERR:	.WORD	0	:SYSTEM ERROR													
TYPERR:	.WORD	0	:TYPE ERROR													
RECERN:	.WORD	0	:READ ERROR CODE-ERROR NUMBER	& STATUS												
NGTSER:	.WORD	0	:NEG TEST EXPECTED ERROR	INFO												

TSTID:	.WORD	0	:TEST IDENT WORD	TEST												
TCMDCT:	.WORD	0	:TEST COMMAND COUNTER													
PROTCT:	.WORD	0	:PROTOCOL COUNT	INFO												
DNWTMT:	.WORD	4	:DONE WAIT MULTIPLIER													

FLAGST:	.WORD	0	:SOFTWARE TEST FLAGS --> SEE BELOW	TEST												
FLAGSP:	.WORD	0	:SOFTWARE PROG/PRT FLAGS-->SEE BELOW													
FLGDRS:	.WORD	4	:FLAGS FROM 'DRS'	CONTROL												
TTEMP1:	.WORD	0	:TEST TEMP 1													
TSAVE1:	.WORD	0	:TEST SAVE 1	FLAGS												
TKSCFG:	.WORD	0	:TRACK & SECTORS FLAGS --> SEE BELOW													

UNTPRT:	.WORD	0	:UNIT #-PRINT	DEVICE												
DRVPR:	.BYTE	0	:DRIVE #-PRINT	PRINT												
SIDPR:	.BYTE	0	:SIDE #-PRINT													

ERRTBL																
ERRTYP:	.WORD	0														
ERRNBR:	.WORD	0														
ERRMSG:	.WORD	0														
ERRBLK:	.WORD	0														

***** SOFTWARE REGISTER DEFINITIONS *****																

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
TYPERR:	ERR	ERR	DON	ITR	WRT	RD	FIL	UNK		DD	DD			CK		
	BIT	NOT	NO	NO	ERR	ERR	EMP	ERR	-	MIS	UNX	CMD	DAT	SUM	SEK	CRC
		SET	ITR	DON			ERR					ERR				
=====																
SYSERR:	UNR		DEN		DVF	SYF	WRONG	TR	SID	DRV	NO	DONE		FUNCTION		
	ERR		ERR		ERR	ERR	SID	DRV	ERR	ERR	ERR	FUN	INT	CAUSING		
														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																

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 15
GLOBAL TEXT SECTION

798
799
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817
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827

.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
;

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 17
GLOBAL ERROR REPORT SECTION

```

837      .SBTTL  GLOBAL ERROR REPORT SECTION
838
839      ;++
840      ; THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX CALLS
841      ; THAT ARE USED IN MORE THAN ONE TEST.  IT ALSO INCLUDES THE ASCII MESSAGES
842      ; THAT ARE USED BY THE PRINTB AND PRINTX CALLS..
843      ;--
844
845
846      ;-----
847 002526      BGNMSG  PRTB0
848 002526 004737 002550      CALL  PRTB0S
849 002532      ENDMSG
850      ;-----
851 002534      BGNMSG  PRTB1
852 002534 004737 002570      CALL  PRTB1S
853 002540      ENDMSG
854      ;-----
855 002542      BGNMSG  PRTB2
856 002542 004737 002612      CALL  PRTB2S
857 002546      ENDMSG
858      ;-----
859 002550      PRTB0S: PRINTB  R1
860 002566 000207      RETURN                                ;RETURN
861      ;-----
862 002570      PRTB1S: PRINTB  R1,R2
863 002610 000207      RETURN                                ;RETURN
864      ;-----
865 002612      PRTB2S: PRINTB  R1,R2,R3
866 002634 000207      RETURN                                ;RETURN
867      ;-----
868 002636      PRTB3S: PRINTB  R1,R2,R3,R4
869 002662 000207      RETURN                                ;RETURN
870      ;-----
871 002664      PRTB4S: PRINTB  R1,R2,R3,R4,R5
872 002712 000207      RETURN                                ;RETURN
873      ;-----
874 002714      PRTX0S: PRINTX  R1
875 002732 000207      RETURN
876      ;-----
877 002734      PRTX1S: PRINTX  R1,R2
878 002754 000207      RETURN
879      ;-----
880 002756      PRTX2S: PRINTX  R1,R2,R3
881 003000 000207      RETURN
882      ;-----
883 003002      PRTX3S: PRINTX  R1,R2,R3,R4
884 003026 000207      RETURN
885      ;-----
886 003030      PRTX4S: PRINTX  R1,R2,R3,R4,R5
887 003056 000207      RETURN
888      ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 19
 - MOD U.ERR.ERR - ERROR

```

891 .SBTTL - MOD U.ERR.ERR - ERROR
892 -----
893 BGNSUB      ERR
894 :          IF ERK NBR NOT=0                                [F]
895 :          THEN-SET ERR SAVE = ERR NUMBER
896 :          CALL ERROR NUMBER EVALUATION
897 :          SETUP ERROR BLOCK CODE ADDRESS
898 :          CALL PRINT ERROR TYPE
899 :          IF PROGRAM FLAGS-PRT REGS ??? SET                [J]
900 :          THEN-IF ERNBR=CSR ERROR                           [I]
901 :          :          THEN-CALL PRINT REGS
902 :          :          ENDIF
903 :          ENDIF
904 :          IF COMMAND ERROR SET IN TYPERR                    [B]
905 :          :          THEN-CALL PRINT COMMAND ERROR
906 :          ENDIF
907 :          IF FUNCTION TEST NOT SET                          [A]
908 :          :          THEN-IF PRINT FLAGS=REGS PRINT          [E]
909 :          :          :          THEN-CALL REGISTERS PRINT
910 :          :          ENDIF
911 :          :          IF PRINT FLAG=SECTOR PRINT              [G]
912 :          :          :          THEN-CALL SECTOR PRINT
913 :          :          ENDIF
914 :          :          IF PRINT FLAG=TRACK PRINT               [C]
915 :          :          :          THEN-CALL TRACKS PRINT
916 :          :          ENDIF
917 :          :          CALL PRINT FRU
918 :          :          CALL PRINT UNIT STATUS
919 :          :          ELSE-IF SWITCH REGISTER BIT #14 SET     [D]
920 :          :          :          THEN-CALL PRINT UNIT STATUS
921 :          :          ENDIF
922 :          ENDIF
923 :          IF ERR SAVE = ERR OLD                              [K]
924 :          :          THEN - INCREMENT ERROR CTR
925 :          :          :          IF ERROR CTR = 10 ERRORS      [L]
926 :          :          :          THEN - SET ABORT = 20
927 :          :          :          ENDIF
928 :          :          ELSE - SET ERR OLD = ERR SAVE
929 :          :          :          CLEAR ERR SAVE
930 :          :          :          CLEAR ERR CTR
931 :          :          ENDIF
932 :          CALL CLEAR ERRORS
933 :          ENDIF
934 :      ENDSUB
935 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 21
- MOD U.ERR.ERR - ERROR

```

938 003060 000240          ERROR: NOP
939 003062 005737 002520  IFERR: TST  ERRNBR
940 003066 001520          BEQ  EFERR
941 003070 013737 002520 003336 MGV  ERRNBR,ERRSAV
942 003076 004737 003344          CALL ERNBEV
943 003102 012737 003502 002524 MOV  #ERIDNT,ERRBLK
944 003110 004737 003474          CALL PTERTY
945 003114 032737 000004 002500 IJERR: BIT  #RGPRT,FLAGSP
946 003122 001006          BNE  IBERR
947 003124 022737 000033 002520 IJERR: CMP  #CSRERR,ERRNBR
948 003132 001002          BNE  IBERR
949 003134 004737 007564          CALL PRTREG
950 003140 032737 000020 002460 IBERR: BIT  #CMDERR,TYPERR
951 003146 001402          BEQ  IAERR
952 003150 004737 007040          CALL PRTCDE
953 003154 032737 000040 002476 IAERR: BIT  #FUNTST,FLAGST
954 003162 001027          BNE  IDERR
955 003164 032737 000004 002500 IEERR: BIT  #RGPRT,FLAGSP
956 003172 001402          BEQ  IGERR
957 003174 004737 007564          CALL PRTREG
958 003200 032737 000002 002500 IGERR: BIT  #SCPRT,FLAGSP
959 003206 001402          BEQ  ICERR
960 003210 004737 007674          CALL PRTSEC
961 003214 032737 000001 002500 ICERR: BIT  #TKPRT,FLAGSP
962 003222 001402          BEQ  ECERR
963 003224 004737 010002          CALL PRTTRK
964 003230 004737 005404          ECERR: CALL PRTFRU
965 003234 004737 015240          CALL PRTSTA
966 003240 000406          BR   EAERR
967 003242 032737 040000 002332 IDERR: BIT  #BIT14,SWREG
968 003250 001402          BEQ  EAERR
969 003252 004737 015240          CALL PRTSTA
970 003256 000240          EAERR: NOP
971 003260 023737 003336 003340 IKERR: CMP  ERRSAV,ERROLD
972 003266 001011          BNE  LKERR
973 003270 005237 003342          INC  ERRCTR
974 003274 022737 000012 003342 ILERR: CMP  #10,ERRCTR
975 003302 012737 000020 002452 MOV  #20,ABORT
976 003310 000407          BR   EFERR
977 003312 013737 003336 003340 LKERR: MOV  ERRSAV,ERROLD
978 003320 005037 003336          CLR  ERRSAV
979 003324 005037 003342          CLR  ERRCTR
980 003330 004737 010300          EFERR: CALL CLRERR
981 003334 000207          XERROR: RETURN
982
983 003336 000000          ERRSAV: 0
984 003340 000000          ERROLD: 0
985 003342 000000          ERRCTR: 0
986

```

```

: IF ERR NBR,
: NOT=0, THEN
: SAVE ERROR NUMBER
: CALL ERROR NUMBER EVALUATION
: SETUP ERROR BLOCK CODE ADDRESS
: CALL PRINT ERROR TYPE
: IF PROGRAM FLAG=PRT FLAG
: NOT SET, THEN
: IF CSR ERR
: THEN,
: CALL PRINT REGS
: IF TYPERR-COMMAND ERROR
: SET, THEN
: CALL PRINT COMMAND ERRORS
: IF FLAGS-FUNCTION TEST
: NOT SET, THEN
: IF PROGRAM FLAGS=REGS PRINT
: THEN
: CALL PRINT REGS
: IF PROGRAM FLAG=SECTOR
: BIT SET, THEN
: IF PROGRAM FLAGS=TRK PRINT
: BIT SET, THEN
: CALL PRINT TRACKS
: CALL PRINT FRU
: CALL PRINT UNIT STATUS
: BR TO END 'A'
: IF SWITCH REG BIT 14
: SET, THEN
: CALL PRINT UNIT STATUS
: IF SAVED ERR & OLD ERR
: EQUAL, THEN
: INCREMENT ERR CTR
: IF 10 ERRS OF SAME KIND
: SET ABORT FLAG
: BR TO END 'F'
: SETUP OLD ERR FOR NEXT CK
: CLEAR OUT SAVED ERR
: CLEAR ERR CTR
: CALL CLEAR ERRORS
: RETURN

```

```

:-----
: SAVED ERR
: OLD ERR
: ERR CTR
:-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 23
 - MOD U.SFT.ENV - ERROR NUMBER EVALUATION

```

994      SBTTL - MOD U.SFT.ENV - ERROR NUMBER EVALUATION
995      -----
996      BGNSUB
997      IF ERR NBR > 39.                                [A]
998      THEN-SET SYSTEM FATAL ERR->ERRTYP
999      ELSE
1000     IF ERR NBR > 19.                                [B]
1001     THEN-SET DEVICE FATAL ERR->ERRTYP
1002     ELSE
1003     IF ERR NBR > 0.                                [D]
1004     THEN-SET HARD ERR->ERRTYP
1005     ENDIF
1006     ENDIF
1007     ENDIF
1008     ENDIF
1009     IF ERRTYP=HARD ERROR                                [F]
1010     THEN-
1011     IF EVAL SET IN DRS FLAGS                            [G]
1012     THEN-INCREMENT HARD ERR THRESHOLD LEVEL
1013     IF HARD ERR THRESHOLD LEVEL=SET LEVEL            [H]
1014     THEN-SET DEV FATAL ERR->ERRTYP
1015     ENDIF
1016     ENDIF
1017     ENDIF
1018     ENDSUB
1019     -----
1020     ERNBEV: NOP
1021     IAENV:  CMP    #39.,ERRNBR      : IF ERR NBR > 39.
1022           BHI     IBENV             : THEN
1023           CLR     ERRTYP             : SET ERRTYP=SYS FTL
1024           BR      IFENV              : BR TO IF 'F'
1025     IBENV:  CMP    #19.,ERRNBR      : IF ERR NBR > 19.
1026           BHI     IDENV             : THEN
1027           MOV     #1,ERRTYP          : SET ERRTYP=DVC FTL
1028           BR      IFENV              : BR TO IF 'F'
1029     IDENV:  TST     ERRNBR           : IF ERR NBR > 0
1030           BEQ     IFENV             : THEN
1031           MOV     #2,ERRTYP          : SET ERRTYP=HARD ERR
1032     IFENV:  CMP     #2,ERRTYP        : IF ERRTYP = HARD ERR
1033           BNE     EFENV             : THEN
1034     IGENV:  BIT     #BIT2,FLGDRS    : IF EVAL IN DRS FLAGS
1035           BEQ     EFENV             : SET, THEN
1036           INC     HETLCT             : INCREMENT HARD ERR THRESHOLD LEVEL CTR
1037     IHENV:  CMP     DCTL,HETLCT      : IF DEVICE FTL THRES LVL=SFT LEV
1038           BHI     EFENV             : THEN
1039           MOV     #1,ERRTYP          : SET ERRTYP=DEV FTL ERR
1040           CLR     HETLCT             : CLEAR HARD ERR THRES LVL CTR
1041     EFENV:  NOP
1042     ERNBE:  RETURN
1043           RETURN
1044     HETLCT: 0                                : HARD ERROR THRESHOLD LEVEL CTR
1045     -----
  
```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 25
 - MOD U.PRT.PET - PRINT ERROR TYPE

```

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
1060 : RETURN
1061 -----
1062
1063 .SBTTL - MOD U.ERR.IDT - GET & PRINT ERROR IDENTIFICATION MESSAGE
1064 -----
1065 : BGNMSG ERIDENT
1066 : LET R1=ERROR #
1067 : DOUBLE R1 FOR ADDRESSING - MESSAGE OFFSET
1068 : LET R1=ERR MSG TABLE ADD + MESSAGE OFFSET
1069 : PRINT BASIC R1
1070 : PUT MESSAGE TABLE ADDRESS IN R1
1071 : PRINT BASIC R1
1072 : ENDMSG
1073 -----
1074
1075 003502 BGNMSG ERIDENT
1076 003502 013701 002520 MOV ERRNBR,R1 ;GET ERR #
1077 003506 006301 ASL R1 ;DOUBLE IT FOR ADDRESSING
1078 003510 000240 NOP
1079 003512 016101 003534 MOV ERMSTB(R1),R1 ;GET ERR MSG ADR FROM TABLE
1080 003516 004737 002550 CALL PRTBOS ;CALL PRINT BASIC NO ARG
1081 003522 013701 003534 MOV ERMSTB,R1 ;GET RES OF ERR MSG FROM TABLE
1082 003526 004737 002550 CALL PRTBOS ;CALL PRINT BASIC NO ARG
1083 003532 ENDMSG
1084 -----
1085

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 27
 - MOD U.ERR.IDT - GET & PRINT ERROR IDENTIFICATION MESSAGE

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

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- ERROR MESSAGES

					.SBTTL - ERROR MESSAGES
1204					
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	005337	045	101	040	ERMS51: .ASCIZ /%A 'DONE' SET->WAITING FOR 'TR' BIT/
1258					:ERMS52: .ASCIZ /%A 52 ?/
1259					.EVEN ;800. BYTES-->680.
1260					

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 - ERROR MESSAGES

```

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      : : : : ENDDO
1287      : : : : ENDDO
1288      : : : : ENDDO
1289      : : : : ENDDO
1290      : : : : ENDDO
1291      : : : : ENDDO
1292      : : : : ENDDO
1293      : : : : ENDDO
1294      : : : : ENDDO
1295      : : : : ENDDO
1296      : : : : ENDDO
1297      : : : : ENDDO
1298      : : : : ENDDO
1299      : : : : ENDDO
1300      : : : : ENDDO
1301      : : : : ENDDO
1302      : : : : ENDDO
1303      : : : : ENDDO
  
```

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

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 - MOD U.SFT.FRU - GET & PRINT FRU'S IDENT

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

.SBTTL - FRU MESSAGES

1371	005650	045	116	045	FRUM00:	.ASCIZ	/XNXA	POSSIBLE FAILING 'FRU'S': %N/
1372	005713	045	123	061	FRUM0A:	.ASCIZ	/XS11XA	INTERFACE - M8029XN/
1373	005746	045	123	061	FRUM0B:	.ASCIZ	/XS11XA	INTERFACE - M8256XN/
1374	006001	045	123	061	FRUM1:	.ASCIZ	/XS11XA	CONTROLLER - M7744XN/
1375	006035	045	123	061	FRUM2:	.ASCIZ	/XS11XA	R-W ELECT - M7745XN/
1376	006070	045	123	061	FRUM3:	.ASCIZ	/XS11XA	PHYSICAL DRIVEXN/
1377	006120	045	123	061	FRUM4:	.ASCIZ	/XS11XA	CABLESXN/
1378	006140	045	123	061	FRUM5:	.ASCIZ	/XS11XA	POWER SUPPLY-H771XN/
1379	006173	045	123	061	FRUM6:	.ASCIZ	/XS11XA	BAD DISKETTEXN/
1380	006221	045	123	061	FRUM7:	.ASCIZ	/XS11XA	INTERFACE SWITCHESXN/
1381	006255	045	123	061	FRUM8:	.ASCIZ	/XS11XA	NPR JUMPER - PDP-11 BACKPLANEXN/
1382	006324	045	123	061	FRUM9:	.ASCIZ	/XS11XA	CONTROLLER SWITCHESXN/
1383	006361	045	123	061	FRUM10:	.ASCIZ	/XS11XA	INTERFACE->CONTROLLER CABLEXN/
1384	006426	045	123	061	FRUM11:	.ASCIZ	/XS11XA	DOOR OPENXN/
1385	006451	045	123	061	FRUM12:	.ASCIZ	/XS11XA	BROKEN DRIVE BELTXN/
1386	006504	045	123	061	FRUM13:	.ASCIZ	/XS11XA	DRIVE MOTOR - AC POWERXN/
1387	006544	045	123	061	FRUM14:	.ASCIZ	/XS11XA	POWER CORD, BLOWN FUSE, DRIVE POWER, POWER SUPPLY %N/
1388					-----			
1400					.EVEN ;506. BYTES			

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 - FRU CALLOUT - PRESETUP FOR TESTS

```

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

```

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 - FRU CALLOUT - PRESETUP FOR TESTS

1424
 1425
 1426 006660 000000
 1427 006662 006736
 1428 006664 006742
 1429 006666 000000
 1430 006670 006746
 1431 006672 006751
 1432 006674 000000
 1433 006676 006755
 1434 006700 000000
 1435 006702 006763
 1436 006704 006770
 1437 006706 006776
 1438 006710 000000
 1439 006712 007002
 1440 006714 007006
 1441 006716 007012
 1442 006720 007016
 1443 006722 000000
 1444 006724 007022
 1445 006726 007025
 1446 006730 007030
 1447 006732 007035
 1448 006734 177777

ERROR CODE - FRU CALLOUT ADDRESS TABLE

```

TOFTB: .WORD 0
        .WORD TOFT1
        .WORD TOFT2
        .WORD 0
        .WORD TOFT4
        .WORD TOFT5
        .WORD 0
        .WORD TOFT7
        .WORD 0
        .WORD TOFT11
        .WORD TOFT12
        .WORD TOFT13
        .WORD 0
        .WORD TOFT15
        .WORD TOFT16
        .WORD TOFT17
        .WORD TOFT20
        .WORD 0
        .WORD TOFT22
        .WORD TOFT23
        .WORD TOFT24
        .WORD TOFT25
        .WORD -1
  
```

.SBTTL - FRU CALLOUT - PRESETUP FOR ERROR CODE

1451
 1452
 1453 000000
 1454 006736
 006736 006
 006737 002
 006740 004
 006741 377
 1455 006742
 006742 006
 006743 002
 006744 004
 006745 377
 1456 006746
 006746 000
 006747 002
 006750 377
 1457 006751
 006751 004
 006752 006
 006753 002
 006754 377
 1458 006755
 006755 014
 006756 004
 006757 006
 006760 002
 006761 000
 006762 377
 1459 006763

```

IN=0
FRUTB 1,PHYDRV,CONTRL,RWELEC
TOFT1: .BYTE PHYDRV
        .BYTE CONTRL
        .BYTE RWELEC
        .BYTE -1
FRUTB 2,PHYDRV,CONTRL,RWELEC
TOFT2: .BYTE PHYDRV
        .BYTE CONTRL
        .BYTE RWELEC
        .BYTE -1
FRUTB 4,INTERF,CONTRL
TOFT4: .BYTE INTERF
        .BYTE CONTRL
        .BYTE -1
FRUTB 5,RWELEC,PHYDRV,CONTRL
TOFT5: .BYTE RWELEC
        .BYTE PHYDRV
        .BYTE CONTRL
        .BYTE -1
FRUTB 7,DISKET,RWELEC,PHYDRV,CONTRL,INTERF
TOFT7: .BYTE DISKET
        .BYTE RWELEC
        .BYTE PHYDRV
        .BYTE CONTRL
        .BYTE INTERF
        .BYTE -1
FRUTB 11,DISKET,RWELEC,PHYDRV,CONTRL
  
```

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 - FRU CALLOUT - PRESETUP FOR ERROR CODE

	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		

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 - MOD U.ERR.PCE - PRINT COMMAND ERROR

```

1474 .SBTTL - MOD U.ERR.PCE - PRINT COMMAND ERROR
1475 -----
1476 : BGNSUB
1477 :     SETUP & PRINT COMMAND FORMAT MESSAGE
1478 :     GET COMMAND
1479 :     IF INITIALIZE COMMAND
1480 :     : THEN-SETUP INIT COMMAND MSG
1481 :     : ELSE-CLEAR TOP BITS & GO BIT
1482 :     :     CLEAR TOP BITS & GO BIT
1483 :     :     GET COMMAND MSG ADDRESS FROM TABLE (INDEXED BY COMMAND)
1484 :     ENDIF
1485 :     CALL PRINT
1486 :     SETUP & PRINT END OF COMMAND ERROR
1487 :     IF PROTOCOL TYPE COMMAND
1488 :     : THEN-IF PRINT FLAGS=PRINT PROTOCOL SET
1489 :     :     THEN-SETUP & PRINT PROTOCOL ERR
1490 :     :     ENDIF
1491 :     ENDIF
1492 : ENDSUB
1493 -----
1494
1495 007040 000240 PRTCDE: NOP
1496 007042 012701 007204      MOV      #CMFTMS,R1      :SETUP COMMAND FORMAT MESSAGE
1497 007046 004737 002550      CALL     PRTBOS      :CALL PRINT BASIC-NO ARG
1498 007052 013702 002422      MOV      ERRCMD,R2      :GET COMMAND
1499 007056 032702 040000 IAPCE: BIT      #BIT14,R2      :IF INITIALIZE BIT
1500 007062 001405      BEQ      LAPCE      :SET, THEN
1501 007064 012701 007452      MOV      #CMDM8,R1      :SET PROGRAMMED INIT MSG
1502 007070 012702 000012      MOV      #12,R2      :SET R2 TO SHOW COMMAND WITH NO PROTOCOL
1503 007074 000404      BR      EAPCE      :BR TO END 'A'
1504 007076 042702 177761 LAPCE: BIC      #177761,R2      :CLEAR TOP BITS & GO BIT
1505 007102 016201 007164      MOV      CMDMSG(R2),R1      :GET COMMAND MSG ADR FROM TABLE
1506 007106 004737 002550 EAPCE: CALL     PRTBOS      :CALL PRINT BASIC-NO ARG
1507 007112 012701 007216      MOV      #CMERMS,R1      :SETUP 'COMMAND ERR' MSG
1508 007116 004737 002550      CALL     PRTBOS      :CALL PRINT BASIC-NO ARG
1509 007122 022702 000012 IBPCE: CMP      #12,R2      :IF R2 CONTAINS PROTOCOL TYPE COMMAND
1510 007126 001415      BEQ      XPCE      :THEN
1511 007130 032737 000010 002500 ICPCE: BIT      #PROPRT,FLAGSP      :IF PRINT PROTOCOL FLAG=FLAGSP
1512 007136 001411      BEQ      XPCE      :SET, THEN
1513 007140 013702 002472      MOV      PROTCNT,R2      :SETUP PRINT PROTOCOL CNT
1514 007144 012701 007502      MOV      #CMDPE,R1      :SETUP PRINT PROTOCOL ERR MSG
1515 007150 004737 002734      CALL     PRTX1S      :PRINT MSG
1516 007154 042737 000020 002460      BIC      #CMDERR,TYPERR      :CLEAR TYP ERR COMMAND ERROR
1517 007162 000207      XPCE: RETURN      :RETURN
1518 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 41
- COMMAND ERROR MESSAGE TABLE

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 #%01/
1543						.EVEN
1544						-----

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 43
- MOD U.ERR.PRE - PRINT REGISTER ERROR

```

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%$6%AREG ACTUAL=%0%N/
1560 007646      045      123      066      .ASCIIZ /%$6%AREG EXPECT=%0%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: .ASCIIZ /%A SECTOR=%D2%A./
1591      .EVEN
1592      ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 45
- MOD U.PRT.TKP - PRINT TRACKS

```

1595 .SBTTL - MOD U.PRT.TKP - PRINT TRACKS
1596 -----
1597 BGNSUB
1598     CALL PRINT UNIT IDENT
1599     IF READ ERROR CODE FLAG SET
1600     : THEN-SETUP PRINT EXPECTED TRACK
1601     :     CALL PRINT 1 PARAMETER
1602     :     IF DRIVE #1 SELECTED
1603     :     : THEN-SETUP CURRENT TRACK DRV1-PRINT
1604     :     : ELSE-SETUP CURRENT TRACK DRV0-PRINT
1605     :     ENDIF
1606     :     CALL PRINT 1 PARAMETER
1607     :     SETUP PRINT DRIVE TARGET TRACK
1608     :     CALL PRINT 1 PARAMETER
1609     : ELSE-SETUP PRINT ERROR ON TRACK
1610     :     CALL PRINT 1 PARAMETER
1611     : ENDIF
1612     ENDSUB
1613 -----
1614 010002 004737 020600 002476 PRTTRK: CALL PRTDID ;CALL PRINT DRIVE IDENT
1615 010006 032737 000200 IATKP: BIT #RECFLG,FLAGST ;IF READ ERROR CODE FLAG
1616 010014 001445 BEQ LATKP ;FLAG SET, THEN
1617 010016 013702 002374 MOV TRACK,R2 ;SETUP EXPECTED TRACK
1618 010022 012701 010156 MOV #EXMS,R1 ;SETUP EXPECTED MSG
1619 010026 004737 002550 CALL PRTBOS ;CALL PRINT BASIC-0 ARG
1620 010032 012701 010257 MOV #ADTKMS,R1 ;SETUP PRINT TRACK
1621 010036 004737 002570 CALL PRTBIS ;CALL PRINT BASIC-1 PAR.
1622 010042 005737 002406 IBTKP: TST DRIVE ;IF DRIVE #1
1623 010046 001403 BEQ LBTKP ;SELECTED, THEN
1624 010050 113702 002445 MOVB CTK1,R2 ;SETUP CUR TRK D1-PRT
1625 010054 000402 BR EBTKP ;BR TO END 'B'
1626 010056 113702 002444 LBTKP: MOVB CTK0,R2 ;SETUP CUR TRK D0-PRT
1627 010062 012701 010177 EBTKP: MOV #CDMS,R1 ;SETUP DRIVE CURRENT MSG
1628 010066 004737 002550 CALL PRTBOS ;CALL PRINT BASIC-0 ARG
1629 010072 012701 010257 MOV #ADTKMS,R1 ;SETUP PRINT TRACK
1630 010076 004737 002570 CALL PRTBIS ;CALL PRINT BASIC-1 PAR.
1631 010102 113702 002446 MOVB TTRK,R2 ;SETUP TARGET TRACK
1632 010106 012701 010220 MOV #TGMS,R1 ;SETUP TARGET MSG
1633 010112 004737 002550 CALL PRTBOS ;CALL PRINT BASIC-0 ARG
1634 010116 012701 010257 MOV #ADTKMS,R1 ;SETUP PRINT TRACK
1635 010122 004737 002570 CALL PRTBIS ;CALL PRINT BASIC-1 PAR.
1636 010126 000412 BR XTKPRT ;BR TO EXIT
1637 010130 013702 002374 LATKP: MOV TRACK,R2 ;SETUP ERROR TRACK
1638 010134 012701 010241 MOV #ERTKMS,R1 ;SETUP ERROR TRACK MSG
1639 010140 004737 002550 CALL PRTBOS ;CALL PRINT BASIC-0 ARG
1640 010144 012701 010257 MOV #ADTKMS,R1 ;SETUP PRINT TRACK
1641 010150 004737 002570 CALL PRTBIS ;CALL PRINT BASIC-1 PAR.
1642 010154 000207 XTKPRT: RETURN
1643 -----
1644 010156 045 116 045 EXMS: .ASCIZ /%N%S%Z% EXPECTED/
1645 010177 045 116 045 CDMS: .ASCIZ /%N%S%Z% CUR DRV/
1646 010220 045 116 045 TTRK: .ASCIZ /%N%Z% TRACK=3D2%Z%/
1647 010241 045 116 045 ERTKMS: .ASCIZ /%N%Z% ERROR -%Z%/
1648 010257 045 101 045 ADTKMS: .ASCIZ /%Z% TRACK=3D2%Z%/
1649 .EVEN
1650 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 47
 - MOD U.ERR.CLE - CLEAR ERRORS

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 ERRTP	: 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				-----	

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 49
GLOBAL SUBROUTINES SECTION

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1815
1816 010344 012700 000001
1817 010350 063700 010432
1818 010354 063700 010434
1819 010360 042700 170000
1820 010364 000241
1821 010366 006100
1822 010370 006100
1823 010372 010037 010432
1824 010376 005000
1825 010400 013700 010434
1826 010404 006000
1827 010406 006000
1828 010410 063700 010432
1829 010414 042700 170000
1830 010420 010037 010434
1831 010424 010037 010436
1832 010430 000207
1833
1834 010432 000000
1835 010434 000000
1836 010436 000000
1837

```

.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 -----
RANGEN: MOV    #1,R0
        ADD    RAN1,R0
        ADD    RAN2,R0
        BIC    #170000,R0
        CLC
        ROL    R0
        ROL    R0
        MOV    R0,RAN1
        CLR    R0
        MOV    RAN2,R0
        ROR    R0
        ROR    R0
        ADD    RAN1,R0
        BIC    #170000,R0
        MOV    R0,RAN2
        MOV    R0,RANUM
        RTS    PC
:-----
RAN1:   0
RAN2:   0
RANUM:  0
:-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 51
 - MOD U.DEV.INT - INITIALIZE DEVICE

```

1840 .SBTTL - MOD U.DEV.INT - INITIALIZE DEVICE
1841 :++
1842 : FUNCTIONAL DESCRIPTION: SUBR TO SEND INITIALIZE TO DEVICE.-ERROR CK
1843 : INPUTS: NONE
1844 : IMPLICIT INPUTS: ERROR BIT
1845 : OUTPUTS: DEVICE INITIALIZE
1846 : IMPLICIT OUTPUTS:
1847 : SUBORDINATE ROUTINES USED: COMMAND ERR CK, GET DEV. REGS, WAIT DONE
1848 : FUNCTIONAL SIDE EFFECTS:
1849 : CALLING SEQUENCE: SUBR
1850 :--
1851
1852 ;-----
1853
1854 010440 012737 040000 002400 INTIAL: MOV #40000,CMD ;SET INT COMMAND
1855 010446 013777 002400 171674 MOV CMD,@RXCS ;INIT UNIT 0
1856 010454 004737 012032 CALL AWDN ;GO AWAIT DONE
1857 010460 004737 011544 XINT: CALL CDERCK ;CALL COMMAND ERROR CK
1858 010464 004737 012244 CALL GETREG ;CALL GET DEV REGS
1859 010470 000207 RTS PC ;RETURN
1860 ;-----
1861
1862 .SBTTL - MOD U.DEV.CLD - CLEAR DEVICE
1863 :++
1864 : FUNCTIONAL DESCRIPTION: SUBR TO SEND INIT TO DEVICE - NO ERROR CK
1865 : INPUTS: NONE
1866 : IMPLICIT INPUTS: NONE
1867 : OUTPUTS: DEVICE INITIALIZE
1868 : IMPLICIT OUTPUTS:
1869 : SUBORDINATE ROUTINES USED: A WAIT 'DONE'
1870 : FUNCTIONAL SIDE EFFECTS:
1871 : CALLING SEQUENCE: SUBR
1872 :--
1873
1874 ;-----
1875
1876 CLRDEV: MOV #40000,R1 ;SET INITIALIZE COMMAND
1877 MOV R1,@RXCS ;CLEAR DEVICE
1878 010472 012701 040000 CALL AWDN ;AWAIT DONE
1879 010476 010177 171646 RETURN ;RETURN
1880 010502 004737 012032
1881 010506 000207
1882 ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 53
 - MOD U.DEV.FLB - FILL BUFFER

```

1885 .SBTTL - MOD U.DEV.FLB - FILL BUFFER
1886 :++
1887 : FUNCTIONAL DESCRIPTION: SUBR TO SEND FILL BUFFER COMMAND TO DEVICE.
1888 : INPUTS: NONE
1889 : IMPLICIT INPUTS: NONE
1890 : OUTPUTS: FILL BUFFER TO RX
1891 : IMPLICIT OUTPUTS:
1892 : SUBORDINATE ROUTINES USED: SET COMMANDS, WAIT 'DONE', WAIT 'TR'
1893 : FUNCTIONAL SIDE EFFECTS:
1894 : CALLING SEQUENCE:
1895 :--
1896 :-----
1897 :
1898 :
1899 010510 004737 011634 FILBUF: CALL DVDNCK ;CALL DEVICE READY CHECK
1900 010514 005737 002454 TST FIN ;IF FINI FLAG SET
1901 010520 001035 BNE XFILBF ;NOT SET, THEN
1902 010522 012737 000001 011542 MOV #1,NCMD ;SET FILL BUFFER COMMAND
1903 010530 004737 011502 CALL SETSCD ;CALL SET SUBSYS COMMAND - MOD U.DEV.SSC
1904 010534 053737 002366 002400 BIS EXTADR,CMD ;SET EXT. ADR. BITS
1905 010542 013777 002400 171600 MOV CMD,@RXCS ;LOAD COMMAND
1906 010550 004737 012110 CALL AWTR ;WAIT FOR 'TR'
1907 010554 005737 002454 IBFLB: TST FIN ;IF FINI FLAG
1908 010560 001015 BNE XFILBF ;EQUALS ZERO THEN
1909 010562 013777 002370 171562 MOV WDCNT,@RXDB ;LOAD WORD COUNT FOR OUTPUT BUFFER
1910 010570 004737 012110 CALL AWTR ;WAIT FOR 'TR'
1911 010574 005737 002454 ICFLB: TST FIN ;IF FINI FLAG
1912 010600 001005 BNE XFILBF ;EQUALS ZERO THEN
1913 010602 013777 002362 171542 MOV FILADR,@RXDB ;LOAD BASE ADDRESS FOR OUTPUT BUFFER
1914 010610 004737 011610 CALL WAIT ;WAIT FOR 'DONE' OR INTERRUPT
1915 010614 004737 011544 XFILBF: CALL CDERCK ;CALL COMMAND ERROR CHECK
1916 010620 004737 012244 CALL GETREG ;CALL GET DEV REGS
1917 010624 000207 RTS PC ;RETURN
1918 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 55
 - MOD U.DEV.EMB - EMPTY BUFFER

```

1921 .SBTTL - MOD U.DEV.EMB - EMPTY BUFFER
1922 :++
1923 : FUNCTIONAL DESCRIPTION: SUBR TO SEND EMPTY BUFFER TO DEVICE.
1924 : INPUTS: NONE
1925 : IMPLICIT INPUTS: NONE
1926 : OUTPUTS: EMPTY BUFFER TO RX
1927 : IMPLICIT OUTPUTS:
1928 : SUBORDINATE ROUTINES USED: SETUP COMMANDS, WAIT 'DONE', WAIT 'TR'
1929 : FUNCTIONAL SIDE EFFECTS:
1930 : CALLING SEQUENCE:
1931 :--
1932 :-----
1933 :
1934 :
1935 010626 004737 011634 EMPBUF: CALL DVDNCK ;CALL DEVICE READY CHECK
1936 010632 005737 002454 TST FIN ;IF FINI FLAG
1937 010636 001035 BNE XEMPBF ;NOT SET, THEN
1938 010640 012737 000003 011542 MOV #3,NCMD ;SET EMPTY BUFFER COMMAND
1939 010646 004737 011502 CALL SETSCD ;CALL SET SUBSYS COMMAND
1940 010652 053737 002366 002400 BIS EXTADR,CMD ;SET EXT. ADR. BITS
1941 010660 013777 002400 171462 MOV CMD,@RXCS ;ELSE LOAD COMMAND
1942 010666 004737 012110 CALL AWTR ;WAIT FOR 'TR' DO MOD U.TR
1943 010672 005737 002454 IBEMB: TST FIN ;IF FINI FLAG
1944 010676 001015 BNE XEMPBF ;EQUALS ZERO
1945 010700 013777 002370 171444 MOV WDCNT,@RXDB ;THEN LOAD WORD COUNT FOR INPUT BUFFER
1946 010706 004737 012110 CALL AWTR ;WAIT FOR 'TR' DO MOD U.TR
1947 010712 005737 002454 ICEMB: TST FIN ;IF FINI FLAG
1948 010716 001005 BNE XEMPBF ;EQUALS ZERO
1949 010720 013777 002360 171424 MOV EMPADR,@RXDB ;THEN LOAD BASE ADDRESS FOR INPUT BUFFER
1950 010726 004737 011610 CALL WAIT ;WAIT FOR 'DONE' OR INTERRUPT
1951 010732 004737 011544 XEMPBF: CALL CDERCK ;CALL COMMAND ERROR CHECK
1952 010736 004737 012244 CALL GETREG ;CALL GET DEV REGS
1953 010742 000207 RTS PC ;RETURN
1954 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 57
 - MOD U.DEV.WRT - WRITE SUBROUTINE

```

1957 .SBTTL - MOD U.DEV.WRT - WRITE SUBROUTINE
1958 :++
1959 : FUNCTIONAL DESCRIPTION: SUBR TO SEND WRITE SECTOR TO DEVICE.
1960 : INPUTS: NONE
1961 : IMPLICIT INPUTS: DELETED DATA MODE
1962 : OUTPUTS: WRITE SECTOR TO RX
1963 : IMPLICIT OUTPUTS:
1964 : SUBORDINATE ROUTINES USED: SETUP COMMANDS, WAIT 'DONE', WAIT 'TR'
1965 : FUNCTIONAL SIDE EFFECTS:
1966 : CALLING SEQUENCE:
1967 :--
1968 :-----
1969 :
1970 :
1971 010744 004737 011634 WRITE: CALL DVDNCK ;CALL DEVICE READY CHECK
1972 010750 005737 002454 TST FIN ;IF FINI FLAG
1973 010754 001037 BNE XWRITE ;EQUALS ZERO THEN
1974 010756 012737 000005 011542 MOV #5,NCMD ;SET TO WRITE SECTOR
1975 010764 053737 002402 011542 BIS DELDAT,NCMD ;SETUP WRITE DELETED DATA, IF SET
1976 010772 004737 011502 CALL SETSCD ;CALL SET SUBSYS COMMAND
1977 010776 004737 011462 CALL SETDCD ;CALL SET DEVICE COMMAND - MOD U.DEV.CMD
1978 011002 013777 002400 171340 WRITE1: MOV CMD,@RXCS ;LOAD COMMAND
1979 011010 004737 012110 CALL AWTR ;GO AWAIT TRANSFER READY 'TR'
1980 011014 005737 002454 IBWRT: TST FIN ;IF FINI FLAG
1981 011020 001015 BNE XWRITE ;EQUALS ZERO THEN
1982 011022 013777 002376 171322 MOV SECTOR,@RXDB ;LOAD SECTOR ADDRESS
1983 011030 004737 012110 CALL AWTR ;GO AWAIT TRANSFER READY 'TR'
1984 011034 005737 002454 ICWRT: TST FIN ;IF FINI FLAG
1985 011040 001005 BNE XWRITE ;EQUALS ZERO THEN
1986 011042 013777 002374 171302 MOV TRACK,@RXDB ;LOAD TRACK ADDRESS
1987 011050 004737 011610 CALL WAIT ;WAIT FOR INTERRUPT OR 'DONE'
1988 011054 004737 012244 XWRITE: CALL GETREG ;CALL GET DEV REGS
1989 011060 000207 RTS PC ;RETURN
1990 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 59
 - MOD U.DEV.RED - READ SUBROUTINE

```

1993      .SBTTL - MOD U.DEV.RED - READ SUBROUTINE
1994      :++
1995      : FUNCTIONAL DESCRIPTION: SUBR TO SEND READ SECTOR TO DEVICE.
1996      : INPUTS: NONE
1997      : IMPLICIT INPUTS: NONE
1998      : OUTPUTS: READ SECTOR TO RX
1999      : IMPLICIT OUTPUTS:
2000      : SUBORDINATE ROUTINES USED: SETUP COMMANDS, WAIT 'DONE', WAIT 'TR'
2001      : FUNCTIONAL SIDE EFFECTS:
2002      : CALLING SEQUENCE:
2003      :--
2004
2005      :-----
2006
2007 011062 004737 011634      READ: CALL DVDNCK      ;CALL DEVICE READY CHECK
2008 011066 005737 002454      TST FIN      ;IF FINI FLAG
2009 011072 001034      BNE XREAD      ;EQUALS ZERO, THEN
2010 011074 012737 000007 011542  MOV #7,NCMD      ;SET READ COMMAND
2011 011102 004737 011502      CALL SETSCD      ;CALL SET SUBSYS COMMAND
2012 011106 004737 011462      CALL SETDCD      ;CALL SET DEVICE COMMAND - MOD U.DEV.SDC
2013 011112 013777 002400 171230  READ1: MOV CMD,@RXCS      ;LOAD COMMAND
2014 011120 004737 012110      CALL AWTR      ;GO AWAIT TRANSFER READY
2015 011124 005737 002454      IBRED: TST FIN      ;IF FINI FLAG
2016 011130 001015      BNE XREAD      ;EQUALS ZERO, THEN
2017 011132 013777 002376 171212  MOV SECTOR,@RXDB      ;LOAD SECTOR ADDRESS
2018 011140 004737 012110      CALL AWTR      ;GO AWAIT TRANSFER READY
2019 011144 005737 002454      ICRED: TST FIN      ;IF FINI FLAG
2020 011150 001005      BNE XREAD      ;EQUALS ZERO, THEN
2021 011152 013777 002374 171172  MOV TRACK,@RXDB      ;LOAD TRACK ADDRESS
2022 011160 004737 011610      CALL WAIT      ;WAIT FOR INTERRUPT OR 'DONE'
2023 011164 004737 012244      XREAD: CALL GETREG      ;CALL GET DEV REGS
2024 011170 000207      RETURN      ;RETURN
2025      :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 61
 - MOD U.DEV.SDN - SET DENSITY

```

2028 .SBTTL - MOD U.DEV.SDN - SET DENSITY
2029 :++
2030 : FUNCTIONAL DESCRIPTION: SUBR TO SEND SET DENSITY COMMAND TO DEVICE.
2031 : INPUTS: NONE
2032 : IMPLICIT INPUTS: DENSITY
2033 : OUTPUTS: SET DENSITY TO RX
2034 : IMPLICIT OUTPUTS:
2035 : SUBORDINATE ROUTINES USED: SETUP COMMANDS, WAIT 'DONE', WAIT 'TR'
2036 : FUNCTIONAL SIDE EFFECTS:
2037 : CALLING SEQUENCE:
2038 :--
2039 :
2040 :-----
2041 :
2042 011172 004737 011634 SETDN: CALL DVDNCK ;CALL DEVICE READY CHECK
2043 011176 005737 002454 TST FIN ;IF FINI FLAG
2044 011202 001024 BNE XSETDN ;NOT SET, THEN
2045 011204 012737 000011 011542 MOV #11,NCMD ;SETUP DENSITY COMMAND
2046 011212 004737 011502 CALL SETSCD ;CALL SET SUBSYS COMMAND
2047 011216 004737 011462 CALL SETDCD ;CALL SET DEVICE COMMAND - MOD U.DEV.SDC
2048 011222 013777 002400 171120 MOV CMD,@RXCS ;SEND COMMAND
2049 011230 004737 012110 CALL AWTR ;GO AWAIT 'TR'
2050 011234 005737 002454 IBSDN: TST FIN ;IF FINI FLAG IS
2051 011240 001005 BNE XSETDN ;ZERO
2052 011242 013777 002372 171102 MOV VARIFY,@RXDB ;SEND VARIFY WORD
2053 011250 004737 011610 CALL WAIT ;WAIT FOR 'DONE' OR INTERRUPT
2054 011254 004737 011544 XSETDN: CALL CDERCK ;CALL COMMAND ERROR CHECK
2055 011260 004737 012244 CALL GETREG ;CALL GET DEV REGS
2056 011264 000207 RTS PC ;RETURN
2057 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 63
 - MOD U.DEV.RST - READ STATUS

```

2060 .SBTTL - MOD U.DEV.RST - READ STATUS
2061 :++
2062 : FUNCTIONAL DESCRIPTION: SUBR TO SEND READ STATUS COMMAND TO DEVICE.
2063 : INPUTS: NONE
2064 : IMPLICIT INPUTS: NONE
2065 : OUTPUTS: READ STATUS TO RX
2066 : IMPLICIT OUTPUTS: NONE
2067 : SUBORDINATE ROUTINES USED: SETUP COMMANDS, WAIT 'DONE', WAIT 'TR'
2068 : FUNCTIONAL SIDE EFFECTS: NONE
2069 : CALLING SEQUENCE:
2070 :--
2071
2072 ;-----
2073
2074 011266 004737 011634 RDSTAT: CALL DVDNCK ;CALL DEVICE READY CHECK
2075 011272 022737 000060 002520 CMP #NODNBT,ERRNBR ;IF ERRNBR NOT SET=
2076 011300 001416 BEQ XRDSTA ;'NO DONE BIT', THEN
2077 011302 012737 000013 011542 MOV #13,NCMD ;SET READ STATUS
2078 011310 004737 011502 CALL SETSCD ;CALL SET SUBSYS COMMAND
2079 011314 004737 011462 CALL SETDCD ;CALL SET DEVICE COMMAND - MOD U.DEV.SDC
2080 011320 013777 002400 171022 MOV CMD,@RXCS ;SEND COMMAND
2081 011326 004737 011610 CALL WAIT ;GO AWAIT 'DONE' OR INTERRUPT
2082 011332 004737 012244 CALL GETREG ;CALL GET DEV REGS
2083 011336 000207 XRDSTA: RETURN ;RETURN
2084 ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 65
 - MOD U.DEV.REC - READ ERROR CODE

```

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 013737 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 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 67
 - MOD U.DEV.CMD - SETUP DEVICE COMMAND

```

2123 .SBTTL - MOD U.DEV.CMD - SETUP DEVICE COMMAND
2124 :++
2125 : FUNCTIONAL DESCRIPTION: SUBR TO SETUP DEVICE COMMAND WORD - I.E.,
2126 : SET DRIVE & SIDE BITS
2127 : INPUTS: NONE
2128 : IMPLICIT INPUTS: SIDE & DRIVE BITS, COMMAND
2129 : OUTPUTS: COMMAND WORD FOR DEVICE
2130 : IMPLICIT OUTPUTS: NONE
2131 : SUBORDINATE ROUTINES USED: NONE
2132 : FUNCTIONAL SIDE EFFECTS: NONE
2133 : CALLING SEQUENCE: SUBR
2134 :--
2135 :-----
2136 :
2137 :
2138 011462 000240 SETDCD: NOP
2139 011464 053737 002406 002400 BIS DRIVE,CMD ;SETUP DRIVE BIT
2140 011472 053737 002410 002400 BIS SIDE,CMD ;SETUP SIDE BIT
2141 C11500 000207 RETURN ;RETURN
2142 :-----
2143 :
2144 .SBTTL - MOD U.DEV.SSC - SETUP SUBSYSTEM COMMANDS
2145 :++
2146 : FUNCTIONAL DESCRIPTION: SUBR TO SETUP SUBSYSTEM COMMANDS - I.E.
2147 : SET BITS THAT ARE NOT DRIVE RELATED
2148 : INPUTS: NEW COMMAND
2149 : IMPLICIT INPUTS: COMMAND, DENSITY, INTERRUPT BIT
2150 : OUTPUTS: COMMAND
2151 : IMPLICIT OUTPUTS: LAST COMMAND, PROTOCOL CTR
2152 : SUBORDINATE ROUTINES USED: NONE
2153 : FUNCTIONAL SIDE EFFECTS: NONE
2154 : CALLING SEQUENCE: SUBR
2155 :--
2156 :-----
2157 011502 000240 SETSCD: NOP
2158 011504 013737 002400 002424 MOV CMD,LCMD ;SAVE LAST COMMAND
2159 011512 013737 011542 002400 MOV NCMD,CMD ;SETUP NEW COMMAND
2160 011520 005037 002472 CLR PROTCT ;CLEAR TEST COMMAND PROTOCOL COUNTER
2161 011524 053737 002412 002400 BIS DENSITY,CMD ;SETUP DENSITY BIT
2162 011532 053737 002404 002400 BIS INTERT,CMD ;SETUP INTERRUPT BIT
2163 011540 000207 RETURN
2164 :-----
2165 011542 000000 NCMD: 0 ;NEW COMMAND
2166 :-----
2167 :

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 69
 - MOD U.DEV.CEC - DEVICE COMMAND ERROR CHECK

```

2170 .SBTTL - MOD U.DEV.CEC - DEVICE COMMAND ERROR CHECK
2171 -----
2172 :++
2173 : FUNCTIONAL DESCRIPTION: SUBR TO CHECK FOR DEVICE COMMAND FATAL ERRORS.
2174 : INPUTS: NONE
2175 : IMPLICIT INPUTS: FIN FLAG, FLAGS(NEG TEST), ERR NBR
2176 : OUTPUTS: NONE
2177 : IMPLICIT OUTPUTS: ERROR CONDITION
2178 : SUBORDINATE ROUTINES USED: ERROR
2179 : FUNCTIONAL SIDE EFFECTS: DROP UNIT & CLEAN UP
2180 : CALLING SEQUENCE: SUBR
2181 :--
2182 -----
2183 :
2184 :
2185 011544 000240 CDERCK: NOP
2186 011546 005737 002454 TST FIN ;IF FINI FLAG
2187 011552 001415 BEQ XCEC ;SET, THEN
2188 011554 005737 002520 TST ERRNBR ;IF ERROR NUMBER
2189 011560 001412 BEQ XCEC ;NOT=0, THEN
2190 011562 032737 004000 002476 BIT #NEGTST,FLAGST ;IF NEG TEST FLAG
2191 011570 001006 BNE XCEC ;NOT SET, THEN
2192 011572 004737 003060 CALL ERROR ;CALL ERROR-MOD
2193 011576 DODU UNIT ;DROP UNIT
2194 011604 DOCLN ;DO CLEAN-UP
2195 011606 000207 XCEC: RETURN ;RETURN
2196 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 71
 - MOD U.DEV.WAT - WAIT SUBROUTINE

```

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,ARXCS ;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 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 73
 - MOD U.DEV.WCH - WATCH DOG TIMER

```

2248 .SBTTL - MOD U.DEV.WCH - WATCH DOG TIMER
2249 :++
2250 : FUNCTIONAL DESCRIPTION: SUBR TO WATCH DOG DEVICE 'DONE' & INTERRUPTS
2251 : INPUTS: PROCESSOR LOW PRIORITY
2252 : IMPLICIT INPUTS: DEVICE 'DONE' & INTERRUPTS
2253 : OUTPUTS: DONE TIMEOUT ERROR, NO INTERRUPT ERROR
2254 : IMPLICIT OUTPUTS: NONE
2255 : SUBORDINATE ROUTINES USED: NONE
2256 : FUNCTIONAL SIDE EFFECTS: NONE
2257 : CALLING SEQUENCE: SUBR
2258 :--
2259 :
2260 :-----
2261 :
2262 011662 005037 012030 WATCH: CLR DNFLAG ;CLEAR DONE FLAG
2263 011666 SETPRI PRIORT ;SET PROCESSOR PRI - ALLOW INTERRUPTS
2264 011674 013704 012024 MOV DX,R4 ;SET DELAY MULT
2265 011700 013703 012026 BAUWCH: MOV DLY,R3 ;SET DELAY
2266 011704 005737 012030 IBUWCH: TST DNFLAG ;IF INTERRUPTS DONE FLAG
2267 011710 001413 BEQ LBUWCH ;IS SET, THEN
2268 011712 032777 000040 170430 ICUWCH: BIT #DNBIT,@RXCS ;IF DONT BIT
2269 011720 001035 BNE XUWCH ;IS NOT SET, THEN
2270 011722 012737 000014 002520 MOV #INTNDN,ERRNBR ;SET ERROR #=NO DONE BIT
2271 011730 012737 010000 002460 MOV #BIT12,TYPERR ;SET INTERR, BUT NO DONE ERROR
2272 011736 000426 BR XUWCH ;BR TO MOD 'EXIT'
2273 011740 LBUWCH: BREAK
2274 011742 005303 DEC R3 ;DECREMENT DELAY COUNT
2275 011744 001357 UDUWCH: BNE IBUWCH ;DO UNIT DELAY COUNT=0
2276 011746 005304 DEC R4 ;DECREMENT DELAY MULT
2277 011750 001353 UAUWCH: BNE BAUWCH ;DO UNTIL DELAY MULT=0
2278 011752 032777 000040 170370 IEUWCH: BIT #DNBIT,@RXCS ;IF DONE BIT IS
2279 011760 001407 BEQ LEUWCH ;SET, THEN
2280 011762 012737 000015 002520 MOV #DNNINT,ERRNBR ;SET ERR #=DONE, NO INTR
2281 011770 052737 020000 002460 BIS #BIT13,TYPERR ;SET DONE, BUT NO INTERRUPT ERROR
2282 011776 000406 BR XUWCH ;BR TO MOD 'EXIT'
2283 012000 052737 000020 002456 LEUWCH: BIS #BIT4,SYSERR ;SET NO DONE T.O. ERROR
2284 012006 012737 000060 002520 MOV #NODNBT,ERRNBR ;SET ERR #=NO DONE BIT
2285 012014 XUWCH: SETPRI #PRI06 ;SET PROCESSOR PRI=6 - NO INTERRUPTS
2286 012022 000207 RTS PC ;RETURN
2287 :-----
2288 012024 000010 DX: 10 ;DELAY MULT
2289 012026 100000 DLY: 100000 ;DELAY
2290 012030 000000 DNFLAG: 0 ;DONE FLAG
2291 :MOD U.2.3.4 ---- END MODULE -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 75
 - MOD U.DEV.WDN - AWAIT DONE BIT SUBROUTINE

```

2294 .SBTTL - MOD U.DEV.WDN - AWAIT DONE BIT SUBROUTINE
2295 :++
2296 : FUNCTIONAL DESCRIPTION: SUBR TO WAIT FOR DEVICE 'DONE' BIT
2297 : INPUTS: TIMEOUT PASS COUNTER
2298 : IMPLICIT INPUTS: DEVICE 'DONE' BIT, (RXCSR), DONE WAIT MULTIPLIER
2299 : OUTPUTS: 'DONE' BIT TIMEOUT ERROR
2300 : IMPLICIT OUTPUTS: NONE
2301 : SUBORDINATE ROUTINES USED: GET DEVICE REGISTERS
2302 : FUNCTIONAL SIDE EFFECTS: NONE
2303 : CALLING SEQUENCE: SUBR
2304 :--
2305 :-----
2306 :
2307 :
2308 012032 005004 AWDN: CLR R4 ;RESET TIME OUT MULTIPLIER
2309 012034 005003 1$: CLR R3 ;PRESET TIME OUT COUNTER
2310 012036 032777 000040 170304 2$: BIT #DNBIT, @RXCS ;SEE IF DONE SET
2311 012044 001020 BNE 3$ ;IF SO: BR
2312 012046 BREAK ;TEMPORARY RETURN TO MONITOR
2313 012050 005203 INC R3 ;BUMP TIME OUT COUNTER
2314 012052 001371 BNE 2$ ;IF NOT TIMED OUT: BR
2315 012054 005204 INC R4 ;INCREMENT TIMEOUT MULTIPLIER
2316 012056 023704 002474 CMP DNWTMT, R4 ;IF ON 2ND
2317 012062 101364 BHI 1$ ;TIMEOUT PASS, THEN
2318 012064 012737 000060 002520 MOV #NODNBT, ERRNBR ;SET ERR #=NO DONE BIT
2319 012072 052737 000020 002456 BIS #BIT4, SYSERR ;SET NO DONE BIT ON SYSTEM ERROR
2320 012100 012737 000001 002454 MOV #1, FIN ;EXIT THIS COMMAND
2321 012106 000207 3$: RTS PC ;EXIT
2322 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 77
 - MOD U.DEV.WTR - AWAIT TRANSFER READY SUBROUTINE

```

2325 .SBTTL - MOD U.DEV.WTR - AWAIT TRANSFER READY SUBROUTINE
2326 :++
2327 : FUNCTIONAL DESCRIPTION: SUBR TO WAIT FOR DEVICE 'TR' BIT
2328 : INPUTS: NONE
2329 : IMPLICIT INPUTS: DEVICE 'TR', 'DONE' & CSR, ESR
2330 : OUTPUTS: 'TR' TIMEOUT ERROR, NO DONE BIT, PROTOCOL COUNTER
2331 : IMPLICIT OUTPUTS: NONE
2332 : SUBORDINATE ROUTINES USED: GET DEVICE REGISTERS
2333 : FUNCTIONAL SIDE EFFECTS: NONE
2334 : CALLING SEQUENCE: SUBR
2335 :--
2336 :-----
2337 :
2338 :
2339 012110 005237 002472 AWTR: INC PROTCT ;INCREMENT TEST PROTOCOL COUNTER
2340 012114 005004 CLR R4 ;PRESET TIMEOUT MULTIPLIER
2341 012116 005003 1$: CLR R3 ;PRESET TIME OUT COUNTER
2342 012120 032777 000040 170222 2$: BIT #DNBIT,@RXCS ;IF DONE BIT
2343 012126 001013 BNE 3$ ;NOT SET, THEN
2344 012130 032777 000200 170212 BIT #TRBIT,@RXCS ;SEE IF TRANSFER READY SET
2345 012136 001041 BNE 5$ ;IF SO: BR
2346 012140 BREAK ;TEMPORARY RETURN TO MONITOR
2347 012142 005203 INC R3 ;BUMP TIME OUT COUNTER
2348 012144 001365 BNE 2$ ;IF NOT TIMED OUT: BR
2349 012146 005204 INC R4 ;INCREMENT TIMEOUT MULTIPLIER
2350 012150 022704 000004 CMP #4,R4 ;IF ON 2ND
2351 012154 101360 BHI 1$ ;TIMEOUT PASS, THEN
2352 012156 012737 000001 002454 3$: MOV #1,FIN ;EXIT THIS COMMAND
2353 012164 052737 000020 002460 BIS #CMDERR,TYPERR ;**** ERROR ON COMMAND ****
2354 012172 013737 002400 002422 MOV CMD,ERRCMD ;SETUP ERROR COMMAND
2355 012200 012737 000057 002520 MOV #NOTRBT,ERRNBR ;SET ERR #=NO 'TR' BIT
2356 012206 052737 000200 002456 BIS #TRBIT,SYSERR ;SET SYS ERR=NO 'TR' BIT
2357 012214 032777 000040 170126 BIT #DNBIT,@RXCS ;IF DONE BIT
2358 012222 001004 BNE 4$ ;NOT SET, THEN
2359 012224 052737 000020 002456 BIS #BIT4,SYSERR ;SET NO DONE BIT EITHER
2360 012232 000403 BR 5$ ;BR TO EXIT
2361 012234 012737 000063 002520 4$: MOV #DNNOTR,ERRNBR ;SET ERR #='DONE' NO 'TR'
2362 012242 000207 5$: RTS PC ;RETURN
2363 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 79
 - MOD U.DEV.REG - GET DEVICE REGISTERS

```

2366 .SBTTL - MOD U.DEV.REG - GET DEVICE REGISTERS
2367 :++
2368 : FUNCTIONAL DESCRIPTION: SUBROUTINE TO GET RX02 CSR & ESR
2369 : INPUTS: NONE
2370 : IMPLICIT INPUTS: DEVICE CSR & ESR
2371 : OUTPUTS: DEVICE CSR & ESR
2372 : IMPLICIT OUTPUTS: OLD CSR & ESR
2373 : SUBORDINATE ROUTINES USED: NONE
2374 : FUNCTIONAL SIDE EFFECTS: NONE
2375 : CALLING SEQUENCE: SUBR
2376 :--
2377 :-----
2378 :
2379 :
2380 012244 013737 002432 002426 GETREG: MOV RXCSR,LRXCSR ;SAVE LAST CSR
2381 012252 013737 002434 002430 :MOV RXESR,LRXESR ;SAVE LAST ESR
2382 012260 017737 170064 002432 :MOV @RXCS,RXCSR ;GET RXCSR FOR PRINT
2383 012266 017737 170060 002434 :MOV @RXDB,RXESR ;GET RXESR FOR PRINT
2384 012274 000207 :RETURN ;RETURN
2385 :-----
2386 :
2387 :
2388 :
2389 .SBTTL - MOD U.DEV.ITR - INTERRUPT HANDLER
2390 :++
2391 : FUNCTIONAL DESCRIPTION: ;DEVICE INTERRUPT HANDLER
2392 : INPUTS: NONE
2393 : IMPLICIT INPUTS: DEVICE 'DONE' BIT & INTERRUPT BIT
2394 : OUTPUTS: DONE FLAG
2395 : IMPLICIT OUTPUTS: NONE
2396 : SUBORDINATE ROUTINES USED: NONE
2397 : FUNCTIONAL SIDE EFFECTS: NONE
2398 : CALLING SEQUENCE: DEVICE INTERRUPT
2399 :--
2400 :-----
2401 :
2402 :
2403 012276 012737 000001 012030 INTRHD: MOV #1,DNFLAG ;SET DONE FLAG
2404 012304 000002 :RTI ;RETURN FROM INTERRUPT
2405 :-----
2406 :

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 81
 - MOD U.SFT.DPT - SET DATA PATTERN

```

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 1$: MOV #7,PAT
2427 012334 013704 012660 MOV PAT,R4 ;GET PATTERN BITS
2428 012340 005304 DEC R4 ;ADJUST FOR CORRECT OFFSET
2429 012342 006304 ASL R4
2430 012344 150437 012372 BISB R4,@#BRONPT ;INSERT OFFSET
2431 012350 012704 036224 MOV #DATPAT+2,R4 ;SET UP ADDRESS OF FIRST BYTE
2432 012354 013705 002370 MOV WDCNT,R5 ;SETUP WORD COUNT
2433 012360 006305 ASL R5 ;DOUBLE WORD COUNT FOR ADR
2434 012362 062705 036222 ADD #DATPAT,R5 ;ADD DATA PATTERN ADR
2435 012366 162705 000004 SUB #4,R5 ;ADJ. FOR CHECKSUM
2436 012372 000777 BRONPT: BR ;BRANCH BY OFFSET SELECTED
2437 012374 000137 012430 JMP DATA0 ;000 DATA BYTE
2438 012400 000137 012446 JMP DATA1 ;377 DATA BYTE
2439 012404 000137 012456 JMP FLOAT0 ;FLOAT A 0 THROUGH ALL 1'S
2440 012410 000137 012524 JMP FLOAT1 ;FLOAT A 1 THROUGH ALL 0'S
2441 012414 000137 012532 JMP PAT125 ;125/052 DATA WORD
2442 012420 000137 012556 JMP PAT333 ;314/063 DATA WORD
2443 012424 000137 012566 JMP RANDAT ;RANDOM DATA BYTE
2444 -----
2445 012430 005037 012656 DATA0: CLR DATBYT
2446 012434 004737 012614 PG: JSR PC,LOAD ;GO LOAD THE DATA BUFFER
2447 012440 005705 TST R5 ;IF R5
2448 012442 001463 BEQ END131 ;NOT =0 ,THEN
2449 012444 000773 BR PG
2450 -----
2451 012446 112737 000377 012656 DATA1: MOVB #377,DATBYT
2452 012454 000767 BR PG
2453 -----
2454 012456 112737 000376 012656 FLOAT0: MOVB #376,DATBYT ;SET UP A ONES FIELD
2455 012464 000261 XPG: SEC ;SET THE C BIT TO ROTATE THROUGH THE DATA
2456 012466 012702 000000 1$: 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

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 81-1
 - MOD U.SFT.DPT - SET DATA PATTERN

```

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      XPG:      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          XPG
2478
2479 012556 112737 000333 012656  PAT333: MOVB      #333,DATBYT
2480 012564 000765              BR          XPG
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          ENDDL          ;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      ENDDL:   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 -----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 83
- MOD U.SFT.GTK - GET TRACK

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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                                     ;-----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 85
 - MOD U.SFT.GSC - GET SECTOR

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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.    ;DUNTIL RANUM < 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 RANUM = 1
2578 013236 113737 010436 002376 EDGSC: MOVB    RANUM,SECTOR  ;SET SECTOR ADR = RANDOM NO.
2579 013244 000207      XGSC:  RTS      PC
2580          ;-----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 87
- MOD U.SFT.DCK - DATA CHECK

```

2583      .SBTTL - MOD U.SFT.DCK - DATA CHECK
2584      :-----
2585
2586 013246 005037 013520 DATAACK: 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 MOV DATPAT(R5),R1 :SET TEMP#1=DATA SOURCE BYTE
2593 013306 116502 036222 MOV DATBUF(R5),R2 :SET TEMP#2=DATA BUFFER BYTE
2594 013312 120102 IBDC: 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: MOV R1,DATASB :GET DATA SHOULD BE->PRINT
2602 013346 110237 013524 MOV 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 :DOUNTIL 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% TRK#%D3%. SEC#%D2%. /
2636 013561 045 116 045 DMSG1: .ASCIZ /%N% BYTE#%S2%AGOOD%S6%ABAD/
2637 013615 045 116 045 DMSG2: .ASCIZ /%N%S3%D3%S2%B8%S2%B8/
2638      .EVEN
2639      :-----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 89
- MOD U.SFT.CDB - CLEAR DATA BUFFER

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				-----	

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 91
 - MOD U.SFT.RCR - REGISTER CHECK & REPORT

```

2655 .SBTTL - MOD U.SFT.RCR - REGISTER CHECK & REPORT
2656 -----
2657
2658 BGNSUB
2659 IF FINI FLAG NOT SET
2660 THEN-
2661 GET TEST TABLE ADDRESS
2662 DOUNTIL TEST TABLE ENTRY=-1
2663 : ADVANCE TEST TABLE ADDRESS
2664 ENDDO
2665 ADVANCE TEST TABLE ADDRESS
2666 GET COMMAND COUNTER
2667 DCUBLE COMMAND COUNTER
2668 ADDRESS OF REG TABLE THIS CMD=CMD COUNTER + TEST TABLE ADR
2669 GET ADDRESS OF REG TABLE THIS COMMAND
2670 SET RXCSR COMPARE WORD=COMPARE WORD FROM TABLE
2671 SET RXCSR MASK WORD=DON'T CARE BITS FROM REG TABLE
2672 SET RXESR COMPARE WORD=COMPARE WORD FROM TABLE
2673 SET RXESR MASK WORD=DON'T CARE BITS FROM REG TABLE
2674 SETUP CSR REG CK
2675 IF RXCSR NOT=CSRCMP
2676 : THEN-CALL CK BITS
2677 ENDIF
2678 SETUP ESR REG CK
2679 IF ESR NOT=ESRCMP
2680 : THEN-CALL CK BITS
2681 ENDIF
2682 ENDIF
2683 GET REGISTER ERR TABLE PTR
2684 TERMINATE ERROR TABLE
2685 ENDIF
2686 NOP
2687 ENDSUB
2688 -----
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

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 91-1
- MOD U.SFT.RCR - REGISTER CHECK & REPORT

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2712 014004 001437 BEQ 4$ ;ERRORS, THEN
2713 014006 013737 014260 002436 MOV CSRCMP,REEXP ;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 VARIABLE 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 ESRCHK: 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 -----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 93
 - MOD U.SFT.SRC - SETUP REGISTER CHECK

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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 EGSR ;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 EGSR: 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 IBSRC: BIC #176277,CSRSET ;SAVE ONLY: SIDE,DENS,INTR ENA,(DRV SEL CK) BITS
2786 014416 032705 001000 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 -----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 95
 - MOD U.SFT.BTK - BITS SET/NOT SET CHECK

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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      ;-----

```

[illegible]

```

;-----
;                                     TABLE - ESR ERROR #'S
;-----
ESERTB: .WORD   CRCERR                ;BIT #00 - CRC ERR
        .WORD   SDRDYE                ;BIT #01 - SIDE 1 RDY
        .WORD   NOITDP               ;BIT #02 - INIT DONE
        .WORD   ACLOWF!NEGTS         ;BIT #03 - AC LOW
        .WORD   DENERR!NEGTS         ;BIT #04 - DEN ERR
        .WORD   DENDSK!NEGTS         ;BIT #05 - DRV DEN-->NOT ERROR
        .WORD   DLDTER              ;BIT #06 - DEL DATA
        .WORD   DVRDYE              ;BIT #07 - DRV RDY
        .WORD   DRVWRG             ;BIT #08 - UNIT SEL
        .WORD   SIDWRG             ;BIT #09 - HEAD SEL
        .WORD   WCOVFE!NEGTS        ;BIT #10 - WC OVFL
        .WORD   NXMERR!NEGTS        ;BIT #11 - NXM

```

TABLE - CSR ERROR #'S			
CSERTB:	.WORD	CSRERR	:BIT #04 - UNIT SEL - R/W
	.WORD	CSRERR	:BIT #05 - "DONE" - R
	.WORD	CSRERR	:BIT #06 - INTER ENB - R/W
	.WORD	CSRERR	:BIT #07 - "TR" - R
	.WORD	CSRERR	:BIT #08 - DENSITY - R/W
	.WORD	CSRERR	:BIT #09 - HEAD SEL - R/W
	.WORD	CSRERR	:BIT #10 -
	.WORD	CSRERR	:BIT #11 - RX02 - R
	.WORD	CSRERR	:BIT #12 -
	.WORD	CSRERR	:BIT #13 -
	.WORD	CSRERR	:BIT #14 -
	.WORD	CSRERR	:BIT #15 - ERR BIT - R

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 99
- PRESETUP REGISTER TABLES

```

2909      .SBTTL -   PRESETUP REGISTER TABLES
2910      ;-----
2911
2912      TN=0
2913      REGTB 1,04040,0,0,-1      :RXCS ONLY
                                TORT1: .WORD 04040      :RXCSR SHOULD BE
                                .WORD 0      :RXCSR DONT CARE
                                .WORD 0      :RXESR SHOULD BE
                                .WORD -1     :RXESR DONT CARE
2914      REGTB 2,04040,0,0,0      :RXCS & RXES/ALL
                                TORT2: .WORD 04040      :RXCSR SHOULD BE
                                .WORD 0      :RXCSR DONT CARE
                                .WORD 0      :RXESR SHOULD BE
                                .WORD 0      :RXESR DONT CARE
2915      REGTB 3,04040,0,4,17773  :RXCS & RXES INITIALIZE CK
                                TORT3: .WORD 04040      :RXCSR SHOULD BE
                                .WORD 0      :RXCSR DONT CARE
                                .WORD 4      :RXESR SHOULD BE
                                .WORD 17773  :RXESR DONT CARE
2916      REGTB 4,04040,0,204,1440 :RXCS & RXES INITIALIZE ALL CK
                                TORT4: .WORD 04040      :RXCSR SHOULD BE
                                .WORD 0      :RXCSR DONT CARE
                                .WORD 204    :RXESR SHOULD BE
                                .WORD 1440   :RXESR DONT CARE
2917      REGTB 5,04040,0,200,60   :RXCS & RXES READ STATUS CK
                                TORT5: .WORD 04040      :RXCSR SHOULD BE
                                .WORD 0      :RXCSR DONT CARE
                                .WORD 200    :RXESR SHOULD BE
                                .WORD 60     :RXESR DONT CARE
2918      REGTB 6,04040,0,0,1440   :RXCS & RXES NO DISK OPERATION
                                TORT6: .WORD 04040      :RXCSR SHOULD BE
                                .WORD 0      :RXCSR DONT CARE
                                .WORD 0      :RXESR SHOULD BE
                                .WORD 1440   :RXESR DONT CARE
2919      ;-----
2920      CSONLY = TORT1      :RXCS ONLY
2921      CSESAL = TORT2      :RXCS & RXES ALL
2922      CEINIT = TORT3      :RXCS & RXES INITIALIZE CK
2923      CSESIT = TORT4      :RXCS & RXES INITIALIZE ALL
2924      CSESRS = TORT5      :RXCS & RXES READ STATUS CK
2925      CSESND = TORT6      :RXCS & RXES NO DISK OPERATION
2926      ;-----

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 - MOD U.SET.GEN - GET ERROR CODE-ERR #

```

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      ECERNTR1,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      ECERNTR: .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 000017      .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      ;-----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 103
 - MOD U.PRT.STA - PRINT UNIT STATUS

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2975      .SBTTL - MOD U.PRT.STA - PRINT UNIT STATUS
2976      ;-----
2977
2978 015240 012701 015446      PRTSTA: MOV      #IDENT1,R1      ;SETUP FORMAT MSG
2979 015244 013702 002512      MOV      UNTPRT,R2      ;SETUP UNIT PRT
2980 015250 013703 002432      MOV      RXCSR,R3      ;SETUP RXCSR
2981 015254 013704 002434      MOV      RXESR,R4      ;SETUP RXESR
2982 015260 013705 002400      MOV      CMD,R5      ;SETUP COMMAND
2983 015264 004737 002664      CALL     PRTB4S      ;CALL PRINT BASIC 4-PARM.
2984 015270 005737 002400      IBSTA:  TST      CMD      ;IF CMD
2985 015274 001417      BEQ      IASTA      ;NOT = 0, THEN
2986 015276 032737 040000 002400 ICSTA:  BIT      #BIT14,CMD      ;IF PROG INIT
2987 015304 001403      BEQ      LCSTA      ;THEN
2988 015306 012701 007452      MOV      #CMDM8,R1      ;SETUP PROG INIT MSG
2989 015312 000406      BR      ECSTA      ;BR TO END 'C'
2990 015314 013705 002400      LCSTA:  MOV      CMD,R5      ;GET COMMAND
2991 015320 042705 177761      BIC      #177761,R5      ;CLR ALL BUT CMD
2992 015324 016501 007164      MOV      CMDMSG(R5),R1      ;GET CMD MSG
2993 015330 004737 002550      ECSTA:  CALL     PRTBOS      ;CALL PRINT BASIC 0 - PAR
2994 015334 032737 000200 002476 IASTA:  BIT      #RECFLG,FLAGST ;IF ERR CODE FLAG
2995 015342 001435      BEQ      XPTSTA      ;SET, THEN
2996 015344 004737 015744      CALL     PRTECD      ;CALL PRINT ERROR CODE
2997 015350 004737 017124      CALL     CLRREGS      ;CALL CLEAR REGISTER
2998 015354 012701 015531      MOV      #XER2,R1      ;SETUP FORMAT MSG
2999 015360 113702 002443      MOV      WC,R2      ;SETUP WORD COUNT
3000 015364 113703 002444      MOV      CTK0,R3      ;SETUP CTK0
3001 015370 113704 002445      MOV      CTK1,R4      ;SETUP CTK1
3002 015374 004737 003002      CALL     PRTX3S      ;CALL PRINT-EXT 3 PARAMETERS
3003 015400 012701 015627      MOV      #XER3,R1      ;SETUP FORMAT MSG
3004 015404 113702 002446      MOV      TTRK,R2      ;SETUP TTRK
3005 015410 113703 002447      MOV      TSEC,R3      ;SETUP TSEC
3006 015414 113704 002450      MOV      SFTSTS,R4      ;SETUP SFTSTS
3007 015420 113705 002451      MOV      BTRK,R5      ;SETUP BTRK
3008 015424 004737 003030      CALL     PRTX4S      ;CALL PR. NT-EXT 4 PAR
3009 015430 042737 000200 002476 XPTSTA: BIC      #RECFLG,FLAGST ;CLEAR ERROR CODE FLAG
3010 015436 005037 015444      CLR      ERRREG      ;CLEAR ERROR REGISTER
3011 015442 000207      RTS      PC      ;RETURN
3012      ;-----
3013 015444 000000      ERRREG: 0      ;
3014      ;-----
3015 015446      045      116      045 IDENT1: .ASCIZ  /%N% UNIT#%01% RXCSR=%0% RXESR=%0% CMD=%0% ->/
3016 015531      045      116      045 XER2:  .ASCIZ  /%N% WORD CNT=%03%N% CUR TRK DV0=%D2%. CUR TRK DV1=%D2%. /
3017 015627      045      116      045 XER3:  .ASCIZ  /%N% TARGET TRK =%D2%. TARGET SEC =%D2%. SOFT STAT=%03% BAD TRK=%D2%.%
3018      .EVEN
3019      ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 105
 - MOD U.PRT.EC - PRINT UNIT ERROR CODE

```

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      MOV      XERUUT,R2          ;GET ERROR CODE
3027 015754 042702 177400      BIC      #177400,R2         ;CLEAR 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     PRTX0S           ;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%  ERR CODE=%03%  ->/
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      ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 107
 - UNIT ERROR CODE MESSAGES

```

3065 .SBTTL - UNIT ERROR CODE MESSAGES
3066 -----
3067 016116 045 101 040 EC0: .ASCIZ /%A ILL ERR CODE/
3068 016136 045 101 116 EC1: .ASCIZ /%ANO HOME ON INITIALIZE DRV 0./
3069 016175 045 101 116 EC2: .ASCIZ /%ANO HOME ON INITIALIZE DRV 1./
3070 .EC3: .ASCIZ /%A ILL ERR CDE./
3071 016234 045 101 124 EC4: .ASCIZ /%A TRIED TO ACCESS A TRACK > 76./
3072 016274 045 101 110 EC5: .ASCIZ /%A HOME FOUND BEFORE DESIRED TRACK./
3073 .EC6: .ASCIZ /%A ILL ERR CDE./
3074 016337 045 101 065 EC7: .ASCIZ /%A 52 HEADERS PASSED & SECTOR NOT FOUND./
3075 .EC10: .ASCIZ /%A ILL ERR CDE./
3076 016407 045 101 116 EC11: .ASCIZ /%ANO STEPCLK SEEN IN 40 MICROSEC./
3077 016451 045 101 120 EC12: .ASCIZ /%A PREAMBLE NOT FOUND./
3078 016477 045 101 120 EC13: .ASCIZ /%A PREAMBLE FOUND BUT NO ID MARK IN TIME./
3079 016550 045 101 111 EC14: .ASCIZ /%A ILL ERR CDE./
3080 016567 045 101 107 EC15: .ASCIZ /%A GOOD HEADER TRACK ADR NOT=SELECTED TRK/
3081 016640 045 101 111 EC16: .ASCIZ /%A IDAM->TOO MANY TRIES./
3082 016670 045 101 116 EC17: .ASCIZ /%ANO DATA AM IN TIME./
3083 016716 045 101 103 EC20: .ASCIZ /%A CRC ERR ON READING SECTOR./
3084 .EC21: .ASCIZ /%A ILL ERR CDE./
3085 016753 045 101 122 EC22: .ASCIZ /%A R-W ELECT. FAILED MAINT. TST./
3086 017013 045 101 127 EC23: .ASCIZ /%A WORD CNT OVF./
3087 017033 045 101 104 EC24: .ASCIZ /%A DENSITY ERR./
3088 017052 045 101 123 EC25: .ASCIZ /%A SET DENSITY WRG KEY WORD./
3089 -----
3090 .EVEN
3091 .SBTTL - MOD U.SFT.GEO - GET ERROR CODE OFFSET
3092 -----
3093
3094 017106 013701 002442 GTECOF: MOV XERUUT,R1 ;SAVE EXTENDED ERROR CODE IN TEMP #1
3095 017112 006201 ;FORMAT E.C.
3096 017114 006201 ;FORMAT E.C. FOR ADR
3097 017116 042701 177700 BIC #177700,R1 ;CLR TOP BYTE
3098 017122 000207 RETURN ;RETURN
3099 -----
3100
3101 .SBTTL - MOD U.SFT.CRS - CLEAR REGISTERS
3102 -----
3103
3104 017124 005001 CLR R1
3105 017126 005002 CLR R2
3106 017130 005003 CLR R3
3107 017132 005004 CLR R4
3108 017134 005005 CLR R5
3109 017136 000207 RETURN ;RETURN
3110 -----

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GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 109
 - MOD U.SFT.DSC - DEVICE STATE CHECK

```

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% ->NO PWR, CABLED BACKWARDS, STRAPPED RX01, PDP-8/
3148 .EVEN
3149 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 110
 - MOD U.SFT.DSC - DEVICE STATE CHECK

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3151
3152
3153
3154
3155
3156
3157
3158
3159
3160
3161
3162
3163
3164 017310 000240
3165 017312 004737 010472
3166 017316 032777 000200 163026
3167 017324 001010
3168 017326 052737 000040 002456
3169 017334 012737 000025 002520
3170 017342 004737 003060
3171 017346 000207
3172

      .SBTTL - MOD U.SFT.DRC - DEVICE READY CHECK
      -----
      : BGNSUB
      : CALL CLEAR DEVICE
      : IF RXES DRV RDY NOT SET
      : THEN-SET SYS ERR-DRV RDY ERR
      : SETUP ERR # DRV RDY ERR
      : CALL ERR
      : ENDIF
      : ENDSUB
      -----

DVRCK: NOP
      :
      : CALL CLRDEV
      : CALL CLEAR DEVICE
      : IF RXDB-DRIVE RDY
      : NOT SET, THEN
      : SET SYS ERR=DRV RDY ERR
      : SET ERR NBR=DRV RDY ERROR
      : CALL ERROR
      : BR TO EXIT
      :
IADRC: BIT #DRV RDY, @RXDB
      :
      : EADRC
      :
      : BIS #BITS, SYSERR
      :
      : MOV #DVRDY, ERRNBR
      :
      : CALL ERROR
      :
EADRC: RETURN
      :
      -----
  
```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 112
- MOD U.SFT.DDC - DEVICE DENSITY CK

```

3175 .SBTTL - MOD U.SFT.DDC - DEVICE DENSITY CK
3176 -----
3177 BGNSUB
3178 CALL DEVICE READY CK
3179 IF SYS ERR=DEVICE READY ERR NOT SET
3180 THEN-SET TRACK=0, SECTOR=10
3181 CALL READ SECTOR
3182 IF FINI NOT SET [A]
3183 THEN
3184 IF RXES DRIVE DENSITY=DOUBLE DEN [B]
3185 THEN-SET DENSITY STATUS=DOUBLE DENSITY
3186 ELSE-SET DENSITY STATUS=SINGLE DENSITY
3187 ENDIF
3188 SET TRACK=76, SECTOR=10
3189 CALL READ SECTOR
3190 IF RXES DRIVE DENSITY NOT=DENSITY STATUS [C]
3191 THEN-
3192 SETUP ERROR # & ERROR MSG=>'DISKETTE-MIXED DENSITY'
3193 CALL ERROR
3194 DO DROP UNIT
3195 ENDIF
3196 ENDIF
3197 ENDIF
3198 ENDSUB
3199 -----
3200 017350 004737 017310 DENCHK: CALL DVRYCK ;CALL DEVICE READY CK
3201 017354 032737 000040 002456 IDDDC: BIT #BIT5,SYSERR ;IF SYS ERR=DEVICE RDY ERR
3202 017362 001054 BNE EADDC ;NOT SET, THEN
3203 017364 005037 002374 CLR TRACK ;SET TRACK=0
3204 017370 012737 000012 002376 MOV #10,SECTOR ;SET SECTOR=10
3205 017376 004737 011062 CALL READ ;CALL READ SECTOR
3206 017402 005737 002454 IADDC: TST FIN ;IF FINI
3207 017406 001042 BNE EADDC ;NOT SET, THEN
3208 017410 032777 000040 162734 IBDDC: BIT #DRV DEN, @RXDB ;IF DRIVE DEN-DOUBLE DEN BIT
3209 017416 001404 BEQ LBDDC ;SET, THEN
3210 017420 012737 000400 002414 MOV #DENBIT,DENSTA ;SET DENSITY STATUS=DOUBLE DEN
3211 017426 000402 BR EBDDC ;BR TO END 'B'
3212 017430 005037 002414 LBDDC: CLR DENSTA ;SET DENSITY STATUS=SINGLE DEN
3213 017434 012737 000114 002374 EBDDC: MOV #76,TRACK ;SET TRACK=76.
3214 017442 004737 011062 CALL READ ;CALL READ SECTOR
3215 017446 017701 162700 MOV @RXDB,R1 ;GET RXES
3216 017452 042701 177737 BIC #^CDRV DEN,R1 ;CLEAR ALL BUT DRIVE DENSITY
3217 017456 006301 ASL R1 ;ADV DRIVE DENSITY
3218 017460 006301 ASL R1 ;SO EQUAL TO
3219 017462 006301 ASL R1 ;DENSITY STATUS
3220 017464 020137 002414 ICDDC: CMP R1,DENSTA ;IF RXES DRIVE DENSITY & DENSITY STATUS
3221 017470 001411 BEQ EADDC ;NOT=, THEN
3222 017472 012737 000020 002520 MOV #DENDSK,ERRNBR ;SET ERR NBR=DISK DENSITY ERROR
3223 017500 004737 003060 CALL ERROR ;CALL ERROR-MOD
3224 017504 DODU UNIT ;DROP UNIT
3225 017512 DOCLN ;DO CLEAN
3226 017514 000207 EADDC: RETURN ;RETURN
3227 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 114
 - MOD U.SFT.TKE - TRACK ERROR CHECK

```

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 : ELSE-IF ERROR ON COMMAND [H]
3253 : THEN-
3254 : IF FLAGS=NEG TEST NOT SET [I]
3255 : THEN-SETUP ERR #
3256 : SET PRINT TRACKS-PRINT FLAGS
3257 : CALL ERR REPORT
3258 : ENDIF
3259 : ENDIF
3260 : ENDIF
3261 : ENDIF
3262 : ENDIF
3263 : NOP
3264 : ENDSUB
3265 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 116
 - MOD U.SFT.TKE - TRACK ERROR CHECK

```

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 ;CFAR PRINT TRACKS FLAG
3301 017722 000207 XTKECK: RETURN ;RETURN
3302 ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 118
 - MOD U.SFT.ECK - ERROR CHECK

```

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 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 120
 - MOD U.SFT.ECK - ERROR CHECK

```

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 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 122
 - MOD U.SFT.ENC - ERROR NEG TEST CHECK

```

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      NGTSEB,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      -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 124
- MOD U.SFT.DBG - TEST STATUS

```

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%->FLAGST=%0% FLAGSP=%0% ERRMSG ADR=%0%N/
3438 020364      045      101      040      TSDGM1: .ASCIZ  /%A REG ERR #%0% ERR CODE ERR #%0%N/
3439      .EVEN
3440      ;-----
3441
3442      .SBTTL - MOD U.SFT.CDC - COMPLIMENT DENSITY CONTROL
3443      ;-----
3444
3445 020430 000240
3446 020432 005737 002412      CDENC: NOP
3447 020436 001406              IACDC: TST      DENSITY      ;IF CONTROL DENSITY
3448 020440 042737 000002 002476      BEQ      LACDC      ;EQUALS DOUBLE, THEN
3449 020446 005037 002412      BIC      #DDCFLG,FLAGST ;CLEAR DOUBLE DENSITY CONTROL FLAG
3450 020452 000406              CLR      DENSITY      ;SET CONTROL DENSITY=SINGLE
3451 020454 012737 000400 002412      BR       XCDENC      ;BR TO 'X'
3452 020462 052737 000002 002476      LACDC: MOV      #DENBIT,DENSITY ;SET CONTROL DENSITY=DOUBLE
3453 020470 000207              BIS      #DDCFLG,FLAGST ;SET DOUBLE DENSITY CONTROL FLAG
3454      XCDENC: RETURN      ;RETURN
3455      ;-----
3456
3457      .SBTTL - MOD U.SFT.SDC - SETUP DENSITY CONTROL
3458      ;-----
3459 020472 013737 002414 002412      SDENC: MOV      DENSTA,DENSITY ;SET DENSITY 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      ;-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 126
 - MOD U.PRT.UNT - PRINT UNIT IDENT

```

3471 .SBTTL - MOD U.PRT.UNT - PRINT UNIT IDENT
3472 -----
3473 :BGNSUB
3474 :   GET UNIT #
3475 :   GET UNIT MSG
3476 :   CALL PRINT-1 ARG
3477 :ENDSUB
3478 -----
3479
3480 020542 013702 002512      MOV     UNTPRT,R2      ;GET UNIT #
3481 020546 012701 020560      MOV     #PTUTMS,R1      ;GET UNIT MSG
3482 020552 004737 002570      CALL    PRTB1S      ;CALL PRINT BASIC-1 ARG
3483 020556 000207              RETURN      ;RETURN
3484 -----
3485 020560      045      116      045 PTUTMS: .ASCIZ  /%N% UNIT #%D2/
3486 :          .EVEN
3487 :-----
3488
3489 .SBTTL - MOD U.PRT.DID - PRINT DRIVE IDENT
3490 -----
3491 :BGNSUB
3492 :   GET DRIVE #
3493 :   GET SIDE #
3494 :   IF DOUBLE SIDED DEVICE
3495 :   :   THEN-SETUP PRINT IDENT DOUBLE SIDED DEVICE
3496 :   :       CALL PRINT BASIC-2 PAR.
3497 :   :   ELSE-SETUP PRINT IDENT SINGLE SIDED DEVICE
3498 :   :       CALL PRINT BASIC-1 PAR.
3499 :   ENDIF
3500 :ENDSUB
3501 -----
3502
3503 020600 013702 002514      PRTDID: MOV     DRVPR1,R2      ;SETUP R2=DRV #
3504 020604 012701 020657      MOV     #IDSSMS,R1      ;SETUP PRINT IDENT SINGLE SIDED DEVICE
3505 020610 004737 002570      CALL    PRTB1S      ;CALL PRINT BASIC-1 PAR.
3506 020614 032737 010000 002332 IADID: BIT     #SIDFLG,SWREG ;IF DOUBLE SIDED DEVICE
3507 020622 001406              BEQ     XPTDID      ;FLAG SET, THEN
3508 020624 013702 002515      MOV     SIDPR1,R2      ;SETUP R3=SID #
3509 020630 012701 020642      MOV     #IDSSMS,R1      ;SETUP PRINT IDENT DOUBLE SIDED DEVICE
3510 020634 004737 002570      CALL    PRTB1S      ;CALL PRINT BASIC-2 PAR.
3511 020640 000207              XPTDID: RETURN      ;RETURN
3512 -----
3513 020642      045      101      040 IDSSMS: .ASCIZ  /%A SIDE #%01/
3514 020657      045      116      045 IDSSMS: .ASCIZ  /%N% DRIVE #%01/
3515 :          .EVEN
3516 :-----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 128
- MOD U.TST.FTS - FUNCTION TEST SETUP

```

3519 .SBTTL - MOD U.TST.FTS - FUNCTION TEST SETUP
3520 -----
3521 BGNSUB
3522 SET FUNCTION TEST BIT-FLAGS
3523 SETUP TEST IDENT MSG IN 'ERRMSG'
3524 SET FLAGS REGISTER CHECK
3525 NOP
3526 ENDSUB
3527 -----
3528 020700 000240 FTSTUP: NOP
3529 020702 004737 021122 CALL CLRCR ;CALL CLEAR CTRS & REGS
3530 020706 012737 000040 002476 MOV #FUNTST,FLAGST ;SET FUNCTION TEST BIT-FLAGS
3531 020714 017737 161546 002522 MOV @TSTID,ERRMSG ;SETUP TEST IDENT MSG
3532 020722 052737 000001 002476 BIS #REGCK,FLAGST ;SET FLAGS-REGISTER CHECK
3533 020730 004737 021014 CALL SUDVCD ;CALL SETUP DEVICE COMMANDS
3534 020734 000207 RETURN ;RETURN
3535 -----
3536 .SBTTL - MOD U.TST.LTS - LOGIC TEST SETUP
3537 -----
3538 BGNSUB
3539 CLEAR FUNCTION TEST BIT-FLAGS
3540 SETUP TEST IDENT MSG IN 'ERRMSG'
3541 GET TEST TABLE ADDRESS
3542 INCREMENT TO NEXT ADDRESS
3543 SET ANY FLAGS FROM THAT ADDRESS
3544 SET FLAGS REGISTER CHECK
3545 NOP
3546 ENDSUB
3547 -----
3548 LTSTUP: NOP
3549 020736 000240 CALL CLRCR ;CALL CLEAR CTRS & REGS
3550 020740 004737 021122 BIC #FUNTST,FLAGST ;CLEAR FUNCTION TEST BIT-FLAGS
3551 020744 042737 000040 002476 MOV @TSTID,ERRMSG ;SETUP TEST IDENT MSG
3552 020752 017737 161510 002522 CALL SUTSFG ;CALL SETUP TEST FLAGS
3553 020760 004737 020772 CALL SUDVCD ;CALL SETUP DEVICE COMMANDS
3554 020764 004737 021014 RETURN ;RETURN
3555 020770 000207
3556 -----
3557 .SBTTL - MOD U.TST.SFG - SETUP TEST FLAGS
3558 -----
3559 SUTSFG: NOP
3560 020772 000240 MOV TSTID,R1 ;GET TEST TABLE ADDRESS
3561 020774 013701 002466 TST (R1)+ ;INC TEST TABLE ADDRESS
3562 021000 005721 MOV (R1)+,FLAGST ;SET TEST FLAGS FROM TABLE
3563 021002 012137 002476 MOVB (R1),FLAGSP ;SET PRINT FLAGS FROM TABLE
3564 021006 111137 002500 RETURN ;RETURN
3565 021012 000207
3566 -----

```

GLOBAL AREAS MACRO M1200 14-DEC-82 16:33 PAGE 130
 - MOD U.SFT.SDC - SETUP DEVICE COMMANDS

```

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$:  BIT    #DDCFLG,FLAGST ;IF DOUBLE DENSITY FLAGS
3576 021044 001407          2$      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 SIZE
3579 021062 000405          3$      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

```

MISCELLANEOUS SECTIONS MACRO M1200 14-DEC-82 16:33 PAGE 131
- MOD U.TST.T76 - SET TRACK=76

3632
3633
3661
3662 021212
3663
3664
3665
3666
3667
3668
3669 021212
3675
3676 021212
3677
3688

.TITLE MISCELLANEOUS SECTIONS
.SBTTL REPORT CODING SECTION

BGNMOL

::++
: THE REPORT CODING SECTION CONTAINS THE
: 'PRINTS' CALLS THAT GENERATE STATISTICAL REPORTS.
:--

BGNRPT

ENDRPT

.EVEN

MISCELLANEOUS SECTIONS MACRO M1200 14-DEC-82 16:33 PAGE 132
INITIALIZE SECTION

```

3690          .SBTTL  INITIALIZE SECTION
3691
3692          :++
3693          : THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
3694          : AT THE BEGINNING OF EACH PASS.
3695          :--
3696
3697 021214          BGNINIT
3698
3699 021214 000240  INIT:  NOP
3704 021216          RFLAGS  FLGDRS
3706 021224          READEF  #EF.CONTINUE      ;IF CONTINUE
3707 021232          BCOMPLETE XINIT          ;NOT SET, THEN
3708 021234          READEF  #EF.PWR          ;IF POWER FAIL
3709 021242          BCOMPLETE XINIT          ;NOT SET, THEN
3710 021244 042737 140000 002500  START:  BIC  #RESFLG!STAFLG,FLAGSP ;CLEAR RESTART & START FLAGS
3711 021252          READEF  #EF.START          ;IF START FLAG
3712 021260          BNCOMPLETE RESTART      ;SET, THEN
3713 021262          START0: READBUS          ;IF BUS IS 'LSI-BUS'
3714 021264          BNCOMPLETE UN1          ;THEN
3715 021266 052737 000400 002500  BIS  #LSIFLG,FLAGSP      ;SET LSI FLAG-PROGRAM FLAGS
3716 021274 022737 004177 002120  CMP  #4177,L$HIMEM      ;IF HI MEMORY (417776=HI LIMIT 124K)
3717 021302 101007          START1          ;IS 124K OR HIGHER, THEN
3718 021304 052737 010000 002500  BIS  #FONZFG,FLAGSP      ;SET LSI 11/23 FLAG
3719 021312 000403          BR  START1          ;BR TO 'START1'
3720 021314 042737 000400 002500  UN1:  BIC  #LSIFLG,FLAGSP ;CLEAR LSI FLAG-PROGRAM FLAGS
3721 021322 052737 100000 002500  START1: BIS  #STAFLG,FLAGSP ;SET START FLAG
3722 021330 000414          BR  SETUP          ;BR TO 'SET UP'
3723 021332          RESTART: READEF  #EF.RESTART      ;IF RESTART FLAG
3724 021340          BNCOMPLETE NEW          ;SET, THEN
3725 021342 052737 040000 002500  BIS  #RESFLG,FLAGSP      ;SET RESTART FLAG
3726 021350 000404          BR  SETUP          ;BR TO 'SETUP'
3727 021352          NEW:  READEF  #EF.NEW          ;IF NEW PASS FLAG
3728 021360          BNCOMPLETE NEXT        ;THEN
3729 021362 012737 177777 021526  SETUP:  MOV  #-1,UNIT      ;SETUP TO START GETTING UNITS OVER
3730 021370 062737 000001 021526  NEXT:  ADD  #1,UNIT      ;BUMP UNIT TO NEXT UNIT
3731 021376 023737 002012 021526  CMP  L$UNIT,UNIT      ;IF 'DRS' UNIT CNT & DIAG UNIT
3732 021404 001426          BEQ  INITER      ;NOT EXCEEDED, THEN
3733 021406          GPHARD  UNIT,PLOC      ;GET NEXT UNIT
3734 021420          BNCOMPLETE NEXT        ;IF FOUND A UNIT, THEN
3735 021422 004737 021742          CALL  INTTBL      ;CALL INITIALIZE TABLES
3736 021426 004737 021572          CALL  UNPKHP      ;UNPACK HARDWARE P-TABLES
3737 021432          SETVEC  VECT,#INTRHD,#PRI06
3738 021460 000414          BR  XINIT
3739 021462          INITER: PRINTF  #INTER1          ;PRINT 'TOO MANY UNITS'
3740 021502 012737 000001 002452  MOV  #1,ABORT          ;SET ABORT FLAG
3741 021510          DOCLN
3742 021512 000240          XINIT:  NOP
3749 021514 013737 021526 002512  MOV  UNIT,UNTPRT      ;SET USER # = LOGICAL UNIT #
3760 021522          ENDINIT
3761
3762 021524 000000  PLOC:  .WORD  0          ;P-TABLE LOCATION
3763 021526 177777  UNIT:  .WORD  -1          ;LOGICAL UNIT# UNDER TEST
3764
3765 021530 045 116 045  INTER1: .ASCIZ  /%N%START OVER -> TOO MANY UNITS/
3766          .EVEN
3767

```

MISCELLANEOUS SECTIONS MACRO M1200 14-DEC-82 16:33 PAGE 133
 - MOD 1.1 - UNPACK HARDWARE P-TABLES

```

3779          .SBTTL - MOD 1.1 - UNPACK HARDWARE P-TABLES
3780          ;-----
3781
3782 021572 013701 021524      UNPKHP: MOV      PLOC,R1          ;SAVE P-TABLE LOCATION
3783 021576 012137 002350      MOV      (R1)+,RXCS        ;LOAD UNIT BUS ADR-CSR
3784 021602 013737 002350 002352  MOV      RXCS,RXDB        ;LOAD UNIT BUS ADR-DBR
3785 021610 062737 000002 002352  ADD      #2,RXDB        ;SET UNIT BUS ADR-DBR
3786 021616 012137 002354      MOV      (R1)+,VECT        ;LOAD UNIT VECTOR
3787 021622 005721      IA11:  TST      (R1)+              ;IF DRIVE #0
3788 021624 001007      BNE      LA11                      ;THEN
3789 021626 005037 002406      CLR      DRIVE              ;SETUP TO SELECT DRIVE #0
3790 021632 005037 002420      CLR      DRVOFF             ;SETUP DRIVE BYTE OFFSET DRVO
3791 021636 105037 002514      CLRB     DRVPR              ;SET PRINT DRV #=0
3792 021642 000411      BR       IB11                      ;BR TO IF 'B'
3793 021644 012737 000020 002406  LA11:  MOV      #DRV1,DRIVE ;SETUP TO SELECT DRIVE #1
3794 021652 012737 000001 002420      MOV      #1,DRVOFF    ;SETUP DRIVE BYTE OFFSET DRV1
3795 021660 112737 000001 002514      MOV      #1,DRVPR      ;SET PRINT DRV #=1
3796 021666 005721      IB11:  TST      (R1)+              ;IF SIDE #0 SELECTED
3797 021670 001005      BNE      LB11                      ;THEN
3798 021672 005037 002410      CLR      SIDE              ;SETUP TO SELECT SIDE #0
3799 021676 105037 002515      CLRB     SIDPR              ;SET PRINT SID #=0
3800 021702 000406      BR       EB11                      ;BR TO END 'B'
3801 021704 012737 001000 002410  LB11:  MOV      #SIDE1,SIDE ;SETUP TO SELECT SIDE #1
3802 021712 112737 000001 002515      MOV      #1,SIDPR      ;SET PRINT SID #=1
3803 021720 011102      EB11:  MOV      (R1),R2            ;GET DEVICE PRIORITY
3804 021722 116237 021732 002356      MOV      PRITAB(R2),RXPRI ;SETUP PROPER DEVICE PRIORITY
3805 021730 000207      RETURN
3806          ;-----
3807 021732      000      PRITAB: .BYTE     PRI00          ;PRIORITY 0
3808 021733      040      .BYTE     PRI01          ;PRIORITY 1
3809 021734      100      .BYTE     PRI02          ;PRIORITY 2
3810 021735      140      .BYTE     PRI03          ;PRIORITY 3
3811 021736      200      .BYTE     PRI04          ;PRIORITY 4
3812 021737      240      .BYTE     PRI05          ;PRIORITY 5
3813 021740      300      .BYTE     PRI06          ;PRIORITY 6
3814 021741      340      .BYTE     PRI07          ;PRIORITY 7
3815          ;-----
3816
3817          .SBTTL - MOD 1.2 - INITIALIZE TABLES
3818          ;-----
3819
3820 021742 000240      INTTBL: NOP
3821 021744 012701 002452      MOV      #ABORT,R1          ;GET ADDRESS OF TABLE TO CLEAR
3822 021750 012702 000010      MOV      #10,R2            ;SET TABLE LENGTH
3823 021754 005021      1$:    CLR      (R1)+              ;CLEAR LOCATOIN
3824 021756 005302      DEC      R2                      ;DECREMENT TABLE COUNT
3825 021760 001375      BNE      1$                      ;IF DONE, THEN
3826 021762 000207      RETURN
3827          ;-----

```

MISCELLANEOUS SECTIONS MACRO M1200 14-DEC-82 16:33 PAGE 134
CLEANUP CODING SECTION

3829
3830
3831
3832
3833
3834
3835
3836 021764
3837 021764
3838 021772
3845 021774
3856
3857
3858
3859
3860
3861
3862
3863
3864 021776
3870 021776 010002
3875 022000 012701 022012
3876 022004 004737 002570
3877 022010
3878
3879 022012 045 116 045
3880
3891
3892
3893
3896
3897
3898 022054
3899 022054 004737 022066
3900 022060
3901
3903
3904
3905
3906
3907
3908
3909
3910
3911
3912 022062
3918 022062 000240
3919 022064
3920
3931
3932 022066
3933

.SBTTL CLEANUP CODING SECTION

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

BGNCLN
CLRVEC VECT ;CLEAR VECTOR
BRESET ;BUS RESET
ENDCLN
.EVEN

.SBTTL DROP UNIT SECTION

++
THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE TO NO
LONGER BE TESTED.

BGNDDU
MOV R0,R2 ;GET LOGICAL UNIT #
MOV #DUMSG1,R1 ;SET DROP MSG
CALL PRTB1S ;CALL PRINTB 1 ARG
ENDDDU

DUMSG1: .ASCIZ /%N% DROP UNIT#%D1% FROM TEST%N/

.EVEN

.SBTTL AUTO DROP UNIT SECTION

BGNAUTO
CALL ADRTST ;CALL ADDRESSING TST
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.

BGNAU
NOP
ENDAU

.EVEN
ENDMOD

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 135
ADD UNIT SECTION

3936
3947
3983 022066
3984
3985
3986
3987
3988
3989
3990
3991
3992
3993
3994
3995
3996
3997
3998
3999
4000
4001
4002
4003
4004
4005
4006
4007

4008 022066 000240
4009 022070 005037 002452
4010 022074
4011 022122 017701 160222
4012 022126
4013 022134 005737 002452
4014 022140 001413
4015 022142 012701 022212
4016 022146 013702 002350
4017 022152
4018 022162
4019 022170 000207
4020
4021 022172 101 104 104
4022 022212 045 101 040
4023 022246 045 101 040
4024
4025
4026

.TITLE HARDWARE TESTS

BGNMOD

.SBTTL TEST 0 - ADDRESSING TEST

++
: TEST TO ASSURE THAT THE DEVICE WILL RESPOND WITHOUT A BUS TRAP.

: BGNSUB

: SETUP TEST
: SETUP BUS TRAPS
: READ RXCSR
: RESET BUS TRAPS
: IF TRAP
: : THEN-SET SYSTEM FATAL F 4G
: : CALL FUNCTION TEST ERROR
: : REPORT BUS TRAP ON RXCSR

: ENDIF
: READ RXDBR
: IF TRAP
: : THEN-SET SYSTEM FATAL FLAG
: : CALL FUNCTION TEST ERROR
: : REPORT BUS TRAP ON RXDBR
: ENDIF
: RESET BUS TRAPS

: ENDSUB

: ADRTST: NOP
: CLR ABORT : CLEAR ABORT FLAG
: SETVEC #BTRP4,#TRAP,#PRI06
: MOV @RXCS,R1 : READ RXCSR
: CLRVEC #BTRP4
: TST ABORT : IF ABORT FLAG
: BEQ 1\$: SET, THEN
: MOV #TRPMS1,R1 : SET TRAP MESSAGE
: MOV RXCS,R2 : SET TRAP ADDRESS
: ERRSF 60,TOMSG,PRTB1
: DODU UNIT
: 1\$: RETURN : RETURN

: TOMSG: .ASCIZ /ADDRESSING TEST/
: TRPMS1: .ASCII /%A BUS TRAP AT ADDRESS:%06ZN/
: .ASCIZ /%A INTERFACE BAD OR NOT SET TO ABOVE ADDRESS/
: .EVEN
:-----

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 136

- MOD U.SFT.TRP - BUS TRAP HANDLER

```

4028 .SBTTL - MOD U.SFT.TRP - BUS TRAP HANDLER
4029 :++
4030 : FUNCTIONAL DESCRIPTION: SUBR TO HANDLE DEVICE BUS TRAP
4031 : INPUTS: NONE
4032 : IMPLICIT INPUTS: BUS TRAP
4033 : OUTPUTS: ABORT FLAG
4034 : IMPLICIT OUTPUTS: NONE
4035 : SUBORDINATE ROUTINES USED: NONE
4036 : FUNCTIONAL SIDE EFFECTS: NONE
4037 : CALLING SEQUENCE: INTERRUPT
4038 :--

```

```

4039 -----
4040 :
4041 :
4042 022324 005237 002452 TRAP: INC ABORT ;SET ABORT FLAG
4043 022330 000002 RTI ;RETURN FROM TRAP INTERRUPT
4044 :-----

```

```

4045 :
4046 :
4047 : TEST SETUP DEFINITIONS
4048 :
4049 : FRUS1=0
4050 : TN=0
4051 : FUNCT=1

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 137
TEST 1 - INITIALIZE - FNC TST

```

4053      022332 000414      .SBITL TEST 1 - INITIALIZE - FNC TST
          022334 040      040      111 T1MSG: BR BGNT1 ;BR TO BGN TST
          .ASCIZ / INITIALIZE - FNC TST/
          .EVEN

4054
4055
4056      ;++
4057      ; TEST TO VERIFY THAT AN RX INITIALIZE WILL RETURN THE DEVICE TO A VALID
4058      ; STATE.
4059      ;-----
4060      BGNTST
4061      : IF FUNCTION TEST
4062      : THEN-SETUP TEST I.D.
4063      : CALL FUNCTION TEST SETUP
4064      : BUS INITIALIZE
4065      : CALL ERROR CHECK
4066      : CALL DEVICE STATE CHECK
4067      : INCREMENT COMMAND PTR
4068      : PROGRAM INITIALIZE RX
4069      : CALL ERROR CHECK
4070      : ENDF
4071      : ENDTST
4072      ;-----
4073      022364      TSETUP
          022364 012737 022444 002466 BGNT1: MOV #T1TBL,TSTID ;SETUP TEST ID TBL-TEST# 1
          022372 032737 000002 002324 IAT1: BIT #FUNCT,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
4083      022444      TTBL
          022444 022334      T1TBL: .WORD T1MSG
          022446 177777      .WORD -1
          022450      T1RTB:
          022450 015026      .WORD REGS1
          022452 177777      .WORD -1
4084      022454      ENDTST

```

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 TEST 2 - READ ERROR CODE - FNC TST

```

4087      022456 000416      .SBTTL TEST 2 - READ ERROR CODE - FNC TST
          022460 040      122 T2MSG: BR BGNT2 ;BR TO BGN TST
                                .ASCIZ / READ ERROR CODE - FNC TST/
                                .EVEN

4088
4089
4090      ;**
4091      ; TEST TO VERIFY THAT THE DEVICE WILL COMPLETE A READ ERROR CODE COMMAND
4092      ; WITHOUT ENCOUNTERING AN ERROR.
4093      ;-----
4094      BGNTST
4095      : IF FUNCTION TEST
4096      : THEN-SETUP TEST IDENT
4097      : CALL FUNCTION TEST SETUP
4098      : PROGRAM INITIALIZE RX
4099      : CALL ERROR CHECK
4100      : SETUP ERROR CODE ADDRESS
4101      : CALL READ ERROR CODE
4102      : CALL ERROR CHECK
4103      : ENDF
4104      ; ENDTST
4105      ;-----
4106      022514      TSETUP
          022514 012737 022604 002466 BGNT2: MOV #T2TBL,TSTID ;SETUP TEST ID TBL-TEST# 2
          022522 032737 000002 002324 IAT2: BIT #FUNCT,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

```

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TEST 3 - FILL BUFFER - FNC TST

```

4120      022616 000414      .SBTTL TEST 3 - FILL BUFFER - FNC TST
          022620 040      106 T3MSG: BR BGNT3 ;BR TO BGN TST
          .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 #FUNCT,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

```

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TEST 4 - EMPTY BUFFER - FNC TST

```

4147      022732 000415      .SBTTL TEST 4 - EMPTY BUFFER - FNC TST
      022734 040      105 T4MSG: BR BGNT4 ;BR TO BGN TST
      .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      ; ENDF
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,FL.GST ;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

      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

```

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TEST 5 - READ STATUS - FNC TST

```

4175      023050 000414      .SBTTL TEST 5 - READ STATUS - FNC TST
          023052 040      122 T5MSG: BR BGNT5 ;BR TO BGN TST
          .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      ; ENDF
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 #FUNCT,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

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 147
TEST 6 - FILL & EMPTY BUFFER - FNC TST

```

4205      .SBTTL  TEST 6 - FILL & EMPTY BUFFER - FNC TST
          023166 000420      BR      BGNT6      ;BR TO BGN TST
          023170      040      106  T6MSG: .ASCIZ  / FILL & EMPTY BUFFER - FNC TST/
                                     .EVEN

4206
4207
4208      **
4209      : TEST TO VERIFY THE DEVICE BUFFER DATA IS VALID AFTER A FILL/EMPTY
4210      : BUFFER COMMAND SEQUENCE.
4211      :-----
4212      : BGNTST
4213      : IF FUNCTION TEST
4214      : THEN-SETUP TEST IDENT
4215      :      SETUP DENSITY CONTROL=DOUBLE
4216      :      CALL SETUP DEVICE COMMANDS
4217      :      SET DATA PATTERN=RANDOM
4218      :      CALL DATA PATTERN SETUP
4219      :      CALL FILL BUFFER
4220      :      CALL ERROR CHECK
4221      :      CALL EMPTY BUFFER
4222      :      CALL ERROR CHECK
4223      :      SET EMPTY BUFFER FLAG
4224      :      CALL DATA CHECK
4225      : ENDIF
4226      : ENDTST
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      DATAK      ;CALL DATA CHECK
4239      023326      042737 000020 002476      BIC      #EMBUFF,FLAGST      ;CLEAR EMPTY BUFFER FLAG
4240      023334      XT6:  EXIT      TST
4241      023340      REGTBL  CSONLY      REGS1=CSONLY

4242      023340      015026      TTBL
          023340      023170      T6TBL: .WORD      T6MSG
          023342      177777      .WORD      -1
          023344
          023344      015026      T6RTB:  .WORD      REGS1
          023346      177777      .WORD      -1

4243      023350      ENDTST

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 149
 TEST 7 - READ & WRITE SECTOR - FNC TST

4246 .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

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:++
: 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
: BGND0
: 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
-----

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 151
TEST 7 - READ & WRITE SECTOR - FNC TST

```

4280 023414      TSETUP
      023414 012737 023602 002466 BGNT7: MOV #T7TBL,TSTID ;SETUP TEST ID TBL-TEST# 7
      023422 032737 000002 002324 IAT7: BIT #FUNCT,TSTMOD ;IF TEST MODE=FUNCTION TEST
      023430 001462      BEQ XT7 ;BIT SET, THEN
      023432 004737 020700      CALL FTSTUP ;CALL FUNCTION TEST SETUP
4281 023436 004737 017350      CALL DENCHK ;CALL DENSITY CHECK
4282 023442 005037 002374      CLR TRACK ;SET TRACK=0
4283 023446 012737 000012 002376 MOV #10.,SECTOR ;SET SECTOR=10.
4284 023454 005037 002504      CLR TTEMP1 ;CLEAR ENDDO FLAG
4285 023460 000240      NOP ;
      BBT7:      CALL SDENC ;CALL SET DENSITY CONTROL=DENSITY STATUS
4286 023462 004737 020472      BIC #NEGTST,FLAGST ;CLEAR NEG TEST FLAG
4287 023466 042737 004000 002476 CALL WRITE ;CALL WRITE SECTOR
4288 023474 004737 010744      CALL ERRCHK ;CALL ERROR CHECK
4289 023500 004737 017724      CALL READ ;CALL READ SECTOR
4290 023504 004737 011062      CALL ERRCHK ;CALL ERROR CHECK
4291 023510 004737 017724      CALL CDENC ;CALL COMPLIMENT DENSITY CONTROL
4292 023514 004737 020430      BIS #NEGTST,FLAGST ;SET NEG TEST FLAG
4293 023520 052737 004000 002476 MOV #DENERR,NGTSE ;SETUP EXPECTED NEG TEST ERR=DEN ERR
4294 023526 012737 000030 002464 CALL WRITE ;CALL WRITE SECTOR
4295 023534 004737 010744      CALL ERRCHK ;CALL ERROR CHECK
4296 023540 004737 017724      CALL READ ;CALL READ SECTOR
4297 023544 004737 011062      CALL ERRCHK ;CALL ERROR CHECK
4298 023550 004737 017724      COM TTEMP1 ;COMPLIMENT ENDDO FLAG
4299 023554 005137 002504      CALL CDENC ;CALL COMPLIMENT DENSITY CONTROL
4300 023560 004737 020430      CALL STTK76 ;CALL SET TRACK=76.
4301 023564 004737 021174      UBT7: TST TTEMP1 ;DOUNTIL ENDDO FLAG
4302 023570 005737 002504      BNE BBT7 ;EQUALS 0
4303 023574 001331      XT7: EXIT TST
4304 023576      REGTBL CSESAL
4305 023602      REGS1=CSESAL
      015036
4306 023602      TTBL
      023602 023354      T7TBL: .WORD T7MSG
      023604 177777      .WORD -1
      023606
      023606 015036      T7RTB: .WORD REGS1
      023610 177777      .WORD -1
4307 023612      ENDTST

```

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 TEST 8 - WRITE SECTOR DELETED DATA - FNC TST

```

4310      023614 000423      .SBTTL TEST 8 - WRITE SECTOR DELETED DATA - FNC TST
          023616 040      127 T8MSG: .ASCIZ / WRITE SECTOR DELETED DATA - FNC TST/
          .EVEN

4311
4312
4313      **
4314      TEST TO VERIFY THAT THE DEVICE WILL WRITE A DELETED DATA MARK ON THE
4315      DISKETTE WITHOUT ERROR.
4316      -----
4317      BGNTST
4318      IF FUNCTION TEST
4319      : THEN-SETUP TEST IDENT
4320      : SET TRACK=76, SECTOR=10
4321      : CALL DENSITY CHECK
4322      : SET DELETED DATA FLAG
4323      : SET DENSITY CONTROL WORD=DISK DENSITY
4324      : CALL WRITE SECTOR
4325      : CALL ERROR CK
4326      : CALL READ SECTOR SECTOR
4327      : CALL ERROR CK
4328      : CLEAR DELETED DATA FLAG
4329      : CALL WRITE SECTOR
4330      : CALL ERROR CK
4331      : ENDF
4332      : ENDTST
4333      -----
          023664 012737 023772 002466 BGNT8: TSETUP
          023664 032737 000002 002324 IAT8: MOV #T8TBL,TSTID ;SETUP TEST ID TBL-TEST# 8
          023700 001432      BIT #FUNCT,TSTMOD ;IF TEST MODE=FUNCTION TEST
          023702 004737 020700      BEQ XT8 ;BIT SET, THEN
          023706 004737 021174      CALL FTSTUP ;CALL FUNCTION TEST SETUP
          023712 004737 017350      CALL STTK76 ;CALL SET TRACK=76.
          023716 004737 020472      CALL DENCHK ;CALL DENSITY CHECK
          023722 012737 000010 002402      CALL SDENC ;CALL SET DENSITY CONTROL=DENSITY STATUS
          023730 004737 010744      MOV #DLDCMD,DELDAT ;SETUP DELETED DATA COMMAND MODE
          023734 004737 017724      CALL WRITE ;CALL WRITE SECTOR
          023740 004737 011062      CALL ERRCHK ;CALL ERROR CHECK
          023744 004737 017724      CALL READ ;CALL READ SECTOR
          023750 005037 002402      CALL ERRCHK ;CALL ERROR CHECK
          023754 004737 010744      CLR DELDAT ;CLEAR DELETED DATA COMMAND MODE
          023760 004737 017724      CALL WRITE ;CALL WRITE SECTOR
          023764 000240      CALL ERRCHK ;CALL ERROR CHECK
          023766      NOP ;
          023772      XT8: EXIT TST
          REGTBL CSESAL ;
          REGS1=CSESAL
          TTBL
          T8TBL: .WORD T8MSG
          .WORD -1
          T8RTB: .WORD REGS1
          .WORD -1
          ENDTST
4348 023772 015036
          023772 023616
          023774 177777
          023776
          023776 015036
          024000 177777
4349 024002

```

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 TEST 9 - SET DENSITY - FNC TST

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 : **
 4356 : TEST TO VERIFY THE DEVICE WILL CHANGE DENSITIES WITHOUT INCURRING AN
 4357 : ERROR.
 4358 :-----

4359 : BGNTST
 4360 : IF FUNCTION TEST
 4361 : THEN-SETUP TEST IDENT
 4362 : CALL DENSITY CHECK
 4363 : SET DENSITY CONTROL WORD=DISK DENSITY
 4364 : CALL SET DENSITY
 4365 : CALL ERROR CK
 4366 : CALL SET TRACK=76, SECTOR=10
 4367 : CALL READ SECTOR
 4368 : CALL ERROR CK
 4369 : SET TRACK=0
 4370 : CALL READ SECTOR
 4371 : CALL ERROR CK
 4372 : CALL COMPLIMENT DENSITY CONTROL
 4373 : CALL SET DENSITY
 4374 : CALL ERROR CK
 4375 : CALL READ SECTOR
 4376 : CALL ERROR CK
 4377 : CALL SET TRACK=76., SECTOR=10.
 4378 : CALL READ SECTOR
 4379 : CALL ERROR CK
 4380 : SET DENSITY CONTROL WORD=DISK DENSITY
 4381 : CALL SET DENSITY
 4382 : CALL ERROR CK

4383 : ENDIF
 4384 : ENDTST
 :-----

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TEST 9 - SET DENSITY - FNC TST

```

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

```

REGS1=CSESAL

T9TBL: .WORD T9MSG
 .WORD -1

T9RTB: .WORD REGS1
 .WORD -1

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TEST 10 - POSITIONING - FNC TST

```

4415      .SBTTL TEST 10 - POSITIONING - FNC TST
          024222 000414      BR      BGNT10      ;BR TO BGN TST
          024224      040      120      117 T10MSG: .ASCIZ / POSITIONING - FNC TST/
                                     .EVEN

4416
4417
4418      ;**
4419      ; TEST TO VERIFY THE DEVICE WILL CHANGE SECTORS AND TRACKS WITHOUT
4420      ; INCURRING AN ERROR.
4421      ;-----
4422      BGNTST
4423      IF FUNCTION TEST
4424      : THEN-SETUP TEST IDENT
4425      : SET TRACK PATTERN=RANDOM
4426      : CALL DENSITY CHECK
4427      : SET DENSITY CONTROL WORD=DRV DENSITY
4428      : BGND0
4429      : CALL GET A TRACK
4430      : CALL GET A SECTOR
4431      : CALL READ SECTOR
4432      : CALL ERROR CK
4433      : DOUNTIL TRACKS DONE FLAG SET
4434      : NOP
4435      : ENDIF
4436      : ENDTST
4437      ;-----
4438      ;--
          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
4439 024276 012737 000400 002510      MOV      #ITK!RTK,TKSCFG ;SET TRK/SEC FLAGS-->TRACK=INIT & RANDOM
4440 024304 004737 017350      CALL      DENCHK ;CALL DENSITY CHECK
4441 024310 004737 020472      CALL      SDENC ;CALL SET DENSITY CONTROL=DENSITY STATUS
4442 024314 004737 012662      BBT10: CALL      GETTRK ;CALL GET TRACK
4443 024320 004737 013104      CALL      GETSEC ;CALL GET SECTOR
4444 024324 004737 011062      CALL      READ ;CALL READ SECTOR
4445 024330 004737 017724      CALL      ERRCHK ;CALL ERROR CHECK
4446 024334 032737 001000 002476 UBT10: BIT      #TRKDON,FLAGST ;DOUNTIL FLAGS->TRACK DONE FLAG
4447 024342 001764      BEQ      BBT10 ;SET
4448 024344 000240      NOP      ;
4449 024346      XT10: EXIT      TST
4450 024352      REGTBL CSESAL ;REGS1=CSESAL
          015036
4451 024352      TTBL
          024352 024224      T10TBL: .WORD      T10MSG
          024354 177777      .WORD      -1
          024356      T10RTB:
          024356 015036      .WORD      REGS1
          024360 177777      .WORD      -1
4452 024362      ENDTST

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HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 160
 TEST 11 - CSR BITS - LGC TST

4456 .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

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```

:++
: 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
-----
:--

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 162
TEST 11 - CSR BITS - LGC TST

```

4489 024412          TSETUP
      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
4512 024602          REGTBL
4513 024602          TTBL
      024602 024366          0,RGPRT
      024604 000030          T11TBL: .WORD T11MSG
      024606 000004          .WORD 0
      024610 177777          .WORD RGPRT
      024612          .WORD -1
      024612 177777          T11RTB: .WORD -1
4514 024614          FRUTBL INTONL          T11FTB: .WORD INTONL
      024614          .WORD -1
      024616 006644
      024616 177777
4515 024620          ENDTST

```

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 TEST 12 - DBR BITS - LGC TST

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 :++
4522 : TEST TO VERIFY THAT THE READ/WRITE BITS OF THE DATA BUFFER REGISTER
4523 : CAN BE WRITTEN INTO AND READ AS EXPECTED.
4524 :-----
4525 : BGNTST
4526 : IF LOGIC TEST
4527 : THEN-SETUP TEST IDENT
4528 : WRITE RXDBR-ALL 1'S
4529 : SETUP EXPECTED REGISTER RESULTS
4530 : IF RXDBR NOT=173767
4531 : THEN-SETUP ACTUAL REGISTER RESULTS
4532 : SETUP ERR NBR=DBR ERR
4533 : CALL ERPOR
4534 : ENDIF
4535 : WRITE RXDBR-ALL 0'S
4536 : SETUP EXPECTED REGISTER RESULTS
4537 : IF RXDBR NOT=000000
4538 : THEN-SETUP ACTUAL REGISTER RESULTS
4539 : SET ERRNBR=DBR ERR
4540 : CALL ERROR
4541 : ENDIF
4542 : NOP
4543 : ENDIF
4544 : ENDTST
4545 :-----
4546 : BOARD CALLOUT:
4547 : 1. INTERFACE
4548 :-----
  
```

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TEST 12 - DBR BITS - LGC TST

```

4551 024650          012737 025012 002466 BGNT12: TSETUP
      024650          032737 000001 002324 IAT12: MOV #T12TBL,TSTID ;SETUP TEST ID TBL-TEST# 12
      024656          001450          BIT #LOGICT,TSTMOD ;IF TEST MODE=LOGIC TEST
      024664          004737 020736          BEQ XT12 ;BIT SET, THEN
      024666          004737          CALL LTSTUP ;CALL LOGIC TEST SETUP
4552 024672          004737 011610          BRESET ;BUS RESET
4553 024674          012777 177777          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 TSI
4569 025012          TTBL 0,RGPRT
      025012 024624          T12TBL: .WORD T12MSG
      025014 000000          .WORD 0
      025016 000004          .WORD RGPRT
      025020 177777          .WORD -1
      025022          T12RTB: .WORD -1
      025022 177777          .WORD -1
4570 025024          FRUTBL INTONL          T12FTB: .WORD INTONL
      025024          .WORD -1
      025024 006644
      025026 177777
4571 025030          ENDTST

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 166
 TEST 13 - CSR-DBR COMMON BYTE - LGC TST

4574 .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

```

4575
4576
4577 : **
4578 : TEST TO VERIFY THAT THE LOWER BYTE OF THE RXCS MAPS INTO THE RXDB AND
4579 : THEREFORE CHECK WRITE ONLY BITS OF THE RXCS.
4580 :-----
4581 : BGNTST
4582 : IF LOGIC TEST
4583 : : THEN-SETUP TEST IDENT
4584 : : WRITE RXCSR LOW BYTE-ALL 1'S (EXCEPT BIT #1)
4585 : : SETUP EXPECTED REGISTER RESULTS
4586 : : IF RXDBR LOW BYTE NOT=376
4587 : : : THEN-SETUP ACTUAL REGISTER RESULTS
4588 : : : SETUP ERR NBR=CSR ERR
4589 : : : CALL ERROR
4590 : : ENDIF
4591 : : WRITE RXCSR LOW BYTE-ALL 0'S
4592 : : SETUP EXPECTED REGISTER RESULTS
4593 : : IF RXDBR LOW BYTE NOT=000
4594 : : : THEN-SETUP ACTUAL REGISTER RESULTS
4595 : : : SETUP ERR NBR=CSR ERR
4596 : : : CALL ERROR
4597 : : ENDIF
4598 : : ENDIF
4599 : : ENDTST
4600 :-----
4601 : BOARD CALLOUT:
4602 : 1. INTERFACE
4603 :-----
4604 :--

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 168
TEST 13 - CSR-DBR COMMON BYTE - LGC TST

```

4607 025074      TSETUP
      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: .WORD -1
      025252 177777          .WORD -1
4629 025254      FRUTBL INTONL          T13FTB: .WORD INTONL
      025254          .WORD -1
      025254 006644
      025256 177777
4630 025260      ENDTST

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 169
 TEST 14 - BUS INITIALIZE - LGC TST

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
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4636 : **
4637 : TEST TO VERIFY THAT THE INTERFACE BOARD WILL COMPLETE A BUS INITIALIZE.
4638 : -----
4639 : BGNTST
4640 : IF LOGIC TEST
4641 : : THEN-SETUP TEST IDENT
4642 : : : ISSUE BUS INITIALIZE
4643 : : : IF RXCSR ERROR BIT SET
4644 : : : : THEN-IF RXESR AC LOW BIT SET
4645 : : : : : THEN-SETUP ERROR
4646 : : : : : CALL ERROR
4647 : : : : : ENDIF
4648 : : : : ENDIF
4649 : : : ENDIF
4650 : : ENDIF
4651 : : ENDTST
4652 : -----
4653 : BOARD CALLOUT:
4654 : 1. INTERFACE
4655 : 2. CONTROLLER
4656 : -----
4657 : --

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 171
TEST 14 - BUS INITIALIZE - LGC TST

```

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
4683 025462          REGTBL
4684 025462          TTBL    REGCK,0
      025462 025264          T14TBL: .WORD    T14MSG
      025464 000001          .WORD    REGCK
      025466 000000          .WORD    0
      025470 177777          .WORD    -1
      025472          T14RTB: .WORD    -1
      025472 177777          .WORD    -1
4685 025474          FRUTBL  INFCTL
      025474          T14FTB: .WORD    INFCTL
      025474 006640          .WORD    -1
      025476 177777
4686 025500          ENDTST

```

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 TEST 15 - PROGRAMMED INITIALIZE - LGC TST

```

4689      025502 000421      .SBTTL TEST 15 - PROGRAMMED INITIALIZE - LGC TST
          025504 040      120      122 T15MSG: BR BGNT15 ;BR TO BGN TST
                                     .ASCIZ / PROGRAMMED INITIALIZE - LGC TST/
                                     .EVEN

4690
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4692      :++
4693      : TEST TO VERIFY THAT THE INTERFACE BOARD WILL COMPLETE A PROGRAMMED
4694      : INITIALIZE.
4695      :-----
4696      : BGNTST
4697      : IF LOGIC TEST
4698      : THEN-SETUP TEST IDENT
4699      : CALL PROGRAMMED INITIALIZE
4700      : CALL DEVICE STATE CK
4701      : CALL ERROR CHECK
4702      : NOP
4703      : ENDIF
4704      : ENDTST
4705      :-----
4706      : BOARD CALLOUT:
4707      : 1. INTERFACE
4708      : 2. CONTROLLER
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 025600 004737 017724      CALL ERRCHK ;CALL ERROR CHECK
4715 025604      XT15: EXIT TST
4716
4717 025610      REGTBL CSESIT      REGS1=CSESIT
          015056      TTBL REGCK,0
4718 025610      T15TBL: .WORD T15MSG
          025610 025504      .WORD REGCK
          025612 000001      .WORD 0
          025614 000000      .WORD -1
          025616 177777      T15RTB: .WORD REGS1
          025620      .WORD -1
          025620 015056
          025622 177777      FRUTBL INFCTL
4719 025624      T15FTB: .WORD INFCTL
          025624 006640      .WORD -1
          025626 177777
4720 025630      ENDTST
  
```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 173
 TEST 16 - POWER FAIL - LGC TST

4723 .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

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++
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
-----
--

```

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TEST 16 - POWER FAIL - LGC TST

```

4756 025662      TSETUP
      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,NGTSE ;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
      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% IS FLOPPY SYSTEM CONTAINING UNIT #%02/
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      026234 000420      .SBTTL TEST 17 - CONTROLLER-INTERFACE - LGC TST
          026236 040      103 117 BGN17 BR TO BGN TST
          117MSG: .ASCIZ / CONTROLLER-INTERFACE - LGC TST/
                  .EVEN

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:++
: 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.
-----
: BGNTST
:   IF LOGIC TEST
:   : THEN-SETUP TEST IDENT
:   :   SET PROTOCOL CHECK (TEST SETUP SETS VIS TEST TABLE)
:   :   CALL READ ERROR CODE
:   :   CALL ERROR CHECK
:   :   CALL FILL BUFFER
:   :   CALL ERROR CHECK
:   :   CALL EMPTY BUFFER
:   :   CALL ERROR CHECK
:   :   CALL READ MAINT STATUS
:   :   CALL ERROR CHECK
:   ENDIF
: ENDTST
-----
: BOARD CALLOUT:
:   1. CONTROLLER
:   2. INTERFACE
-----
:--

```

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TEST 17 - CONTROLLER-INTERFACE - LGC TST

```

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 CHECK
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          REGS1=CSESND
      015076          REGS2=CSESRS
      015066
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

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 179
 TEST 18 - NPR - LGC TST

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

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TEST 18 - NPR - LGC TST

```

4878 026452          012737 026752 002466 BGNT18: TSETUP
      026452          032737 000001 002324 IAT18: MOV #T18TBL,TSTID ;SETUP TEST ID TBL-TEST# 18
      026466          001527          BEQ XT18 ;IF TEST MODE=LOGIC TEST
      026470          004737 020736          CALL LTSTUP ;BIT SET, THEN
4879 026474          012737 177777 002442          MOV #-1,XERUUT ;CALL LOGIC TEST SETUP
4880 026502          004737 011340          CALL RDERCD ;SET READ ERROR CODE STORAGE=1'S
4881 026506          022737 177777 002442 IST18: CMP #-1,XERUUT ;CALL READ ERROR CODE
4882 026514          001005          BNE EBT18 ;IF READ ERROR CODE STORAGE=1'S
4883 026516          012737 000053 002520          MOV #NPRERR,ERRNBR ;THEN
4884 026524          004737 003060          CALL ERROR ;SET ERR NUMBER=NPR ERROR
4885 026530          042737 000200 002476 EBT18: BIC #RECFLG,FLAGST ;CALL ERROR
4886 026536          012737 000200 002370          MOV #128,WDCNT ;CLEAR RED ERR COD FLG = FLAGS TST
4887 026544          012737 000001 012660          MOV #1,PAT ;SET LEVICE WORD COUNT=128
4888 026552          004737 012306          CALL STDATP ;SET DATA PAT=ALL ZEROS
4889 026556          012702 177777          MOV #-1,R2 ;CALL SET DATA PATTERN
4890 026562          013737 002370 002504          MOV WDCNT,TTEMP1 ;SET R2=ALL 1'S
4891 026570          006337 002504          ASL TTEMP1 ;SET TEMP1=WORD COUNT
4892 026574          162737 000004 002504          SUB #4,TTEMP1 ;DOUBLE IT FOR ADDRESSING WORDS IN MEM
4893 026602          013701 002504          MOV TTEMP1,R1 ;ADJUST TO END OF BUFFER
4894 026606          010237 036622          MOV R2,DATBUF ;SET R1=TEMP1
4895 026612          110261 036622          MOV R2,DATBUF(R1) ;SET DATA BUFFER BEGIN=1'S
4896 026616          005201          INC R1 ;SET DATA BUFFER END=1'S
4897 026620          110261 036622          MOV R2,DATBUF(R1) ;BUMP INDEX
4898 026624          012737 000400 002412          MOV #DENBIT,DENSTY ;SET DATA BUFFER END +1=1'S
4899 026632          004737 010510          CALL FILBUF ;SET DENSITY CONTROL=DOUBLE DENSITY
4900 026636          004737 017724          CALL ERRCHK ;CALL FILL BUFFER
4901 026642          004737 010626          CALL EMPBUF ;CALL ERROR CHECK
4902 026646          004737 017724          CALL ERRCHK ;CALL EMPTY BUFFER
4903 026652          005737 036622          ICT18: TST DATBUF ;CALL ERROR CHECK
4904 026656          001406          BEQ ECT18 ;IF DATA BUFFER BEGIN
4905 026660          012737 000053 002520          MOV #NPRERR,ERRNBR ;NOT=0, THEN
4906 026666          004737 003060          CALL ERROR ;SETUP ERRNBR=NPR ERR
4907 026672          000425          BR XT18 ;CALL ERROR
4908 026674          013701 002504          ECT18: MOV TTEMP1,R1 ;BR TO EXIT
4909 026700          105761 036622          IDT18: TSTB DATBUF(R1) ;SET R1=TEMP1
4910 026704          001406          BEQ EDT18 ;IF DATA BUFFER END
4911 026706          012737 000053 002520          MOV #NPRERR,ERRNBR ;NOT=0, THEN
4912 026714          004737 003060          CALL ERROR ;SETUP ERRNBR=NPR ERR
4913 026720          000412          BR XT18 ;CALL ERROR
4914 026722          005201          EDT18: INC R1 ;BR TO EXIT
4915 026724          126127 036622 177777          CMPB DATBUF(R1),#-1 ;BUMP INDEX
4916 026732          001405          BEQ XT18 ;IF DATA BUFFER END +1
4917 026734          012737 000053 002520          MOV #NPRERR,ERRNBR ;NOT=1'S, THEN
4918 026742          004737 003060          CALL ERROR ;SETUP ERRNBR=NPR ERR
4919 026746          XT18: EXIT ;CALL ERROR
4920 026752          015076          REGTBL CSESND
      026752          026432          TTBL REGCK,0
      026754          000001          T18TBL: .WORD T18MSG
      026756          000000          .WORD REGCK
      026760          177777          .WORD 0
      026762          015076          T18RTB: .WORD -1
      026764          177777          .WORD REGS1
4922 026766          FRUTBL INFCTL          .WORD -1

```

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TEST 18 - NPR - LGC TST

026766
026766 006640
026770 177777
4923 026772

ENDTSi

T18FTB:

.WORD INFCTL
.WORD -1

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 183
 - MOD U.SFT.NAT - ADDRESS NPR ADDRESS TEST

```

4926 .SBTTL - MOD U.SFT.NAT - ADDRESS NPR ADDRESS TEST
4927 -----
4928     BGNSUB      NAT
4929     NOP
4930     IF CTR < 2
4931     : THEN-IF CTR=0
4932     : : THEN-CLEAR ADR
4933     : : ELSE-ADR=ADR+2
4934     : : ENDIF
4935     : INCREMENT COUNTER
4936     : ELSE-INCREMENT COUNTER
4937     : DOUBLE ADR (ADR=2XADR)
4938     : IF ADR > 40000
4939     : : THEN-SET DONE IN FLAGS
4940     : : CLEAR CTR
4941     : : CLEAR ADR
4942     : : SET DO LOOP DONE FLAG
4943     : : ENDIF
4944     : ENDIF
4945     ENDSUB
4946 -----
4947
4948 026774 000240 NAT: NOP
4949 026776 022737 000002 027100 IANAT: CMP #2,NATCTR ; IF CTR
4950 027004 103014 BHS LANAT ; LESS THAN 2, THEN
4951 027006 005737 027100 IENAT: TST NATCTR ; IF CTR
4952 027012 001003 BNE LBNAT ; EQUALS 0, THEN
4953 027014 005037 027102 CLR NATADR ; CLEAR ADRS
4954 027020 000403 BR EBNAT ; BR TO END 'B'
4955 027022 012737 000002 027102 LBNAT: MOV #2,NATADR ; ELSE, SET ADR=2
4956 027030 005237 027100 EBNAT: INC NATCTR ; INCREMENT COUNTER
4957 027034 000420 BR EANAT ; BR TO END 'A'
4958 027036 005237 027100 LANAT: INC NATCTR ; INCREMENT COUNTER
4959 027042 006337 027102 ASL NATADR ; DOUBLE ADDRESS
4960 027046 022737 040000 027102 ICNAT: CMP #40000,NATADR ; IF ADDRESS
4961 027054 101407 BLOS ECNAT ; GREATER THAN 40000, THEN
4962 027056 005037 027100 CLR NATCTR ; CLEAR COUNTER
4963 027062 005037 027102 CLR NATADR ; CLEAR ADDRESS
4964 027066 052737 000010 002476 BIS #DLPDN,FLAGST ; SET DO LOOP DONE FLAG
4965 027074 000240 ECNAT: NOP
4966 027076 000207 EANAT: RETURN ; RETURN
4967 -----
4968 027100 000000 NATCTR: 0 ; COUNTER
4969 027102 000000 NATADR: 0 ; ADDRESS
4970 -----

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 184
 TEST 19 - NPR NON-EXISTENT MEM - LGC TST

4973 .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

4974
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```

:++
: 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
:-----
:--

```

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TEST 19 - NPR NON-EXISTENT MEM - LGC TST

```

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 IBT19: 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
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

```

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TEST 20 - INTERRUPT - LGC TST

```

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      : **
5026      : TEST TO VERIFY THAT THE INTERRUPTS CAN BE SET AND THAT THE DEVICE
5027      : RESPONDS AS EXPECTED.
5028      : -----
5029      : BGNTST
5030      : IF LOGIC TEST
5031      : THEN-SETUP TEST IDENT
5032      : SET PROCESSOR PRIORITY-> -> NO INTERRUPTS
5033      : CAUSE RX INTERRUPT (WHEN PRIORITY LOWERED)
5034      : CALL WATCH DOG TO LOWER PRIORITY & WAIT FOR INTERRUPT
5035      : CALL ERROR
5036      : CLEAR RX INTERRUPT BIT
5037      : NOP
5038      : ENDIF
5039      : ENDTST
5040      : -----
5041      : BOARD CALLOUT:
5042      : 1. INTERFACE
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      T20FTB:
          027474      .WORD  INTONL
          027474 006644      .WORD  -1
          027476 177777
          5056 027500      ENDTST

```

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 TEST 21 - PRIORITY LVL - LGC TST

```

5059      027502 000414      .SBTTL TEST 21 - PRIORITY LVL - LGC TST
          027504 040      120      122 T21MSG: BR BGNT21 ;BR TO BGN TST
                                     .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      : BGND0
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      : --

```

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TEST 21 - PRIORITY LVL - LGC TST

```

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 TTEMP1 = 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,ARXCS ;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 #DLDPDN,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,ARXCS ;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 #DLDPDN,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: .ASCII /%N%$6%A RX SET AT PRI LEV=%03%N%$6%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: .WORD -1
      030116 177777          .WORD -1
5131 030120          FRUTBL INTONL          T21FTB: .WORD INTONL
      030120          .WORD -1
      030120 006644
      030122 177777
5132 030124          ENDTST

```

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TEST 22 - INITIALIZE CONTROL - LGC TST

```

5135      .SBTTL TEST 22 - INITIALIZE CONTROL - LGC TST
          030126 000417      BR      BGNT22      ;BR TO BGN TST
          030130      040      111      116 T22MSG: .ASCIIZ / INITIALIZE CONTROL - LGC TST/
                                     .EVEN

5136
5137
5138      ;+
5139      ; TEST TO VERIFY THAT THE CONTROLLER WILL COMPLETE INITIALIZE.
5140      ;-----
5141      ; BGNTST
5142      ; IF LOGIC TEST
5143      ; THEN-SETUP TEST IDENT
5144      ; ISSUE DEVICE PROGRAMMED INITIALIZE
5145      ; CALL ERRCHK
5146      ; ENDIF
5147      ; ENDTST
5148      ;-----
5149      ; BOARD CALLOUT:
5150      ; 1. CONTROLLER
5151      ; 2. INTERFACE
5152      ;-----
5153      ;--
          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
5154      030210      004737 010440      CALL      INTIAL      ;CALL INITIALIZE
5155      030214      004737 017724      CALL      ERRCHK      ;CALL ERROR CHECK
5156      030220      XT22:  EXIT      TST
5157      030224      REGTBL CEINIT

          015046      REGS1=CEINIT
5158      030224      TTBL      REGCK,RGPRT
          030224      030130      T22TBL: .WORD      T22MSG
          030226      000001      .WORD      REGCK
          030230      000004      .WORD      RGPRT
          030232      177777      .WORD      -1
          030234      T22RTB:  .WORD      REGS1
          030234      015046      .WORD      -1
          030236      177777
5159      030240      FRUTBL  CTLINF      T22FTB: .WORD      CTLINF
          030240      .WORD      -1
          030240      006646
          030242      177777
5160      030244      ENDTST

```

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 TEST 23 - DATA BUF INTEGRITY - LGC TST

5163 .SBTTL TEST 23 - DATA BUF INTEGRITY - LGC TST
 030246 000417 BR BGNT23 ;BR TO BGN TST
 030250 040 104 101 T23MSG: .ASCIIZ / DATA BUF INTEGRITY - LGC TST/
 .EVEN

```

5164
5165
5166 :++
5167 : TEST TO VERIFY ALL BITS OF DATA BUFFER, VARIOUS PATTERNS WILL BE USED.
5168 :-----
5169 : BGNTST
5170 : IF LOGIC TEST
5171 : THEN-SETUP TEST IDENT
5172 :   SETUP RANDOM DATA PATTERN
5173 :   NOP
5174 :   BGND0
5175 :   : CALL DATA PATTERN SETUP
5176 :   : CALL FILL BUFFER
5177 :   : IF NO ERROR (ESCAPE TEST)
5178 :   :   THEN-CALL EMPTY BUFFER
5179 :   :   IF NO ERROR (ESCAPE TEST)
5180 :   :   : THEN-SET EMPTY BUFFER FLAG
5181 :   :   : CALL DATA CHECK
5182 :   :   : ADVANCE PATTERN COUNT
5183 :   :   : GET NEW PATTERN #
5184 :   :   : IF FOUR PATTERNS DONE
5185 :   :   :   THEN-SET DO LOOP DONE
5186 :   :   :   ENDF
5187 :   :   ENDF
5188 :   : ENDF
5189 :   DOUNTIL DO LOOP DONE FLAG SET
5190 :   NOP
5191 : ENDF
5192 : ENDTST
5193 :-----
5194 : BOARD CALLOUT:
5195 : 1. CONTROLLER
5196 : 2. INTERFACE
5197 :-----
5198 :--

```

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TEST 23 - DATA BUF INTEGRITY - LGC TST

```

5200 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
5201 030330 012737 000001 012660      MOV #1,PAT ;SET DATA PATTERN = 0'S
5202 030336 004737 012306      BBT23: CALL STDATP ;CALL SET DATA PATTERN
5203 030342 004737 010510      CALL FILBUF ;CALL FILL BUFFER
5204 030346      ESCAPE TST ;IF NO ERROR, THEN
5205 030352 004737 010626      CALL EMPBUF ;CALL EMPTY BUFFER
5206 030356      ESCAPE TST ;IF NO ERROR, THEN
5207 030362 004737 013246      CALL DATAACK ;CALL DATA CHECK
5208 030366 005237 012660      INC PAT ;ADVANCE TO NEXT DATA PATTERN
5209 030372 022737 000010 012660 ICT23: CMP #8,PAT ;IF ALL DATA PATTERNS
5210 030400 001003      BNE UBT23 ;DONE, THEN
5211 030402 052737 000010 002476      BIS #DLPDN,FLAGST ;SET FLAGST=DO LOOP DONE FLAG
5212 030410 032737 000010 002476 UBT23: BIT #DLPDN,FLAGST ;DUNTIL FLAGST-DO_LOOP_DONE_FLAG
5213 030416 001747      BEQ BBT23 ;IS SET
5214 030420 005037 012660      CLR PAT ;RESET DATA PATTERN
5215 030424      XT23: EXIT TST
5216 030430      REGTBL
5217 030430      TTBL EMBUFF,0
      030430 030250      T23TBL: .WORD T23MSG
      030432 000020      .WORD EMBUFF
      030434 000000      .WORD 0
      030436 177777      .WORD -1
      030440      T23RTB: .WORD -1
5218 030442      FRUTBL CTLINE T23FTB: .WORD CTLINE
      030442      006646      .WORD -1
      030444 177777
5219 030446      ENDTST

```

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 TEST 24 - WRD CNT INTEGRITY - LGC TST

5222 .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

```

5223
5224
5225 :++
5226 : TEST TO VERIFY ALL BITS OF WORD COUNT REGISTER AND CHECK THAT EXCEEDING
5227 : THE WORD COUNT FOR DISKETTE DENSITY WILL BE DETECTED.
5228 :-----
5229 : BGNTST
5230 : IF LOGIC TEST
5231 : THEN-SETUP TEST IDENT
5232 : SET DENSITY CONTROL=DOUBLE
5233 : SET BUFFER LENGTH=128.
5234 : BGND0
5235 : CALL FILL BUFFER
5236 : IF NO ERROR (ESCAPE TEST)
5237 : THEN-CALL READ ERROR CODE
5238 : IF NO ERROR (ESCAPE TEST)
5239 : THEN-IF WORD COUNTS NOT EQUAL
5240 : THEN-SETUP WORD COUNT ERROR
5241 : CALL ERROR
5242 : ELSE-UPDATE WORD COUNT
5243 : IF WORD COUNT=0
5244 : THEN-SET DO LOOP DONE FLAG
5245 : ENDF
5246 : ENDF
5247 : ENDF
5248 : DOUNTIL DO LOOP DONE FLAG SET
5249 : NOP
5250 : ENDF
5251 : ENDTST
5252 :-----
5253 : BOARD CALLOUT:
5254 : 1. CONTROLLER
5255 :-----
5256 :--

```

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TEST 24 - WRD CNT INTEGRITY - LGC TST

```

5259 030510          TSETUP
      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: .WORD -1
5284 030702          FRUTBL CTLINF T24FTB: .WORD CTLINF
      030702          .WORD -1
      030702 006646
      030704 177777
5285 030706          ENDTST

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 198
 TEST 25 - CONTROLLER-READ*WRITE ELECT - LGC TST

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 :++
5292 : TEST TO VERIFY MINIMAL CONTROLLER BOARD-READ/WRITE ELECTRONICS BOARD
5293 : INTERFACE VIA INITIALIZE OF A SELECTED DRIVE.
5294 :-----
5295 : BGNTST
5296 : IF LOGIC TEST
5297 : THEN-SETUP TEST IDENT
5298 :     NOP
5299 :     ISSUE PROGRAMMED INITIALIZE
5300 :     CALL ERROR CK
5301 :     CALL READ ERROR CODE
5302 :     IF NO ERROR (ESCAPE TEST)
5303 :     THEN-CALL ERROR CK
5304 :     ENDIF
5305 :     NOP
5306 : ENDIF
5307 : ENDTST
5308 :-----
5309 : BOARD CALLOUT:
5310 : 1. CONTROLLER
5311 : 2. R/W ELECTRONICS
5312 :-----
5313 :--

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 200
TEST 25 - CONTROLLER-READ*WRITE ELECT - LGC TST

```

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

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 201
 TEST 26 - READ SECTOR-PRT:1 - LGC TST

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

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

BGNTST

IF LOGIC TEST

: THEN-SETUP TEST IDENT

: CALL DEVICE DENSITY CK

: SET DENSITY CONTROL=DISK DEN

: CALL READ SECTOR

: CALL READ ERROR CODE

: IF NO COMMAND ERRORS

: THEN-CALL ERROR CK

: CALL COMPLIMENT DENSITY

: CALL READ SECTOR

: CALL READ ERROR CODE

: IF NO COMMAND ERRORS

: THEN-CALL ERROR CK

: ENDF

: NOP

: ENDF

: ENDF

ENDTST

 : BOARD CALLOUT:

: 1. CONTROLLER

: 2. R/W ELECTRONICS

 :--

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 203
 TEST 26 - READ SECTOR-PRT:1 - LGC TST

```

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

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 204
 TEST 27 - POSITIONING - LGC TST

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

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```

:++
: TEST TO VERIFY THAT THE DRIVE WILL READ THE HEADERS ON ALL TRACKS OF
: THE DEIVE AS EXPECTED.
-----
: BGNTST
:   IF LOGIC TEST
:   : THEN-SETUP TEST IDENT
:   : SET TRACK INIT FLAG
:   : SET SECTOR=10
:   : BGND0
:   :   CALL GET TRACK
:   :   CALL READ ERROR CODE
:   :   CALL READ SECTOR
:   :   IF NO COMMAND ERRORS (ESCAPE TST)
:   :   : THEN-CALL ERROR CHECK
:   :   :   CALL TRACKS ERROR CK
:   :   :   CLEAR TRACK INIT FLAG
:   :   :   NOP
:   :   ENDIF
:   : DOUNTIL TRACKS DONE, ABORT FLAG SET, OR TRACK ERRORS=10
:   : NOP
:   ENDIF
: ENDTST
-----
: BOARD CALLOUT:
:   1. CONTROLLER
:   2. R/W ELECTRONICS
-----
:--

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 206
TEST 27 - POSITIONING - LGC TST

```

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
                                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

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 207
 TEST 28 - WRITE SECTOR-PRT:1 - LGC TST

5438 .SBTTL TEST 28 - WRITE SECTOR-PRT:1 - LGC TST
 031470 000417 BR BGNT28 ;BR TO BGN TST
 031472 040 127 122 T28MSG: .ASCIIZ / WRITE SECTOR-PRT:1 - LGC TST/
 .EVEN

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

: 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

: ENDTST

 : BOARD CALLOUT:

: 1. CONTROLLER

: 2. R/W ELECTRONICS

;;

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 209
TEST 28 - WRITE SECTOR-PRT:1 - LGC TST

```

5470 031530      012737 031642 002466 BGNT28: TSETUP
      031530      032737 000001 002324 IAT28: MOV #T28TBL,TSTID ;SETUP TEST ID TBL-TEST# 28
      031544      001434          BIT #LOGICT,TSTMOD ;IF TEST MODE=LOGIC TEST
      031546      004737 020736          BEQ XT28 ;BIT SET, THEN
5471 031552      004737 017350          CALL LTSTUP ;CALL LOGIC TEST SETUP
5472 031556      004737 020472          CALL DENCHK ;CALL DENSITY CHECK
5473 031562      004737 010744          CALL SDENC ;CALL SET DENSITY CONTROL=DENSITY STATUS
5474 031566          ESCAPE TST ;CALL WRITE SECTOR
5475 031572      004737 017724          CALL ERRCHK ;IF NO COMMAND ERROR, THEN
5476 031576      004737 020430          CALL CDENC ;CALL ERROR CHECK
5477 031602      052737 004000 002476 BIS #NEGTST,FLAGST ;CALL COMPLIMENT DENSITY CONTROL
5478 031610      012737 000030 002464 MOV #DENERR,NGTSER ;SET FLAGST-NEG TEST FLAG
5479 031616      004737 010744          CALL WRITE ;SETUP NEG TEST ERR ERR=DENSITY ERR
5480 031622      004737 011340          CALL RDERCD ;CALL WRITE
5481 031626          ESCAPE TST ;CALL READ ERROR CODE
5482 031632      004737 017724          CALL ERRCHK ;IF NO COMMAND ERROR
5483 031636          XT28: EXIT TST ;CALL ERROR CHECK
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

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 210
 TEST 29 - DELETED DATA WRITE PRT:1 - LGC TST

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

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:++
: TEST TO VERIFY THAT THE DEVICE SET A DELETED DATA MARK ON THE DISKETTE
: HEADER AND RETRIEVE THIS DATA ON A KNOWN GOOD DISKETTE.
:-----
: BGNTST
:   IF LOGIC TEST
:   : THEN-SETUP TEST IDENT
:   :   CALL DEVICE DENSITY CK
:   :   SET DENSITY CONTROL=DENSITY STATUS
:   :   SET DELETED DATA FLAG (BIT#3-CMD)
:   :   CALL WRITE SECTOR
:   :   IF NO COMMAND ERROR (ESCAPE TEST)
:   :   : THEN-CALL READ SECTOR
:   :   :   IF NO COMMAND ERROR (ESCAPE TEST)
:   :   :   : THEN-IF RXESR-DELETED DATA BIT NOT SET
:   :   :   :   : THEN-SET ERROR NUMBER=DELETED DATA ERR
:   :   :   :   :   CALL ERROR
:   :   :   :   :   ENDIF
:   :   :   :   ENDIF
:   :   ENDIF
:   : ENDIF
: ENDTST
:-----
: BOARD CALLOUT:
:   1. CONTROLLER
:   2. R/W ELECTRONICS
:-----
:--

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 212
TEST 29 - DELETED DATA WRITE PRT:1 - LGC TST

```

5522 031732      012737 032056 002466 BGNT29: TSETUP      ;
      031732      032737 000001 002324 IAT29:  MOV      #T29TBL,TSTID ;SETUP TEST ID TBL-TEST# 29
      031740      001441          BIT      #LOGICT,TSTMOD ;IF TEST MODE=LOGIC TEST
      031746      004737          BEQ      XT29           ;BIT SET, THEN
      031750      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,DELDT ;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      #DLDTERR,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:  .WORD   REGS1
      032066      015036          .WORD   -1
      032070      177777
5541 032072          FRUTBL  CTLRWE
      032072          T29FTB:  .WORD   CTLRWE
      032072      006651          .WORD   -1
      032074      177777
5542 032076          ENDTST

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 213
 TEST 30 - SET DENSITY - LGC TST

```

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

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 215
TEST 30 - SET DENSITY - LGC TST

```

5594 032132      012737 032356 002466 BGMT30: TSETUP
      032132      012737 032356 002466      MOV #T30TBL,TSTID ;SETUP TEST ID TBL-TEST# 30
      032140      032737 000001 002324 IAT30: BIT #LOGICT,TSTMOD ;IF TEST MODE=LOGIC TEST
      032146      001501          BEQ XT30 ;BIT SET, THEN
      032150      004737 020736          CALL LTSTUP ;CALL LOGIC TEST SETUP
5595 032154      004737 017350          CALL DENCHK ;CALL DENSITY CHECK
5596 032160      013737 002414 002506      MOV DENSTA,TSAVE1 ;SAVE DEVICE DENSITY
5597 032166      005037 002412          CLR DENSTY ;SET DENSITY CONTROL=SINGLE DENSITY
5598 032172      004737 011172          CALL SETDN ;CALL SET DENSITY
5599 032176          ESCAPE TST ;IF NO COMMAND ERROR, THEN
5600 032202      004737 017724          CALL ERRCHK ;CALL ERROR CHECK
5601 032206      012737 000113 002372      MOV #'K,VARIFY ;SET VALIDITY WORD=ASCII 'K'
5602 032214      004737 011172          CALL SETDN ;CALL SET DENSITY
5603 032220      004737 011340          CALL RDERCD ;CALL READ ERROR CODE
5604 032224          ESCAPE TST ;IF NO COMMAND ERROR
5605 032230      052737 004000 002476      BIS #NEGTST,FLAGST ;SET FLAGST-NEG TEST FLAG
5606 032236      012737 000036 002464      MOV #SDKYWD,NGTSER ;SETUP EXPECTED ERROR=SET DEN KEYWORD ERROR
5607 032244      004737 017724          CALL ERRCHK ;CALL ERROR CHECK
5608 032250      012737 000400 002412      MOV #DENBIT,DENSTY ;SET DENSITY CONTROL=DOUBLE DENSITY
5609 032256      012737 000111 002372      MOV #'I,VARIFY ;SET VALIDITY WORD=ASCII 'I'
5610 032264      042737 004000 002476      BIC #NEGTST,FLAGST ;CLEAR FLAGST-NEG TEST FLAG
5611 032272      004737 011172          CALL SETDN ;CALL SET DENSITY
5612 032276          ESCAPE TST ;IF NO COMMAND ERROR, THEN
5613 032302      004737 017724          CALL ERRCHK ;CALL ERROR CHECK
5614 032306      004737 017350          CALL DENCHK ;CALL DENSITY CHECK
5615 032312      023737 002414 002412      CMP DENSTA,DENSTY ;IF DENSITY DID
5616 032320      001405          BEQ IBT30 ;NOT SET, THEN
5617 032322      012737 000035 002520      MOV #STDNER,ERRNBR ;SET ERROR NBR=DENSITY DIDN'T SET ERROR
5618 032330      004737 003060          CALL ERROR ;CALL ERROR
5619 032334      005737 002506          TST TSAVE1 ;IF SAVED DENSITY
5620 032340      001404          BEQ XT30 ;EQUALS DOUBLE DEN, THEN
5621 032342      005037 002412          CLR DENSTY ;SET DENSITY CONTROL=SINGLE DEN
5622 032346      004737 011172          CALL SETDN ;CALL SET DENSITY
5623 032352          XT30: EXIT TST
5624 032356          REGTBL CSESAL
                                REGS1=CSESAL
5625 032356      015036          TTBL REGCK,0
      032356      032102          T30TBL: .WORD T30MSG
      032360      000001          .WORD REGCK
      032362      000000          .WORD 0
      032364      177777          .WORD -1
      032366          T30RTB: .WORD REGS1
      032366      015036          .WORD -1
      032370      177777          T30FTB: .WORD CTLRWE
5626 032372          FRUTBL CTLRWE          .WORD -1
      032372      006651          .WORD CTLRWE
      032372      177777          .WORD -1
5627 032376          ENDTST

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 216
 TEST 31 - SECTOR ADR - LGC TST

5630 .SBTTL TEST 31 - SECTOR ADR - LGC TST
 032400 000413
 032402 040 123 105 T31MSG: .ASCIZ / SECTOR ADR - LGC TST/
 .EVEN

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5633 : **
5634 : TEST TO VERIFY THAT THE CONTROLLER WILL HANDLE ALL LEGAL AND ILLEGAL
5635 : SECTOR ADDRESSES PROPERLY.
5636 :-----
5637 : BGTST
5638 : IF LOGIC TEST
5639 : THEN-SETUP TEST IDENT
5640 : SET TRACK ADR=0
5641 : SET SECTOR LEGAL FLAG
5642 : SET SECTOR INIT
5643 : BGND0
5644 : : CALL GET SECTOR ADR
5645 : : CALL READ SECTOR
5646 : : CALL READ ERROR CODE
5647 : : IF FINI FLAG NOT SET
5648 : : : THEN-
5649 : : : IF SECTOR ADR NOT=TARGET SECTOR ADR
5650 : : : : THEN-SETUP TO PRINT ERROR
5651 : : : : CALL ERROR
5652 : : : : ELSE-CALL ERROR CK
5653 : : : : ENDF
5654 : : ENDF
5655 : DOUNTIL SECTORS DONE FLAG SET OR ABORT FLAG SET
5656 : CLEAR SECTORS DONE FLAG
5657 : SET DONE TIME OUT MULTIPLIER=100
5658 : SET NEG TEST FLAG
5659 : BGND0
5660 : : CALL READ SECTOR
5661 : : CALL READ ERROR CODE
5662 : : IF FINI FLAG NOT SET
5663 : : : THEN-IF SECTOR ADR NOT=TARGET SECTOR ADR
5664 : : : : THEN-SET ERR=SECTOR ADR ERROR
5665 : : : : CALL ERROR
5666 : : : : ELSE-CALL ERROR CHECK
5667 : : : : ENDF
5668 : : ENDF
5669 : DOUNTIL SECTORS DONE FLAG SET OR FINI FLAG SET
5670 : NOP
5671 : ENDF
5672 : ENDTST
5673 :-----
5674 : BOARD CALLOUT:
5675 : 1. CONTROLLER
5676 :-----

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 218
TEST 31 - SECTOR ADR - LGC TST

```

5679 032430      012737 032730 002466 BGNT31: TSETUP
      032430      032737 000001 002324 IAT31:  #T31TBL,TSTID      ;SETUP TEST ID TBL-TEST# 31
      032444      001527          BEQ      #LOGICT,TSTMOD    ;IF TEST MODE=LOGIC TEST
      032446      004737 020736          CALL    XT31          ;BIT SET, THEN
      032452      004737 010440          CALL    LTSTUP        ;CALL LOGIC TEST SETUP
5680 032452      004737 010440          CALL    INITIAL        ;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    INITIAL        ;CALL INITAILIZE
5696 032560      000402          BR       UBT31          ;BR TO DOUNTIL 'B'
5697 032562      004737 017724      LDT31:  CALL    ERRCHK        ;CALL ERROR CHECK
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      #NEGST,FLAGST ;SET FLAGST-NEG TEST FLAG
5704 032620      012737 000003 002464      MOV      #RDERR,NGTSEK ;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
5720 032730          REGTBL CSESAL
      015036          REGS1=CSAL
5721 032730          TTBL   REGCK,0
      032730      032402      T31TBL: .WORD    T31MSG
      032732      000001      .WORD    REGCK
      032734      000000      .WORD    0
      032736      177777      .WORD    -1
      032740          T31RTB: .WORD    REGS1
      032740      015036      .WORD    -1
      032742      177777
5722 032744          FRUTBL CTLRWE
      032744          T31FTB:

```

HARDWARE TESTS, MACRO M1200 14-DEC-82 16:33 PAGE 218-1
TEST 31 - SECTOR ADR - LGC TST

032744 006651
032746 177777
5723 032750

ENDTST

.WORD CTLRWE
.WORD -1

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 TEST 32 - TRACK ADR - LGC TST

```

5726      .SBTTL TEST 32 - TRACK ADR - LGC TST
          032752 000413
          032754 040      124      122 T32MSG: .ASC1Z / TRACK ADR - LGC TST/
                                     .EVEN
5727
5728
5729      :++
5730      : TEST TO VERIFY THAT THE CONTROLLER WILL HANDLE ALL LEGAL AND ILLEGAL
5731      : TRACK ADDRESSES PROPERLY.
5732      :-----
5733      : BGNTST
5734      : IF LOGIC TEST
5735      : THEN-SETUP TEST IDENT
5736      : SET TRACK INIT & SEQUENCE FLAGS
5737      : BGND0
5738      : : BGND0
5739      : : CALL GET TRACK ADR
5740      : : CLEAR TRACK INIT FLAG
5741      : : CALL READ SECTOR
5742      : : CALL READ ERROR CODE
5743      : : IF FINI FLAG NOT SET
5744      : : THEN-
5745      : : IF TRACK ADR NOT=TARGET TRACK ADR
5746      : : THEN-CALL LOGIC TEST ERROR
5747      : : ENDIF
5748      : : IF ILLEGAL FLAG NOT SET
5749      : : THEN-IF TRACK ADR NOT=UNIT TRACK ADR
5750      : : THEN-SETUP TRACK ADR ERR & CALL ERROR
5751      : : ELSE-IF ERROR CODE=40
5752      : : THEN-CALL LOGIC TEST ERROR
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      :--

```

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TEST 32 - TRACK ADR - LGC TST

```

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
5827 033336          REGTBL
5828 033336          TTBL 0,0
      033336 032754          T32TBL: .WORD T32MSG
      033340 000000          .WORD 0

```

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TEST 32 - TRACK ADR - LGC TST

033342 000000
033344 177777
033346
033346 177777
5829 033350
033350
033350 006654
033352 177777
5830 033354

FRUTBL CTLONL

ENDTST

T32RTB: .WORD 0
.WORD -1
.WORD -1
T32FTB: .WORD CTLONL
.WORD -1

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 222
 TEST 33 - READ SECTOR-PRT:2 - LGC TST

5833 .SRTTL TEST 33 - READ SECTOR-PRT:2 - LGC TST
 033356 000417 BR BGNT33 ;BR TO BGN TST
 033360 040 122 105 T33MSG: .ASCIIZ / 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 : : : ENDF
 5855 : : : NOP
 5856 : : ENDF

5857 : ENDTST
 5858 :-----
 5859 : BOARD CALLOUT:
 5860 : 1. CONTROLLER
 5861 : 2. R/W ELECTRONICS
 5862 :-----
 5863 :--
 5864

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 224
 TEST 33 - READ SECTOR-PRT:2 - LGC TST

```

5867 033416          012737 033534 002466 BGNT33: TSETUP
      033416          032737 000001 002324 IAT33: MOV #T33TBL,TSTID ;SETUP TEST ID TBL-TEST# 33
      033424          001436          BIT #LOGICT,TSTMOD ;IF TEST MODE=LOGIC TEST
      033432          004737          BEQ XT33 ;BIT SET, THEN
      033434          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 #NEGTEST,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 T33FTB:
      033550          006651          .WORD CTLRWE
      033552          177777          .WORD -1
5885
5886 033554          ENDTST

```

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

5889 .SBTTL TEST 34 - WRITE SECTOR-PRT:2 - LGC TST
 033556 000417 BR BGNT34 :BR TO BGN TST
 033560 040 127 122 T34MSG: .ASCIIZ / WRITE SECTOR-PRT:2 - LGC TST/
 .EVEN

5890
 5891
 5892
 5893
 5894
 5895
 5896
 5897
 5898
 5899
 5900
 5901
 5902
 5903
 5904
 5905
 5906
 5907
 5908
 5909
 5910
 5911
 5912
 5913
 5914
 5915
 5916
 5917
 5918
 5919
 5920

 : TEST TO VERIFY 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

: ENDF

: NOP

: ENDF

: NOP

: ENDF

: ENDTST

: BOARD CALLOUT:

: 1. CONTROLLER

: 2. R/W ELECTRONICS

:--

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 227
 TEST 34 - WRITE SECTOR-PRT:2 - LGC TST

```

5923 033616          012737 033730 002466 BGNT34: TSETUP
      033616          032737 000001 002324 IAT34: MOV #T34TBL,TSTID ;SETUP TEST ID TBL-TEST# 34
      033624          001434          BEQ XT34  #LOGICT,TSTMOD ;IF TEST MODE=LOGIC TEST
      033632          004737 020736          CALL LTSTUP ;BIT SET, THEN
      033634          ;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 #NEGTEST,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
      033732          000001
      033734          000000
      033736          177777
      033740
      033740          015036
      033742          177777
      033744          FRUTBL CTLRWE
      033744          006651
      033746          177777

5941
5942 033750          ENDTST

T34TBL: .WORD T34MSG
        .WORD REGCK
        .WORD 0
        .WORD -1

T34R1B: .WORD REGS1
        .WORD -1

T34FTB: .WORD CTLRWE
        .WORD -1
  
```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 228
 TEST 35 - DELETED DATA WRITE PRT:2 - LGC TST

```

5945      033752 000422      .SBTTL TEST 35 - DELETED DATA WRITE PRT:2 - LGC TST
          033754 040      104 105 T35MSG: BR BGNT35 ;BR TO BGN TST
                                     .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      ; ENDF
5966      ; ENDF
5967      ; ENDF
5968      ; ENDF
5969      ; ENDTST
5970      -----
5971      ; BOARD CALLOUT:
5972      ; 1. CONTROLLER
5973      ; 2. R/W ELECTRONICS
5974      -----
5975      ;--
5976

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 230
 TEST 35 - DELETED DATA WRITE PRT:2 - LGC TST

```

5979 034020      TSETUP
      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,ARXDB    ;IF RXESR-DELETED DATA BIT
5990 034116 001006              BNE      LDT35      ;NOT SET, THEN
5991 034120 012737 000032 002520      MOV      #DLDTERR,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 C00000          .WORD    0
      034156 177777          .WORD    -1
      034160          T35RTB: .WORD    REGS1
      034160 015036          .WORD    -1
      034162 177777
5999 034164          FRUTBL  CTLRWE          T35FTB: .WORD    CTLRWE
      034164          .WORD    -1
      034164 006651
      034166 177777
6000
6001 034170          ENDTST
  
```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 231
 TEST 36 - DISKETTE & DENSITY DATA CHECK - LGC TST

```

6004      034172 000425      .SBTTL TEST 36 - DISKETTE & DENSITY DATA CHECK - LGC TST
          034174 040      104      111 T36MSG: BR      BGNT36      :BR TO BGN TST
          :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      :      BGND0
6018      :      SET DATA PATTERN=RANDOM
6019      :      CALL DATA PATTERN GENERATOR
6020      :      SET TRACK & SECTOR INITIALIZE FLAG
6021      :      SET TRACK & SECTOR=SEQUENCE MODE
6022      :      BGND0
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      :--

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 233
TEST 36 - DISKETTE & DENSITY DATA CHECK - LGC TST

```

6051
6052 034246      012737 034504 002466 BGNT36: TSETUP
      034246      032737 000001 002324 IAT36:  MOV #T36TBL,TSTID ;SETUP TEST ID TBL-TEST# 36
      034254      001506          BIT #LOGICT,TSTMOD ;IF TEST MODE=LOGIC TEST
      034262      004737          BEQ XT36 ;BIT SET, THEN
      034264      005037          CALL LTSTUP ;CALL LOGIC TEST SETUP
6053 034270      004737 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 DATAK ;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 ;EUALS 2
6085 034500          XT36: EXIT TST
6086
6087 034504          REGTBL CSAL
      015036          TTBL REGCK,0
      REGS1=CSAL
6088 034504          034174          T36TBL: .WORD T36MSG
      034506          000001          .WORD REGCK
      034510          000000          .WORD 0
      034512          177777          .WORD -1
      034514          015036          T36RTB: .WORD REGS1
      034516          177777          .WORD -1
6089 034520          FRUTBL CTLRWE
      034520          006651          T36FTB: .WORD CTLRWE
      034522          177777          .WORD -1
6090
6091 034524          ENDTST

```

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 235
TEST 36 - DISKETTE & DENSITY DATA CHECK - LGC TST

6099 034526
6100

ENDMOD

HARDWARE TESTS MACRO M1200 14-DEC-82 16:33 PAGE 236
 TEST 36 - DISKETTE & DENSITY DATA CHECK - LGC TST

6103
 6104
 6115
 6116
 6144
 6145 034526
 6146
 6147
 6148
 6149
 6150
 6151
 6152
 6153
 6154
 6155
 6156 034526
 6157
 6158 034530
 6159 034540
 6160 034550
 6161 034562
 6162 034574
 6163
 6169 034606
 6170
 6171 034606
 6172 034621
 6173 034634
 6174 034647
 6175 034662
 6176
 6177
 6178
 6185

.NLIST BEX,ME
 .TITLE PARAMETER CODING

.SBTTL HARDWARE PARAMETER CODING SECTION

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.
:--

```

BGNHRD

```

GPRMA MSG1,0,0,0,177777,YES
GPRMA MSG2,2,0,0,177777,YES
GPRMD MSG3,4,0,177777,0,1,YES
GPRMD MSG4,6,0,177777,0,1,YES
GPRMD MSG4A,10,0,177777,0,7,YES

```

ENDHRD

```

:-----
MSG1: .ASCIZ /RX BUS ADR/
MSG2: .ASCIZ /VECTOR ADR/
MSG3: .ASCIZ /DRIVE # /
MSG4: .ASCIZ /EXP WRD-CR/
MSG4A: .ASCIZ /BR-LEVEL /
.EVEN
:-----

```

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

6188
6189
6190
6191
6192
6193
6194
6195
6196
6197
6198
6199 034676
6200
6201 034700
6202 034706
6203 034710
6204 034716
6205 034724
6206 034732
6207 034744
6208 034754
6209 034766
6210 034774
6211 034776
6212 035004
6219 035012
6220
6221 000015
6222 000012
6223 035012 105 130 120
6224 035044 124 105 123
6225 035057 104 111 101
6226 035106 040 040 040
6227 035160 040 040 040
6228 035213 040 040 040
6229 035301 040 040 040
6230 035332 040 040 040
6231 035403 040 040 040
6232 035461 040 040 040
6233 035552 040 040 040
6237 035651 124 131 120
6238 035677 114 117 107
6239 035722 106 125 116
6240 035745 110 101 122
6241 036014 116 117 116
6242 036053 105 130 124
6243 036124 124 105 123
6244 036150 040 040 040
6245
6246

.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.
:--

```

BGNSFT

```

1$: GPRML MSG6,2,1,YES
    XFERF 1$
    GPRML MSG7,2,2,YES
    GPRML MSG8,4,LOGICT,YES
    GPRML MSG9,4,FUNCTT,YES
    GPRMD MSG10,0,0,177777,1,177777,YES
    GPRMA MSG14,24,0,0,177777,YES
    GPRMD MSG15,26,0,030000,0,3,YES
    GPRML MSG17,2,100,YES
    XFERF 6$
    GPRML MSG20,12,20,YES
6$: GPRML MSG5,12,SIDFLG,YES
    ENDSFT

```

```

:-----
: CR==15                                :CARRIAGE RETURN
: LF==12                                :LINE FEED
MSG5: .ASCIZ /EXPANSION WORD TYPE <CR> /
MSG6: .ASCIZ /TEST HELP /
MSG7: .ASCIZ /DIAGNOSTIC MODES ARE:/<CR><LF>
      .ASCIZ /    LOGIC TEST, FUNCTION TEST, OR BOTH/<CR><LF>
      .ASCIZ /    -FUNCTION TESTS (1-10)/<CR><LF>
      .ASCIZ /    ACT AS QUICK VERIFY & REPORT FAILING FUNCTIONS/<CR><LF>
      .ASCIZ /    -LOGIC TESTS (11-36)/<CR><LF>
      .ASCIZ /    ANALYZE FAILURE & GIVE ERROR INFO/<CR><LF>
      .ASCIZ /    REPORT FIELD REPLACEABLE UNITS 'FRU'S'/<CR><LF>
      .ASCIZ /    ->DEVICE FATAL THRESHOLD LEVEL (DVTL) IS SET = 1/<CR><LF>
      .ASCIZ /    'DVTL' = NO. OF HARD ERRS THAT CAUSE DEVICE FATAL ERR/<CR><LF>
      .ASCIZ /TYPE 'CR' TO CONTINUE/
MSG8: .ASCIZ /LOGIC TEST MODE /
MSG9: .ASCIZ /FUNCTION TEST MODE/
MSG10: .ASCIZ /HARD ERR -> DEVICE FATAL THRESHOLD LVL/
MSG14: .ASCIZ /NON-EXISTANT MEM ADR (NXM TST)/
MSG15: .ASCIZ /EXTENDED ADR BITS: 13 & 12 (NPR-NXM TST)/
MSG17: .ASCIZ /TEST CONTROL FLAGS /
MSG20: .ASCIZ /    PRINT ONLY 10 DATA ERRORS & CONTINUE /
:-----

```

.EVEN

PARAMETER CODING MACRO M1200 14-DEC-82 16:33 PAGE 240
SOFTWARE PARAMETER CODING SECTION

```

6249
6250      .SBTTL -    RX02 FILL BUFFER AREA
6251
6252      ;-----
6253 036222 000400      DATPAT: .REPT 256.          ;DATA PATTERN - RX02 FILL BUFFER
6254      ;-----
6255
6256      .SBTTL -    RX02 EMPTY BUFFER AREA
6257
6258      ;-----
6259
6260      DATBUF: .REPT 256.          ;DATA BUFFER - RX02 EMPTY BUFFER
6261 036622 000400      .WORD 0
6262 037222 000000      .WORD 0
6263 037224 000000
6264
6265      ;-----
6266      .SBTTL -    PATCH AREA
6267      ;-----
6268
6269 037226 000000      PATCH: 0          ;PATCH AREA
6270      .+.400
6271      ;-----
6272
6273      LASTAD
6274      L$LAST::
6275      ENDMOD
6276
6277      BGNSETUP      2
6278      BGNPTAB
6279      177170
6280      264
6281      0
6282      0
6283      5
6284      ENDPTAB
6285      BGNPTAB
6286      177170
6287      264
6288      1
6289      0
6290      5
6291      ENDPTAB
6292      ENDSETUP
6293
6294      .END
6295
6296
6297      000001

```

PARAMETER CODING
SYMBOL TABLE

MACRO M1200 14-DEC-82 16:33 PAGE 240-1

ABORT	002452	BGNT35	034020	CMDERR=	000020	C\$ESCA=	000010	DISKSP=	000030
ACLOW =	000010	BGNT36	034246	CMDMSG	007164	C\$SEEG=	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	DLDTERR=	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	CMWRD	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	DRVDE=	000040
BBT24	030546	BIT07 =	000200 G	CRCERR=	000004	C\$PNTS=	000016	DRVOFF	002420
BBT27	031400	BIT08 =	000400 G	CSERTB	014776	C\$PNTX=	000015	DRVPR	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	CSRCP	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	BROWPT	012372	C\$BRK =	000022	DAT1	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	DELDT	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

PARAMETER CODING
SYMBOL TABLE

MACRO M1200 14-DEC-82 16:33 PAGE 240-2

ECERNT	015164	END131	012612	ERRNST=	000016	FSDU =	000016	IAGEN	015110
ECERR	003230	EPECK	020140	EROLD	003340	FSEND =	000041	IAGSC	013106
ECNAT	027074	ERIDNT	003502 G	ERROR	003060	FSHARD=	000004	IAGTK	012664
ECSTA	015330	ERMSTB	003534	ERRREG	015444	FSHW =	000013	IAI1	021622
ECTAB	016044	ERMS0	003706	ERRSAV	003336	FSINIT=	000006	IANAT	026776
ECT18	026674	ERMS10	004015	ERRTYP	002516 G	FSJMP =	000050	IAPCE	007056
ECT21	027660	ERMS11	004035	ERTKMS	010241	FSMOD =	000000	IARCR	013672
ECT32	033256	ERMS12	004056	ESERTB	014746	FSMSG =	000011	IASCP	007676
ECT36	034440	ERMS13	004112	ESRCHK	014112	FSPROT=	000021	IASDC	020500
ECO	016116	ERMS14	004146	ESRCMP	014264	FSPWR =	000017	IASRC	014340
EC1	016136	ERMS15	004177	ESRMSK	014266	FSRPT =	000012	IASTA	015334
EC11	016407	ERMS16	004226	ESRSET	014272	FSSEG =	000003	IATKE	017520
EC12	016451	ERMS17	004264	EVL =	000004 G	FSOFT=	000005	IATKP	010006
EC13	016477	ERMS19	004314	EXMS	010156	FSSRV =	000010	IAT1	022372
EC14	016550	ERMS2	003717	EXTADR	002366	FSSUB =	000002	IAT10	024262
EC15	016567	ERMS20	004333	ESEND =	002100	FSSW =	000014	IAT11	024420
EC16	016640	ERMS21	004356	ESLOAD=	000035	FSTEST=	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	GSCNTO=	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\$OFFSI=	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\$RADL=	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	ERNCK	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
SYMBOL TABLE

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IBERR	003140	ID	002336	G	IJT32	033222	LBDDC	017430	LSEXP4	002064	G	
IBFLB	010554	IDCOMP	013020		IKERR	003260	LBFRU	005456	LSEXP5	002066	G	
IBFRU	005424	IDDDC	017354		IKT32	033276	LBGEN	015134	LSHARD	034530	G	
IBGEN	015116	IDDSMS	020642		ILERR	003274	LBGTK	013006	LSHIME	002120	G	
IBGSC	013140	IDECK	020022		ILLERC=	000017	LBI1	021704	LSHPCP	002016	G	
IBGTK	012770	IDENC	020226		ILLGAL=	010000	LBNAI	027022	LSHPTP	002022	G	
IBI1	021666	IDENT1	015446		ILTK =	000004	LBTKP	010056	LSHW	002276	G	
IBNAT	027006	IDENV	003404		IMDCK	013352	LBWCH	011740	LSICP	002104	G	
IBPCE	007122	IDERR	003242		IMECK	020074	LCMD	002424	LSINIT	021214	G	
IBREC	011414	IDGSC	013224		INDCK	013402	LCSTA	015314	LSLADP	002026	G	
IBRED	011124	IDSRC	014446		INECK	017752	LCT24	030634	LSLAST	037634	G	
IBSDN	011234	IDSSMS	020657		INFCTL=	006640	LCT29	032042	LSLOAD	002100	G	
IBSRC	014416	IDTKE	017556		INIT	021214	LDT11	024474	LSLUN	002074	G	
IBSTA	015270	IDT11	024454		INITDN=	000004	LDT31	032562	LSMREV	002050	G	
IBTKE	017540	IDT14	025376		INITER	021462	LDT35	034134	LSNAME	002000	G	
IBTKP	010042	IDT16	026050		INITTK	013102	LET14	025446	LSPRIO	002042	G	
IBT11	024502	IDT18	026700		INTERF=	000000	LET21	027770	LSPROT	002310	G	
IBT12	024714	IDT24	030640		INTERI	021530	LEWCH	012000	LSPRT	002112	G	
IBT13	025140	IDT29	032016		INTER1	021530	LF =	000012	LSREPP	002062	G	
IBT14	025342	IDT31	032516		INTFCB=	000024	LFFRU	005562	LSREV	002010	G	
IBT16	025710	IDT32	033066		INTFSW=	000016	LGFRU	005550	LSRPT	021212	G	
IBT18	026506	IDT35	034110		INTIAL	010440	LGT31	032712	LSOFT	034700	G	
IBT19	027170	IDU =	000040	G	INTNDN=	000014	LKERR	003312	SSPC	002056	G	
IBT29	031776	IEDCK	013322		INTONL=	006644	LKT32	033316	SSPCP	002020	G	
IBT30	032334	IEERR	003164		INTRHD	012276	LMECK	020114	SSPTP	002024	G	
IBT35	034070	IER =	020000	G	INTTBL	021742	LOAD	012614	SSSTA	002030	G	
IBUWCH	011704	IESRC	014466		IOECK	017762	LOE =	040000	SSW	002320	G	
IBWRT	011014	IETKE	017566		IPECK	020124	LOGICT=	000001	STEST	002114	G	
ICDDC	017464	IET14	025422		ISC =	001000	LOT =	000010	STIML	002014	G	
ICDSC	017160	IET21	027706		ISR =	000100	G		LSUNIT	002012	G	
ICECK	020012	IET32	033074		ITK =	000400	LRXCSR	002426	L1000	002310		
ICEMB	010712	IEUWCH	011752		IXE =	004000	G		L10002	002350		
ICENC	020214	IFDCK	013332		ISAU =	000041	LSIFLG=	000400	L10003	002532		
ICERR	003214	IFENV	003420		ISAUTO=	000041	LTSTUP	020736	L10004	002540		
ICFLB	010574	IFERR	003062		ISCLN =	000041	LSACP	002110	G	L10005	002546	
ICGTK	012742	IFFRU	005524		ISDU =	000041	LSAPT	002036	G	L10006	003532	
ICNAT	027046	IFSRC	014346		ISHRD =	000041	LSAU	022062	G	L10007	021212	
ICPCE	007130	IFTKE	017612		ISINIT=	000041	LSAUT	002070	G	L10010	021522	
ICREC	011434	IFT21	027714		ISMOD =	000041	LSAUTO	022054	G	L10011	021774	
ICRED	011144	IFT31	032652		ISMSG =	000041	LSCCP	002106	G	L10012	022010	
ICSRC	014432	IFT32	033122		ISPROT=	000040	LSCLEA	021764	G	L10013	022060	
ICSTA	015276	IGENV	003430		ISPTAB=	000041	LSCO	002032	G	L10014	022064	
ICTKE	017550	IGERR	003200		ISPR =	000041	L\$DEPO	002011	G	L10015	022454	
ICT11	024546	IGFRU	005532		ISRPT =	000041	L\$DESC	002122	G	L10016	022614	
ICT12	024756	IGSRC	014304		ISSEG =	000041	L\$DESP	002076	G	L10017	022730	
ICT13	025210	IGTKE	017622		ISSETU=	000041	L\$DEVP	002060	G	L10020	023046	
ICT14	025352	IGT21	027724		ISSFT =	000041	L\$DISP	002164	G	L10021	023164	
ICT16	025754	IGT31	032660		ISSRV =	000041	L\$DLY	002116	G	L10022	023350	
ICT18	026652	IGT32	033132		ISSUB =	000041	L\$DTP	002040	G	L10023	023612	
ICT21	027640	IHENV	003444		ISTST =	000041	L\$DU	021776	G	L10024	024002	
ICT23	030372	IHTKE	017654		JSJMP =	000167	L\$DUT	002072	G	L10025	024220	
ICT24	030566	IHT32	033156		LACDC	020454	L\$DVTY	002154	G	L10026	024362	
ICT29	032012	IECK	020056		LAI1	021644	LSEF	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
SYMBOL TABLE

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L10034	026232	NOTRBT=	000057	PRTREG	007564	RXPRI	002356	TRKAER=	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	ODCCMP	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	OSAPTS=	000000	PTUTMS	020560	SEKERR=	000006	TSTID	002466
L10047	031466	OSAU =	000001	PWDNRY	026175	SETDCD	011462	TSTMOD	002324 G
L10050	031662	OSBGNR=	000000	PWRMS	026122	SETDN	011172	TSTPAT	002326 G
L10051	032076	OSBGNS=	000001	PWUPRY	026214	SETSCD	011502	TTEMP1	002504
L10052	032376	OSDU =	000001	RANDAT	012566	SETUP	021362	TTRK	002446
L10053	032750	OSERRT=	000001	RANGEN	010344	SFPTBL	002320 G	TYPERR	002460
L10054	033354	OSGNSW=	000001	RANUM	010436	SFTSTS	002450	TSARGC=	000002
L10055	033554	OSPOIN=	000001	RAN1	010432	SIDE	002410	TSCODE=	005130
L10056	033750	OSSETU=	000001	RAN2	010434	SIDE1 =	001000	TSERRN=	000074
L10057	034170	PAT	012660	RDERCD	011340	SIDFLG=	010000	TSEXCP=	000000
L10060	034524	PATCH	037226	RDERR =	000003	SIDPRT	002515	TSFLAG=	000040
L10061	034606	PAT125	012532	RDSTAT	011266	SIDRDY=	000002	TSFREE=	037670
L10062	035012	PAT333	012556	READ	011062	SIDWRG=	000026	TSGMAN=	000000
L10063	037640	PG	012434	READ1	011112	SSC =	000002	TSHILI=	000003
L10064	037656	PHYDRV=	000006	RECADR	002364	STAFLG=	100000	TSLAST=	000001
L10065	037652	PLOC	021524	RECCMD=	000016	START	021252	TSLOLI=	000000
L10067	037670	PNT =	001000 G	RECERN	002462	START0	021262	TLSYM=	010000
MAXSEC	002342 G	POWRSP=	000012	RECERR=	000021	START1	021322	TSLTNO=	000044
MINSEC	002340 G	PRESCK	013044	RECFLG=	000200	STATER	017222	TSNEST=	177777
MOTOR =	000032	PRI =	002000 G	RECTST=	000200	STCMD =	000012	TSNS0 =	000000
MSG1	034606	PRILEV=	000054	REGACT	002440	STDATP	012306	TSNS1 =	000005
MSG10	035745	PRIMSG	030006	REGCK =	000001	STDNER=	000035	TSPCNT=	000000
MSG14	036014	PRIORT	002416	REGEXP	002436	STK =	000001	TSPTAB=	010066
MSG15	036053	PRITAB	021732	REGSCK	013664	STTK76	021174	TSPTHV=	000002
MSG17	036124	PR100 =	000000 G	REGS1 =	015036	SUDVCD	021014	TSPTMU=	000002
MSG2	034621	PR101 =	000040 G	REGS2 =	000000	SUM	012654	TSSAVL=	177777
MSG20	036150	PR102 =	000100 G	REGS3 =	000000	SURGCK	014276	TSS EGL=	177777
MSG3	034634	PR103 =	000140 G	REGS4 =	000000	SUTSFG	020772	TSSIZE=	000016
MSG4	034647	PR104 =	000200 G	REGS5 =	000000	SVCGBL=	000000	TSSUBN=	000000
MSG4A	034662	PR105 =	000240 G	REGS6 =	000000	SVCINS=	177777	TSTAGL=	177777
MSG5	035012	PR106 =	000300 G	RESFLG=	040000	SVC SUB=	177777	TSTAGN=	010070
MSG6	035044	PR107 =	000340 G	RESTAR	021332	SVCTAG=	177777	TSTEMP=	000000
MSG7	035057	PROPRT=	000010	REVC =	000000	SVCTST=	177777	TSTEST=	000044
MSG8	035677	PROTCT	002472	RGERNB	020166	SWREG	002332 G	TSTSTM=	177777
MSG9	035722	PRTB0	002526 G	RGETB	014706	SYFERR=	002000	TSTSTS=	000001
NAT	026774	PRTB0S	002550	RGETPT	014670	SYSERR	002456	TSSAU =	010014
NATADR	027102	PRTB1	002534 G	RGPRT =	000004	S\$LSYM=	010000	TSSAUT=	010013
NATCTR	027100	PRTB1S	002570	RSC =	000000	TCMDCT	002470	TSSCLE=	010011
NCMD	011542	PRTB2	002542 G	RSCMD =	000006	TFDCK	013342	TSSDAT=	010067
NEGTST=	004000	PRTB2S	002612	RTBADR	014704	TGMS	010220	TSSDU =	010012
NEW	021352	PRTB3S	002636	RTK =	000000	TKERCK	017516	TSSHAR=	010061
NEXT	021370	PRTB4S	002664	RWELEC=	000004	TKPRT =	000001	TSSHW =	010000
NGTSER	002464	PRTCDE	007040	RXCS	002350	TKSCFG	002510	TSSINI=	010010
NODNBT=	000060	PRTDID	020600	RXCSR	002432	TN =	000044	TSSMSG=	010006
NOITDB=	000061	PRTECD	015744	RXDB	002352	TRACK	002374	TSSPC =	000002
NOITDP=	000062	PRTFRU	005404	RXESR	002434	TRAP	022324	TSSPRO=	010001
NOPWR =	000034	PRTGMS	007620	RXINIT=	040000	TRBIT =	000200	TSSPTA=	010066

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SYMBOL TABLE

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TSSRPT=	010007	T14FTB	025474	T24RTB	030700	T35FTB	034164	WAIT	011610
TSSSOF=	010062	T14MSG	025264	T24TBL	030670	T35MSG	033754	WATCH	011662
TSSSW =	010002	T14RTB	025472	T25	030710 G	T35RTB	034160	WC	002443
TSSTES=	010060	T14TBL	025462	T25FTB	031072	T35TBL	034150	WCERR =	000023
TOFTB	006660	T15	025502 G	T25MSG	030712	T36	034172 G	WCFRU	005462
TOFT0	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	XRDSA	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	XKECK	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

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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