Program Number B06-173R03

COMMON DISC TEST/ FORMATTER PROGRAM

CONSISTS OF:

PROGRAM DESCRIPTION	B06-173R03A15
TEST PROGRAM LISTING	06-173R01F01A13
TEST PROGRAM TAPE	06-173R01F01M17
FORMATTER PROGRAM LISTING	06-173R01F02A13
FORMATTER PROGRAM TAPE	06-173R01F02M17

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MANUAL UPDATE PACKAGE COVER SHEET

THIS PACKAGE UPDATES THE FOLLOWING PUBLICATIONS

PUB. NO.	OLD REV.	NEW REV.	TITLE
B06-173	R02	R03	Common Disc Test/Formatter Program

This revision includes changes reflecting:

ECNs 3561

SCNs

Briefly, the changes are as follows:

This Package Consists Of:

This Instruction Sheet

New Title Sheet

B06-173R03M95A15 Sheets 1, 2, 5, 6, A3-3, A3-4

Delete Sheet i/ii Patch Information; this information is now contained in text of B06-173R03M95A15 on sheet A3-3

PAGE REVISION STATUS SHEET

PUBLICATION NUMBER B06-173

TITLE Common Disc Test/Formatter Program

REVISION R03 DATE April 1978

PAGE	REV.	DATE	PAGE	REV.	DATE	PAGE	REV.	DATE
B06-173M95A15								
R03	4/78							
1	R03	4/78						
2 thru 4	R02	3/75						
5	R03	4/78						
6 thru 10	R02	3/75						
A1-1/ A1-2	R02	3/75						
A2-1 thru A2-4	R02	3/75						
A3-1	R02	3/75						
A3-2	R02	3/75						
A3-3	R03	4/78						
A3-4	R02	3/75						
A3-5/ A3-6	R02	3/75						
A4-1 thru A4-10	R02	3/75						
A5-1	R02	3/75						
A5-2	R02	3/75						
A6-1/ A6-2	R02	3/75						
06-173F01A13								
R01	3/75							
1 thru 112	R01	3/75						
06-173F02A13								
R01	3/75							
1 thru 77	R01	3/75						

COMMON DISC TEST/FORMATTER PROGRAM DESCRIPTION

1. Common Disc Program 06-173R01

1.1 Related Documents

The following documents are related to this test:

Test Program Listing	06-173F01R01A13
Test Program Paper Tape	06-173F01R01A17
Common Disc Formatter Paper Tape	06-173F02R01A17
Common Disc Formatter Listing	06-173F02R01A13

1.2 Test Programs To Be Run Prior To Loading This Test.

Run the following tests for 16 Bit Processors:

Memory Test	06-003
Processor Test	06-106 or
Mod 50 Processor Test	06-128

Run the following tests for 32 Bit Processors:
Series 32 Processor Test

Part 1	06-154
Part 2	06-155

Series 32 Memory Test 06-156

Other test programs to be run are:

Teletype Basic Confidence Test 06-004
CRT Test 06-146

2. PURPOSE OF TEST

The Disc Test Program, 06-173F01, provides a comprehensive test of the features of the Series 2.5, 10 and 40 Megabyte Disc Controllers, and disc drives. The program assumes that the pack under test is formatted and the normal test sequence does not destroy any existing format. Seek Incomplete, Drive Unsafe and Write Check errors cannot be synthesized and therefore cannot be tested. The Disc Test Program is capable of executing format mode testing, seek interrupt queuing from multiple files, and multiple file data transfer. Series 40 multiple data transfers from fixed platter to removable platter are also tested. The Common Disc Formatting Program, 06-173F02, is used in formatting new disc cartridges and is discussed in detail in Appendix 2.

2.1 Status Test (Test 0)

This test is always run as a preface to the other test modules. It tests the initial device status.

2.2 Seek/Restore Test (Test 1)

This test is a simple check of the Seek and Restore logic and hardware.

2.3 Oscillating Seek Test (Test 2)

This test provides an exhaustive check of the head positioning servo.

2.4 Random Seek Test (Test 3)

This test is designed to show up Seek problems not found by the preceding tests.

2.5 Interrupt Seek Test (Test 4)

This test checks the Seek Interrupt Logic.

2.6 Format Mode Test (Test 5) (Controller in the Format Mode)

This test is used for Format Mode testing of a disc cartridge. The following errors are synthesized:

a. Address Comparison
b. Defective Track
c. Cyclic Check Logic
d. Sector Write Protect.

This module tests the first 12 consecutive defective free sectors of any cylinder to perform this test. Sector format is restored.

2.7 Multi-Sector Test (Test 6)

This test checks multi-sector data transfer, head switching logic, and Cylinder Overflow logic.

2.8 Interrupt Data Test (Test 7)

This test checks the data transfer interrupt logic and Selector Channel/Disc Controller interrupt sequencing.

2.9 Spiral Data Test (Test 8)

This test checks Read and Write with all possible bit patterns. A selectable number of logical sectors to be transferred are specified by keyboard entry up to a maximum of four sectors. Defective track status does not abort Tests 8, 9, and A. The program prints an advisory and continues the test.

2. Device Addresses

The Teletype should be strapped for Device Address X'02'. If it is different, the location labeled TTYAD must be changed to the Teletype address. A Selector Channel should be connected as Device Address X'F0'. If the Selector Channel address is other than X'F0', it must be changed by the SELCH nn option of the test program to correct Selector Channel address.

The Disc Controller Interface for the 20 Surface Disc should be strapped at Device Address X'FB'. If the controller address is other than X'FB', it must be changed through the DISCON nn option of the test program.

5. LOADING PROCEDURES

5.1 Test Tape Format

Absolute, non-zoned object tape (M17) with front end boot loader. The test program occupies memory from X'A00' through X'3F08'. The formatter occupies memory locations X'A00' through X'3620'.

5.2 Normal Loading Procedure

1. Manually enter the X'50' Sequence shown below into memory.

	LOCATION	CONTENTS
	X'30'	X'0000'
	X'32'	X'0000'
	X'34'	X'0000'
	X'36'	X'0050'
	X'50'	X'D500'
	X'52'	X'00CF'
	X'54'	X'4300'
	X'56'	X'0080'
for TTY	X'78'	X'0294'
for HSPTR	X'78'	X'0399'
for HSPTR/P	X'78'	X'1399'

2. Place the program tape in the Paper Tape Reader.

3. Execute at address X'30'.

4. When the Processor halts, observe the CHKSUM byte displayed on the console Display Register D1. If it is zero loading is complete; otherwise, repeat the loading procedure.

5. Refer to Appendix 1 and set up the addresses for console input device and the list device.

6. Address memory location X'A00' in the case of a 32 Bit Processor. Address memory location X'A04' in the case of a 16 Bit Processor.

7. Start program execution. Observe the following title is output to the list device.

```
COMMON DISC TEST       06-173R01F01 (If test was loaded)
      of
COMMON DISC FORMATTER 06-173R01F02 (If formatter was loaded)
```

6. OPERATING PROCEDURES

6.1 Normal Testing

The tests in this section are all included as a default of the TEST option, and are considered essential for a complete test. The descriptions of the tests in this section can be found in the listing of the program, before each test. The tests included in the default are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and A. When successfully completed, the program test sequence terminates as shown in Appendix 6. Appendix 4 provides a breakdown of the error formats, errors, test particulars, and other Teletype messages.

The following table lists those option entries which are mandatory items to be specified prior to executing the test sequence.

OPTION	DESCRIPTION	ERROR ADVISORY
FILE	Selects drive under test	'DISC FILE SELECT ERROR'
TIMCON	1 MSEC. Program counter	'INVALID TIMCON OPTION'
LOCYL	LOCYLINDER under test	'INVALID LOCYL OPTION'

A complete description of these advisories is included in Appendix 4. Furthermore, it is noted that the maximum allowable HICYL option for 2.5 Megabyte drives is X'CA'; for 10 Megabyte drives - X'197', and for 40 Megabyte Drives - X'195'. If the LOCYL option entry is non-zero and the HICYL option entry equals zero; then HICYL is set equal to LOCYL by the program.

6.2 Extended Testing

The tests in this section are not included in the Normal Test section, because they do not lend themselves to the default mode of operation. They are of the scope loop nature, and used mostly for debugging or they require a manual action from the operator. This section is NOT to be considered optional. Appendix 4 provides a description of the error, formats, errors, test particulars, and other Teletype messages. Tests included in this section are B, C, D, E, and F, 10, 11, 12, 13, 14, and 15. Refer to the listing for the detailed description of these tests.

Option	Mandatory Entry	Default Value	Tests Using this Option	Option Description
FILE n	YES	None	All	n selects the type of drive under test n=1 selects Series 40 fixed platter n=2 selects Series 40 removable platter n=3 selects Series 30 drive n=4 selects 40 megabyte drive
BUFSIZ n	NO	0	R/W Format Scope Loop	0 = 1 sector data transfer 1 = 2 sector data transfer
SEEK n	NO	0	Seek Scope Loop	0 = Seek LOCYL, Restore 1 = Seek LOCYL, Seek HICYL
TIMCON nnn	YES		All	nnn = The value, that when decremented on a particular CPU, caused a 1 ms. time out. Model — Value of TIMCON 50 — X'F7' 70 — X'F7' 74 — X'DO' 80 — X'258' 85 — X'258' 7/16 — X'DO' 7/32 — X'140' 8/32 — X'1C0' 6/16 (1µsec core) — X'012D' 7/16 HSALU — X'011E' 6/16,8/16E (750ns core) — X'014D' 6/16,8/16E (600ns semi-cond Mem.) — X'013F'
BYCKAD	NO	0	1,2,3,E	0 = Perform Address Check (Disc must be formatted) 1 = Bypass Address Check
PACTYP n	NO	0	All	0 = "CE" disc pack 1 = Normal disc pack NOTE This option defaults back to zero after each program run
HEADS	NO	0	All	Determines whether or not heads are to be deleted from tests 8, 9, 10 n=0-no deletion ENTER HEADS TO BE DELETED $n_1,n_2..$ n_{19},n_{20}..etc. (CR) where n_1,n_2 = heads to be deleted

Option	Mandatory Entry	Default Value	Tests Using this Option	Option Description
XFILE n	NO	1	Multi-Disc	The secondary file in the multi-disc test. n=0-3
DATA nn	NO	X'BD'	R/W + Scope Loop	0 nn X'FF' Defines the data pattern
SECTOR hhKK	NO	000	Scope Loop	hh = The head number KK = The Sector number
SCOPE n	NO	0	Scope Loop	Specified whether scope loops are: 0 = Read-Write 1 = Read Only 2 = Write Only 3 = Read-Write-Compare Data
TEST $n_1,n_2,n_3,\ldots$	NO	0,1,2, 3,4,6, 7,8,9, A	N/A	All test sections specified are run. NOTE Test 0 is run whether it was explicitly specified or not.
RUN	YES	N/A	N/A	This option initiates testing, and must be the last option specified.
NOMSG	NO	0	ALL	Determines whether all messages are printed or only error messages are printed. 0=all messages 1=error messages only
CONTIN	NO	0	ALL	Enables the user to run all tests selected continuously until the Break key returns the program to Command mode 0-Normal Execution 1-Continuous Execution

PROG= *NONE* ASSEMBLED BY CAL 03-066R04(32-BIT)

```
                SCRAT                                                                CDT00020
                TARGT  16                                                            CDT00030
                CROSS                                                                CDT00040
0000R           SQCHK                                                                CDT00050
                WIDTH  120                                                           CDT00060
* ***************************COMMON DISC TEST************************                CDT00070
* COPYRIGHT INTERDATA,INC. FEB 1976                                                  CDT00080
*THIS TEST PROVIDES A COMPREHENSIVE TEST OF THE FEATURES OF THE SERIES               CDT00090
* 30,40 AND 20 SURFACE DISC CONTOLLERS AND FILES. SEEK INCOMLETE,DRIVE               CDT00100
*UNSAFE, AND WRITE CHECK ERRORS CANNOT BE SYNTHESIZED AND THEREFORE                  CDT00110
*CANNOT BE TESTED. FORMAT MODE TESTING, SEEK INTERRUPT QUEING, AND                   CDT00120
* MULTIPLE FILE DATA TRANSFERS ARE SUPPORTED. SERIES 40MULTIDISC DATA                CDT00130
*TRANSFERS FROM FIXED PLATTER TO REMOVABLE PLATTER ARE ALSO TESTED                   CDT00140
*THE FOLLOWING TEST MODULES ARE SELECTABLE UNDER THE ETPE TEST OPTION                CDT00150
*                                                                                    CDT00160
*STATUS TEST(TEST0)                                                                  CDT00170
*THIS TEST IS ALWAYS RUN AS A PREFACE TO THE OTHER TEST MODULES                      CDT00180
*IT TESTS INITIAL DEVICE STATUS                                                      CDT00190
*                                                                                    CDT00200
*SEEK/RESTORE TEST(TEST1)                                                            CDT00210
*THIS TEST IS A SIMPLE CHECK OF THE SEEK AND RESTORE LOGIC AND HARDWARE              CDT00220
*                                                                                    CDT00230
*OSCILLATING SEEK TEST(TEST2)                                                        CDT00240
*AN EXHAUSTIVE CHECK OF THE HEAD POSITIONING SERVO                                   CDT00250
*                                                                                    CDT00260
*RANDOM SEEK TEST(TEST3)                                                             CDT00270
*DESIGNED TO SHOW UP SEEK PROBLEMS NOT FOUND BY THE PRECEEDING TESTS                 CDT00280
*                                                                                    CDT00290
*INTERRUPT SEEK TEST (TEST4)                                                         CDT00300
*CHECKS SEEK INTERRUPT LOGIC                                                         CDT00310
*                                                                                    CDT00320
*FORMAT MODE TEST (TEST5)*CONTROLLER MUST BE IN FORMAT MODE                          CDT00330
*USED FOR FORMAT MODE TESTING OF A DISC CARTRIDGE. THE FOLLOWING ERRORS              CDT00340
*ARE SYNTHESIZED AND TESTED:                                                         CDT00350
*               ADDRESS COMPARISON                                                   CDT00360
*               DEFECTIVE TRACK                                                      CDT00370
*               CYCLIC CHECK LOGIC                                                   CDT00380
*               SECTOR WRITE PROTECT                                                 CDT00390
*                                                                                    CDT00400
*MULTI-SECTOR TEST(TEST6)                                                            CDT00410
*CHECKS MULTI-SECTOR DATA TRANSFERS, HEAD-SWITCHING LOGIC AND CYLINDER               CDT00420
*OVERFLOW LOGIC                                                                      CDT00430
*                                                                                    CDT00440
*                                                                                    CDT00450
*INTERRUPT DATA TEST(TEST7)                                                          CDT00460
*CHECKS DATA TRANSFER INTERRUPT LOGIC AND SELECTOR-CHANNEL/DISC                      CDT00470
*CONTROLLER INTERRUPT SEQUENCING                                                     CDT00480
*                                                                                    CDT00490
*SPIRAL DATA TEST(TEST8)                                                             CDT00500
*CHECKS READ AND WRITE WITH ALL POSSIBLE BIT PATTERNS                                CDT00510
*                                                                                    CDT00520
*WORST CASE DATA TEST(TEST9)                                                         CDT00530
* CHECKS READ AND WRITE WITH WORST CASE DATA APTTERN (X'BD')                         CDT00540
*                                                                                    CDT00550
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* RANDOM DATA TEST (TEST A)                                             CDT00560
*CHECKS READ AND WRITE WITH RANDOM DATA PATTERN                         CDT00570
*                                                                       CDT00580
* MANUAL INTERVENTION TEST (TESTB) (REQUIRES OPERATOR RESPONSE)         CDT00590
*CHECKS THOSE STATUS BITS THAT CANNOT BE CHECKED WITHOUT MANUAL         CDT00600
*INTERVENTION                                                           CDT00610
*                                                                       CDT00620
* MULTI-DISC TEST (TESTC)                                               CDT00630
*MULTI-DISC TESTING CHECKS THE FOLLOWING FUNCTIONS:                     CDT00640
*        OVERLAPPING SEEK FUNCTIONS                                     CDT00650
*        SEEK FUNCTION QUEING                                           CDT00660
*        MULTIPLE DATA TRANSFERS FROM FILE A TO FILE B, ETC             CDT00670
*        MULTIPLE DATA TRANSFERS FROM FIXED PLATTER SERIES 40 10        CDT00680
*              MEGABYTE DISC TO THE REMOVABLE DISC ON THE SERIES 40     CDT00690
*                                                                       CDT00700
* READ/WRITE NORMAL MODE SCOPE LOOP (TEST D) PROVIDES DATA TRANSFERS    CDT00710
* IN NORMAL MODE TO A SELECTED HEAD AND SECTOR AS SELECTED BY           CDT00720
* THE SECTOR OPTION                                                     CDT00730
*                                                                       CDT00740
* READ/WRITE FORMAT MODE SCOPE LOOP (TEST E) PROVIDES DATA TRANSFERS    CDT00750
* IN FORMAT MODE TO SELECTED HEAD AND SECTOR AS SELECTED BY             CDT00760
* THE SECTOR OPTION                                                     CDT00770
*                                                                       CDT00780
* DEFECTIVE TRACK SCOPE LOOP (TEST F) PROVIDES DATA TRANSFERS IN FORMAT CDT00790
* MODE WITH DEFECTIVE TRACK BIT SET AND DEFECTIVE TRACK EXPECTED        CDT00800
* STATUS                                                                CDT00810
*                                                                       CDT00820
* PARITY ERROR SCOPE LOOP (TEST 10) WRITES IN FORMAT MODE WITH NORMAL   CDT00830
* HEADER AND BAD PARITY                                                 CDT00840
*                                                                       CDT00850
* BAD ADDRESS SCOPE LOOP (TEST 11) WRITES IN FORMAT MODE WITH A FAULTY  CDT00860
* SECTOR ADDRESS IN THE HEADER-HEADER COMPARE ERRORS ARE                CDT00870
* EXPECTED                                                              CDT00880
*                                                                       CDT00890
*                                                                       CDT00900
* FAULTY HEAD SCOPE LOOP (TEST 12) WRITES IN THE FORMAT MODE WITH A     CDT00910
* FAULTY HEAD. ADDRESS COMPARE FAIL STATUS IS EXPECTED                  CDT00920
*                                                                       CDT00930
* READ CHECK SCOPE LOOP (TEST 13) READ CHECKS SELECTED SECTORS AS       CDT00940
* SELECTED BY THE SECTOR OPTION                                         CDT00950
*                                                                       CDT00960
*SEEK SCOPE LOOP (TEST14)                                               CDT00970
*SEEKS TO A SELECTED CYLINDER OR BETWEEN SELECTED CYLINDERS             CDT00980
*                                                                       CDT00990
*READ ONLY TEST(TEST15)                                                 CDT01000
*READS THE SPECIFIED AREA OF THE DISC WITH NORMAL ERROR CHECKING ON     CDT01010
*READ OPERATIONS                                                        CDT01020
*********************************************************************** CDT01030
*SYSTEM REQUIREMENTS********                                            CDT01040
*PROCESSOR:                                                             CDT01050
*MODEL 50,70,74,80,85,7/16,7/32,8/32                                    CDT01060
*MEMORY:                                                                CDT01070
*16KB                                                                   CDT01080
*DEVICES UNDER TEST                                                     CDT01090
*DISC CONTROLLER,1-4 DISC FILES,SERIES 30,40,OR 20 SURFACE DISC DRIVE   CDT01100
*TTYADR=X'02'  CHANGE MEMLOC TTYADR AS NECESSARY                        CDT01110
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111  *SELCH=  X'F0'  CAN BE MODIFIED BY SELCH NN OPTION                    CDT01120
112  *20 SURFACE CONTROLLER ADDRESS=X'F8' CAN BE CHANGED THROUGH DISCON NN CDT01130
113  *OPTION                                                               CDT01140
114  *SERIES 30,40  CONTR ADDR=X'B6' MODIFY USING DISCON NN OPTION         CDT01150
115  * STANDARD OPTIONS INCLUDE THE FOLLOWING:                             CDT01160
116  * TFILE                                                               CDT01170
117  * FILE                                                                CDT01180
118  * DISCON                                                              CDT01190
119  * SELCH                                                               CDT01200
120  * RETRY                                                               CDT01210
121  * TIMCON                                                              CDT01220
122  * LOCYL                                                               CDT01230
123  * HICYL                                                               CDT01240
124  * RUN                                                                 CDT01250
125  ************************************************************************CDT01260
126  *LOADING PROCEDURES:                                                  CDT01270
127  *TAPE FORMAT:ABSOLUTE NON-ZONED OBJECT TAPE(M17) WITH FRONT END BOOT   CDT01280
128  *LOADER  ORG X'0A00'                                                  CDT01290
129  *LOAD WITH 50 SEQUENCE                                               CDT01300
130  *SYSIN= (X'0A10')                                                    CDT01310
131  *X'01' GDT/CRT ON PASLA/PALM INTERFACE FDX OP                        CDT01320
132  *X'02' TTY ON TTY INTERFACE - GDT/CRT ON CURRENT LOOP INTERFACE      CDT01330
133  *X'03'-X'FF' RESERVED PROGRAM DEFAULTS TO 2                          CDT01340
134  *SYSLST=(X'0A11')                                                    CDT01350
135  *X'01' SAME AS ABOVE                                                 CDT01360
136  *X'02' AS ABOVE                                                      CDT01370
137  *X'03' LINE PRINTER ON LP INTERFACE                                  CDT01380
138  *X'01'-X'FF' DEFAULTS TO 2                                           CDT01390
139  ***DEVICE ADDRESSES:                                                 CDT01400
140  *CRT/GDT  (PASLA)=X'10',X'11' MODIFY (CRTADR) AT X'0A12'             CDT01410
141  *CRT/GDT  (CURRENT LOOP)=X'02'MODIFY (TTYADR) AT X'0A04'             CDT01420
142  *LINE PRINTER=X'62'           MODIFY (LPADR) AT  X'0A16'             CDT01430
143  ************************************************************************CDT01440
144  *EXECUTE AT X'A00' FOR SERIES 32 PROCESSORS                          CDT01450
145  *EXECUTE AT X'A04' FOR SERIES 16 PROCESSORS                          CDT01460
146  *                                                                    CDT01470
147  *                                                                    CDT01480
148  *                                                                    CDT01490
149  *                                                                    CDT01500
150  *                                                                    CDT01510
151  *OPTION FORMAT: (SEE  PROGRAM DESCRIPTION)                           CDT01520
152  * TSLOOP          TEST SEQUENCE RERUN                                CDT01530
153  * NOMSG          ERROR MESSAGE PRINTOUT CONTROL                      CDT01540
154  *TFILE N        FILE NUMBER ON THE CONTROLLER                        CDT01550
155  *SELCH NN       SELECTOR CHANNEL DEVICE ADDRESS                      CDT01560
156  *DISCON NN      DISC CONTROLLER DEVICE ADDRESS                       CDT01570
157  *RETRY N        ERROR RETRIES                                        CDT01580
158  *HICYL NNN      HI CYLINDER FOR READ/WRITE                           CDT01590
159  *FILE  N        DRIVE SELECT 1= SERIES 40 FIXED                      CDT01600
160  *                            2= SERIES 40 REMOVABLE                  CDT01610
161  *                            3= SERIES 30                            CDT01620
162  *                            4= SERIES 20 SURFACE                    CDT01630
163  *XFILE N        SECONDARY FILE IN MULTI-DISC TEST                    CDT01640
164  *DATA  NN       DEFINES DATA PETTERN                                 CDT01650
165  *SECTOR NNPP    HEAD AND SECTOR NUMBER                               CDT01660
166  *SCOPE  N       SCOPE LOOPS                                          CDT01670
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                                    167  *TEST N1,N2,N3 TEST SELECTIONS                                          CDT01680
                                    168  *RUN           INITIATE TESTING                                         CDT01690
                                    169  *TRKDEN N      SELECTS TRACK DENSITY                                    CDT01700
                                    170  *SLMODE N      SCOPE MODE                                               CDT01710
                                    171  *BUFSIZ N      SCOPE LOOP SECTOR DATA TRANSFER                          CDT01720
                                    172  *SEEK   N      SEEK SCOPE LOOP                                          CDT01730
                                    173  *TIMCON NNN    1MSEC TIME OUT                                           CDT01740
                                    174  *BYCKAD        ADDRESS CHECK                                            CDT01750
                                    175  *PACTYP N      CUSTOMER ENGINEER DISC PACK                              CDT01760
                                    176  **ETPE                                                                  CDT01770
                                    177  *                                                                       CDT01780
                                    178  *                                                                       CDT01790
0000 0000                           179  R0        EQU   0                                                       CDT01800
0000 0001                           180  R1        EQU   1                                                       CDT01810
0000 0002                           181  R2        EQU   2                                                       CDT01820
0000 0003                           182  R3        EQU   3                                                       CDT01830
0000 0004                           183  R4        EQU   4                                                       CDT01840
0000 0005                           184  R5        EQU   5                                                       CDT01850
0000 0006                           185  R6        EQU   6                                                       CDT01860
0000 0007                           186  R7        EQU   7                                                       CDT01870
0000 0008                           187  R8        EQU   8                                                       CDT01880
0000 0009                           188  R9        EQU   9                                                       CDT01890
0000 000A                           189  R10       EQU   10                                                      CDT01900
0000 000B                           190  R11       EQU   11                                                      CDT01910
0000 000C                           191  R12       EQU   12                                                      CDT01920
0000 000D                           192  R13       EQU   13                                                      CDT01930
0000 000E                           193  R14       EQU   14                                                      CDT01940
0000 000E                           194  RET       EQU   14                                                      CDT01950
0000 000F                           195  R15       EQU   15                                                      CDT01960
0000 000F                           196  LINK      EQU   15                                                      CDT01970
                                    197  *                                                                       CDT01980
                                    198  *  BOOTLOADER WITH CHKSUM                                               CDT01990
                                    199  *                                                                       CDT02000
0000R                               200            ORG   X'80'                                                   CDT02010
0080  2421                          201            LIS   R2,1                                                    CDT02020
0082  2303                          202            BS    BOOT                                                    CDT02030
0084  0100                          203            DC    X'100'      CURRENT PSW SAVE POINTER(32-BIT M/C)        CDT02040
0086  0108                          204            DC    X'108'      REGISTER SAVE POINTER(32-BIT M/C)           CDT02050
0088  4020 0022                     205  BOOT      STH   R2,X'22'    REGISTER SAVE POINTER(16-BIT M/C)           CDT02060
008C  C810 0A00                     206            LHI   R1,X'A00'   R1 = ADR( FIRST BYTE OF TEST PROG )        CDT02070
0090  C830 3685                     207            LHI   R3,LNZB                                                 CDT02080
0094  C860 0055                     208  MN        LHI   R6,X'55'    R6 = CHKSUM BYTE = X'MN'                    CDT02090
0098  D340 0078                     209            LB    R4,X'78'    INPUT DEV ADR                               CDT02100
009C  DE40 0079                     210            OC    R4,X'79'                                                CDT02110
00A0  C870 0080                     211            LHI   R7,X'80'                                                CDT02120
00A4  9E27                          212            OCR   R2,R7       DISPLAY  : NORMAL MODE                      CDT02130
00A6  9D45                          213  LEADER    SSR   R4,R5                                                   CDT02140
00A8  2091                          214            BTBS  9,1         DU,BSY                                      CDT02150
00AA  9B45                          215            RDR   R4,R5                                                   CDT02160
00AC  0855                          216            LHR   R5,R5                                                   CDT02170
00AE  2234                          217            BZS   LEADER      IGNORE LEADER                               CDT02180
00B0  D251 0000                     218  LOAD      STB   R5,0(R1)    STORE 1ST NON-ZERO & SUBSEQUENT BYTE        CDT02190
00B4  0765                          219            XHR   R6,R5       GENERATE CHKSUM                             CDT02200
00B6  9A26                          220            WDR   R2,R6       DISPLAY PARTIAL / FINAL CHKSUM              CDT02210
00B8  9D45                          221            SSR   R4,R5                                                   CDT02220
00BA  2091                          222            BTBS  9,1         DU,BSY                                      CDT02230
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00BC   9B45          223    RDR    R4,R5                                                     CDT02240
00BE   C110 00B0     224    BXLE   R1,LOAD        LOAD TILL LAST BYTE                        CDT02250
00C2   9477          225    EXOR   R7,R7          R7 = X'8000'                               CDT02260
00C4   9527          226    EPSR   R2,R7          HALT PROCESSOR                             CDT02270
00C6   4300 0A04     227    B      X'A04'         BRANCH TO TEST ( 16-BIT PROCESSOR )        CDT02280
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00CA                      229            ORG       X'A00'                                                   CDT02300
0A00    4300 0A30         230  ORIGIN1   B         START1         START HERE FOR 32-BIT PROCESSOR          CDT02310
0A04    4300 0A44         231  ORIGIN2   B         START2         START HERE FOR 16-BIT PROCESSOR          CDT02320
0A08    4300 0A58         232  ORIGIN3   B         START3         SPECIAL 32-BIT PROCESSOR START           CDT02330
0A0C    4300 0A5C         233  ORIGIN4   B         START4         SPECIAL 16-BIT PROCESSOR START           CDT02340
                          234  *                                                                        CDT02350
                          235  *------------------------------                                          CDT02360
                          236  *   TEST CONSTANTS                                    *                  CDT02370
                          237  *                                                                        CDT02380
0A10    0202              238  IO        DC        X'0202'        I/O DEVICE(S) IDENTIFIER                 CDT02390
0A12    1011              239  CRTADR    DC        X'1011'                                                 CDT02400
0A14    0202              240  TTYADR    DC        X'0202'                                                 CDT02410
0A16    6262              241  LPADR     DC        X'6262'                                                 CDT02420
0A18    0000              242            DC        0              SECOND DEVICE ADR IF NECESSARY           CDT02430
0A1A    0000              243            DC        0              RESERVED                                 CDT02440
0A1C    0140              244  TIME      DC        X'140'         CONSTANT FOR 1 MS DELAY(X'C8'-MOD70)     CDT02450
0A1E    0000              245            DC        0              RESERVED                                 CDT02460
0A20    70F0              246  PSW       DC        X'70F0'        PSW USED IN PROGRAM                      CDT02470
0A22    0000              247            DC        0              RESERVED                                 CDT02480
0A24    0000              248            DC        0              RESERVED                                 CDT02490
0A26    0000              249            DC        0              RESERVED                                 CDT02500
0A28    0000              250            DC        0              RESERVED                                 CDT02510
0A2A    0000              251            DC        0              RESERVED                                 CDT02520
0A2C    0000              252            DC        0              RESERVED                                 CDT02530
0A2E    0000              253            DC        0              RESERVED                                 CDT02540
                          254  *------------------------------                                          CDT02550
                          255  *                                                                        CDT02560
0A30    0711              256  START1    XHR       R1,R1                                                   CDT02570
0A32    C820 00F0         257            LHI       R2,X'F0'                                                CDT02580
0A36    4010 0030         258            STH       R1,X'30'       DISABLE INT AT PROCESSOR LEVEL           CDT02590
0A3A    4020 0032         259            STH       R2,X'32'       SELECT REG SET 15                        CDT02600
0A3E    4020 150E         260            STH       R2,MOD32       SET MODEL 32 PROCESSOR FLAG              CDT02610
0A42    2304              261            BS        ST                                                      CDT02620
0A44    0711              262  START2    XHR       R1,R1                                                   CDT02630
0A46    4010 150E         263            STH       R1,MOD32       RESET MOD 32 PROCESSOR FLAG              CDT02640
0A4A    C820 0A60         264  ST        LHI       R2,START                                                CDT02650
0A4E    4010 0034         265            STH       R1,X'34'                                                CDT02660
0A52    4020 0036         266            STH       R2,X'36'       II INT NEW PSW LOC                       CDT02670
0A56    0000              267            DC        0              TAKE AN ILLEGAL INSTRUCTION INT          CDT02680
                          268  *                                                                        CDT02690
0A58    4300 0A30         269  START3    B         START1         INSERT SPECIAL ROUTINE HERE              CDT02700
0A5C    4300 0A44         270  START4    B         START2         INSERT SPECIAL ROUTINE HERE              CDT02710
                          271  *                                                                        CDT02720
                          272  *                                                                        CDT02730
0A60    4800 0A10         273  START     LH        R0,IO                                                   CDT02740
0A64    4000 36BC         274            STH       R0,IOSAVE      SAVE USER'S I/O CHOICE                   CDT02750
0A68    D300 0A10         275            LB        R0,IO          GET KEYBOARD DEVICE                      CDT02760
0A6C    9410              276            EXBR      R1,R0                                                   CDT02770
0A6E    0601              277            OHR       R0,R1                                                   CDT02780
0A70    4000 0A10         278            STH       R0,IO          KB DEVICE = LIST DEVICE                  CDT02790
0A74    D310 0A14         279            LB        R1,TTYADR                                               CDT02800
0A78    D300 0A10         280            LB        R0,IO          GET I/O IDENTIFIER                       CDT02810
0A7C    C500 0001         281            CLHI      R0,1           CRT ?                                    CDT02820
0A80    2135              282            BNES      GOTIT                                                   CDT02830
0A82    D310 0A12         283            LB        R1,CRTADR                                               CDT02840
0A86    DE10 151C         284            OC        R1,SECOND      SET UP PALSA / PALM                      CDT02850
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0A8A  D210 1516          285 GOTIT   STB   R1,KBADR          STORE AS KEYBOARD DEV ADR          CDT02860
0A8E  41F0 12C2          286         BAL   LINK,LCORE       SET UP LOW CORE                    CDT02870
0A92  41F0 1178          287         BAL   LINK,CRLF                                           CDT02880
0A96  C850 35C4          288         LHI   R5,TITLE                                           CDT02890
0A9A  41F0 109C          289         BAL   R15,PRINT         PRINT TEST PROGRAM TITLE           CDT02900
                         290 *-------------------------------                                 CDT02910
                         291 *  KEYBOARD INPUT ROUTINE                                        CDT02920
                         292 *                                                                 CDT02930
      0000 0A9E          293 OPTIN   EQU   *                                                   CDT02940
0A9E  C820 00F0          294         LHI   R2,X'F0'                                           CDT02950
0AA2  9512               295         EPSR  R1,R2             NO INT. REG SET 15                 CDT02960
0AA4  41F0 1178          296         BAL   LINK,CRLF         CR,LF TO LIST DEVICE               CDT02970
      0000 0AA8          297 OPTIN1  EQU   *                                                   CDT02980
0AA8  0300 0A10          298         LB    R0,IO             GET KEYBOARD DEVICE                CDT02990
0AAC  9810               299         EXBR  R1,R0                                              CDT03000
0AAE  0601               300         OHR   R0,R1                                              CDT03010
0AB0  4000 0A10          301         STH   R0,IO             KB DEVICE = LIST DEVICE            CDT03020
0AB4  C840 002A          302         LHI   R4,X'2A'                                           CDT03030
0AB8  41F0 1134          303         BAL   R15,OUTCHR        WE ARE READY FOR INPUT             CDT03040
0ABC  C8C0 119A          304         LHI   R12,QUESTN        SET UP R12 FOR ERR ROUTINE         CDT03050
0AC0  C800 2020          305         LHI   R0,X'2020'        BLANK OUT TTY BUFFER               CDT03060
0AC4  4000 36B6          306         STH   R0,OPTBUF         WHICH WILL CONTAIN OPTION          CDT03070
0AC8  4000 36B8          307         STH   R0,OPTBUF+2       NAME                               CDT03080
0ACC  4000 36BA          308         STH   R0,OPTBUF+4                                        CDT03090
0AD0  0711               309         XHR   R1,R1             CLEAR TTYBUF INDEX                 CDT03100
0AD2  41F0 1166          310 RDCHR   BAL   R15,GETCHR        GET A CHAR IN R4                   CDT03110
0AD6  C540 000D          311         CLHI  R4,X'0D'          IS IT CR?                          CDT03120
0ADA  233A               312         BES   LOOKUP            YES, TRY MATCH                    CDT03130
0ADC  C540 0020          313         CLHI  R4,X'20'          IS IT A BLANK?                     CDT03140
0AE0  2337               314         BES   LOOKUP            YES, TRY MATCH                    CDT03150
0AE2  D241 36B6          315         STB   R4,OPTBUF(R1)     STORE THE CHAR                     CDT03160
0AE6  2611               316         AIS   R1,1              BUMP BUFFER INDEX                  CDT03170
0AE8  C510 0007          317         CLHI  R1,7              HAVE WE REACHED 6 CHARS?           CDT03180
0AEC  203D               318         BNES  RDCHR             NO,READ ANOTHER CHARACTER          CDT03190
                         319 *  OPTION MATCH ROUTINE                                          CDT03200
                         320 *                                                                 CDT03210
0AEE  C810 15D2          321 LOOKUP  LHI   R1,OPT            SET R1 = A(OPT)                    CDT03220
0AF2  0733               322 LOOK1   XHR   R3,R3             CLEAR IN BUFF INDEX                CDT03230
0AF4  0861               323         LHR   R6,R1             SET OPTION WORD INDEX              CDT03240
0AF6  4856 0000          324 LOOK2   LH    R5,0(R6)                                           CDT03250
0AFA  021C               325         BMR   R12               IF MINUS, THEN NO MATCH = ERROR    CDT03260
0AFC  4553 36B6          326         CLH   R5,OPTBUF(R3)     COMPARE TO OPTBUF HW               CDT03270
0B00  2333               327         BES   LOOK3                                              CDT03280
0B02  261C               328         AIS   R1,12                                              CDT03290
0B04  2209               329         BS    LOOK1                                              CDT03300
0B06  2632               330 LOOK3   AIS   R3,2               TRY NEXT HW                        CDT03310
0B08  2662               331         AIS   R6,2                                               CDT03320
0B0A  C530 0006          332         CLHI  R3,6              3 MATCHING HW FOUND ?              CDT03330
0B0E  203C               333         BNES  LOOK2             NO, LOOP                           CDT03340
                         334 *-------------------------------                                 CDT03350
                         335 *  TO PROCESS INPUT COMMANDS : RUN , OPTION                       CDT03360
                         336 *                                                                 CDT03370
0B10  C510 172E          337         CLHI  R1,RUN            RUN COMMAND ?                      CDT03380
0B14  4330 0CA4          338         BE    RUNIT                                              CDT03390
0B18  C510 170A          339         CLHI  R1,OPTION         OPTION CMD ?                       CDT03400
0B1C  4230 0C18          340         BNE   LOOK4             NO, LOOK FURTHER                   CDT03410
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0B20  4820 1712          341          LH    R2,OPTION+8                                  CDT03420
0B24  0232               342          BNZR  R2                                           CDT03430
0B26  C830 15D2          343  OPTRTN  LHI   R3,TEST                                     CDT03440
0B2A  C8E0 0BAE          344          LHI   R14,OPTCMD8                                  CDT03450
0B2E  41F0 1178          345          BAL   LINK,CRLF                                    CDT03460
0B32  0722               346  OPTCMD  XHR   R2,R2                                        CDT03470
0B34  D342 15D2          347  OPTCMD1 LB    R4,OPT(R2)          TO PRINT TEST          CDT03480
0B38  41F0 1134          348          BAL   LINK,OUTCHR                                  CDT03490
0B3C  2621               349          AIS   R2,1                                         CDT03500
0B3E  C520 0006          350          CLHI  R2,6                                         CDT03510
0B42  2087               351          BLS   OPTCMD1                                      CDT03520
0B44  0755               352          XHR   R5,R5           TO PRINT TEST OPTION VALUES  CDT03530
0B46  4050 1528          353          STH   R5,FIRST                                     CDT03540
0B4A  4823 0008          354          LH    R2,8(R3)                                     CDT03550
0B4E  C840 0030          355  OPTCMD2 LHI   R4,C'0'          START WITH TEST 0          CDT03560
0B52  9121               356  OPTCMD3 SLHLS R2,1                                         CDT03570
0B54  4380 0B82          357          BNC   OPTCMD7                                      CDT03580
0B58  4040 152A          358  OPTCMD4 STH   R4,TEMP          OPTION VALUE FOUND,        CDT03590
0B5C  4800 1528          359          LH    R0,FIRST         IS IT FIRST ?              CDT03600
0B60  2335               360          BZS   OPTCMD5                                      CDT03610
0B62  C840 002C          361          LHI   R4,C','          NO, OUTPUT COMMA           CDT03620
0B66  41F0 1134          362          BAL   LINK,OUTCHR                                  CDT03630
0B6A  4040 1528          363  OPTCMD5 STH   R4,FIRST                                     CDT03640
0B6E  0855               364          LHR   R5,R5            TEST VALUE FROM SECOND HW   CDT03650
0B70  2335               365          BZS   OPTCMD6          NO                          CDT03660
0B72  C840 0031          366          LHI   R4,C'1'          YES,OUTPUT '1'              CDT03670
0B76  41F0 1134          367          BAL   LINK,OUTCHR                                  CDT03680
0B7A  4840 152A          368  OPTCMD6 LH    R4,TEMP          RESTORE R4                  CDT03690
0B7E  41F0 1134          369          BAL   LINK,OUTCHR      OUTPUT 0-F                  CDT03700
0B82  2641               370  OPTCMD7 AIS   R4,1             INCREMENT TEST #            CDT03710
0B84  C540 0047          371          CLHI  R4,C'G'                                      CDT03720
0B88  238C               372          BNLS  OPTCMD71                                     CDT03730
0B8A  C540 0041          373          CLHI  R4,C'A'                                      CDT03740
0B8E  4380 0B52          374          BNL   OPTCMD3          R4 = B-F                    CDT03750
0B92  C540 003A          375          CLHI  R4,X'3A'                                     CDT03760
0B96  4280 0B52          376          BL    OPTCMD3          R4 = 0-9                    CDT03770
0B9A  2647               377          AIS   R4,7                                         CDT03780
0B9C  4300 0B52          378          B     OPTCMD3          R4 = A                      CDT03790
0BA0  0855               379  OPTCMD71 LHR   R5,R5           DONE ?                      CDT03800
0BA2  023E               380          BNZR  R14                                          CDT03810
0BA4  4823 0006          381          LH    R2,6(R3)                                     CDT03820
0BA8  2451               382          LIS   R5,1             R5 = 1 FOR SECOND TEST HW   CDT03830
0BAA  4300 0B4E          383          B     OPTCMD2                                      CDT03840
                         384  *  TO OUTPUT OTHER OPTION NAMES & VALUES                   CDT03850
0BAE  41F0 1178          385  OPTCMD8 BAL   LINK,CRLF                                    CDT03860
0BB2  C820 15DE          386          LHI   R2,OPT+12          R2 POINTS TO THE NAME      CDT03870
0BB6  0733               387  OPTCMD9 XHR   R3,R3                                        CDT03880
0BB8  4852 0006          388          LH    R5,6(R2)         R5 = OPTION VALUE          CDT03890
0BBC  D342 0000          389  OPTCMD10 LB   R4,0(R2)                                     CDT03900
0BC0  41F0 1134          390          BAL   LINK,OUTCHR      OUTPUT OPTION NAME CHAR     CDT03910
0BC4  2621               391          AIS   R2,1                                         CDT03920
0BC6  2631               392          AIS   R3,1                                         CDT03930
0BC8  C530 0006          393          CLHI  R3,6             6 CHAR OUTPUTED ?           CDT03940
0BCC  2088               394          BLS   OPTCMD10         NO,LOOP                     CDT03950
0BCE  C840 0020          395          LHI   R4,C' '                                      CDT03960
0BD2  41F0 1134          396          BAL   LINK,OUTCHR      OUTPUT ONE SPACE            CDT03970
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0BD6 2404           397          LIS   R0,4                                    CDT03980
0BD8 41F0 102E      398          BAL   LINK,RSHEX      WRITE OPTION VALUE IN HEX (4 DIGITS) CDT03990
0BDC 2401           399          LIS   R0,1                                    CDT04000
0BDE D400 0A11      400          CLB   R0,IO+1                                 CDT04010
0BE2 4230 0C02      401          BNE   OPTCMD12                                CDT04020
0BE6 2663           402          AIS   R6,3                                    CDT04030
0BE8 C560 0018      403          CLHI  R6,24                                   CDT04040
0BEC 218B           404          BLS   OPTCMD12                                CDT04050
0BEE 0766           405          XHR   R6,R6                                   CDT04060
0BF0 41F0 1166      406 OPTCMD11 BAL   LINK,GETCHR                             CDT04070
0BF4 C540 000D      407          CLHI  R4,13                                   CDT04080
0BF8 4330 0A9E      408          BE    OPTIN                                   CDT04090
0BFC C540 000A      409          CLHI  R4,10                                   CDT04100
0C00 2038           410          BNES  OPTCMD11                                CDT04110
0C02 41F0 1178      411 OPTCMD12 BAL   LINK,CRLF                              CDT04120
0C06 41F0 11B4      412          BAL   LINK,TSTBRK                             CDT04130
0C0A 2626           413          AIS   R2,6                                    CDT04140
0C0C C520 16FE      414          CLHI  R2,OPTEND      ALL OPTIONS DONE ?       CDT04150
0C10 4280 0BB6      415          BL    OPTCMD9        NO,LOOP FOR NEXT ONE     CDT04160
0C14 4300 0AA8      416          B     OPTIN1                                  CDT04170
0C18 C510 15D2      417 LOOK4    CLHI  R1,TEST        TEST OPTION ?            CDT04180
0C1C 4330 0C40      418          BE    TESTOP                                  CDT04190
                    419 *----------------------------                          CDT04200
                    420 *  TO PROCESS OPTIONS OTHER THAN TEST                   CDT04210
                    421 *                                                       CDT04220
0C20 C540 000D      422          CLHI  R4,13          OPT FOLLOWED BY CR ?     CDT04230
0C24 033C           423          BER   R12            YES, ERROR               CDT04240
0C26 41E0 0FBA      424          BAL   R14,OPTVAL     GET OPTION VALUE IN R6   CDT04250
0C2A C540 000D      425          CLHI  R4,13          TERMINATED BY CR ?       CDT04260
0C2E 023C           426          BNER  R12                                     CDT04270
0C30 48E1 0008      427          LH    R14,8(R1)      GET THE DISPLACEMENT     CDT04280
0C34 2332           428          BZS   LOOK5                                   CDT04290
0C36 01FE           429          BALR  R15,R14                                 CDT04300
     0000 0C38      430 LOOK5    EQU   *                                       CDT04310
0C38 4061 0006      431          STH   R6,6(R1)       STORE OPTION VALUE       CDT04320
0C3C 4300 0A9E      432          B     OPTIN          GO TO BEGINING           CDT04330
                    433 *----------------------------                          CDT04340
                    434 *  TEST OPTION PROCESS ROUTINE                          CDT04350
                    435 *                                                       CDT04360
0C40 C540 000D      436 TESTOP   CLHI  R4,13          TEST OPT FOLLOWED BY CR ? CDT04370
0C44 213B           437          BNES  TESTOP1                                 CDT04380
0C46 4800 35E4      438          LH    R0,DEFTESTS    YES, SET TEST OPTION TO  CDT04390
0C4A 4000 15DA      439          STH   R0,TEST+8                               CDT04400
0C4E 4800 35E6      440          LH    R0,DEFTESTS+2  ALL DEFAULT TESTS IN PROGRAM CDT04410
0C52 4000 15D8      441          STH   R0,TEST+6                               CDT04420
0C56 4300 0A9E      442          B     OPTIN                                   CDT04430
0C5A C810 15D2      443 TESTOP1  LHI   R1,TEST                                  CDT04440
0C5E 4850 35E8      444          LH    R5,MAXTST                               CDT04450
0C62 0700           445 TSTOP1A  XHR   R0,R0                                   CDT04460
0C64 4001 0006      446          STH   R0,6(R1)                                CDT04470
0C68 4001 0008      447          STH   R0,8(R1)                                CDT04480
0C6C 41E0 0FBA      448 TSTOP2   BAL   R14,OPTVAL     GET OPTION VALUE IN R6   CDT04490
0C70 0565           449          CLHR  R6,R5                                   CDT04500
0C72 022C           450          BPR   R12                                     CDT04510
0C74 C560 0010      451          CLHI  R6,16          R6 < 16 ?                CDT04520
0C78 2368           452          BNLS  TSTOP3         NO                       CDT04530
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0C7A  41E0 1006           BAL   R14,UNARY     GET UNARY OPERAND IN R3            CDT04540
0C7E  4631 0008           OH    R3,8(R1)                                         CDT04550
0C82  4031 0008           STH   R3,8(R1)                                         CDT04560
0C86  2309                BS    TSTOP4                                           CDT04570
0C88  CB60 0010   TSTOP3  SHI   R6,16         R6 = 0-F                           CDT04580
0C8C  41E0 1006           BAL   R14,UNARY                                        CDT04590
0C90  4631 0006           OH    R3,6(R1)                                         CDT04600
0C94  4031 0006           STH   R3,6(R1)                                         CDT04610
0C98  C540 000D   TSTOP4  CLHI  R4,13         TERMINATED BY CR ?                 CDT04620
0C9C  4230 0C6C           BNE   TSTOP2                                           CDT04630
0CA0  4300 0A9E           B     OPTIN         GO TO BEGINING                     CDT04640
                  *-----------------------------                                 CDT04650
                  *                                                              CDT04660
      0000 0CA4   RUNIT   EQU   *                                                CDT04670
0CA4  41F0 1178           BAL   LINK,CRLF                                        CDT04680
0CA8  4800 36BC           LH    R0,IOSAVE                                        CDT04690
0CAC  4000 0A10           STH   R0,IO         RESTORE USER'S I/O CHOICE          CDT04700
0CB0  41F0 1178           BAL   LINK,CRLF                                        CDT04710
0CB4  41F0 18AE           BAL   LINK,INIT     LINK USER INITIALIZATION ROUTINE   CDT04720
      0000 0CB8   INITRET EQU   *                                                CDT04730
0CB8  240F                LIS   R0,15         TO FIND HIGHEST SELECTED THST #    CDT04740
0CBA  4810 15D8           LH    R1,TEST+6     CHECK SECOND TEST HW               CDT04750
0CBE  9011        KEEP1   SRLS  R1,1                                             CDT04760
0CC0  2186                BCS   FOUND1        R0 = F-0                           CDT04770
0CC2  2701                SIS   R0,1                                             CDT04780
0CC4  2213                BNMS  KEEP1         TRY NEXT DIGIT                     CDT04790
0CC6  240F                LIS   R0,15         INITIALIZE AGAIN                   CDT04800
0CC8  4810 15DA           LH    R1,TEST+8     CHECK FIRST TEST HW                CDT04810
0CCC  9011        KEEP2   SRLS  R1,1                                             CDT04820
0CCE  2186                BCS   FOUND1+4      R0 = F-0 = TEST #                  CDT04830
0CD0  2701                SIS   R0,1                                             CDT04840
0CD2  2213                BNMS  KEEP2         LOOP                               CDT04850
0CD4  030C                BR    R12           TEST NOT SELECTED                  CDT04860
0CD6  CA00 0010   FOUND1  AHI   R0,16         ADJUST TEST # FOR SECOND HW        CDT04870
0CDA  4000 152C           STH   R0,SELTST                                        CDT04880
                  *  RESET TEST PARAMETERS                                       CDT04890
0CDE  0700                XHR   R0,R0                                            CDT04900
0CE0  4000 1534           STH   R0,BTESTNO    RESET THESE FLAGS TO 0             CDT04910
0CE4  4000 1532           STH   R0,TOTAL                                         CDT04920
0CE8  4000 1530           STH   R0,TOTERR                                        CDT04930
0CEC  4000 152E           STH   R0,WASDU                                         CDT04940
0CF0  C810 3030           LHI   R1,C'00'                                         CDT04950
0CF4  4010 1550           STH   R1,MTESTNO    RESET THESE FLAGS TO C'00'         CDT04960
0CF8  4010 155A           STH   R1,ETESTNO                                       CDT04970
0CFC  4010 155C           STH   R1,ERRNO                                         CDT04980
                  *  START SELECTION FROM TEST 0                                 CDT04990
0D00  0700        KEEP3   XHR   R0,R0                                            CDT05000
0D02  4000 1534           STH   R0,BTESTNO                                       CDT05010
0D06  4000 1538           STH   R0,NEXTST     RESET NEXT TEST #                  CDT05020
                  *  TO FIND THE NEXT SLEECTED TEST                              CDT05030
0D0A  4820 1538   KEEP4   LH    R2,NEXTST     GET NEXT TEST #                    CDT05040
0D0E  2401        KEEP41  LIS   R0,1                                             CDT05050
0D10  910F                SLHLS R0,15         R0 = X'8000'                       CDT05060
0D12  CC02 0000           SRHL  R0,0(R2)      R0 = NEXT TEST BIT                 CDT05070
0D16  C520 0010           CLHI  R2,X'10'      NEXT TEST < 16                     CDT05080
0D1A  2185                BLS   KEEP42                                           CDT05090
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0D1C   4400 15D8               NH     R0,TEST+6          LOOK AT TEST HW 2          CDT05100
0D20   2137                    BNZS   KEEP5                                         CDT05110
0D22   2304                    BS     KEEP43                                        CDT05120
0D24   4400 15DA     KEEP42    NH     R0,TEST+8          LOOK AT 'TEST' HW          CDT05130
0D28   2133                    BNZS   KEEP5                                         CDT05140
0D2A   2621          KEEP43    AIS    R2,1                                          CDT05150
0D2C   220F                    BS     KEEP41             LOOP FOR NEXT TEST #       CDT05160
0D2E   4020 1534     KEEP5     STH    R2,BTESTNO         CURRENT TEST #             CDT05170
0D32   0812                    LHR    R1,R2              R1 = TEST # IN BINARY      CDT05180
0D34   2621                    AIS    R2,1                                          CDT05190
0D36   4020 1538               STH    R2,NEXTST                                     CDT05200
0D3A   2402                    LIS    R0,2               SET DIGITS TO PRINT = 2    CDT05210
0D3C   C820 1550               LHI    R2,MTESTNO         R2 = A(MTESTNO)            CDT05220
0D40   41F0 106A               BAL    LINK,HEXASC        STORE TEST # IN ASCII @ MTESTNO CDT05230
0D44   4820 1550               LH     R2,MTESTNO                                    CDT05240
0D48   4020 155A               STH    R2,ETESTNO         STORE TEST # IN ASCII @ ETESTNO CDT05250
0D4C   41F0 1184               BAL    LINK,TSTBRK        TEST BREAK                 CDT05260
0D50   C850 154A               LHI    R5,TSTMSG                                     CDT05270
0D54   41F0 109C               BAL    LINK,PRINT         PRINT 'TEST NN'            CDT05280
0D58   0700                    XHR    R0,R0                                         CDT05290
0D5A   4000 1526               STH    R0,NOERR           RESET ERROR FLAG           CDT05300
0D5E   4000 1536               STH    R0,COUNT           RESET COUNT                CDT05310
0D62   41F0 12C2     KEEP6     BAL    LINK,LCORE         SET UP LOW CORE            CDT05320
0D66   4820 1534               LH     R2,BTESTNO         R2 = TEST #                CDT05330
0D6A   0A22                    AHR    R2,R2                                         CDT05340
0D6C   4812 35EC               LH     R1,TESTS(R2)                                  CDT05350
0D70   0301                    BR     R1                 GO TO TEST MODULE          CDT05360
                     *-----------------------------                                 CDT05370
                     *                                                              CDT05380
                     *  TEST MODULE END ROUTINE                                     CDT05390
                     *                                                              CDT05400
       0000 0D72     TSTEND    EQU    *                                             CDT05410
0D72   C810 00F0               LHI    R1,X'F0'                                      CDT05420
0D76   9501                    EPSR   R0,R1              DISABLE INT @ PROCESSOR LEVEL CDT05430
0D78   4800 1536               LH     R0,COUNT                                      CDT05440
0D7C   2601                    AIS    R0,1               INCREMENT COUNT            CDT05450
0D7E   4000 1536               STH    R0,COUNT                                      CDT05460
0D82   4500 15E4               CLH    R0,LOOP+6          IF COUNT > LOOP,           CDT05470
0D86   2385                    BNLS   KEEP7              GO TO NEXT TEST MODULE     CDT05480
0D88   41F0 1184               BAL    LINK,TSTBRK        IF BREAK GO TO OPTIN       CDT05490
0D8C   4300 0D62               B      KEEP6              OTHERWISE, REPEAT SAME TEST CDT05500
0D90   4800 1526     KEEP7     LH     R0,NOERR           LOOK @ ERROR FLAG          CDT05510
0D94   2135                    BNZS   KEEP71                                        CDT05520
0D96   C850 1570               LHI    R5,NOERMSG                                    CDT05530
0D9A   41F0 109C               BAL    LINK,PRINT         PRINT "NO ERROR"           CDT05540
0D9E   4810 1534     KEEP71    LH     R1,BTESTNO         GET TEST #                 CDT05550
0DA2   4510 152C               CLH    R1,SELTST          IS THE LAST SELECTED TEST DONE ? CDT05560
0DA6   4230 0D0A               BNE    KEEP4              NO, GO SELECT NEXT TEST    CDT05570
                     *  ALL THE SELECTED TESTS ARE NOW RUN                          CDT05580
0DAA   4200 0000               NOP                                                  CDT05590
0DAE   41F0 11F2               BAL    LINK,TSTDU         RETURN WITH R1 = DU BIT    CDT05600
0DB2   0811                    LHR    R1,R1              DU = 1 NOW ?               CDT05610
0DB4   4230 0DE4               BNZ    KEEP9                                         CDT05620
0DB8   4810 152E               LH     R1,WASDU           DU WAS = 1 ?               CDT05630
0DBC   4230 0E22               BNZ    KEEP10             YES, PRINT TOTAL, TOTERR   CDT05640
0DC0   41F0 1184               BAL    LINK,TSTBRK                                   CDT05650
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0DC4  4810 15F0            LH     R1,CONTIN+6        IF CONTIN = 1,                        CDT05660
0DC8  4230 0D00            BNZ    KEEP3              GO TO TEST 0                          CDT05670
0DCC  D300 0A10            LB     R0,IO              GET KEYBOARD IDENTIFIER               CDT05680
0DD0  9410                 EXBR   R1,R0                                                    CDT05690
0DD2  0601                 OHR    R0,R1                                                    CDT05700
0DD4  4000 0A10            STH    R0,IO              KB DEVICE = LIST DEVICE               CDT05710
0DD8  C850 15C2            LHI    R5,EOTMSG                                                CDT05720
0DDC  41F0 109C            BAL    LINK,PRINT         'END OF TEST'                         CDT05730
0DE0  4300 0A9E            B      OPTIN              OTHERWISE, END TESTING.               CDT05740
                     *  ROUTINE INCREMENTS,DISPLAYS & CHECKS 'TOTAL'                       CDT05750
                     *                                                                     CDT05760
0DE4  4010 152E      KEEP9  STH    R1,WASDU          SET 'WASDU' FLAG                      CDT05770
0DE8  4810 1532             LH     R1,TOTAL          INCREMENT TOTAL                       CDT05780
0DEC  2611                  AIS    R1,1                                                    CDT05790
0DEE  4010 1532             STH    R1,TOTAL                                                CDT05800
0DF2  2421           KEEP91 LIS    R2,1                                                    CDT05810
0DF4  DE20 1517             OC     R2,NORM                                                 CDT05820
0DF8  9411                  EXBR   R1,R1                                                   CDT05830
0DFA  9821                  WHR    R2,R1             DISPLAY IT                            CDT05840
0DFC  9411                  EXBR   R1,R1                                                   CDT05850
0DFE  C510 7FFF             CLHI   R1,X'7FFF'                                              CDT05860
0E02  2389                  BNLS   HALT9                                                   CDT05870
0E04  4800 1534             LH     R0,BTESTNO        R0 = CURRENT TEST #                   CDT05880
0E08  4500 152C             CLH    R0,SELTST         IS IT LAST TEST ?                     CDT05890
0E0C  4280 0D0A             BL     KEEP4             NO, GO TO NEXT TEST                   CDT05900
0E10  4300 0D00             B      KEEP3             GO TO TEST 0                          CDT05910
                     *                                                                     CDT05920
0E14  2411           HALT9  LIS    R1,1                                                    CDT05930
0E16  911F                  SLHLS  R1,15             R1 = X'8000'                          CDT05940
0E18  9521                  EPSR   R2,R1             HALT PROCESSOR                        CDT05950
                     *  WHEN EXE/RUN IS PRESSED, RPINT TOTAL & LTOTERR                     CDT05960
0E1A  41F0 11F2             BAL    LINK,TSTDU        SEE IF LIST DEV IS ON                 CDT05970
0E1E  0811                  LHR    R1,R1                                                   CDT05980
0E20  2036                  BNZS   HALT9             NO, HALT                              CDT05990
0E22  0700           KEEP10 XHR    R0,R0                                                   CDT06000
0E24  4000 152E             STH    R0,WASDU          RESET FLAG                            CDT06010
0E28  41F0 1178             BAL    LINK,CRLF                                               CDT06020
0E2C  C850 1560             LHI    R5,TOTMSG                                               CDT06030
0E30  41F0 109C             BAL    LINK,PRINT        PRINT 'TOTAL   TOTERR'                CDT06040
0E34  2404                  LIS    R0,4              TO PRINT 4 HEX DIGITS                 CDT06050
0E36  4850 1532             LH     R5,TOTAL                                                CDT06060
0E3A  41F0 102E             BAL    LINK,R5HEX        PRINT TOTAL IN HEX                    CDT06070
0E3E  2434                  LIS    R3,4                                                    CDT06080
0E40  C840 0020             LHI    R4,C' '           SPACE                                 CDT06090
0E44  41F0 1134      KEEP101 BAL   LINK,OUTCHR       OUTPUT IT                             CDT06100
0E48  2731                  SIS    R3,1                                                    CDT06110
0E4A  2033                  BNZS   KEEP101           4 TIMES                               CDT06120
0E4C  2404                  LIS    R0,4              TO PRINT 4 HEX DIGITS                 CDT06130
0E4E  4850 1530             LH     R5,TOTERR                                               CDT06140
0E52  41F0 102E             BAL    LINK,R5HEX        PRINT TOTERR IN HEX                   CDT06150
0E56  4300 0A9E             B      OPTIN             GO TO BEGINNING                       CDT06160
                     * *********************************                                   CDT06170
                     *  ERROR ROUTINES                                                     CDT06180
                     *                                                                     CDT06190
0E5A  D000 3F08      ERR    STM    R0,ERRSAVE        STORE REGISTERS                       CDT06200
0E5E  4120 0EDC             BAL    R2,ERRCOM         RETURN IF LIST DEVICE IS ON           CDT06210
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0E62   41E0 0F0A          621          BAL   RET,ERR1         PRINT 'ERROR TTNN'                  CDT06220
0E66   0700               622  ERRCOM2 XHR   R0,R0                                                CDT06230
0E68   4000 1524          623          STH   R0,ISITERR       RESET ERROR FLAG                    CDT06240
0E6C   D100 3F08          624          LM    R0,ERRSAVE       RESTORE REGISTERS                   CDT06250
0E70   030F               625          BR    LINK             RETURN TO TEST                      CDT06260
0E72   D000 3F08          626  ERRD    STM   R0,ERRSAVE       STORE REGISTERS                     CDT06270
0E76   4120 0EDC          627          BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON         CDT06280
0E7A   41E0 0F0A          628          BAL   RET,ERR1         PRINT 'ERROR TTNN'                  CDT06290
0E7E   41E0 0F14          629          BAL   RET,ERRD1        PRINT 'DEV DDD'                     CDT06300
0E82   220E               630          BS    ERRCOM2                                              CDT06310
0E84   D000 3F08          631  ERRS    STM   R0,ERRSAVE       STORE REGISTERS                     CDT06320
0E88   4120 0EDC          632          BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON         CDT06330
0E8C   41E0 0F0A          633          BAL   RET,ERR1         PRINT 'ERROR TTNN'                  CDT06340
0E90   41E0 0F2C          634          BAL   RET,ERRS1        PRINT 'STA SS'                      CDT06350
0E94   4300 0E66          635          B     ERRCOM2                                              CDT06360
0E98   D000 3F08          636  ERRDS   STM   R0,ERRSAVE       STORE REGISTERS                     CDT06370
0E9C   4120 0EDC          637          BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON         CDT06380
0EA0   41E0 0F0A          638          BAL   RET,ERR1         PRINT 'ERROR TTNN'                  CDT06390
0EA4   41E0 0F44          639          BAL   RET,ERRDS1       PRINT 'DEV DDD STA SS'              CDT06400
0EA8   4300 0E66          640          B     ERRCOM2                                              CDT06410
0EAC   D000 3F08          641  ERRL    STM   R0,ERRSAVE       STORE REGISTERS                     CDT06420
0EB0   40F0 150A          642          STH   R15,OLOC         STORE ERROR LOC TO PRINT            CDT06430
0EB4   4120 0EDC          643          BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON         CDT06440
0EB8   41E0 0F0A          644          BAL   RET,ERR1         PRINT 'ERROR TTNN'                  CDT06450
0EBC   41E0 0F7E          645          BAL   RET,ERRL1        PRINT 'LOC LLLL'                    CDT06460
0EC0   4300 0E66          646          B     ERRCOM2                                              CDT06470
0EC4   D000 3F08          647  ERRALL  STM   R0,ERRSAVE       STORE REGISTERS                     CDT06480
0EC8   4120 0EDC          648          BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON         CDT06490
0ECC   41E0 0F0A          649          BAL   RET,ERR1         PRINT 'ERROR TTNN'                  CDT06500
0ED0   41E0 0F44          650          BAL   RET,ERRDS1       PRINT 'DEV DDD STA SS'              CDT06510
0ED4   41E0 0F96          651          BAL   RET,ERRPL1       PRINT 'PSW PPPP  LOC LLLL'          CDT06520
0ED8   4300 0E66          652          B     ERRCOM2                                              CDT06530
                          653  *  COMMON ERROR ROUTINE                                            CDT06540
0EDC   C810 00F0          654  ERRCOM  LHI   R1,X'F0'                                             CDT06550
0EE0   9501               655          EPSR  R0,R1            DISABLE INT, @ PROCESSOR LEVEL      CDT06560
0EE2   41F0 11F2          656          BAL   LINK,TSTDU       GET LIST DEVICE DU BIT IN R1        CDT06570
0EE6   0A11               657          AHR   R1,R1                                                CDT06580
0EE8   2136               658          BNZS  ERRCOM1                                              CDT06590
0EEA   4020 1524          659          STH   R2,ISITERR       SET ERROR FLAG                      CDT06600
0EEE   4020 1526          660          STH   R2,NOERR                                             CDT06610
0EF2   0302               661          BR    R2               GO, PRINT ERROR MESSAGE             CDT06620
                          662  *                                                                  CDT06630
0EF4   4810 1530          663  ERRCOM1 LH    R1,TOTERR        LIST DEVICE IS OFF                  CDT06640
0EF8   2611               664          AIS   R1,1                                                 CDT06650
0EFA   4010 1530          665          STH   R1,TOTERR        INCREMENT TOTERR                    CDT06660
0EFE   C510 7FFF          666          CLHI  R1,X'7FFF'       BEYOND LIMIT ?                      CDT06670
0F02   4280 0DF2          667          BL    KEEP91           NO, ABORT CURRENT TEST & GOTO NEXT  CDT06680
0F06   4300 0E14          668          B     HALT9            YES, HALT PROCESSOR                 CDT06690
                          669  *------------------------------                                    CDT06700
                          670  *  ERROR SUPPORT (MESSAGE PRINT) ROUTINES                          CDT06710
                          671  *                                                                  CDT06720
                          672  *  TO PRINT 'ERROR TTNN'                                           CDT06730
0F0A   C850 1554          673  ERR1    LHI   R5,ERRMSG                                            CDT06740
0F0E   41F0 109C          674          BAL   LINK,PRINT       PRINT 'ERROR TTNN'                  CDT06750
                          675  *                              TT = TEST #, NN = ERROR #           CDT06760
0F12   030E               676          BR    R14              RETURN                              CDT06770
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                   *  TO PRINT 'DEV DDD'                                            CDT06780
0F14  2403         ERRD1     LIS    R0,3              SET UP DIGITS = 3             CDT06790
0F16  4810 1512              LH     R1,ERRDEV         R1 = ERROR DEV # IN BINARY    CDT06800
0F1A  C820 15A8              LHI    R2,ASCIDEV2                                     CDT06810
0F1E  41F0 106A              BAL    LINK,HEXASC       CONVERT IT TO ASCII           CDT06820
0F22  C850 15A4              LHI    R5,DEVMSG2                                      CDT06830
0F26  41F0 109C              BAL    LINK,PRINT        PRINT 'DEV DD'                CDT06840
0F2A  030E                   BR     RET               RETURN                        CDT06850
                   *  TO PRINT 'STA SS'                                             CDT06860
0F2C  2402         ERRS1     LIS    R0,2              SET UP DIGITS = 2             CDT06870
0F2E  D310 1515              LB     R1,ERRSTA         R1 = ERROR STATUS             CDT06880
0F32  C820 1586              LHI    R2,ASCISTA                                      CDT06890
0F36  41F0 106A              BAL    LINK,HEXASC       CONVERT IT TO ASCII           CDT06900
0F3A  C850 1582              LHI    R5,STAMSG                                       CDT06910
0F3E  41F0 109C              BAL    LINK,PRINT        PRINT 'STA SS'                CDT06920
0F42  030E                   BR     RET               RETURN                        CDT06930
                   *  TO PRINT 'DEV DDD STA SS'                                     CDT06940
0F44  2403         ERRDS1    LIS    R0,3              SET UP DIGITS = 3             CDT06950
0F46  4810 1512              LH     R1,ERRDEV         R1 = ERROR DEV #              CDT06960
0F4A  C820 157E              LHI    R2,ASCIDEV                                      CDT06970
0F4E  41F0 106A              BAL    LINK,HEXASC       CONVERT IT TO ASCII           CDT06980
0F52  2402                   LIS    R0,2              SET UP DIGITS = 2             CDT06990
0F54  D310 1515              LB     R1,ERRSTA         R1 = ERROR STATUS             CDT07000
0F58  C820 1586              LHI    R2,ASCISTA                                      CDT07010
0F5C  41F0 106A              BAL    LINK,HEXASC       CONVERT IT TO ASCII           CDT07020
0F60  C850 157A              LHI    R5,DEVMSG                                       CDT07030
0F64  41F0 109C              BAL    LINK,PRINT        PRINT 'DEV DD STA SS'         CDT07040
0F68  C850 2020              LHI    R5,X'2020'                                      CDT07050
0F6C  D250 1589              STB    R5,DEVMSG+15                                    CDT07060
0F70  D250 158A              STB    R5,DEVMSG+16                                    CDT07070
0F74  D250 158C              STB    R5,DEVMSG+18                                    CDT07080
0F78  D250 158D              STB    R5,DEVMSG+19                                    CDT07090
0F7C  030E                   BR     RET               RETURN                        CDT07100
                   *  TO PRINT 'LOC LLLL'                                           CDT07110
0F7E  2404         ERRL1     LIS    R0,4              SET UP DIGITS = 4             CDT07120
0F80  4810 150A              LH     R1,OLOC           R1= OLD LOC                   CDT07130
0F84  C820 15BC              LHI    R2,ASCILOC                                      CDT07140
0F88  41F0 106A              BAL    LINK,HEXASC       CONVERT IT TO ASCII           CDT07150
0F8C  C850 15B8              LHI    R5,LOCMSG                                       CDT07160
0F90  41F0 109C              BAL    LINK,PRINT        PRINT 'LOC LLLL'              CDT07170
0F94  030E                   BR     RET               RETURN                        CDT07180
                   *  TO PRINT 'PSW PPPP  LOC LLLL'                                 CDT07190
0F96  2404         ERRPL1    LIS    R0,4              SET UP DIGITS = 4             CDT07200
0F98  4810 1506              LH     R1,OPSW           R1 = OLD PSW                  CDT07210
0F9C  C820 15B2              LHI    R2,ASCIPSW                                      CDT07220
0FA0  41F0 106A              BAL    LINK,HEXASC       CONVERT IT TO ASCII           CDT07230
0FA4  4810 150A              LH     R1,OLOC           R1= OLD LOC                   CDT07240
0FA8  C820 15BC              LHI    R2,ASCILOC                                      CDT07250
0FAC  41F0 106A              BAL    LINK,HEXASC       CONVERT IT TO ASCII           CDT07260
0FB0  C850 15AE              LHI    R5,PSWMSG                                       CDT07270
0FB4  41F0 109C              BAL    LINK,PRINT        PRINT 'PSW PPPP  LOC LLLL'    CDT07280
0FB8  030E                   BR     RET               RETURN                        CDT07290
                   * **********************************                             CDT07300
                   *  TO OBTAIN OPTION VALUE IN R6                                  CDT07310
                   *                                                                CDT07320
0FBA  0766         OPTVAL    XHR    R6,R6             INITIALIZE R6                 CDT07330
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0FBC   41F0 1166                    BAL   R15,GETCHR          GET A CHAR IN R4                 CDT07340
0FC0   C540 0030          OPTVAL1   CLHI  R4,C'0'             CHECK IF VALID HEX CHAR          CDT07350
0FC4   028C                         BLR   R12                 NO                               CDT07360
0FC6   C540 003A                    CLHI  R4,X'3A'                                             CDT07370
0FCA   2186                         BLS   OPTVAL2             YES                              CDT07380
0FCC   C540 0041                    CLHI  R4,C'A'                                              CDT07390
0FD0   028C                         BLR   R12                                                  CDT07400
0FD2   C540 0047                    CLHI  R4,C'G'                                              CDT07410
0FD6   038C                         BNLR  R12                 NO                               CDT07420
0FD8   2649                         AIS   R4,9                                                 CDT07430
0FDA   C440 000F          OPTVAL2   NHI   R4,15                                                CDT07440
0FDE   C510 163E                    CLHI  R1,BUFFER                                            CDT07450
0FE2   2136                         BNES  OPTVAL3                                              CDT07460
0FE4   4890 150E                    LH    R9,MOD32                                             CDT07470
0FE8   2333                         BZS   OPTVAL3                                              CDT07480
0FEA   1164                         DC    X'1164'             * SLLS                           CDT07490
0FEC   2302                         BS    OPTVAL4                                              CDT07500
0FEE   9164               OPTVAL3   SLHLS R6,4                                                 CDT07510
0FF0   0664               OPTVAL4   OHR   R6,4                                                 CDT07520
0FF2   41F0 1166                    BAL   R15,GETCHR          GET NEXT CHAR                    CDT07530
0FF6   C540 000D                    CLHI  R4,13               EXIT IF CR                       CDT07540
0FFA   033E                         BER   R14                                                  CDT07550
0FFC   C540 002C                    CLHI  R4,X'2C'            OR COMMA                         CDT07560
1000   4230 0FC0                    BNE   OPTVAL1             LOOP TO PROCESS                  CDT07570
1004   030E                         BR    R14                 RETURN                           CDT07580
                          *  TO CONVERT FROM BINARY TO UNARY PATTERN                           CDT07590
                          *                                                                    CDT07600
1006   2431               UNARY     LIS   R3,1                INITIALIZE                       CDT07610
1008   C560 000F          UNARY1    CLHI  R6,15               DONE ?                           CDT07620
100C   033E                         BER   R14                 RETURN                           CDT07630
100E   0A33                         AHR   R3,R3                                                CDT07640
1010   2661                         AIS   R6,1                                                 CDT07650
1012   2205                         BS    UNARY1                                               CDT07660
                          *----------------------------                                        CDT07670
                          *  TO PROVIDE # OF MILLISECONDS DELAY SPECIFIED BY R0                CDT07680
                          *                                                                    CDT07690
1014   D000 3F48          TIMER     STM   R0,RSAVE            SAVE REGISTERS                   CDT07700
1018   2410                         LIS   R1,0                                                 CDT07710
101A   2421                         LIS   R2,1                                                 CDT07720
101C   4830 0A1C                    LH    R3,TIME             R3 = TIME CONSTANT FOR 1 MS DELAY CDT07730
1020   C110 1020                    BXLE  R1,*                                                 CDT07740
1024   2701                         SIS   R0,1                                                 CDT07750
1026   2037                         BNZS  TIMER+4             LOOP TILL SPECIFIED DELAY        CDT07760
1028   D100 3F48                    LM    R0,RSAVE            RESTORE REGISTERS                CDT07770
102C   030F                         BR    LINK                RETURN                           CDT07780
                          *----------------------------                                        CDT07790
                          *  R5HEX PRINTS CONTENTS OF R5 IN HEX                                CDT07800
                          *         PRINTS UPTO 4 DIGITS                                       CDT07810
102E   D000 3F48          R5HEX     STM   R0,RSAVE            STORE REGISTERS                  CDT07820
1032   C500 0005                    CLHI  R0,5                MORE THAN 4 DIGITS ?             CDT07830
1036   4380 1064                    BNL   R5XB                YES, EXIT                        CDT07840
103A   0820                         LHR   R2,R0               R2 = # OF DIGITS TO BE PRINTED   CDT07850
103C   2721                         SIS   R2,1                                                 CDT07860
103E   4210 1064                    BM    R5XB                                                 CDT07870
1042   0A22                         AHR   R2,R2                                                CDT07880
1044   0A22                         AHR   R2,R2               R2 = 4(DIGITS-1)                 CDT07890
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1046  0845            789  R5X     LHR   R4,R5                                    CDT07900
1048  CC42 0000       790          SRHL  R4,0(R2)                                 CDT07910
104C  C440 000F       791          NHI   R4,15          R4 = HEX DIGIT            CDT07920
1050  CA40 0030       792          AHI   R4,X'30'                                 CDT07930
1054  C540 003A       793          CLHI  R4,X'3A'                                 CDT07940
1058  2182            794          BLS   R5XA                                     CDT07950
105A  2647            795          AIS   R4,7           ALIGN ASCII CHAR          CDT07960
105C  41F0 1134       796  R5XA    BAL   R15,OUTCHR                               CDT07970
1060  2724            797          SIS   R2,4                                     CDT07980
1062  221E            798          BNMS  R5X            LOOP TILL ALL DIGITS      CDT07990
1064  D100 3F48       799  R5XB    LM    R0,RSAVE       RESTORE REGISTERS         CDT08000
1068  030F            800          BR    LINK           RETURN                    CDT08010
                      801  *  TO CONVERT BINARY DATA IN R1 INTO ASCII CHAR & STORE @ 0(R2)  CDT08020
                      802  *                                                      CDT08030
106A  D800 3F48       803  HEXASC  STM   R0,RSAVE       STORE REGISTERS           CDT08040
106E  0830            804          LHR   R3,R0          R3 = DIGITS               CDT08050
1070  0A33            805          AHR   R3,R3                                    CDT08060
1072  0A33            806          AHR   R3,R3                                    CDT08070
1074  2734            807          SIS   R3,4           R3 = 4(DIGITS)-4          CDT08080
1076  0841            808  HEXASC1 LHR   R4,R1          R4 = HEX DATA             CDT08090
1078  CC43 0000       809          SRHL  R4,0(R3)                                 CDT08100
107C  C440 000F       810          NHI   R4,15          R4 = HEX DIGIT TO BE CONVERTED  CDT08110
1080  CA40 0030       811          AHI   R4,X'30'                                 CDT08120
1084  C540 003A       812          CLHI  R4,X'3A'                                 CDT08130
1088  2182            813          BLS   HEXASC2                                  CDT08140
108A  2647            814          AIS   R4,7           ADJUST TO A-F             CDT08150
108C  D242 0000       815  HEXASC2 STB   R4,0(R2)       STORE ASCII CHAR          CDT08160
1090  2621            816          AIS   R2,1                                     CDT08170
1092  2734            817          SIS   R3,4                                     CDT08180
1094  221F            818          BNMS  HEXASC1        LOOP TILL ALL DIGITS      CDT08190
1096  D100 3F48       819          LM    R0,RSAVE       RESTORE REGISTERS         CDT08200
109A  030F            820          BR    LINK           RETURN                    CDT08210
                      821  *-----------------------------                         CDT08220
                      822  *-----------------------------                         CDT08230
                      823  *  TO PRINT THE ASCII MESSAGE                          CDT08240
                      824  *                                                      CDT08250
109C  D000 3F48       825  PRINT   STM   R0,RSAVE       STORE REGISTERS           CDT08260
10A0  41F0 11F2       826          BAL   LINK,TSTDU                               CDT08270
10A4  0811            827          LHR   R1,R1                                    CDT08280
10A6  2335            828          BZS   P1                                       CDT08290
10A8  4010 152E       829          STH   R1,WASDU       SET FLAG                  CDT08300
10AC  4300 112E       830          B     PRINT5         EXIT                      CDT08310
10B0  4820 152E       831  P1      LH    R2,WASDU                                 CDT08320
10B4  4330 10DA       832          BZ    P3                                       CDT08330
10B8  4010 152E       833          STH   R1,WASDU       RESET FLAG                CDT08340
10BC  4810 0A1C       834          LH    R1,TIME        GET CONSTANT FOR APPROX 1 SEC DELAY  CDT08350
10C0  C800 1000       835          LHI   R0,X'1000'                               CDT08360
10C4  2701            836          SIS   R0,1                                     CDT08370
10C6  2031            837          BTBS  3,1                                      CDT08380
10C8  2711            838          SIS   R1,1                                     CDT08390
10CA  2035            839          BTBS  3,5            LOOP TILL TIMEOUT         CDT08400
10CC  2434            840          LIS   R3,4                                     CDT08410
10CE  C840 00FF       841          LHI   R4,X'FF'                                 CDT08420
10D2  41F0 1134       842  P2      BAL   LINK,OUTCHR                              CDT08430
10D6  2731            843          SIS   R3,1                                     CDT08440
10D8  2033            844          BNZS  P2                                       CDT08450
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10DA   4800 15FC        845  P3       LH     R0,NOMSG+6                            CDT08460
10DE   2335             846           BZS    PRINT1          NO, PRINT ALL MESSAGES CDT08470
10E0   4800 1524        847           LH     R0,ISITERR                            CDT08480
10E4   4330 112E        848           BZ     PRINT5          NOT AN ERROR MSG, EXIT CDT08490
10E8   4110 1288        849  PRINT1   BAL    R1,SETUP        SET UP LIST DEV FOR PRINTING CDT08500
10EC   D315 0000        850  PRINT2   LB     R1,0(R5)        GET A MESSAGE BYTE     CDT08510
10F0   9D02             851           SSR    R0,R2                                 CDT08520
10F2   4210 112E        852           BTC    1,PRINT5        IF DU, EXIT            CDT08530
10F6   2083             853           BTBS   8,3             IF BUSY, LOOP          CDT08540
10F8   9A01             854           WDR    R0,R1           WRITE A CHARACTER      CDT08550
10FA   C510 000D        855           CLHI   R1,13           CR ?                   CDT08560
10FE   2333             856           BES    PRINT3          MSG OVER               CDT08570
1100   2651             857           AIS    R5,1                                  CDT08580
1102   220B             858           BS     PRINT2          LOOP FOR NEXT CHAR     CDT08590
1104   242A             859  PRINT3   LIS    R2,10           LF                     CDT08600
1106   D310 0A11        860           LB     R1,IO+1         GET LIST DEV IDENTIFIER CDT08610
110A   C510 0003        861           CLHI   R1,3            LINE PRINTER ?         CDT08620
110E   2132             862           BNES   PRINT3A         NO, OUTPUT LF          CDT08630
1110   2421             863           LIS    R2,1            YES, OUTPUT X'01'      CDT08640
1112   9D01             864  PRINT3A  SSR    R0,R1                                 CDT08650
1114   2081             865           BTBS   8,1                                   CDT08660
1116   9A02             866           WDR    R0,R2                                 CDT08670
1118   9D01             867           SSR    R0,R1                                 CDT08680
111A   2081             868           BTBS   8,1             WAIT TILL LF COMPLETE  CDT08690
111C   D320 0A11        869  PRINT4   LB     R2,IO+1                               CDT08700
1120   C520 0001        870           CLHI   R2,1            CRT ?                  CDT08710
1124   2135             871           BNES   PRINT5                                CDT08720
1126   DA00 1734        872           WD     R0,RUN+6        OUTPUT 1 NULL CHARACTER CDT08730
112A   9D01             873           SSR    R0,R1                                 CDT08740
112C   2081             874           BTBS   8,1                                   CDT08750
112E   D100 3F48        875  PRINT5   LM     R0,RSAVE        RESTORE REGISTERS      CDT08760
1132   030F             876           BR     LINK            RETURN                 CDT08770
                        877  *------------------------                             CDT08780
                        878  *  SMALL SUPPORT ROUTINES                             CDT08790
                        879  *                                                     CDT08800
1134   40F0 1164        880  OUTCHR   STH    R15,OUT1+2      SET UP RETURN ADDRESS  CDT08810
1138   41F0 11F2        881           BAL    LINK,TSTDU                            CDT08820
113C   0811             882           LHR    R1,R1                                 CDT08830
113E   4230 1162        883           BNZ    OUT1            DEVICE UNAVAILABLE, EXIT CDT08840
1142   4110 1288        884           BAL    R1,SETUP        SET UP LIST DEVICE     CDT08850
1146   9D01             885           SSR    R0,R1                                 CDT08860
1148   2081             886           BTBS   8,1             WAIT TILL BSY DROPS    CDT08870
114A   9A04             887           WDR    R0,R4                                 CDT08880
114C   9D01             888           SSR    R0,R1                                 CDT08890
114E   2081             889           BTBS   8,1                                   CDT08900
1150   D310 0A11        890           LB     R1,IO+1                               CDT08910
1154   C510 0001        891           CLHI   R1,1                                  CDT08920
1158   023F             892           BNER   LINK            RETURN                 CDT08930
115A   DA00 1734        893           WD     R0,RUN+6        OUTPUT 1 NULL CHARACTER CDT08940
115E   9D01             894           SSR    R0,R1                                 CDT08950
1160   2081             895           BTBS   8,1                                   CDT08960
1162   4300 0000        896  OUT1     B      0               RETURN AS SET UP ABOVE CDT08970
                        897  *------------------------------                       CDT08980
                        898  *  TO GET A CHAR FROM KEYBOARD (IN REG R4)            CDT08990
                        899  *                                                     CDT09000
1166   4140 1232        900  GETCHR   BAL    R4,KBREAD       PUT KB DEVICE IN READ MODE CDT09010
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116A  9D04                     SSR   R0,R4                                CDT09020
116C  021F                     BTCR  1,LINK           IF DU, RETURN       CDT09030
116E  2082                     BTBS  8,2              IF BUSY, LOOP       CDT09040
1170  9B04                     RDR   R0,R4            READ A CHAR IN R4   CDT09050
1172  C440 007F                NHI   R4,X'7F'         REMOVE PARITY BIT   CDT09060
1176  030F                     BR    LINK             RETURN              CDT09070
                   *------------------------------                        CDT09080
                   *  TO OUTPUT CR,LF TO LIST DEVICE                      CDT09090
                   *                                                      CDT09100
1178  D000 3F48    CRLF        STM   R0,RSAVE         STORE REGISTERS     CDT09110
117C  2440                     LIS   R4,13                                CDT09120
117E  41F0 1134                BAL   LINK,OUTCHR      OUTPUT CR           CDT09130
1182  244A                     LIS   R4,10            LF                  CDT09140
1184  D310 0A11                LB    R1,IO+1          GET LIST DEV IDENTIFIER  CDT09150
1188  C510 0003                CLHI  R1,3             LP ?                CDT09160
118C  2132                     BNES  CRLF1            NO, OUTPUT LF       CDT09170
118E  2441                     LIS   R4,1             YES, OUTPUT X'01'   CDT09180
1190  41F0 1134    CRLF1       BAL   LINK,OUTCHR                          CDT09190
1194  D100 3F48                LM    R0,RSAVE         RESTORE REGISTERS   CDT09200
1198  030F                     BR    LINK             RETURN              CDT09210
                   *------------------------------                        CDT09220
                   *  TO OUTPUT '?' TO CONSOLE                            CDT09230
                   *                                                      CDT09240
119A  41F0 1178    QUESTN      BAL   LINK,CRLF                            CDT09250
119E  40F0 1524                STH   R15,ISITERR                          CDT09260
11A2  C850 15D0                LHI   R5,QMSG                              CDT09270
11A6  41F0 109C                BAL   LINK,PRINT       PRINT '?'           CDT09280
11AA  0700                     XHR   R0,R0                                CDT09290
11AC  4000 1524                STH   R0,ISITERR                           CDT09300
11B0  4300 0AA8                B     OPTIN1           GO TO BEGINING      CDT09310
                   *------------------------------                        CDT09320
                   *  IF 'BREAK' PRESSED,GOTO 'OPTIN', OTHERWISE RETURN   CDT09330
                   *                                                      CDT09340
11B4  D000 3F48    TSTBRK      STM   R0,RSAVE         STORE REGISTERS     CDT09350
11B8  D300 1516                LB    R0,KBADR         GET KEYBOARD DEVICE ADR  CDT09360
11BC  9D01                     SSR   R0,R1                                CDT09370
11BE  C310 0020                THI   R1,X'20'         'BREAK' KEY PRESSED ?  CDT09380
11C2  4330 11EC                BZ    TSTBRK3          NO, EXIT            CDT09390
11C6  D320 0A10                LB    R2,IO                                CDT09400
11CA  C520 0001                CLHI  R2,1             CRT ?               CDT09410
11CE  2137                     BNES  TSTBRK1                              CDT09420
11D0  9D01                     SSR   R0,R1                                CDT09430
11D2  2081                     BTBS  8,1                                  CDT09440
11D4  9B02                     RDR   R0,R2                                CDT09450
11D6  9D01                     SSR   R0,R1                                CDT09460
11D8  2281                     BFBS  8,1                                  CDT09470
11DA  2305                     BS    TSTBRK2                              CDT09480
11DC  9D01         TSTBRK1     SSR   R0,R1                                CDT09490
11DE  C310 0020                THI   R1,X'20'                             CDT09500
11E2  2033                     BTBS  3,3              WAIT TILL BREAK KEY IS DEPRESSED  CDT09510
11E4  D100 3F48    TSTBRK2     LM    R0,RSAVE         RESTORE REGISTERS   CDT09520
11E8  4300 0A9E                B     OPTIN                                CDT09530
11EC  D100 3F48    TSTBRK3     LM    R0,RSAVE         RESTORE REGISTERS   CDT09540
11F0  030F                     BR    LINK             RETURN TO PROGRAM   CDT09550
                   *------------------------------                        CDT09560
                   *  TO SEE IF LIST DEVICE IS OFF (R1 IS NON-ZERO IF OFF)  CDT09570
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                                957  *                                                    CDT09580
11F2    D310 0A11               958  TSTDU    LB     R1,IO+1           GET LIST DEV IDENTIFIER       CDT09590
11F6    C510 0001               959           CLHI   R1,1              CRT ?                          CDT09600
11FA    213B                    960           BNES   TSTDU1                                           CDT09610
11FC    D300 0A12               961           LB     R0,CRTADR                                        CDT09620
1200    9D01                    962           SSR    R0,R1                                            CDT09630
1202    C410 000C               963           NHI    R1,12                                            CDT09640
1206    C510 000C               964           CLHI   R1,12             BSY & EX SET ?                 CDT09650
120A    033F                    965           BER    LINK                                             CDT09660
120C    0711                    966           XHR    R1,R1                                            CDT09670
120E    030F                    967           BR     LINK              RETURN                         CDT09680
1210    C510 0002               968  TSTDU1   CLHI   R1,2              TTY ?                          CDT09690
1214    2336                    969           BES    TSTDU2                                           CDT09700
1216    C510 0003               970           CLHI   R1,3              LP ?                           CDT09710
121A    2336                    971           BES    TSTDU3                                           CDT09720
121C    4200 0000               972           NOP    PROVISION         TO ADD SPECIAL DEV             CDT09730
1220    D300 0A14               973  TSTDU2   LB     R0,TTYADR                                        CDT09740
1224    2303                    974           BS     TSTDU4                                           CDT09750
1226    D300 0A16               975  TSTDU3   LB     R0,LPADR                                         CDT09760
122A    9D01                    976  TSTDU4   SSR    R0,R1             GET STATUS IN R1               CDT09770
122C    C410 0001               977           NHI    R1,1              R1 = DU BIT                    CDT09780
1230    030F                    978           BR     LINK              RETURN                         CDT09790
                                979  *-----------------------------                                   CDT09800
                                980  *  TO PUT KEYBOARD DEVICE IN READ MODE                           CDT09810
                                981  *                                                                CDT09820
1232    D300 0A10               982  KBREAD   LB     R0,IO             GET KB DEV IDENTIFIER          CDT09830
1236    C500 0001               983           CLHI   R0,1              CRT ?                          CDT09840
123A    233B                    984           BES    CRTGET                                           CDT09850
123C    C500 0002               985           CLHI   R0,2              TTY ?                          CDT09860
1240    2333                    986           BES    TTYGET                                           CDT09870
1242    4200 0000               987           NOP    FOR               SPECIAL KB DEVICE              CDT09880
1246    D300 0A14               988  TTYGET   LB     R0,TTYADR                                        CDT09890
124A    DE00 151F               989           OC     R0,TTYRD                                         CDT09900
124E    0304                    990           BR     R4                RETURN                         CDT09910
1250    D300 0A12               991  CRTGET   LB     R0,CRTADR                                        CDT09920
1254    DE00 1519               992           OC     R0,CRTRD                                         CDT09930
1258    DB00 152A               993           RD     R0,TEMP           DUMMY READ                     CDT09940
125C    DE00 151B               994           OC     R0,RG2S                                          CDT09950
1260    0304                    995           BR     R4                RETURN                         CDT09960
                                996  *-----------------------------                                   CDT09970
                                997  *  TO SET UP KEYBOARD DEV TO READ WITH INT ENABLED               CDT09980
                                998  *                                                                CDT09990
1262    D000 3F48               999  KBRD     STM    R0,RSAVE          SAVE REGISTERS                 CDT10000
1266    D300 1516              1000           LB     R0,KBADR          GET KB DEV ADR                 CDT10010
126A    D310 0A10              1001           LB     R1,IO             GET KB IDENTIFIER              CDT10020
126E    C510 0001              1002           CLHI   R1,1              CRT ?                          CDT10030
1272    2334                   1003           BES    KBRD1                                            CDT10040
1274    DE00 1520              1004           OC     R0,TTYENRD        TTY : ENABLE,READ              CDT10050
1278    2305                   1005           BS     KBRD1+8                                          CDT10060
127A    DE00 151A              1006  KBRD1    OC     R0,CRTENRD        CRT : ENABLE,READ              CDT10070
127E    DE00 151B              1007           OC     R0,RG2S                                          CDT10080
1282    D100 3F48              1008           LM     R0,RSAVE          RESTORE REGISTERS              CDT10090
1286    030F                   1009           BR     LINK              RETURN                         CDT10100
                               1010  *-----------------------------                                   CDT10110
                               1011  *  LIST DEVICE SET UP ROUTINE                                    CDT10120
                               1012  *                                                                CDT10130
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1288  D300 0A11          1013  SETUP   LB     R0,IO+1          GET LIST DEV IDENTIFIER                CDT10140
128C  C500 0001          1014          CLHI   R0,1             CRT ?                                  CDT10150
1290  4330 12B8          1015          BE     CRTDRV           YES, GO TO CRT DRIVER                  CDT10160
1294  C500 0002          1016          CLHI   R0,2             TTY ?                                  CDT10170
1298  2336               1017          BES    TTYDRV           YES, GO TO TTY DRIVER                  CDT10180
129A  C500 0003          1018          CLHI   R0,3             LINE PRINTER ?                         CDT10190
129E  2338               1019          BES    LPDRV                                                   CDT10200
12A0  4200 0000          1020          NOP    PROVISION        TO ADD SPECIAL DEV                     CDT10210
12A4  D300 0A14          1021  TTYDRV  LB     R0,TTYADR                                               CDT10220
12A8  DE00 151E          1022          OC     R0,TTYWRT        WRITE COMMAND TO TTY                   CDT10230
12AC  0301               1023          BR     R1               RETURN                                 CDT10240
12AE  D300 0A16          1024  LPDRV   LB     R0,LPADR                                                CDT10250
12B2  DE00 151D          1025          OC     R0,LPWRT         COMMAND TO LINE PRINTER                CDT10260
12B6  0301               1026          BR     R1                                                      CDT10270
12B8  D300 0A13          1027  CRTDRV  LB     R0,CRTADR+1                                             CDT10280
12BC  DE00 1518          1028          OC     R0,CRTWRT        TURN LINE TO WRITE                     CDT10290
12C0  0301               1029          BR     R1               RETURN                                 CDT10300
                         1030  * ***************************                                          CDT10310
                         1031  *  LOW CORE SET UP ROUTINE                                             CDT10320
                         1032  *                                                                      CDT10330
12C2  0711               1033  LCORE   XHR    R1,R1                                                   CDT10340
12C4  2422               1034          LIS    R2,2                                                    CDT10350
12C6  C830 004E          1035          LHI    R3,X'4E'                                                CDT10360
12CA  0700               1036          XHR    R0,R0                                                   CDT10370
12CC  4001 0000          1037  ZERO1   STH    R0,0(R1)                                                CDT10380
12D0  C110 12CC          1038          BXLE   R1,ZERO1         ZERO CORE FROM 0 THRU X'4F'            CDT10390
12D4  C810 0080          1039          LHI    R1,X'80'                                                CDT10400
12D8  C830 00CE          1040          LHI    R3,X'CE'                                                CDT10410
12DC  4001 0000          1041  ZERO2   STH    R0,0(R1)                                                CDT10420
12E0  C110 12DC          1042          BXLE   R1,ZERO2         ZERO CORE FROM X'80' THRU X'CF'        CDT10430
12E4  C800 143E          1043          LHI    R0,XIERR         EXTERNAL INT ERROR ROUTINE START ADR   CDT10440
12E8  C830 08CE          1044          LHI    R3,X'8CE'                                               CDT10450
12EC  4001 0000          1045  ZERO3   STH    R0,0(R1)                                                CDT10460
12F0  C110 12EC          1046          BXLE   R1,ZERO3         SET UP INT SERVICE POINTER TABLE       CDT10470
12F4  C830 149C          1047          LHI    R3,II                                                   CDT10480
12F8  4030 0036          1048          STH    R3,X'36'         ILL INST INT NEW PSW LOC               CDT10490
12FC  C840 14B6          1049          LHI    R4,MM                                                   CDT10500
1300  4040 003E          1050          STH    R4,X'3E'         M. M. INT NEW PSW LOC                  CDT10510
1304  C830 1460          1051          LHI    R3,AF                                                   CDT10520
1308  4030 004E          1052          STH    R3,X'4E'         ARITHMATIC FAULT NEW PSW LOC(32-BIT)   CDT10530
                         1053  *                               FIXED PT DIVIDE FAULT NEW PSW LOC      CDT10540
130C  C840 3F48          1054          LHI    R4,RSAVE                                                CDT10550
1310  4810 150E          1055          LH     R1,MOD32                                                CDT10560
1314  213C               1056          BNZS   LCORE32                                                 CDT10570
                         1057  *  SET UP LOW CORE FOR 16 BIT MACHINE                                  CDT10580
1316  4040 0022          1058          STH    R4,X'22'         REG SAVE POINTER                       CDT10590
131A  C830 14F0          1059          LHI    R3,FP                                                   CDT10600
131E  4030 002E          1060          STH    R3,X'2E'         FLOATING PT FAULT INT NEW PSW LOC      CDT10610
1322  C850 13C6          1061          LHI    R5,XI16                                                 CDT10620
1326  4050 0046          1062          STH    R5,X'46'         EXT INT NEW PSW LOC                    CDT10630
132A  030F               1063          BR     LINK                                                    CDT10640
                         1064  *  SET UP LOW CORE FOR 32 BIT MACHINE                                  CDT10650
                         1065  *                                                                      CDT10660
132C  4040 0086          1066  LCORE32 STH    R4,X'86'         REG SAVE POINTER                       CDT10670
1330  2748               1067          SIS    R4,8                                                    CDT10685
1332  4040 0084          1068          STH    R4,X'84'         PSW SAVE AREA                          CDT10690
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1336  C830 14F8             LHI   R3,RP
133A  4030 0096             STH   R3,X'96'        RELOC/PROTECT INT NEW PSW LOC
133E  D310 1516             LB    R1,KBADR        GET KEYBOARD DEV ADR
1342  0A11                  AHR   R1,R1
1344  C800 1362             LHI   R0,KBINT0       R0 = A(KEYBOARD INT HANDLER)
1348  4001 00D0             STH   R0,X'D0'(R1)    STORE @  X'D0'+2(KB DEV ADR)
134C  0711                  XHR   R1,R1           TO SET UP SERVICE POINTER TABLE
134E  C830 13D4             LHI   R3,XI32
1352  4821 364E   LCORE32A  LH    R2,DEVSADR(R1)  GET DEV ADR FROM TABLE
1356  021F                  BMR   LINK            DONE, RETURN
1358  0A22                  AHR   R2,R2
135A  4032 00D0             STH   R3,X'D0'(R2)    STORE @  X'D0'+2(DEV ADR)
135E  2612                  AIS   R1,2
1360  2207                  BS    LCORE32A
                  *--------------------------------
                  *  KEYBOARD INTERRUPT HANDLER
                  *
1362  C330 0020   KBINT0    THI   R3,X'20'        IS BREAK KEY DEPRESSED ?
1366  4330 138E             BZ    KBINT1          NO
136A  D350 0A10             LB    R5,IO
136E  C550 0001             CLHI  R5,1            CRT ?
1372  2138                  BNES  KBINT0A
1374  9D23                  SSR   R2,R3
1376  2081                  BTBS  8,1
1378  9B24                  RDR   R2,R4
137A  9D23                  SSR   R2,R3
137C  2281                  BFBS  8,1
137E  4300 0A9E             B     OPTIN
1382  9D23        KBINT0A   SSR   R2,R3
1384  C330 0020             THI   R3,X'20'
1388  2033                  BTBS  3,3             WAIT TILL BREAK KEY IS DEPRESSED
138A  4300 0A9E             B     OPTIN           GO TO COMMAND MODE
138E  D220 1510   KBINT1    STB   R2,INTDEV
1392  D230 1514             STB   R3,INTSTA
1396  4840 150E             LH    R4,MOD32
139A  2335                  BZS   KBINT2
139C  4000 1506             STH   R0,OPSW         STORE OLD PSW OF 32-BIT PROCESSOR
13A0  4010 150A             STH   R1,OLOC         IN ORDER TO RETURN BACK TO TEST
13A4  4890 1522   KBINT2    LH    R9,KBINT
13A8  0239                  BNZR  R9              GO,PROCESS KB INT FURTHER
13AA  4300 143E             B     XIERR
13AE  D320 1516   NOBRK     LB    R2,KBADR        KB INT FROM KEY OTHER THAN BREAK
13B2  9B24                  RDR   R2,R4
                  *  TO RETURN ON OLD PSW
13B4  4890 150E   RETOPSW   LH    R9,MOD32
13B8  2135                  BNZS  RETOPSW1
13BA  D100 3F48             LM    R0,RSAVE        RESTORE REGISTERS
13BE  C200 0040             LPSW  X'40'           RETURN ON OLD PSW AFTER KB INT
13C2  C200 1504   RETOPSW1  LPSW  OPSW32
                  * ***********************************************
                  *  EXTERNAL INTERRUPT HANDLER
                  *
      0000 13C6   XI16      EQU   *               FOR 16-BIT PROCESSOR
13C6  D000 3F48             STM   R0,RSAVE        SAVE 16 REGISTERS
13CA  9F23                  AIR   R2,R3           ACKNOLEDGE INTERRUPT
13CC  D420 1516             CLB   R2,KBADR        INT FROM KB DEV ?
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13D0  4330 1362          1125          BE     KBINT0            SGO TO PROCESS KEYBOARD INT          CDT11260
      0000 13D4          1126  XI32    EQU    *                 32-BIT PROCESSOR INTERUPT HANDLER    CDT11270
13D4  95AA               1127          EPSR   R10,R10                                                CDT11280
13D6  40A0 150C          1128          STH    R10,INTPSW                                              CDT11290
13DA  4020 1510          1129          STH    R2,INTDEV         STORE INTERRUPTING DEV ADR           CDT11300
13DE  D230 1514          1130          STB    R3,INTSTA                                               CDT11310
13E2  4840 150E          1131          LH     R4,MOD32                                                CDT11320
13E6  2135               1132          BNZS   XI32A                                                   CDT11330
13E8  4800 0040          1133          LH     R0,X'40'          R0 = OLD PSW ( 16 BIT M/C )          CDT11340
13EC  4810 0042          1134          LH     R1,X'42'          R1 = OLD PSW LOC ( 16 BIT M/C )      CDT11350
13F0  4000 1506          1135  XI32A   STH    R0,OPSW                                                 CDT11360
13F4  4010 150A          1136          STH    R1,OLOC                                                 CDT11370
13F8  0755               1137          XHR    R5,R5                                                   CDT11380
13FA  4865 364E          1138  XI1     LH     R6,DEVSADR(R5)    GET DEV ADR FROM TABLE               CDT11390
13FE  4210 143E          1139          BM     XIERR                                                   CDT11400
1402  0562               1140          CLHR   R6,R2             COMPARE IT WITH INTERRUPTING DEV ADR CDT11410
1404  2333               1141          BES    XI2                                                     CDT11420
1406  2652               1142          AIS    R5,2                                                    CDT11430
1408  2207               1143          BS     XI1                                                     CDT11440
140A  4865 365C          1144  XI2     LH     R6,DEVINT(R5)     GET DEV INTERRUPT HANDLER ADDRESS    CDT11450
140E  4330 143E          1145          BZ     XIERR                                                   CDT11460
1412  4060 143C          1146          STH    R6,XIEXIT                                               CDT11470
1416  4860 150E          1147          LH     R6,MOD32                                                CDT11480
141A  233E               1148          BZS    XI3                                                     CDT11490
141C  9051               1149          SRLS   R5,1              TO CHECK INTERRUPT LEVEL             CDT11500
141E  90A4               1150          SRLS   R10,4                                                   CDT11510
1420  C860 4636          1151          LHI    R6,C'F6'                                                CDT11520
1424  C4A0 000F          1152          NHI    R10,15            R10 = INTERRUPT LEVEL                CDT11530
1428  D4A5 3668          1153          CLB    R10,INTLVL(R5)    COMPARE IT WITH THE ASSIGNED ONE     CDT11540
142C  213B               1154          BNES   XIERR+4                                                 CDT11550
                         1155  *                                                                      CDT11560
142E  C810 00F0          1156          LHI    R1,X'F0'                                                CDT11570
1432  9501               1157          EPSR   R0,R1             DIS INT , REG SET 15                 CDT11580
1434  2303               1158          BS     XI3+4                                                   CDT11590
1436  D100 3F48          1159  XI3     LM     R0,RSAVE          RESTORE REG (16-BIT PROCESSOR)       CDT11600
143A  4300 0000          1160          B      0                 RETURN TO TEST                       CDT11610
      0000 143C          1161  XIEXIT  EQU    *-2                                                     CDT11620
                         1162  *-------------------------------                                       CDT11630
                         1163  *     EXTERNAL INTERRUPT ERROR ROUTINE                                 CDT11640
                         1164  *                                                                      CDT11650
143E  C860 4634          1165  XIERR   LHI    R6,C'F4'                                                CDT11660
1442  4060 155C          1166          STH    R6,ERRNO                                                CDT11670
1446  4020 1512          1167          STH    R2,ERRDEV                                               CDT11680
144A  D230 1515          1168          STB    R3,ERRSTA                                               CDT11690
144E  D100 3F48          1169          LM     R0,RSAVE          RESTORE REGISTERS                    CDT11700
1452  C830 00F0          1170          LHI    R3,X'F0'                                                CDT11710
1456  9523               1171          EPSR   R2,R3             REG SET 15                           CDT11720
1458  41F0 0EC4          1172          BAL    LINK,ERRALL       'ERROR XXFN',,'DEV DDD STA SS'       CDT11730
                         1173  *                               'PSW PPPP  LOC LLLL'                 CDT11740
145C  4300 0AA8          1174          B      OPTIN1            GO TO BEGINNING                      CDT11750
                         1175  *-----------------------------                                        CDT11760
                         1176  *  SPURIOUS INTERRUPT HANDLERS                                        CDT11770
                         1177  *                                                                      CDT11780
                         1178  *                                                                      CDT11790
                         1179  *  ARITHMATIC FAULT INT (32-BIT PROCESSOR) TRAP                       CDT11800
                         1180  *  FIXED-PT DIVIDE FAULT INT (16-BIT PROCESSOR) TRAP                  CDT11810
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                       *                                                   CDT11820
      0000 1460        AF       EQU    *                                   CDT11830
1460  C820 4631                 LHI    R2,C'F1'                            CDT11840
1464  4020 155C                 STH    R2,ERRNO        SET ERROR # F1      CDT11850
1468  4820 150E                 LH     R2,MOD32                            CDT11860
146C  2135                      BNZS   COMM                                CDT11870
146E  48E0 0048                 LH     R14,X'48'       OLD PSW (16-BIT PROCESSOR)  CDT11880
1472  48F0 004A                 LH     R15,X'4A'       OLD LOC             CDT11890
1476  40E0 1506        COMM     STH    R14,OPSW                            CDT11900
147A  40F0 150A                 STH    R15,OLOC                            CDT11910
147E  C800 00F0        COMM1    LHI    R0,X'F0'                            CDT11920
1482  9520                      EPSR   R2,R0           NO INT. , REG SET 15  CDT11930
1484  41F0 0E5A                 BAL    LINK,ERR        PRINT 'ERROR XXFN'  CDT11940
1488  2401                      LIS    R0,1                                CDT11950
148A  4000 1524                 STH    R0,ISITERR                          CDT11960
148E  41E0 0F96                 BAL    RET,ERRPL1      PRINT 'PSW PPPP  LOC LLLL'  CDT11970
1492  0700                      XHR    R0,R0                               CDT11980
1494  4000 1524                 STH    R0,ISITERR      RESET ERROR FLAG    CDT11990
1498  4300 0AA8                 B      OPTIN1          GO TO BEGINING      CDT12000
                       *  ILLEGAL INSTRUCTION INTERRUPT TRAP               CDT12010
      0000 149C        II       EQU    *                                   CDT12020
149C  C820 4632                 LHI    R2,C'F2'                            CDT12030
14A0  4020 155C                 STH    R2,ERRNO        SET ERROR # F2      CDT12040
14A4  4820 150E                 LH     R2,MOD32                            CDT12050
14A8  2135                      BNZS   II32                                CDT12060
14AA  48E0 0030                 LH     R14,X'30'       OLD PSW             CDT12070
14AE  48F0 0032                 LH     R15,X'32'       OLD LOC             CDT12080
14B2  4300 1476        II32     B      COMM                                CDT12090
                       *  MACHINE MALFUNCTION INTERRUPT TRAP               CDT12100
      0000 14B6        MM       EQU    *                                   CDT12110
14B6  C820 4633                 LHI    R2,C'F3'                            CDT12120
14BA  4020 155C                 STH    R2,ERRNO        SET ERROR # F3      CDT12130
14BE  48E0 0022                 LH     R14,X'22'       OLD PSW ( 32-BIT PROCESSOR)  CDT12140
14C2  48F0 0026                 LH     R15,X'26'       OLD LOC             CDT12150
14C6  4820 150E                 LH     R2,MOD32                            CDT12160
14CA  2135                      BNZS   MM32                                CDT12170
14CC  48E0 0038                 LH     R14,X'38'       OLD PSW (16-BIT M/C )  CDT12180
14D0  48F0 003A                 LH     R15,X'3A'       OLD LOC             CDT12190
14D4  40E0 1506        MM32     STH    R14,OPSW                            CDT12200
14D8  40F0 150A                 STH    R15,OLOC                            CDT12210
14DC  C850 7FFF                 LHI    R5,X'7FFF'                          CDT12220
14E0  2751             ABOVE    SIS    R5,1                                CDT12230
14E2  2031                      BNZS   ABOVE                               CDT12240
14E4  C800 080F                 LHI    R0,X'080F'                          CDT12250
14E8  9104                      SLHLS  R0,4            R0 = X'80F0'        CDT12260
14EA  9520                      EPSR   R2,R0           HALT PROCESSOR      CDT12270
                       *   WHEN EXE/RUN IS DEPRESSED, ERROR MSG IS PRINTED.  CDT12280
14EC  4300 147E                 B      COMM1                               CDT12290
                       *  FLOATING-PT ARITH FAULT INT TRAP                 CDT12300
                       *                                                   CDT12310
      0000 14F0        FP       EQU    *                                   CDT12320
14F0  48E0 0028                 LH     R14,X'28'       OLD PSW (16-BIT PROCESSOR)  CDT12330
14F4  48F0 002A                 LH     R15,X'2A'       OLD LOC             CDT12340
                       *  RELOCATION/PROTECTION INT TRAP                   CDT12350
                       *                                                   CDT12360
      0000 14F8        RP       EQU    *                                   CDT12370
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14F8   C820 4635      1237           LHI    R2,C'F5'                                            CDT12380
14FC   4020 155C      1238           STH    R2,ERRNO             SET ERROR # F5                 CDT12390
1500   4300 1476      1239           B      COMM                                                CDT12400
                      1240   * ****************************                                     CDT12410
                      1241   *  ETPE CONSTANTS & STORAGE AREAS                                  CDT12420
                      1242   *                                                                  CDT12430
                      1243   *------------------------                                          CDT12440
1504   0000           1244   OPSW32  DC     0                    OLD PSW STORAGE AREA           CDT12450
1506   0000           1245   OPSW    DC     0                                                   CDT12460
1508   0000           1246           DC     0                                                   CDT12470
150A   0000           1247   OLOC    DC     0                                                   CDT12480
                      1248   *------------------------                                          CDT12490
150C   0000           1249   INTPSW  DC     0                    (FOR 32-BIT M/C ONLY)          CDT12500
150E   0000           1250   MOD32   DC     0                    FLAG FOR 32-BIT M/C(NON-ZERO)  CDT12510
1510   0000           1251   INTDEV  DC     0                    INTERRUPTING DEV ADR           CDT12520
1512   0000           1252   ERRDEV  DC     0                    ERROR DEVICE #                 CDT12530
1514   00             1253   INTSTA  DB     0                    INTERRUPTING DEV STATUS        CDT12540
1515   00             1254   ERRSTA  DB     0                    ERRONEOUS STATUS               CDT12550
1516   02             1255   KBADR   DB     2                    KEYBOARD DEV ADR               CDT12560
1517   80             1256   NORM    DB     X'80'                                               CDT12570
1518   AB             1257   CRTWRT  DB     X'AB'                                               CDT12580
1519   B9             1258   CRTRD   DB     X'B9'                                               CDT12590
151A   79             1259   CRTENRD DB     X'79'                                               CDT12600
151B   3B             1260   RQ2S    DB     X'3B'                                               CDT12610
151C   78             1261   SECOND  DB     X'78'                                               CDT12620
151D   80             1262   LPWRT   DB     X'80'                                               CDT12630
151E   D8             1263   TTYWRT  DB     X'D8'                                               CDT12640
151F   A4             1264   TTYRD   DB     X'A4'                                               CDT12650
1520   64             1265   TTYENRD DB     X'64'                                               CDT12660
                      1266   *                                                                  CDT12670
1522   13AE           1267   KBINT   DC     NOBRK                KEYBOARD INT RETURN ADR        CDT12680
1524   0000           1268   ISITERR DC     0                                                   CDT12690
1526   0000           1269   NOERR   DC     0                                                   CDT12700
1528   0000           1270   FIRST   DC     0                                                   CDT12710
152A   0000           1271   TEMP    DC     0                    TEMPORARY STORAGE LOC          CDT12720
152C   0000           1272   SELTST  DC     0                    HIGHEST SELECTED TEST #        CDT12730
152E   0000           1273   WASDU   DC     0                    1 IF KEYBOARD DEVICE WAS OFF   CDT12740
1530   0000           1274   TOTERR  DC     0                    TOTAL ERRORS DETECTED WHILE DU CDT12750
1532   0000           1275   TOTAL   DC     0                    # OF TIMES THE SELECTED TESTS RUN CDT12760
1534   0000           1276   BTESTNO DC     0                    CURRENT TEST # IN BINARY       CDT12770
1536   0000           1277   COUNT   DC     0                                                   CDT12780
1538   0000           1278   NEXTST  DC     0                    NEXT TEST #                    CDT12790
153A   3030           1279   DECI    DC     C'00',C'00',C'00'                                   CDT12800
153C   3030
153E   3030
1540   2710           1280   DECITAB DC     10000,1000,100,10,1                                 CDT12810
1542   03E8
1544   0064
1546   000A
1548   0001
                      1281   *----------------------------                                      CDT12820
                      1282   *  ETPE MESSAGES                                                   CDT12830
                      1283   *                                                                  CDT12840
154A   54455354       1284   TSTMSG  DC     C'TEST  00',X'0D00'                                 CDT12850
       20203030
1552   0D00
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                0000 1550           1285  MTESTNO  EQU   *-4                                                    CDT12860
1554            4552524F            1286  ERRMSG   DC    C'ERROR 0000',X'0D00'                                  CDT12870
                52203030
                3030
155E            0D00
                0000 155A           1287  ETESTNO  EQU   *-6              STORED BY ETPE                        CDT12880
                0000 155C           1288  ERRNO    EQU   *-4              STORE ERRNO AS CHAR CONSTANT          CDT12890
1560            544F5441            1289  TOTMSG   DC    C'TOTAL   TOTERR',X'0D00'                            CDT12900
                4C202020
                544F5445
                5252
156E            0D00
1570            4E4F2045            1290  NOERMSG  DC    C'NO ERROR',X'0D00'                                    CDT12910
                52524F52
1578            0D00
157A            44455620            1291  DEVMSG   DC    C'DEV 000 STA 00       ',X'0D00'                       CDT12920
                30303020
                53544120
                30302020
                20202020
                2020
1590            0D00
                0000 157E           1292  ASCIDEV  EQU   DEVMSG+4                                              CDT12930
                0000 1582           1293  STAMSG   EQU   DEVMSG+8                                              CDT12940
                0000 1586           1294  ASCISTA  EQU   DEVMSG+12                                             CDT12950
1592            42554646            1295  BUFFERPT DC    C'BUFFER          ',X'D0A'                            CDT12960
                45522020
                20202020
                20202020
15A2            0D0A
15A4            44455620            1296  DEVMSG2  DC    C'DEV 000',X'0D00'                                   CDT12970
                30303020
15AC            0D00
                0000 15A8           1297  ASCIDEV2 EQU   *-6                                                   CDT12980
15AE            50535720            1298  PSWMSG   DC    C'PSW 0000  LOC 0000',X'0D00'                        CDT12990
                30303030
                20204C4F
                43203030
                3030
15C0            0D00
                0000 15B2           1299  ASCIPSW  EQU   *-16                                                  CDT13000
                0000 15B8           1300  LOCMSG   EQU   *-10                                                  CDT13010
                0000 15BC           1301  ASCILOC  EQU   *-6                                                   CDT13020
15C2            454E4420            1302  EOTMSG   DC    C'END OF TEST',X'0D00'                               CDT13030
                4F462054
                45535420
15CE            0D00
15D0            3F0D                1303  QMSG     DC    X'3F0D'                                              CDT13040
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                           1305  *-----------------------------                    CDT13060
                           1306  *  OPTION/COMMAND TABLE                            CDT13070
                           1307  *                                                  CDT13080
      0000 15D2            1308  OPT      EQU     *                                 CDT13090
15D2  54455354             1309  TEST     DC      C'TEST  ',0,X'FFE0',0             CDT13100
      2020
15D8  0000
15DA  FFE0
15DC  0000
15DE  4C4F4F50             1310  LOOP     DC      C'LOOP  ',0,0,0                   CDT13110
      2020
15E4  0000
15E6  0000
15E8  0000
15EA  434F4E54             1311  CONTIN   DC      C'CONTIN',0,0,0                   CDT13120
      494E
15F0  0000
15F2  0000
15F4  0000
15F6  4E4F4D53             1312  NOMSG    DC      C'NOMSG ',0,0,0                   CDT13130
      4720
15FC  0000
15FE  0000
1600  0000
                           1313  *  OPTION TABLE ENTRIES                            CDT13140
1602  494E544C             1314  INTLEV   DC      C'INTLEV',0,0,0                   CDT13150
      4556
1608  0000
160A  0000
160C  0000
160E  5446494C             1315  TFILE    DC      C'TFILE ',0,0,0                   CDT13160
      4520
1614  0000
1616  0000
1618  0000
161A  53454C43             1316  SELCH    DC      C'SELCH ',X'F0',0,0               CDT13170
      4820
1620  00F0
1622  0000
1624  0000
1626  44495343             1317  DISCON   DC      C'DISCON',X'B6',0,0               CDT13180
      4F4E
162C  00B6
162E  0000
1630  0000
1632  52455452             1318  RETRY    DC      C'RETRY ',5,0,0                   CDT13190
      5920
1638  0005
163A  0000
163C  0000
163E  42554646             1319  BUFFER   DC      C'BUFFER',0,BUFFERED,0            CDT13200
      4552
1644  0000
1646  173C
1648  0000
164A  4C4F4359             1320  LOCYL    DC      C'LOCYL ',X'FFFF',0,0             CDT13210
```

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                4C20
1650            FFFF
1652            0000
1654            0000
1656    54534C4F        1321  TSLOOP   DC    C'TSLOOP',0,0,0                    CDT13220
                4F50
165C            0000
165E            0000
1660            0000
1662    48494359        1322  HICYL    DC    C'HICYL ',X'FFFF',0,0              CDT13230
                4C20
1668            FFFF
166A            0000
166C            0000
166E    46494C45        1323  FILE     DC    C'FILE  ',0,0,0                    CDT13240
                2020
1674            0000
1676            0000
1678            0000
167A    5846494C        1324  XFILE    DC    C'XFILE ',1,0,0                    CDT13250
                4520
1680            0001
1682            0000
1684            0000
1686    44415441        1325  DATA     DC    C'DATA  ',0,0,0                    CDT13260
                2020
168C            0000
168E            0000
1690            0000
1692    53454354        1326  SECTOR   DC    C'SECTOR',0,0,0                    CDT13270
                4F52
1698            0000
169A            0000
169C            0000
169E    53434F50        1327  SCOPE    DC    C'SCOPE ',0,0,0                    CDT13280
                4520
16A4            0000
16A6            0000
16A8            0000
16AA    54524B44        1328  TRKDEN   DC    C'TRKDEN',0,0,0                    CDT13290
                454E
16B0            0000
16B2            0000
16B4            0000
16B6    42554653        1329  BUFSIZ   DC    C'BUFSIZ',0,0,0                    CDT13300
                495A
16BC            0000
16BE            0000
16C0            0000
16C2    5345454B        1330  SEEK     DC    C'SEEK  ',0,0,0                    CDT13310
                2020
16C8            0000
16CA            0000
16CC            0000
16CE    54494D43        1331  TIMECON  DC    C'TIMCON',0,0,0                    CDT13320
                4F4E
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16D4  0000
16D6  0000
16D8  0000
16DA  42594348          1332  BYCKAD   DC     C'BYCKAD',0,0,0                    CDT13330
      4144
16E0  0000
16E2  0000
16E4  0000
16E6  50414354          1333  PACTYP   DC     C'PACTYP',0,0,0                    CDT13340
      5950
16EC  0000
16EE  0000
16F0  0000
16F2  5345434E          1334  SECNUM   DC     C'SECNUM',3,0,0                    CDT13350
      5540
16F8  0003
16FA  0000
16FC  0000
      0000 16FE         1335  OPTEND   EQU    *                                  CDT13360
16FE  48454144          1336  HEADS    DC     C'HEADS ',X'0',NOHEADR,0           CDT13370
      5320
1704  0000
1706  17B2
1708  0000
170A  4F505449          1337  OPTION   DC     C'OPTION',X'0',OPTIONAD,0          CDT13380
      4F4E
1710  0000
1712  1808
1714  0000
1716  48454144          1338  HEADSA   DC     C'HEADSA',0,0,0                    CDT13390
      5341
171C  0000
171E  0000
1720  0000
1722  58585858          1339  BUFFERAD DC     C'XXXXXX',0,0,0                    CDT13400
      5858
1728  0000
172A  0000
172C  0000
172E  52554E20          1340  RUN      DC     C'RUN   ',0,0,0                    CDT13410
      2020
1734  0000
1736  0000
1738  0000
173A  FFFF              1341           DC     -1                                 CDT13420
      0000 0003         1342  DCAD     EQU    3                                  CDT13430
      0000 0004         1343  SLAD     EQU    4                                  CDT13440
      0000 0005         1344  FUT      EQU    5                                  CDT13450
      0000 0006         1345  WK0      EQU    6                                  CDT13460
      0000 0007         1346  WK1      EQU    7                                  CDT13470
      0000 0008         1347  WK2      EQU    8                                  CDT13480
      0000 0009         1348  WK3      EQU    9                                  CDT13490
      0000 000A         1349  STAT     EQU    10                                 CDT13500
      0000 000B         1350  TRACK    EQU    11                                 CDT13510
      0000 000C         1351  OPKEY    EQU    12                                 CDT13520
      0000 000D         1352  SECT     EQU    13                                 CDT13530
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        0000 000E   RETN2    EQU   14                                  CDT13540
        0000 000F   RETN     EQU   15                                  CDT13550
        0000 1650   LOTRAK   EQU   LOCYL+6                             CDT13560
        0000 1668   HITRAK   EQU   HICYL+6                             CDT13570
        0000 1614   FIL      EQU   TFILE+6                             CDT13580
                    *                                                  CDT13590
                    *                                                  CDT13600
                    *                                                  CDT13610
                    *OPTION ENTRY HANDLERS                             CDT13620
173C    4870 150E   BUFFERED LH    WK1,MOD32                           CDT13630
1740    4230 176E            BNZ   MOD32A                              CDT13640
1744    9061                 SRLS  R6,1                                CDT13650
1746    9161                 SLLS  R6,1                                CDT13660
1748    4060 172C            STH   R6,BUFFERAD+10                      CDT13670
174C    4060 3624            STH   R6,BUFADR+2                         CDT13680
1750    0766                 XHR   R6,R6                               CDT13690
1752    4060 3622            STH   R6,BUFADR                           CDT13700
1756    2404                 LIS   R0,4                                CDT13710
1758    4810 3624            LH    R1,BUFADR+2                         CDT13720
175C    C820 1599            LHI   R2,BUFFERPT+7                       CDT13730
1760    40F0 361C            STH   R15,RETNSV                          CDT13740
1764    41F0 106A            BAL   R15,HEXASC                          CDT13750
1768    48F0 361C            LH    R15,RETNSV                          CDT13760
176C    030F                 BR    R15                                 CDT13770
176E    1061        MOD32A   DC    X'1061'         *SRLS R6,1          CDT13780
1770    1161                 DC    X'1161'         *SLLS R6,1          CDT13790
1772    4060 172C            STH   R6,BUFFERAD+10                      CDT13800
1776    4060 3624            STH   R6,BUFADR+2                         CDT13810
177A    EC60 0010            SRL   R6,16                               CDT13820
177E    4060 172A            STH   R6,BUFFERAD+8                       CDT13830
1782    4060 3622            STH   R6,BUFADR                           CDT13840
1786    4800 3622            LH    R0,BUFADR                           CDT13850
178A    ED00 0010            SLL   R0,16                               CDT13860
178E    4860 3624            LH    R6,BUFADR+2                         CDT13870
1792    ED60 0010            SLL   R6,16                               CDT13880
1796    EC60 0010            SRL   R6,16                               CDT13890
179A    0660                 OHR   R6,R0                               CDT13900
179C    0816                 LHR   R1,R6                               CDT13910
179E    2405                 LIS   R0,5                                CDT13920
17A0    C820 1599            LHI   R2,BUFFERPT+7                       CDT13930
17A4    40F0 361C            STH   R15,RETNSV                          CDT13940
17A8    41F0 106A            BAL   R15,HEXASC                          CDT13950
17AC    48F0 361C            LH    R15,RETNSV                          CDT13960
17B0    030F                 BR    R15                                 CDT13970
                    *                                                  CDT13980
                    *                                                  CDT13990
17B2    2761        NOHEAD   SIS   R6,1                                CDT14000
17B4    4230 17FC            BNZ   NOHEAD1                             CDT14010
17B8    4060 35C0            STH   R6,NOMSGSV      SAVE NOMSG FLAG     CDT14020
17BC    0766                 XHR   R6,R6           SET THE NOMSG FLAG  CDT14030
17BE    4060 15FC            STH   R6,NOMSG+6                          CDT14040
17C2    C850 33C6            LHI   R5,MSG1                             CDT14050
17C6    40F0 152A            STH   R15,TEMP                            CDT14060
17CA    41F0 1178            BAL   LINK,CRLF                           CDT14070
17CE    41F0 109C            BAL   R15,PRINT       PRINT IT            CDT14080
17D2    4860 35C0            LH    R6,NOMSGSV      RESTORE THE NOMSG FLAG CDT14090
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17D6  4860 15FC     1409          STH    R6,NOMSG+6                                                   CDT14100
17DA  0700          1410          XHR    R0,R0                                                        CDT14110
17DC  4000 171C     1411          STH    R0,HEADSA+6                                                  CDT14120
17E0  4000 171E     1412          STH    R0,HEADSA+8                                                  CDT14130
17E4  C840 002A     1413          LHI    R4,X'2A'            OUTPUT ASTERISK READY FOR DATA           CDT14140
17E8  41F0 1134     1414          BAL    R15,OUTCHR                                                   CDT14150
17EC  C810 1716     1415          LHI    R1,HEADSA                                                    CDT14160
17F0  C850 0013     1416          LHI    R5,H'19'                                                     CDT14170
17F4  41E0 0C62     1417          BAL    R14,TSTOP1A                                                  CDT14180
17F8  4300 0C5A     1418          B      TESTOP1                                                      CDT14190
17FC  0700          1419 NOHEAD1  XHR    R0,R0                                                        CDT14200
17FE  4000 171C     1420          STH    R0,HEADSA+6                                                  CDT14210
1802  4000 171E     1421          STH    R0,HEADSA+8                                                  CDT14220
1806  030F          1422          BR     R15                                                          CDT14230
1808  41F0 1178     1423 OPTIONAD BAL    LINK,CRLF                                                    CDT14240
180C  C850 1592     1424          LHI    R5,BUFFERPT                                                  CDT14250
1810  41F0 109C     1425          BAL    R15,PRINT                                                    CDT14260
1814  C820 16FE     1426          LHI    R2,HEADS                                                     CDT14270
1818  4020 0836     1427          STH    R2,OPTCMD1+2                                                 CDT14280
181C  C830 1716     1428          LHI    R3,HEADSA                                                    CDT14290
1820  41E0 0832     1429          BAL    R14,OPTCMD                                                   CDT14300
1824  C820 15D2     1430          LHI    R2,TEST                                                      CDT14310
1828  4020 0836     1431          STH    R2,OPTCMD1+2                                                 CDT14320
182C  4300 0826     1432          B      OPTRTN                                                       CDT14330
                    1433 *ERROR ROUTINES USED DURING DISC TEST INITIALIZATION ROUTINE                CDT14340
1830  C850 33E2     1434 ERROR1   LHI    R5,MSG2             DISC FILE SELECT OPTION                  CDT14350
1834  4300 18A2     1435          B      PRINTIT                                                      CDT14360
1838  C850 166E     1436 ERROR2   LHI    R5,FILE             INVALID FILE OPTION                      CDT14370
183C  4300 1886     1437          B      SETMSG                                                       CDT14380
1840  C850 164A     1438 ERROR3   LHI    R5,LOCYL            INVALID LOCYL OPTION                     CDT14390
1844  4300 1886     1439          B      SETMSG                                                       CDT14400
1848  C850 1662     1440 ERROR4   LHI    R5,HICYL            INVALID HICYL OPTION                     CDT14410
184C  4300 1886     1441          B      SETMSG                                                       CDT14420
1850  C850 1692     1442 ERROR5   LHI    R5,SECTOR           INVALID SECTOR OPTION                    CDT14430
1854  4300 1886     1443          B      SETMSG                                                       CDT14440
1858  C850 160E     1444 ERROR7   LHI    R5,TFILE            INVALID TFILE OPTION                     CDT14450
185C  4300 1886     1445          B      SETMSG                                                       CDT14460
1860  C850 169E     1446 ERROR13  LHI    R5,SCOPE                                                     CDT14470
1864  4300 1886     1447          B      SETMSG                                                       CDT14480
1868  C850 163E     1448 ERROR14  LHI    R5,BUFFER                                                    CDT14490
186C  4300 1886     1449          B      SETMSG                                                       CDT14500
1870  C850 16CE     1450 ERROR10  LHI    R5,TIMECON                                                   CDT14510
1874  2309          1451          BS     SETMSG                                                       CDT14520
1876  C850 3414     1452 ERROR11  LHI    R5,MSG12            ILLEGAL TRACK ADR-CE PACK                CDT14530
187A  4300 18A2     1453          B      PRINTIT                                                      CDT14540
187E  C850 3430     1454 ERROR12  LHI    R5,MSG14            INVALID LOCYL FOR FORMT MODE TESTING     CDT14550
1882  4300 18A2     1455          B      PRINTIT                                                      CDT14560
1886  0799          1456 SETMSG   XHR    WK3,WK3                                                      CDT14570
1888  C880 3403     1457          LHI    WK2,MSG3+9                                                   CDT14580
188C  D375 0000     1458 SETMSG1  LB     WK1,0(R5)                                                    CDT14590
1890  D278 0000     1459          STB    WK1,0(WK2)                                                   CDT14600
1894  2681          1460          AIS    WK2,1                                                        CDT14610
1896  2651          1461          AIS    R5,1                                                         CDT14620
1898  C580 340A     1462          CLHI   WK2,MSG3+16                                                  CDT14630
189C  2088          1463          BTBS   8,SETMSG1                                                    CDT14640
189E  C850 33FA     1464          LHI    R5,MSG3                                                      CDT14650
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18A2  41F0 1178   PRINTIT  BAL   LINK,CRLF                                                  CDT14660
18A6  41F0 109C            BAL   R15,PRINT                                                  CDT14670
18AA  4300 19BE            B     RSTR1                                                      CDT14680
                  *INITIALIZATION                                                           CDT14690
18AE  40F0 152A   INIT     STH   RETN,TEMP                                                  CDT14700
18B2  C800 008E            LHI   R0,X'8E'            GET OVERRUN STATUS IN SECADSTA         CDT14710
18B6  4000 3640            STH   R0,SECADSTA                                                CDT14720
18BA  C800 0080            LHI   R0,X'80'                                                   CDT14730
18BE  4000 3676            STH   R0,WPSTAT                                                  CDT14740
18C2  0700                 XHR   R0,R0                                                      CDT14750
18C4  4000 363E            STH   R0,FMTSEC                                                  CDT14760
18C8  2411                 LIS   R1,1                                                       CDT14770
18CA  2422                 LIS   R2,2                                                       CDT14780
18CC  C860 0117            LHI   R6,X'0117'          CYLINDER OVERUN CONDITION S30,40       CDT14790
18D0  4060 3642            STH   R6,TWOSEC                                                  CDT14800
18D4  C860 8000            LHI   R6,X'8000'          UNARY OPERATOR FOR TEST+4              CDT14810
18D8  4660 15DA            OH    R6,TEST+8           TEST HALFWORD LOW ORDER TESTS          CDT14820
18DC  4060 15DA            STH   R6,TEST+8           SET TEST0 BIT                          CDT14830
18E0  4860 15FC            LH    R6,NOMSG+6          SAVE STATE OF NOMSG FLAG               CDT14840
18E4  4060 35C0            STH   R6,NOMSGSV                                                 CDT14850
18E8  4000 15FC            STH   R0,NOMSG+6                                                 CDT14860
18EC  4860 1674            LH    R6,FILE+6           FILE OPTION                            CDT14870
18F0  4330 1830            BZ    ERROR1              MUST NOT BE ZERO                       CDT14880
18F4  41F0 289A            BAL   RETN,SUBFILE        DETERMINE FILE TYPE                    CDT14890
18F8  193E                 DC    A(SFRTYFX)          RETURN ADDRESS FOR SERIES 40 FIX       CDT14900
18FA  1952                 DC    A(SFRTYVR)          RETURN ADDRESS FOR SERIES 40 REMOV     CDT14910
18FC  192C                 DC    A(STHIRTY)          RETURN ADDRESS FOR SERIES 30           CDT14920
18FE  4010 363E   TWNTYSF  STH   R1,FMTSEC                                                  CDT14930
1902  C860 1313            LHI   R6,X'1313'                                                 CDT14940
1906  4060 3642            STH   R6,TWOSEC                                                  CDT14950
190A  C860 0046            LHI   R6,X'46'            OVERRUN STATUS FOR 20 SURFACE          CDT14960
190E  4060 3640            STH   R6,SECADSTA                                                CDT14970
1912  C860 0084            LHI   R6,X'84'                                                   CDT14980
1916  4060 3676            STH   R6,WPSTAT                                                  CDT14990
191A  C860 3598            LHI   R6,TSFPRM                                                  CDT15000
191E  41E0 2D94            BAL   R14,TSTINIT         INITIALIZE TEST PARAMETERS             CDT15010
1922  2462                 LIS   R6,2                                                       CDT15020
1924  41E0 2CE0            BAL   R14,CHKTRNSF                                               CDT15030
1928  4300 1934            B     STHIRTY+8                                                  CDT15040
192C  C860 35A2   STHIRTY  LHI   R6,STHPRM                                                  CDT15050
1930  41E0 2D94            BAL   R14,TSTINIT         INITIALIZE TEST PARAMETERS             CDT15060
1934  2464                 LIS   R6,4                                                       CDT15070
1936  41E0 2CE0            BAL   R14,CHKTRNSF                                               CDT15080
193A  4300 1964            B     LCORE1                                                     CDT15090
193E  4010 16B0   SFRTYFX  STH   R1,TRKDEN+6         SET HI-TRACK DENSITY FLAG              CDT15100
1942  C860 35AC            LHI   R6,SFTFIX                                                  CDT15110
1946  41E0 2D94            BAL   R14,TSTINIT         INITIALIZE TEST PARAMETERS             CDT15120
194A  2464                 LIS   R6,4                                                       CDT15130
194C  41E0 2CE0            BAL   R14,CHKTRNSF                                               CDT15140
1950  230A                 BS    LCORE1                                                     CDT15150
1952  4010 16B0   SFRTYVR  STH   R1,TRKDEN+6         SET HITRACK DENSITY FLAG               CDT15160
1956  C860 35B6            LHI   R6,TSFTRMV                                                 CDT15170
195A  41E0 2D94            BAL   R14,TSTINIT         INITIALIZE TEST PARAMETERS             CDT15180
195E  2464                 LIS   R6,4                                                       CDT15190
1960  41E0 2CE0            BAL   R14,CHKTRNSF                                               CDT15200
1964  4860 3646   LCORE1   LH    R6,FILE1            SET DEVICE INTERRUPT TABLE ADDRS       CDT15210
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1968 4060 364E 1521          STH   R6,DEVSADR        WITH PHYSICAL FILE ADDRESSES  CDT15220
196C 4060 3648 1522          LH    R6,FILE2                                      CDT15230
1970 4060 3650 1523          STH   R6,DEVSADR+2                                  CDT15240
1974 4860 364A 1524          LH    R6,FILE3                                      CDT15250
1978 4060 3652 1525          STH   R6,DEVSADR+4                                  CDT15260
197C 4860 364C 1526          LH    R6,FILE4                                      CDT15270
1980 4060 3654 1527          STH   R6,DEVSADR+6                                  CDT15280
1984 4860 1620 1528          LH    R6,SELCH+6                                    CDT15290
1988 4060 3656 1529          STH   R6,DEVSADR+8                                  CDT15300
198C 4860 162C 1530          LH    R6,DISCON+6                                   CDT15310
1990 4060 3658 1531          STH   R6,DEVSADR+10                                 CDT15320
1994 4860 1608 1532          LH    R6,INTLEV+6                                   CDT15330
1998 D260 3668 1533          STB   R6,INTLVL                                     CDT15340
199C D260 3669 1534          STB   R6,INTLVL+1                                   CDT15350
19A0 D260 366A 1535          STB   R6,INTLVL+2                                   CDT15360
19A4 D260 366B 1536          STB   R6,INTLVL+3                                   CDT15370
19A8 D260 366C 1537          STB   R6,INTLVL+4                                   CDT15380
19AC D260 366D 1538          STB   R6,INTLVL+5                                   CDT15390
19B0 4860 35C0 1539 RSTR     LH    R6,NOMSGSV                                    CDT15400
19B4 4060 15FC 1540          STH   R6,NOMSG+6                                    CDT15410
19B8 48F0 152A 1541          LH    RETN,TEMP                                     CDT15420
19BC 030F      1542          BR    R15             NORMAL RETURN                 CDT15430
19BE 4860 35C0 1543 RSTR1    LH    R6,NOMSGSV      ERROR RETURN                  CDT15440
19C2 4060 15FC 1544          STH   R6,NOMSG+6                                    CDT15450
19C6 4300 0A9E 1545          B     OPTIN                                         CDT15460
               1546 *                                                           CDT15470
               1547 * STATUS TEST                                               CDT15480
               1548 *                                                           CDT15490
               1549 * TEST 0                                                    CDT15500
               1550 *                                                           CDT15510
               1551 * PURPOSE:                                                  CDT15520
               1552 *                                                           CDT15530
               1553 * SENSES THE INITIAL STATUS OF THE SELECTOR CHANNEL,        CDT15540
               1554 * DATA CONTROLLER AND FILE CONTROLLER                       CDT15550
               1555 *                                                           CDT15560
               1556 * ASSUMPTIONS:                                             CDT15570
               1557 *                                                           CDT15580
               1558 * DRIVE MUST BE ON-LINE AND NOT WRITE-PROTECTED             CDT15590
               1559 *                                                           CDT15600
               1560 * DESIGN SPECIFICATIONS:                                   CDT15610
               1561 *                                                           CDT15620
               1562 * THIS TEST IS ALWAYS THE FIRST TEST TO BE RUN AND         CDT15630
               1563 * CANNOT BE BYPASSED BY ANY OPERATOR INTERVENTION          CDT15640
               1564 *                                                           CDT15650
               1565 * OPTIONS:                                                 CDT15660
               1566 *                                                           CDT15670
               1567 * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST        CDT15680
               1568 * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1         CDT15690
               1569 * OF THIS DOCUMENT OR APPENDIX                            CDT15700
               1570 * THREE OF THE PROGRAM DESCRIPTION                        CDT15710
               1571 * TFILE                                                    CDT15720
               1572 * SELCH                                                    CDT15730
               1573 * DISCON                                                   CDT15740
               1574 * FILE                                                     CDT15750
               1575 * TIMCON                                                   CDT15760
               1576 *                                                           CDT15770
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                                1577  * HOW TO RUN THE TEST:                                                    CDT15780
                                1578  * ENTER TEST 0 IF THIS IS THE ONLY DESIRED SELECTED                       CDT15790
                                1579  * TEST AND ANY OTHER OPTION INFORMATION DESIRED VIA                       CDT15800
                                1580  * KEYBOARD. REFER TO THE PROGRAM DESCRIPTION FOR THE                      CDT15810
                                1581  * OPTION INPUT COMMAND STRUCTURE. AFTER THE DESIRED                       CDT15820
                                1582  * OPTION INFORMATION IS ESTABLISHED THE TEST IS                           CDT15830
                                1583  * EXECUTED BY ENTERING THE RUN COMMAND                                     CDT15840
19CA   41F0 28C8                1584  TEST0    BAL     RETN,MODINIT                                             CDT15850
19CE   4000 36F4                1585           STH     R0,HEAD                                                  CDT15860
19D2   07CC                     1586           XHR     OPKEY,OPKEY                                              CDT15870
19D4   9D4A                     1587           SSR     SLAD,STAT               SELCH                            CDT15880
19D6   4280 317C                1588  ERRSLD   BTC     8,ERRB                  B IF BAD STATUS                  CDT15890
19DA   9D3A                     1589           SSR     DCAD,STAT               DC STATUS                        CDT15900
19DC   4250 318C                1590           BTC     5,ERR3                  B IF ERR                         CDT15910
19E0   4320 318C                1591           BNP     ERR3                    B IF NOT IDLE                    CDT15920
19E4   9D5A                     1592           SSR     FUT,STAT                NOW FILE STATUS                  CDT15930
19E6   42F0 3190                1593           BTC     15,ERR1A                B IF ERR                         CDT15940
19EA   41F0 11B4                1594           BAL     RETN,TSTBRK                                              CDT15950
19EE   4870 15E4                1595           LH      WK1,LOOP+6                                               CDT15960
19F2   4070 1536                1596           STH     WK1,COUNT                                                CDT15970
19F6   4300 0D72                1597           B       TSTEND                                                   CDT15980
                                1598  *                                                                        CDT15990
                                1599  * SEEK/RESTORE TEST                                                      CDT16000
                                1600  * TEST 1                                                                 CDT16010
                                1601  *                                                                        CDT16020
                                1602  * PURPOSE:                                                               CDT16030
                                1603  *                                                                        CDT16040
                                1604  * RESTORE THE FILE -STEP 1                                               CDT16050
                                1605  * SEEKS THE HIGHEST CYLINDER -STEP 2                                     CDT16060
                                1606  * RESTORE TO CYLINDER 0 -STEP 3                                          CDT16070
                                1607  * SEEKS TO CYLINDER 256  (IF APPLICABLE)-STEP 4                          CDT16080
                                1608  * RESTORES TO CYLINDER 0 (IF STEP4 WAS RUN) - STEP 5                     CDT16090
                                1609  * SEEKS CYLINDER 128 -STEP 6                                            CDT16100
                                1610  * RESTORES -STEP 7                                                      CDT16110
                                1611  * SEEKS CYLINDER 64 -STEP 8                                             CDT16120
                                1612  * RESTORES -STEP 9                                                      CDT16130
                                1613  * SEEKS CYLINDER 32 -STEP 10                                            CDT16140
                                1614  * RESTORES -STEP 11                                                     CDT16150
                                1615  * SEEKS CYLINDER 16 -STEP 12                                            CDT16160
                                1616  * RESTORES -STEP 13                                                     CDT16170
                                1617  * SEEKS CYLINDER 8 -STEP 14                                             CDT16180
                                1618  * RESTORES - STEP 15                                                    CDT16190
                                1619  * SEEKS CYLINDER 4 -STEP 16                                             CDT16200
                                1620  * RESTORES -STEP 17                                                     CDT16210
                                1621  * SEEKS CYLINDER 2 -STEP 18                                             CDT16220
                                1622  * RESTORES -STEP 19                                                     CDT16230
                                1623  * SEEKS CYLINDER 1 -STEP 20                                             CDT16240
                                1624  *                                                                        CDT16250
                                1625  * ASSUMPTIONS:                                                          CDT16260
                                1626  *                                                                        CDT16270
                                1627  * STEPS 4 AND 5 ARE ONLY PERFORMED ON 200 TPI DISC                       CDT16280
                                1628  *                                                                        CDT16290
                                1629  * DESIGN SPECIFICATIONS:                                                 CDT16300
                                1630  *                                                                        CDT16310
                                1631  * FOLLOWING EACH SEEK AND RESTORE OPERATION, THE ADDRESS                 CDT16320
                                1632  * IS CHECKED BY DOING A READ CHECK OPERATION ON HEAD0,                   CDT16330
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                                1633  * SECTOR0 OF THE SELECTED CYLINDER                                        CDT16340
                                1634  * (THIS CHECK CAN BE BYPASSED BY OPTION ENTRY)                           CDT16350
                                1635  *  THIS TEST CHECKS THE RESTORE COMMAND AND ALL BITS OF                  CDT16360
                                1636  *  THE CYLINDER ADDRESS.IT DOES NOT EXHAUSTIVELY TEST                    CDT16370
                                1637  *  THE HEAD POSITIONING SERVO                                           CDT16380
                                1638  *                                                                       CDT16390
                                1639  * HOW TO RUN THE TEST: (INSTRUCTIONS APPLICABLE TO ALL SEEK TESTS)       CDT16400
                                1640  * ENTER TEST 1 AND ANY OTHER OPTION INFORMATION DESIRED                  CDT16410
                                1641  * VIA KEYBOARD: REFER TO THE PROGRAM DESCRIPTION FOR                     CDT16420
                                1642  * OPTION INPUT COMMAND STRUCTURE. AFTER THE DESIRED                     CDT16430
                                1643  * OPTION INFORMATION IS ESTABLISHED THE TEST IS EXECUT-                 CDT16440
                                1644  * ED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION                  CDT16450
                                1645  * OF ANY DISC OPERATION THE FOLLOWING INFORMATION IS                    CDT16460
                                1646  * DISPLAYED ON THE PROCESSOR DISPLAY:                                   CDT16470
                                1647  * READING FROM LEFT TO RIGHT                                           CDT16480
                                1648  *    1. A THREE DIGIT CYLINDER NUMBER                                   CDT16490
                                1649  * (TOP DISPLAY ON 16 BIT PROCESSOR)                                     CDT16500
                                1650  *    2. A TWO DIGIT HEAD NUMBER                                         CDT16510
                                1651  *    3. A TWO DIGIT SECTOR NUMBER                                       CDT16520
                                1652  * THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME                     CDT16530
                                1653  * BY DEPRESSING THE BREAK KEY                                           CDT16540
                                1654  *                                                                       CDT16550
                                1655  * OPTIONS:                                                              CDT16560
                                1656  *                                                                       CDT16570
                                1657  * THE FOLLOWING OPTIONS ARE USED BY THIS TEST:                          CDT16580
                                1658  *  BYCKAD                                                               CDT16590
                                1659  * FOR A COMPLETE DESCRIPTION OF OPTIONS REFER TO PAGE 1                  CDT16600
                                1660  * OF THIS DOCUMENT OR APPENDIX THREE OF THE PROGRAM                      CDT16610
                                1661  * DESCRIPTION                                                          CDT16620
19FA  41F0 28C8                 1662  TEST1    BAL    RETN,MODINIT                                           CDT16630
19FE  41F0 2946                 1663           BAL    RETN,RSTSR                                             CDT16640
1A02  41F0 2A14                 1664           BAL    RETN,CKADSR       CHECK ADDRESS                        CDT16650
1A06  48B0 36D6                 1665           LH     TRACK,MAXCY       SEEK MAX CYL                         CDT16660
1A0A  C8E0 1A1A                 1666           LHI    RETN2,SKTSTX                                           CDT16670
1A0E  41F0 3378                 1667           BAL    RETN,ILLADD                                            CDT16680
1A12  41F0 284A                 1668           BAL    RETN,SKSR                                              CDT16690
1A16  41F0 2A14                 1669           BAL    RETN,CKADSR       CHECK ADDRESS                        CDT16700
1A1A  C880 0080                 1670  SKTSTX   LHI    WK2,128                                                CDT16710
1A1E  C5B0 0100                 1671           CLHI   TRACK,256         OR 256 FOR 200 TPI DISC              CDT16720
1A22  2182                      1672           BTFS   8,SKTST1                                               CDT16730
1A24  0A88                      1673           AHR    WK2,WK2                                                CDT16740
1A26  41F0 2948                 1674  SKTST1   BAL    RETN,RSTSR        BUT FIRST RESTORE                    CDT16750
1A2A  41F0 11B4                 1675           BAL    RETN,TSTBRK                                            CDT16760
1A2E  41F0 2A14                 1676           BAL    RETN,CKADSR       CHECK ADDRESS                        CDT16770
1A32  08B8                      1677           LHR    TRACK,WK2                                              CDT16780
1A34  C8E0 1A44                 1678           LHI    RETN2,SKTSTY                                           CDT16790
1A38  41F0 3378                 1679           BAL    RETN,ILLADD                                            CDT16800
1A3C  41F0 284A                 1680           BAL    RETN,SKSR                                              CDT16810
1A40  41F0 2A14                 1681           BAL    RETN,CKADSR       CHECK ADDRESS                        CDT16820
1A44  9081                      1682  SKTSTY   SRHLS  WK2,1                                                  CDT16830
1A46  4380 1A26                 1683           BNC    SKTST1            LOOP UNTIL DONE                      CDT16840
1A4A  4300 0D72                 1684           B      TSTEND                                                 CDT16850
                                1685  *                                                                       CDT16860
                                1686  * OSCILLATING SEEK TEST                                                CDT16870
                                1687  *                                                                       CDT16880
                                1688  * TEST 2                                                               CDT16890
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                                1689  *                                                                    CDT16900
                                1690  * PURPOSE:                                                           CDT16910
                                1691  *                                                                    CDT16920
                                1692  * THIS TEST FIRST RESTORES,AND CHECKS THE ADDRESS. IT                CDT16930
                                1693  * THEN SEEKS THE CYLINDERS M,1,M-1,2,M-2,3,M-3,...M-C9,              CDT16940
                                1694  * CA,M-CA,0 (WHERE M IS THE CYLINDER MAXIMUM,AND C9,AND             CDT16950
                                1695  * CA ARE 194 AND 195 FOR THE 200 TPI DISC). FOR EACH                CDT16960
                                1696  * SEEK THE ADDRESS IS CHECKED                                        CDT16970
                                1697  * (THE ADDRESS CHECK CAN BE BYPASSED BY OPTION ENTRY)                CDT16980
                                1698  * ASSUMPTIONS:                                                       CDT16990
                                1699  *                                                                    CDT17000
                                1700  * NONE                                                               CDT17010
                                1701  *                                                                    CDT17020
                                1702  *                                                                    CDT17030
                                1703  * DESIGN SPECIFICATIONS:                                             CDT17040
                                1704  *                                                                    CDT17050
                                1705  * THIS TEST IS DESIGNED TO TEST THE HEAD POSITIONING                 CDT17060
                                1706  * SERVO. IT EXECUTES FORWARD AND REVERSE SEEKS OF ALL                CDT17070
                                1707  * POSSIBLE LENGTHS, AND SEEKS EVERY CYLINDER TWICE                   CDT17080
                                1708  *                                                                    CDT17090
                                1709  * HOW TO RUN THE TEST:                                               CDT17100
                                1710  *                                                                    CDT17110
                                1711  * ENTER TEST 2 AND FOLLOW INSTRUCTIONS AS IN TEST1                   CDT17120
                                1712  *                                                                    CDT17130
                                1713  * OPTIONS:                                                           CDT17140
                                1714  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:                 CDT17150
                                1715  * BYCKAD                                                             CDT17160
                                1716  * FOR A DESCRIPTION OF OPTIONS REFER TO PAGE1 OF THIS                CDT17170
                                1717  * DOCUMENT OR APPENDIX THREE OF THE PROGRAM DESCRIPTION              CDT17180
1A4E  41F0 28C8                 1718  TEST2    BAL    RETN,MODINIT                                        CDT17190
1A52  41F0 2948                 1719           BAL    RETN,RSTSR                                          CDT17200
1A56  41F0 2A14                 1720  OSCT1    BAL    RETN,CKADSR       CHECK ADDRESS                     CDT17210
1A5A  41F0 11B4                 1721           BAL    RETN,TSTBRK                                         CDT17220
1A5E  4BB0 36D8                 1722  OSCT3    SH     TRACK,MAXCY1      NEW TRACK = MAX - CURRENT         CDT17230
1A62  C7B0 FFFF                 1723           XHI    TRACK,X'FFFF'                                       CDT17240
1A66  C8E0 1A76                 1724           LHI    RETN2,OSCT2       CHECK FOR CE DISC                 CDT17250
1A6A  41F0 3378                 1725           BAL    RETN,ILLADD       VOID AREAS                        CDT17260
1A6E  41F0 284A                 1726           BAL    RETN,SKSR         SEEK THE TRACK                    CDT17270
1A72  41F0 2A14                 1727           BAL    RETN,CKADSR       CHECK ADDRESS                     CDT17280
1A76  08BB                      1728  OSCT2    LHR    TRACK,TRACK                                         CDT17290
1A78  4330 0D72                 1729           BZ     TSTEND                                              CDT17300
1A7C  4BB0 36D8                 1730           SH     TRACK,MAXCY1      NEXT TRACK = MAX+1-CURRENT        CDT17310
1A80  08B1                      1731           SHR    TRACK,1                                             CDT17320
1A82  C7B0 FFFF                 1732           XHI    TRACK,X'FFFF'                                       CDT17330
1A86  C8E0 1A5E                 1733           LHI    RETN2,OSCT3       CHECK FOR CE MODE                 CDT17340
1A8A  41F0 3378                 1734           BAL    RETN,ILLADD       VOID AREA                         CDT17350
1A8E  41F0 284A                 1735           BAL    RETN,SKSR         SEEK                              CDT17360
1A92  4300 1A56                 1736           B      OSCT1             CONTINUE                          CDT17370
                                1737  *                                                                    CDT17380
                                1738  *                                                                    CDT17390
                                1739  * RANDOM SEEK TEST                                                  CDT17400
                                1740  *                                                                    CDT17410
                                1741  * TEST 3                                                             CDT17420
                                1742  *                                                                    CDT17430
                                1743  * PURPOSE:                                                           CDT17440
                                1744  *                                                                    CDT17450
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                                1745  * FIRST RESTORES THEN EXECUTES 1000 RANDOM SEEKS AND                    CDT17460
                                1746  * THE ADDRESS IS CHECKED.                                              CDT17470
                                1747  * (THE ADDRESS CHECK CAN BE BYPASSED BY OPTION ENTRY)                  CDT17480
                                1748  *                                                                      CDT17490
                                1749  * ASSUMPTIONS:                                                        CDT17500
                                1750  * NONE                                                                 CDT17510
                                1751  * DESIGN SPECIFICATIONS:                                              CDT17520
                                1752  *                                                                      CDT17530
                                1753  * THIS TEST IS DESIGNED TO SHOW UP INTERMITTENT ERRORS,                CDT17540
                                1754  * OR THOSE ERRORS IN HEAD POSITIONING THAT MAY NOT BE                  CDT17550
                                1755  * FOUND IN THE PREVIOUS TEST.MULTIPLE ITERATIONS OF                    CDT17560
                                1756  * THIS TEST CONSTITUTE THE MOST EXHAUSTIVE TEST OF THE                CDT17570
                                1757  * SEEK LOGIC, AND HEAD POSITIONING SERVO                               CDT17580
                                1758  *                                                                      CDT17590
                                1759  * HOW TO RUN THE TEST:                                                CDT17600
                                1760  * ENTER TEST 3 AND FOLLOW INSTRUCTIONS AS IN TEST1                     CDT17610
                                1761  *                                                                      CDT17620
                                1762  * OPTIONS:                                                            CDT17630
                                1763  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:                   CDT17640
                                1764  * BYCKAD                                                               CDT17650
                                1765  * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF                  CDT17660
                                1766  * THIS DOCUMENT OR APPENDIX 3 OF THE PROGRAM DESCRIPTION              CDT17670
                                1767  *                                                                      CDT17680
1A96  41F0 2908                 1768  TEST5    BAL     RETN,MODINIT                                        CDT17690
1A9A  41F0 2948                 1769           BAL     RETN,RSTSR                                          CDT17700
1A9E  41F0 2A14                 1770           BAL     RETN,CKADSR        CHECK ADDRESS                    CDT17710
1AA2  C85D 03E8                 1771           LHI     WK2,1000           SET FOR 1000                     CDT17720
1AA6  41F0 2C3C                 1772  RNDSK1   BAL     RETN,RAND          RANDOM SEEKS                     CDT17730
1AAA  41F0 1184                 1773           BAL     RETN,TSTBRK                                         CDT17740
1AAE  9067                      1774           SRHLS   WK0,7                                               CDT17750
1AB0  08B6                      1775           LHR     TRACK,WK0          TO REG TRACK                     CDT17760
1AB2  45B0 3608                 1776           CLH     TRACK,MAXCY1       NOT TO EXCEED MAX                CDT17770
1AB6  2288                      1777           BFBS    8,RNDSK1                                            CDT17780
1AB8  C8E0 1AA6                 1778           LHI     RETN2,RNDSK1       CHECK FOR CD DISC                CDT17790
1ABC  41F0 3378                 1779           BAL     RETN,ILLADD        VOID AREAS                       CDT17800
1AC0  41F0 284A                 1780           BAL     RETN,SKSR          SEEK                             CDT17810
1AC4  41F0 2A14                 1781           BAL     RETN,CKADSR        CHECK ADDRESS                    CDT17820
1AC8  0B81                      1782           SHR     WK2,1                                               CDT17830
1ACA  4230 1AA6                 1783           BNZ     RNDSK1                                              CDT17840
1ACE  4300 0D72                 1784           B       TSTEND             DONE                             CDT17850
                                1785  *                                                                      CDT17860
                                1786  *                                                                      CDT17870
                                1787  *                                                                      CDT17880
                                1788  *                                                                      CDT17890
                                1789  * INTERRUPT SEEK TEST                                                 CDT17900
                                1790  *                                                                      CDT17910
                                1791  *                                                                      CDT17920
                                1792  * TEST 4                                                              CDT17930
                                1793  *                                                                      CDT17940
                                1794  * PURPOSE:                                                            CDT17950
                                1795  *                                                                      CDT17960
                                1796  * THIS TEST SEEKS CYLINDER ZERO, AND THEN THE HIGHEST                  CDT17970
                                1797  * CYLINDER UNDER INTERRUPT CONTROL.IT AGAIN SEEKS THE                  CDT17980
                                1798  * HIGHEST CYLINDER IN ORDER TO TEST THE ALTERNATE INTERRUPT            CDT17990
                                1799  * LOGIC PATH IN THE CONTROLLER (RSRW SHOULD NOT BECOME SET             CDT18000
                                1800  * AS THE HEADS DO NOT MOVE, BUT AN INTERRUPT SHOULD BE GENERATED).    CDT18010
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                                1801  *                                                                    CDT18020
                                1802  * DESIGN SPECIFICATIONS:                                            CDT18030
                                1803  *                                                                    CDT18040
                                1804  * THIS TEST IS NOT DESIGNED TO CHECK THE HEAD POSITIONING SERVO      CDT18050
                                1805  * AND DOES NOT CHECK ADDRESS.IT SHOULD BE RUN IN CONJUNCTION        CDT18060
                                1806  * WITH ONE OF THE OTHER SEEK TESTS (TESTS1,2,3) IN ORDER            CDT18070
                                1807  * TO FULLY CHECK OUT THE SEEK LOGIC AND HARDWARE                    CDT18080
                                1808  * IN ADDITION: IT CAN BE USED AS A CONFIDENCE TEST                  CDT18090
                                1809  * FOLLOWING MAINTENANCE IN THIS AREA                                CDT18100
                                1810  *                                                                    CDT18110
                                1811  * HOW TO RUN THE TEST:                                              CDT18120
                                1812  * ENTER TEST 4 AND OTHER OPTIONS AS DESCRIBED IN TEST1              CDT18130
                                1813  * FOLLOW INSTRUCTIONS AS IN TEST1                                   CDT18140
                                1814  *                                                                    CDT18150
                                1815  * OPTIONS:                                                          CDT18160
                                1816  *                                                                    CDT18170
                                1817  * THIS TEST DOES NOT EMPLOY ANY SPECIFIC OPTION ENTRIES             CDT18180
                                1818  *                                                                    CDT18190
1AD2   41F0 28C8                1819  TEST4    BAL     RETN,MODINIT                                      CDT18200
1AD6   C870 2832                1820           LHI     WK1,SKINTA                                        CDT18210
1ADA   4880 1614                1821           LH      WK2,TFILE+6                                       CDT18220
1ADE   9181                     1822           SLLS    WK2,1                                             CDT18230
1AE0   4078 365C                1823           STH     WK1,DEVINT(WK2)                                   CDT18240
1AE4   07BB                     1824           XHR     TRACK,TRACK                                       CDT18250
1AE6   41E0 27F2                1825           BAL     RETN2,INTSK                                       CDT18260
1AEA   4880 36D6                1826           LH      TRACK,MAXCY       NOW SEEK MAX CYL                CDT18270
1AEE   41E0 27F2                1827           BAL     RETN2,INTSK                                       CDT18280
1AF2   41E0 27F2                1828           BAL     RETN2,INTSK       SEEK MAX AGAIN                  CDT18290
1AF6   41F0 11B4                1829           BAL     RETN,TSTBRK                                       CDT18300
1AFA   4300 0072                1830           B       TSTEND                                            CDT18310
                                1831  *                                                 *                CDT18320
                                1832  *                                                                    CDT18330
                                1833  *                                                                    CDT18340
                                1834  * TEST 5                                                            CDT18350
                                1835  *                                                                    CDT18360
                                1836  * FORMAT MODE TEST                                                  CDT18370
                                1837  *                                                                    CDT18380
                                1838  * *** NOTE: FORMAT SWITCH MUST BE IN THE FORMAT                      CDT18390
                                1839  *           POSITION.                                                CDT18400
                                1840  *                                                                    CDT18410
                                1841  * PURPOSE:                                                          CDT18420
                                1842  *                                                                    CDT18430
                                1843  *  THIS TEST SEEKS TO THE LOW CYLINDER SPECIFIED                   CDT18440
                                1844  *  BY THE USER, AND THE FOLLOWING FORMAT MODE                      CDT18450
                                1845  *  WRITES ARE PERFORMED ON HEAD ZERO.                              CDT18460
                                1846  *                                                                    CDT18470
                                1847  *  A. SECTOR 0 IS FORMATTED WITH DEF TRK SET.                      CDT18480
                                1848  *  B. SECTOR 2 IS FORMATTED WITH A FAULTY NORMAL                   CDT18490
                                1849  *        MODE PARITY FIELD                                         CDT18500
                                1850  *  C. SECTOR 4 IS FORMATTED WITH A FAULTY                          CDT18510
                                1851  *     ADDRESS FIELD                                                CDT18520
                                1852  *  D. SECTOR 6 IS FORMATTED PROPERLY                               CDT18530
                                1853  *  E. SECTOR 7 IS FORMATTED WITH A FAULTY HEAD                     CDT18540
                                1854  *     BIT                                                          CDT18550
                                1855  *  F. SECTOR 8 IS FORMATTED WITH THE WRITE                         CDT18560
                                1856  *     PROTECT BIT SET.                                             CDT18570
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1857  *  G. SECTOR 9 IS FORMATTED PROPERLY                                    CDT18580
1858  *  H. SECTOR A IS FORMATTED DEF TRK SET                                 CDT18590
1859  *  I. SECTOR B IS FORMATTED PROPERLY                                    CDT18600
1860  *  J. SECTOR C IS FORMATTED WITH WRT PROT SET                           CDT18610
1861  *                                                                       CDT18620
1862  * STEP F-J IS ONLY PERFORMED ON 40 MEGABYTE DISCS                       CDT18630
1863  *                                                                       CDT18640
1864  *                                                                       CDT18650
1865  *  THE FOLLOWING NORMAL MODE READS OR WRITES                            CDT18660
1866  *  ARE PERFORMED:                                                       CDT18670
1867  *                                                                       CDT18680
1868  *  A. SECTOR 0 IS READ, DEF TRACK STATUS                                CDT18690
1869  *     EXPECTED                                                          CDT18700
1870  *  B. SECTOR 2 IS READ, PARITY ERROR EXPECTED                           CDT18710
1871  *  C. SECTOR 4 IS READ, ADS CMP ERR EXPECTED                            CDT18720
1872  *  D. SECTORS 6 AND 7 ARE READ IN ONE DATA                              CDT18730
1873  *     TRANSFER, ADS CMP ERR EXPECTED.                                   CDT18740
1874  *  E. SECTOR 8 IS WRITTEN WITH PROTECTED WRITE,                         CDT18750
1875  *     WRITE PROTECT STATUS EXPECTED                                     CDT18760
1876  *  F. SECTORS 9 & A ARE READ IN ONE TRANSFER                            CDT18770
1877  *     DEFECTIVE TRACK IS EXPECTED.                                      CDT18780
1878  *  G. SECTORS 9 & A ARE WRITTEN IN ONE TRANSFER                         CDT18790
1879  *     DEFECTIVE TRK IS EXPECTED                                         CDT18800
1880  *  H. SECTORS B & C ARE WRITTEN IN THE WRITE                            CDT18810
1881  *     PROTECT MODE, WRT PROTECT STATUS EXPECTED                         CDT18820
1882  * STEPS E-H IS PERFORMED ONLY ON 40 MEGABYTE DISCS                      CDT18830
1883  *                                                                       CDT18840
1884  * ASSUMPTIONS:                                                         CDT18850
1885  *                                                                       CDT18860
1886  *                                                                       CDT18870
1887  * THE TEST WILL FIRST SEEK TO THE LOCYL SPECIFIED BY                    CDT18880
1888  * THE USER AND PERFORM READ CHECKS FOR 12 CONSECUTIVE DEFECTIVE         CDT18890
1889  * FREE SECTORS STARTING FROM HEAD 0, SECTOR ZERO.                       CDT18900
1890  * THEREFORE, IT IS ASSUMED THAT BYCKAD IS ZERO, THE                     CDT18910
1891  * TEST ALSO ASSUMES THE FORMAT MODE SWITCH IS IN                        CDT18920
1892  * THE PROPER POSITION TO ENABLE FORMAT READ AND WRITE OPERATIONS        CDT18930
1893  * DESIGN SPECIFICATIONS                                                CDT18940
1894  *                                                                       CDT18950
1895  * THIS TEST DOES NOT DESTROY EXISTING FORMAT;                           CDT18960
1896  * BUT DOES NOT PERFORM A SATISFACTORY SURFACE                           CDT18970
1897  * ANALYSIS AND PACK FORMATTER OPERATION TO                              CDT18980
1898  * FORMAT A NEW PACK USE PROGRAM NUMBER 06-173F02                        CDT18990
1899  * ALL TESTS IN 06-173F01 ASSUME A PROPERLY FORMATTED                    CDT19000
1900  * PACK                                                                 CDT19010
1901  *                                                                       CDT19020
1902  * HOW TO RUN THE TEST:                                                 CDT19030
1903  * ENTER TEST 5 AND INSURE FORMAT SWITCH ON DISC CONT. IS ON FMT ENABLE  CDT19040
1904  * AND ANY OTHER OPTION INFORMATION DESIRED VIA KEYBOARD:                CDT19050
1905  * REFER TO THE PROGRAM DESCRIPTION FOR THE OPTION INPUT COMMAND STRUCT- CDT19060
1906  * URE. AFTER THE DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST IS  CDT19070
1907  * EXECUTED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION OF ANY     CDT19080
1908  * SEEK OPERATION THE CYLINDER NUMBER WILL BE DISPLAYED ON THE PROCESSOR CDT19090
1909  * DISPLAY  THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME BY        CDT19100
1910  * DEPRESSING THE BREAK KEY.                                            CDT19110
1911  * IF THE MESSAGE 'INVALID LOWCYL FOR FORMAT MODE TEST'                 CDT19120
1912  * RESULTS,SELECT A NEW LOCYL OPTION AND RUN TEST AS                    CDT19130
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                     * BEFORE                                                            CDT19140
                     *                                                                   CDT19150
                     * OPTIONS:                                                          CDT19160
                     *                                                                   CDT19170
                     * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:                 CDT19180
                     * BYCKAD                                                            CDT19190
                     * LOCYL                                                             CDT19200
                     * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF THIS DECUMENT  CDT19210
                     * OR APPENDIX THREE OF THE PROGRAM DESCRIPTION                      CDT19220
                     *                                                   *               CDT19230
1AFE   41F0 28C8     TEST5     BAL    RETN,MODINIT                                       CDT19240
1B02   41F0 289A               BAL    RETN,SUBFILE                                       CDT19250
1B06   1CBA                    DC     A(CONT10)                                          CDT19260
1B08   1CBA                    DC     A(CONT10)                                          CDT19270
1B0A   1CBA                    DC     A(CONT10)                                          CDT19280
1B0C   48B0 1650     FMTST     LH     TRACK,LOTRAK        GET FIRST TRACK NUMBER         CDT19290
1B10   C870 0601               LHI    WK1,X'601'          READ/WRITE FORMAT              CDT19300
1B14   C860 00BD               LHI    WK0,X'BD'           WORST CASE  .                  CDT19310
1B18   41F0 26F2               BAL    RETN,FMSUDF         SET UP DATA FIELD              CDT19320
1B1C   4000 3C30               STH    0,WTF+302           SET NORMAL CYC CHECK           CDT19330
1B20   C8D0 0080               LHI    SECT,X'80'          SET DEF TRACK                  CDT19340
1B24   D2D0 3B02               STB    SECT,WTF                                           CDT19350
1B28   4000 36F4               STH    0,HEAD                                             CDT19360
1B2C   0870                    LHR    WK1,0                                              CDT19370
1B2E   067B                    OHR    WK1,TRACK                                          CDT19380
1B30   9078                    SRHLS  WK1,8                                              CDT19390
1B32   D270 3B03               STB    WK1,WTF+1                                          CDT19400
1B36   D2B0 3B04               STB    TRACK,WTF+2                                        CDT19410
                     *                                                                   CDT19420
1B3A   41F0 284A               BAL    RETN,SKSR           SEEK THE TRACK                 CDT19430
1B3E   41E0 2CA0               BAL    RETN2,TENSECT                                      CDT19440
1B42   07DD                    XHR    SECT,SECT                                          CDT19450
1B44   41F0 2AC8               BAL    RETN,WRIT           WRITE FORMAT                   CDT19460
1B48   2402                    LIS    SECT,2                                             CDT19470
1B4A   D2D0 3B02               STB    SECT,WTF            STORE SECTOR                   CDT19480
1B4E   40D0 3C30               STH    SECT,WTF+302        SET BAD CYCLIC CHECK           CDT19490
1B52   41F0 2AC8               BAL    RETN,WRIT                                          CDT19500
                     *                                                                   CDT19510
1B56   0AD2                    AHR    SECT,2              SECTOR 4                       CDT19520
1B58   4000 3C30               STH    0,WTF+302           SET GOOD CYC CHECK             CDT19530
1B5C   41F0 2AC8               BAL    RETN,WRIT           BAD ADDRESS                    CDT19540
                     *                                                                   CDT19550
1B60   0AD2                    AHR    SECT,2              SECTOR 6                       CDT19560
1B62   D2D0 3B02               STB    SECT,WTF            GOOD ADDRESS                   CDT19570
1B66   41F0 2AC8               BAL    RETN,WRIT                                          CDT19580
                     *                                                                   CDT19590
1B6A   0AD1                    AHR    SECT,1                                             CDT19600
1B6C   C860 4000               LHI    WK0,X'4000'         BAD HEAD BITS                  CDT19610
1B70   066B                    OHR    WK0,TRACK                                          CDT19620
1B72   9068                    SRHLS  WK0,8                                              CDT19630
1B74   D260 3B03               STB    WK0,WTF+1                                          CDT19640
1B78   D2B0 3B04               STB    TRACK,WTF+2                                        CDT19650
                     *                                                                   CDT19660
1B7C   41F0 2AC8               BAL    RETN,WRIT                                          CDT19670
1B80   0AD1                    AHR    SECT,1              SECTOR 8                       CDT19680
1B82   C860 0040               LHI    WK0,X'40'                                          CDT19690
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1B86  0660              OHR    WK0,SECT        SET WRITE PROTECT        CDT19700
1B88  D260 3B02         STB    WK0,WTF                                  CDT19710
1B8C  0870              LHR    WK1,0           GOOD HEAD BIT            CDT19720
1B8E  067B              OHR    WK1,TRACK                                CDT19730
1B90  9078              SRHLS  WK1,8                                    CDT19740
1B92  D270 3B03         STB    WK1,WTF+1                                CDT19750
1B96  D2B0 3B04         STB    TRACK,WTF+2                              CDT19760
1B9A  41F0 2AC8         BAL    RETN,WRIT                                CDT19770
                  *                                                     CDT19780
1B9E  0AD1              AHR    SECT,1          SECTOR 9                 CDT19790
1BA0  D2D0 3B02         STB    SECT,WTF                                 CDT19800
1BA4  C890 012D         LHI    WK3,301                                  CDT19810
1BA8  2481              LIS    WK2,1                                    CDT19820
1BAA  C870 002E         LHI    WK1,46          WRITE 11 IN              CDT19830
1BAE  C860 0011         LHI    WK0,X'11'       SECTOR 9                 CDT19840
1BB2  D267 3B02   FMTS2 STB    WK0,WTF(WK1)                             CDT19850
1BB6  C170 1BB2         BXLE   WK1,FMTS2                                CDT19860
1BBA  41F0 2AC8         BAL    RETN,WRIT                                CDT19870
                  *                                                     CDT19880
1BBE  0AD2              AHR    SECT,2          SECTOR B                 CDT19890
1BC0  D2D0 3B02         STB    SECT,WTF                                 CDT19900
1BC4  41F0 2AC8         BAL    RETN,WRIT       ALSO WRITE 11 IN SECTOR B CDT19910
1BC8  0BD1              SHR    SECT,1          SECTOR A                 CDT19920
1BCA  C860 0080         LHI    WK0,X'80'       SET BIT FOR              CDT19930
1BCE  066D              OHR    WK0,SECT        DEF TRK                  CDT19940
1BD0  D260 3B02         STB    WK0,WTF                                  CDT19950
1BD4  C890 012D         LHI    WK3,301                                  CDT19960
1BD8  2481              LIS    WK2,1                                    CDT19970
1BDA  C870 002E         LHI    WK1,46                                   CDT19980
1BDE  C860 0022         LHI    WK0,X'22'                                CDT19990
1BE2  D267 3B02   FMTS3 STB    WK0,WTF(WK1)                             CDT20000
1BE6  C170 1BE2         BXLE   WK1,FMTS3                                CDT20010
1BEA  41F0 2AC8         BAL    RETN,WRIT                                CDT20020
                  *                                                     CDT20030
1BEE  0AD2              AHR    SECT,2          SECTOR C                 CDT20040
1BF0  C860 0040         LHI    WK0,X'40'       SET BIT FOR              CDT20050
1BF4  066D              OHR    WK0,SECT        WRT PROT                 CDT20060
1BF6  D260 3B02         STB    WK0,WTF                                  CDT20070
1BFA  41F0 2AC8         BAL    RETN,WRIT       ALSO WRITE 22 IN SECTOR C CDT20080
                  *                                                     CDT20090
                  *                                                     CDT20100
1BFE  C860 00FF         LHI    WK0,255                                  CDT20110
1C02  4060 36E0         STH    WK0,SIZE                                 CDT20120
1C06  07DD              XHR    SECT,SECT                                CDT20130
1C08  C860 0026         LHI    WK0,X'26'       EXPECT DEF TRACK         CDT20140
1C0C  4060 36E8         STH    WK0,ERRFLG                               CDT20150
1C10  C8C0 00A0         LHI    OPKEY,X'A0'     XAX = EXP DEFC TRK       CDT20160
1C14  41F0 2AB8         BAL    RETN,READX      READ, EXPECT ERROR       CDT20170
                  *                                                     CDT20180
1C18  0AD2              AHR    SECT,2          SECTOR 2                 CDT20190
1C1A  2463              LIS    WK0,3                                    CDT20200
1C1C  4060 36E8         STH    WK0,ERRFLG                               CDT20210
1C20  C8C0 00D0         LHI    OPKEY,X'D0'     XDX = EXP CYC CHECK      CDT20220
1C24  41F0 2AB8         BAL    RETN,READX      READ EXPECT ERROR        CDT20230
                  *                                                     CDT20240
1C28  0AD2              AHR    SECT,2          SECTOR 4                 CDT20250
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1C2A  C860 0046          2025          LHI   WK0,X'46'       EXPECT HEADER COMPARE FAILURE      CDT20260
1C2E  4060 36E8          2026          STH   WK0,ERRFLG                                          CDT20270
1C32  C8C0 00B0          2027          LHI   OPKEY,X'B0'     EXPECT HEADER COMP ERR             CDT20280
1C36  41F0 2AB8          2028          BAL   RETN,READX                                          CDT20290
                         2029  *                                                                 CDT20300
1C3A  0AD2               2030          AHR   SECT,2          SECTOR 6 - 7                       CDT20310
1C3C  C860 01FF          2031          LHI   WK0,X'1FF'      SET SIZE TO 512 BYTES              CDT20320
1C40  4060 36E0          2032          STH   WK0,SIZE        TWO SECTORS                        CDT20330
1C44  41F0 2AB8          2033          BAL   RETN,READX                                          CDT20340
1C48  C860 1201          2034          LHI   WK0,X'1201'     WRITE PROTECT/                     CDT20350
1C4C  0AD2               2035          AHR   SECT,2          SECTOR 8                           CDT20360
1C4E  4060 36E2          2036          STH   WK0,WCMD                                            CDT20370
1C52  C860 00FF          2037          LHI   WK0,255         SET SIZE TO                        CDT20380
1C56  4060 36E0          2038          STH   WK0,SIZE        256 BYTES                          CDT20390
1C5A  C860 0086          2039          LHI   WK0,X'86'       EXPECT WRITE PROTECT               CDT20400
1C5E  4060 36E8          2040          STH   WK0,ERRFLG                                          CDT20410
1C62  C8C0 0090          2041          LHI   OPKEY,X'90'     X9X = WRT PROT STATUS              CDT20420
1C66  41F0 2ADA          2042          BAL   RETN,WRITX                                          CDT20430
1C6A  C860 01FF          2043          LHI   WK0,X'1FF'                                          CDT20440
1C6E  4060 36E0          2044          STH   WK0,SIZE                                            CDT20450
1C72  0AD1               2045          AHR   SECT,1          SECTOR 9 & A                       CDT20460
1C74  C860 0026          2046          LHI   WK0,X'26'                                           CDT20470
1C78  4060 36E8          2047          STH   WK0,ERRFLG      EXPECT DEF TRACK                   CDT20480
1C7C  C8C0 00A0          2048          LHI   OPKEY,X'A0'     XAX = EXP DEF TRK                  CDT20490
1C80  41F0 2AB8          2049          BAL   RETN,READX                                          CDT20500
                         2050  *                                                                 CDT20510
                         2051  *                                                                 CDT20520
1C84  41F0 2ADA          2052          BAL   RETN,WRITX      SECTOR 9 & A                       CDT20530
                         2053  *                             SHOULD ALSO GET DEF TRK ON         CDT20540
                         2054  *                             THE WRITE OPERATION                CDT20550
1C88  0AD2               2055          AHR   SECT,2          SECTOR B&C                         CDT20560
1C8A  C860 0086          2056          LHI   WK0,X'86'       EXPECT WRT PROT                    CDT20570
1C8E  4060 36E8          2057          STH   WK0,ERRFLG                                          CDT20580
1C92  C8C0 0090          2058          LHI   OPKEY,X'90'     X9X = WRT PROT STATUS              CDT20590
1C96  41F0 2ADA          2059          BAL   RETN,WRITX                                          CDT20600
1C9A  C870 0601          2060          LHI   WK1,X'601'                                          CDT20610
1C9E  2460               2061          LIS   WK0,0                                               CDT20620
1CA0  41F0 26F2          2062          BAL   RETN,FMSUDF                                         CDT20630
1CA4  0870               2063          LHR   WK1,R0                                              CDT20640
1CA6  0678               2064          OHR   WK1,TRACK                                           CDT20650
1CA8  9078               2065          SRHLS WK1,8                                               CDT20660
1CAA  D270 3B03          2066          STB   WK1,WTF+1                                           CDT20670
1CAE  D2B0 3B04          2067          STB   TRACK,WTF+2                                         CDT20680
1CB2  41E0 2CC4          2068          BAL   RETN2,RSTRFMT                                       CDT20690
1CB6  4300 0D72          2069          B     TSTEND                                              CDT20700
1CBA  48B0 1650          2070  CONT10  LH    TRACK,LOTRAK    GET FIRST TRACK NUMBER             CDT20710
1CBE  4000 36F4          2071          STH   R0,HEAD                                             CDT20720
1CC2  41F0 284A          2072          BAL   RETN,SKSR       SEEK                               CDT20730
1CC6  41E0 2CA0          2073          BAL   RETN2,TENSECT                                       CDT20740
1CCA  C870 0601          2074          LHI   WK1,X'601'      FORMAT WRITE NORMAL READ           CDT20750
1CCE  C860 00BD          2075          LHI   WK0,X'BD'       WORST CASE                         CDT20760
1CD2  C8D0 0040          2076          LHI   SECT,X'40'      SET DEF TRACK                      CDT20770
1CD6  41F0 273C          2077          BAL   RETN,FMSUDFA    SETUP DATA FIELD                   CDT20780
1CDA  41F0 2AC8          2078          BAL   RETN,WRIT       WRITE FORMAT                       CDT20790
1CDE  07DD               2079          XHR   SECT,SECT                                           CDT20800
1CE0  0AD2               2080          AHR   SECT,R2         SECTOR 2                           CDT20810
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1CE2  D2D0 3B02        STB   SECT,WTF          GOOD ADDRESS
1CE6  40D0 3C0E        STH   SECT,WTF+268      BAD CYCLIC CHECK
1CEA  41F0 2AC8        BAL   RETN,WRIT         WRITE FORMAT
1CEE  0AD2             AHR   SECT,R2           SECTOR 4
1CF0  4000 3C0E        STH   R0,WTF+268        GOOD CYC CHECK, BAD ADDRESS
1CF4  41F0 2AC8        BAL   RETN,WRIT
1CF8  0AD2             AHR   SECT,R2           SECTOR 6
1CFA  D2D0 3B02        STB   SECT,WTF          GOOD ADDRESS
1CFE  41F0 2AC8        BAL   RETN,WRIT         WRITE FORMAT
1D02  0AD1             AHR   SECT,R1           SECTOR 7
1D04  C860 0020        LHI   WK0,X'20'
1D08  D260 3B02        STB   WK0,WTF
1D0C  41F0 2AC8        BAL   RETN,WRIT         WRITE FORMAT
1D10  C860 00FF        LHI   WK0,255           NOW SET SIZE
1D14  4060 36E0        STH   WK0,SIZE          TO 256 BYTES
1D18  07DD             XHR   SECT,SECT
1D1A  C860 0066        LHI   WK0,X'66'         EXPECT DEF TRACK ADDRS COMP
1D1E  4060 36E8        STH   WK0,ERRFLG
1D22  C8C0 00A0        LHI   OPKEY,X'A0'       XAX=EXP DEF TRK
1D26  41F0 2AB8        BAL   RETN,READX        READ EXPECT ERROR
1D2A  0AD2             AHR   SECT,R2           SECTOR 4
1D2C  2463             LIS   WK0,3
1D2E  4060 36E8        STH   WK0,ERRFLG
1D32  C8C0 00D0        LHI   OPKEY,X'D0'       XDX EXPECT CYCLIC CHECK
1D36  41F0 2AB8        BAL   RETN,READX        READ EXPECT ERROR
1D3A  0AD2             AHR   SECT,R2           SECTOR 4
1D3C  C860 0046        LHI   WK0,X'46'         EXPECT ADS CMP ERR
1D40  4060 36E8        STH   WK0,ERRFLG
1D44  C8C0 00B0        LHI   OPKEY,X'B0'       X'B'=EXP ADS CMP
1D48  41F0 2AB8        BAL   RETN,READX        READ EXPECT ERROR
1D4C  0AD2             AHR   SECT,R2           SECTOR 6
1D4E  C860 01FF        LHI   WK0,X'1FF'        SET SIZE= 512 BYTES
1D52  4060 36E0        STH   WK0,SIZE          (TWO SECTORS)
1D56  41F0 2AB8        BAL   RETN,READX        READ, EXPECT ERROR
1D5A  C870 0601        LHI   WK1,X'601'
1D5E  C860 00BD        LHI   WK0,X'BD'
1D62  41F0 273C        BAL   RETN,FMSUDFA
1D66  41E0 2CC4        BAL   RETN2,RSTRFMT
1D6A  4300 0D72        B     TSTEND
                 *
                 *
                 * MULTI-SECTOR TEST
                 *
                 * TEST 6
                 *
                 *
                 *
                 * PURPOSE:
                 *
                 *  THIS TEST SEEKS THE LOCYL SPECIFIED BY THE
                 *  OPERATOR. IT THEN PERFORMS A NORMAL WRITE OF
                 *  262 BYTES STARTING ON THE HIGHEST SECTOR OF
                 *  HEAD 0. THIS CAUSES 6 BYTES OF DATA TO BE TRAN-
                 *  SFERED ONTO HEAD 1 SECTOR 0. A NORMAL READ OF
                 *  262 BYTES STARTING ON THE HIGHEST SECTOR OF
                 *  HEAD 0 IS THEN PREFORMED, AND THE DATA
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                        2137  *  ARE CHECKED. THIS TESTS THE MULTI-SECTOR MODE                                  CDT21380
                        2138  *  OF OPERATION. A READ OF 6 BYTES FROM SECTOR 0                                  CDT21390
                        2139  *  HEAD 1 IS THEN PERFORMED AND THE DATA ARE                                      CDT21400
                        2140  *  CHECKED AGAINST THE LAST 6 BYTES TRANSFERED.                                   CDT21410
                        2141  *  THIS HEAD SWITCHING LOGIC IS TESTED FOR                                        CDT21420
                        2142  * THE OVERFLOW OF DATA FROM TRACK 0 TO 1 ON 2.5 AND 10 MB DISCS                   CDT21430
                        2143  * AND CONTINUES FOR A 40 MEGABYTE DRIVE UNTIL ALL TRACKS ARE TESTED IN           CDT21440
                        2144  * THE CYLINDER                                                                   CDT21450
                        2145  *  OVERFLOW LOGIC IS THEN TESTED BY ISSUEING A                                    CDT21460
                        2146  *  WRITE OF 262 BYTES ON THE HIGHEST SECTOR OF                                    CDT21470
                        2147  * THE HIGHEST TRACK. THE CYLINDER OVERFLOW FLAG IS TESTED.                        CDT21480
                        2148  * THEN 256 BYTES ARE READ AND CHECKED FROM THIS                                   CDT21490
                        2149  * HIGHEST SECTOR. FINALLY, A READ FROM                                           CDT21500
                        2150  * A NON-EXISTENT SECTOR IS ATTEMPTED, AND ADS CMP                                CDT21510
                        2151  *  FAIL IS EXPECTED. A RESET COMMAND IS ISSUED,                                   CDT21520
                        2152  * AND ADS CMP FAIL IS TESTED, IT SHOULD BE CLEAR.                                 CDT21530
                        2153  * ASSUMPTIONS:                                                                    CDT21540
                        2154  *                                                                                 CDT21550
                        2155  * NONE:                                                                           CDT21560
                        2156  *                                                                                 CDT21570
                        2157  *                                                                                 CDT21580
                        2158  *                                                                                 CDT21590
                        2159  * DESIGN SPECIFICATIONS:                                                          CDT21600
                        2160  *                                                                                 CDT21610
                        2161  *  THIS TEST SECTION IS THE ONLY TEST TO                                          CDT21620
                        2162  *  SPECIFICALLY TEST MULTI SECTOR TRANSFERS.                                      CDT21630
                        2163  * ALTHOUGH TESTS 8,9,A MAY USE MULTI-SECTOR                                       CDT21640
                        2164  *  DATA TRANSFERS, FOR THIS REASON, THIS TEST                                     CDT21650
                        2165  *  SHOULD ALWAYS BE RUN PRIOR TO TESTS 8,9, AND A                                 CDT21660
                        2166  *  IN ADDITION, THIS IS THE ONLY TEST TO CHECK THE                                CDT21670
                        2167  *  CYLINDER OVERFLOW CONDITION.                                                   CDT21680
                        2168  *                                                                                 CDT21690
                        2169  *                                                                                 CDT21700
                        2170  *                                                                                 CDT21710
                        2171  *                                                                                 CDT21720
                        2172  *                                                                                 CDT21730
                        2173  * HOW TO RUN THE TEST:                                                           CDT21740
                        2174  * ENTER TEST 6                                                                    CDT21750
                        2175  * AND ANY OTHER OPTION INFORMATION DESIRED VIA KEYBOARD:                          CDT21760
                        2176  * REFER TO THE PROGRAM DESCRIPTION FOR THE OPTION INPUT COMMAND STRUCT-          CDT21770
                        2177  * URE. AFTER THE DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST IS           CDT21780
                        2178  * EXECUTED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION OF ANY              CDT21790
                        2179  * SEEK OPERATION THE CYLINDER NUMBER WILL BE DISPLAYED ON THE PROCESSOR          CDT21800
                        2180  * DISPLAY. THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME BY                 CDT21810
                        2181  * DEPRESSING THE BREAK KEY.                                                      CDT21820
                        2182  *                                                                                 CDT21830
                        2183  * OPTIONS:                                                                       CDT21840
                        2184  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:                             CDT21850
                        2185  *   LOCYL                                                                       CDT21860
                        2186  * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF THIS DOCUMENT             CDT21870
                        2187  * OR APPENDIX THREE OF THE PROGRAM DESCRIPTION                                   CDT21880
                        2188  *                                                                                 CDT21890
1D6E  41F0 28C8         2189  TEST6    BAL     RETN,MODINIT                                                   CDT21900
1D72  4880 1650         2190           LH      TRACK,LOTRAK        GET THE FIRST TRACK                        CDT21910
1D76  41F0 1128         2191           BAL     RETN,TSTBRK                                                    CDT21920
1D7A  4000 36F4         2192           STH     0,HEAD                                                         CDT21930
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1D7E  41F0 284A        2193  MSTST1  BAL   RETN,SKSR                                  CDT21940
1D82  48D0 36EA        2194          LH    SECT,MAXSEC                                CDT21950
1D86  C860 0201        2195          LHI   WK0,X'201'       NORMAL WRITE/READ        CDT21960
1D8A  4060 36E2        2196          STH   WK0,WCMD         SAVE COMMANDS            CDT21970
1D8E  C890 0105        2197          LHI   WK3,261          SET SIZE = 262           CDT21980
1D92  4090 36E0        2198          STH   WK3,SIZE                                  CDT21990
1D96  0777             2199          XHR   WK1,WK1          FILL DATA FIELD          CDT22000
1D98  0882             2200          LHR   WK2,2            WITH SPIRAL DATA         CDT22010
1D9A  4077 3B02        2201  MSTS1   STH   WK1,WTF(WK1)                              CDT22020
1D9E  C170 1D9A        2202          BXLE  WK1,MSTS1                                 CDT22030
1DA2  41F0 2AC8        2203          BAL   RETN,WRIT        WRITE                    CDT22040
1DA6  41F0 2AB0        2204          BAL   RETN,READ        READ                     CDT22050
1DAA  C890 00FF        2205          LHI   WK3,255                                   CDT22060
1DAE  41F0 292E        2206          BAL   RETN,TDATAX                               CDT22070
1DB2  48D0 36F4        2207          LH    SECT,HEAD        ACCESS THE HEAD #        CDT22080
1DB6  0AD1             2208          AHR   SECT,1           AND INCREMENT            CDT22090
1DB8  40D0 36F4        2209          STH   SECT,HEAD        BY 1                     CDT22100
1DBC  08D0             2210          LHR   SECT,0           SET SECT TO 0            CDT22110
1DBE  C8C0 0080        2211          LHI   OPKEY,X'80'                               CDT22120
1DC2  0870             2212          LHR   WK1,0                                     CDT22130
1DC4  0882             2213          LHR   WK2,2                                     CDT22140
1DC6  2494             2214          LIS   WK3,4                                     CDT22150
1DC8  4867 3C02        2215  MSCK3   LH    WK0,WTF+256(WK1)                          CDT22160
1DCC  4567 3802        2216          CLH   WK0,RDF+256(WK1)                          CDT22170
1DD0  4230 318A        2217          BNZ   ERR4                                      CDT22180
1DD4  C170 1DC8        2218          BXLE  WK1,MSCK3                                 CDT22190
1DD8  2495             2219          LIS   WK3,5                                     CDT22200
1DDA  4090 36E0        2220          STH   WK3,SIZE                                  CDT22210
1DDE  41F0 2AB0        2221          BAL   RETN,READ        READ ON HEAD 1           CDT22220
1DE2  C8C0 0080        2222          LHI   OPKEY,X'80'      X8X=CORE COMPARISON      CDT22230
1DE6  0870             2223          LHR   WK1,0                                     CDT22240
1DE8  0882             2224          LHR   WK2,2                                     CDT22250
1DEA  2494             2225          LIS   WK3,4                                     CDT22260
1DEC  4867 3C02        2226  MSCK2   LH    WK0,WTF+256(WK1)                          CDT22270
1DF0  4567 3702        2227          CLH   WK0,RDF(WK1)                              CDT22280
1DF4  4230 3188        2228          BNZ   ERR5             B IF ERROR               CDT22290
1DF8  C170 1DEC        2229          BXLE  WK1,MSCK2        LOOP UNTIL DONE          CDT22300
1DFC  48D0 36F4        2230          LH    SECT,HEAD                                 CDT22310
1E00  45D0 36F0        2231          CLH   SECT,MXHED                                CDT22320
1E04  4230 1D7E        2232          BNZ   MSTST1                                    CDT22330
1E08  C890 0105        2233          LHI   WK3,261          SET SIZE AGAIN           CDT22340
1E0C  4090 36E0        2234          STH   WK3,SIZE         TO 262 BYTES             CDT22350
1E10  C890 0016        2235          LHI   WK3,X'16'        AND SET TO EXPECT        CDT22360
1E14  4090 36E8        2236          STH   WK3,ERRFLG       CYL OVERFLOW             CDT22370
1E18  48D0 36EA        2237          LH    SECT,MAXSEC      TOP SECTOR OF HEAD 1     CDT22380
1E1C  C8C0 00C0        2238          LHI   OPKEY,X'C0'      XCX=EXPECTING CYL OVF    CDT22390
1E20  41F0 2ADA        2239          BAL   RETN,WRITX       WRITE, EXPECT ERROR      CDT22400
1E24  C890 00FF        2240          LHI   WK3,255          SET SIZE TO WHAT WAS     CDT22410
1E28  4090 36E0        2241          STH   WK3,SIZE         WRITTEN (WE HOPE)        CDT22420
1E2C  41F0 2AB0        2242          BAL   RETN,READ        READ HEAD 20 SECTOR 20   CDT22430
1E30  41F0 292A        2243          BAL   RETN,TDATA       AND TEST DATA            CDT22440
1E34  C8D0 0038        2244          LHI   SECT,56          ILLEGAL SECTOR ADDRESS   CDT22450
1E38  4890 3640        2245          LH    WK3,SECADSTA                              CDT22460
1E3C  4090 36E8        2246  STOR1   STH   WK3,ERRFLG                               CDT22470
1E40  C8C0 00B0        2247          LHI   OPKEY,X'B0'      XBX = EXPECT ADS CMP ERR CDT22480
1E44  41F0 2AB8        2248          BAL   RETN,READX       READ,EXPECT ERROR        CDT22490
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1E48  DE30 33B6        OC    DCAD,RESET       RESET DC                         CDT22500
1E4C  07CC             XHR   OPKEY,OPKEY                                       CDT22510
1E4E  9D3A             SSR   DCAD,STAT        EXPECT NO ERROR                  CDT22520
1E50  4240 318C        BTC   4,ERR3                                            CDT22530
1E54  4300 0D72        B     TSTEND                                            CDT22540
                 *                                                             CDT22550
                 * INTERRUPT DATA TEST                                         CDT22560
                 *                                                             CDT22570
                 * TEST 7                                                      CDT22580
                 *                                                             CDT22590
                 *                                                             CDT22600
                 * PURPOSE:                                                    CDT22610
                 *                                                             CDT22620
                 *  THIS TEST FIRST SEEKS, UNDER INTERRUPT                     CDT22630
                 *  CONTROL, TO THE LOW CYLINDER SPECIFIED BY THE              CDT22640
                 *  USER. IT THEN PERFORMS A READ OF 4 BYTES FROM              CDT22650
                 * HEAD 0, SECTOR 0. THE SELECTOR CHANNEL IS                   CDT22660
                 *  EXPECTED TO INTERRUPT FIRST. AFTER THE                     CDT22670
                 *  SELECTOR CHANNEL INTERRUPTS, THE DATA CONTROL              CDT22680
                 *  LER IS EXPECTED TO INTERRUPT STATUS IS CHECK-              CDT22690
                 * ED (LOGITUDINAL PARITY IS IGNORED)                          CDT22700
                 *                                                             CDT22710
                 *                                                             CDT22720
                 * ASSUMPTIONS:                                                CDT22730
                 *                                                             CDT22740
                 * TEST ASSUMES HEAD 0 SECTOR 0 IS PROPERLY                    CDT22750
                 * FORMATTED BUT DOES NOT WRITE DATA TO THE                    CDT22760
                 * DISC                                                        CDT22770
                 *                                                             CDT22780
                 *                                                             CDT22790
                 *                                                             CDT22800
                 * DESIGN SPECIFICATIONS                                       CDT22810
                 *                                                             CDT22820
                 * THE DATA CURRENTLY ON THE                                   CDT22830
                 * DISC, IS NOT DESTROYED. IT IS DESIGNED SOLELY               CDT22840
                 *  TO CHECK DATA TRANSFER INTERRUPT SEQUENCING                CDT22850
                 *  AND IS NOT A TEST OF THE DATA TRANSFER LOGIC.              CDT22860
                 *                                                             CDT22870
                 * HOW TO RUN THE TEST:                                        CDT22880
                 * ENTER TEST 7                                                CDT22890
                 * AND ANY OTHER OPTION INFORMATION DESIRED VIA KEYBOARD:      CDT22900
                 * REFER TO THE PROGRAM DESCRIPTION FOR THE OPTION INPUT COMMAND STRUCT- CDT22910
                 * URE. AFTER THE DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST IS  CDT22920
                 * EXECUTED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION OF ANY     CDT22930
                 * SEEK OPERATION THE CYLINDER NUMBER WILL BE DISPLAYED ON THE PROCESSOR CDT22940
                 * DISPLAY. THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME BY        CDT22950
                 * DEPRESSING THE BREAK KEY.                                   CDT22960
                 *                                                             CDT22970
                 *                                                             CDT22980
                 *                                                             CDT22990
                 * OPTIONS:                                                    CDT23000
                 * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:          CDT23010
                 *     LOCYL                                                   CDT23020
                 * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF THIS DECUMENT     CDT23030
                 * OR APPENDIX THREE OF THE PROGRAM DESCRIPTION                CDT23040
                 *                                                             CDT23050
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                                                                CDT23060
                  *                                             CDT23070
1E58 41F0 28C8    TEST7    BAL   RETN,MODINIT                   CDT23080
1E5C 4880 1650             LH    TRACK,LOTRAK                   CDT23090
1E60 41F0 11B4             BAL   RETN,TSTBRK                    CDT23100
1E64 C870 2832             LHI   WK1,SKINTA                     CDT23110
1E68 4880 1614             LH    WK2,TFILE+6                    CDT23120
1E6C 9181                  SLLS  WK2,1                          CDT23130
1E6E 4078 365C             STH   WK1,DEVINT(WK2)                CDT23140
1E72 41E0 27F2             BAL   RETN2,INTSK     SEEK           CDT23150
1E76 0777                  XHR   WK1,WK1                        CDT23160
1E78 4880 1614             LH    WK2,TFILE+6                    CDT23170
1E7C 9181                  SLLS  WK2,1                          CDT23180
1E7E 4078 365C             STH   WK1,DEVINT(WK2)                CDT23190
1E82 C8C0 0070    INTDT2   LHI   OPKEY,X'70'     X7X=READ DATA XFR  CDT23200
1E86 DA40 33C0             WD    SLAD,IDSA       SA TO SELCH    CDT23210
1E8A DA40 33C1             WD    SLAD,IDSA+1                    CDT23220
1E8E DA40 33C2             WD    SLAD,IDFA       EA TO SELCH    CDT23230
1E92 DA40 33C3             WD    SLAD,IDFA+1                    CDT23240
1E96 41F0 289A             BAL   RETN,SUBFILE                   CDT23250
1E9A 1EB2                  DC    A(CONT15)                      CDT23260
1E9C 1EB2                  DC    A(CONT15)                      CDT23270
1E9E 1EB2                  DC    A(CONT15)                      CDT23280
1EA0 41F0 2796             BAL   RETN,WDFT       WRITE TRACK # TO FILE  CDT23290
1EA4 4870 36F4             LH    WK1,HEAD                       CDT23300
1EA8 917A                  SLHLS WK1,10                         CDT23310
1EAA 067B                  OHR   WK1,TRACK                      CDT23320
1EAC 9A30                  WDR   DCAD,R0                        CDT23330
1EAE 9837                  WHR   DCAD,WK1                       CDT23340
1EB0 2304                  BFFS  0,CONT16                       CDT23350
1EB2 41F0 2914    CONT15   BAL   RETN,WDFT1                     CDT23360
1EB6 9A30                  WDR   DCAD,R0                        CDT23370
1EB8 DE30 33C4    CONT16   OC    DCAD,IDDC       CMD TO CNTRLLR CDT23380
1EBC DE40 33C5             OC    SLAD,IDDC+1     CMD TO SELCH   CDT23390
1EC0 C860 1ED8             LHI   WK0,IDTSW                      CDT23400
1EC4 2478                  LIS   WK1,8                          CDT23410
1EC6 4067 365C    INTDT3   STH   WK0,DEVINT(WK1)                CDT23420
1ECA C860 40F0             LHI   WK0,X'40F0'                    CDT23430
1ECE 9576                  EPSR  WK1,WK0                        CDT23440
1ED0 C870 0030             LHI   WK1,48                         CDT23450
1ED4 4300 1F06             B     ITMLP                          CDT23460
                  * INTERRUPT HANDLERS                          CDT23470
                  *                                             CDT23480
1ED8 C860 1EF2    IDTSW    LHI   WK0,IDTSW2                     CDT23490
1EDC 247A         IDTSW1   LIS   WK1,10                         CDT23500
1EDE 4880 1510             LH    WK2,INTDEV                     CDT23510
1EE2 0584                  CLHR  WK2,SLAD                       CDT23520
1EE4 4230 3180             BNZ   ERR9                           CDT23530
1EE8 9D4A                  SSR   SLAD,STAT                      CDT23540
1EEA 4280 317C             BC    ERRB                           CDT23550
1EEE 4300 1EC6             B     INTDT3                         CDT23560
                  *                                             CDT23570
1EF2 4860 1510    IDTSW2   LH    WK0,INTDEV                     CDT23580
1EF6 0563                  CLHR  WK0,DCAD                       CDT23590
1EF8 4230 317E             BNZ   ERRA                           CDT23600
1EFC 9D3A                  SSR   DCAD,STAT                      CDT23610
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1EFE   4240 318C            BO      ERR3                                    CDT23620
1F02   4300 0D72            B       TSTEND                                  CDT23630
                     *                                                      CDT23640
                     *                                                      CDT23650
                     * INTERRUPT TIMER LOOP                                 CDT23660
                     *                                                      CDT23670
1F06   41E0 2C76     ITMLP  BAL     RETN2,MILSEC       WAIT ONE MILLISECOND CDT23680
1F0A   2202                 BFBS    0,ITMLP                                 CDT23690
                     *                                         *            CDT23700
                     * TEST 8                                               CDT23710
                     *                                                      CDT23720
                     * SPRIAL DATA  TEST                                    CDT23730
                     *                                                      CDT23740
                     * PURPOSE:                                             CDT23750
                     *                                                      CDT23760
                     * DATA PATTERN = 0-FF IN EACH SECTOR                   CDT23770
                     * THIS TEST DESCRIPTION APPLIES TO TESTS 8,9 AND 10,   CDT23780
                     * WHICH DIFFER ONLY IN THE DATA PATTERN USED.          CDT23790
                     *                                                      CDT23800
                     * THIS TEST SEEKS TO THE LOCYLINDER SPECIFIED BY       CDT23810
                     * THE OPERATOR. THE DATA PATTERN IS WRITTEN TO THE     CDT23820
                     * DISC,THEN READ, AND CHECKED FOR ERRORS. DATA TRANSFERS CDT23830
                     * TAKE PLACE AT A VARIABLE NUMBER OF SECTORS AT A TIME CDT23840
                     * UP TO A MAXIMUM OF 5 SECTORS (1200 BYTES). THE NUMBER CDT23850
                     * OF SECTORS IS SELECTED BY THE SECNUM OPTION. INVALID CDT23860
                     * SECNUM OPTIONS ARE DEFAULTED TO 4 SECTOR TRANSFERS.  CDT23870
                     * THE TEST CONTINUES UNTIL THE ENTIRE CYLINDER IS CHECKED CDT23880
                     * THE CYLINDER NUMBER IS INCREMENTED,AND IF THE HIGH   CDT23890
                     * CYLINDER VALUE IS NOT EXCEEDED, THE TEST PROCEEDS AS CDT23900
                     * ABOVE. WHEN THE ENTIRE SPECIFIED AREA HAS BEEN WRITREN, CDT23910
                     * READ AND CHECKED CONTROL PASSES TO THE NEXT TEST     CDT23920
                     *                                                      CDT23930
                     *                                                      CDT23940
                     * DESIGN SPECIFICATIONS:                               CDT23950
                     *                                                      CDT23960
                     * THE SPIRAL DATA PATTERN CONSISTS OF ALL POSSIBLE     CDT23970
                     * DATA BYTES FROM X'00'-X'FF', ARRANGED IN ASCENDING   CDT23980
                     * BINARY ORDER. THE PATTERN IS REPEATED EXACTLY IN     CDT23990
                     * EACH SECTOR. THE SPIRAL DATA PATTERN IS EXCELLENT    CDT24000
                     * FOR SCOPE LOOPS.DEFECTIVE SECTOR ERRORS WILL NOT     CDT24010
                     * ABORT TESTS 8,9 & A; BUT ERROR MESSAGES WILL BE      CDT24020
                     * PRINTED                                              CDT24030
                     *                                                      CDT24040
                     *                                                      CDT24050
                     * HOW TO RUN THE TEST:                                 CDT24060
                     *                                                      CDT24070
                     * ENTER TEST 8 AND ANY OTHER OPTION INFORMATION DESIRED CDT24080
                     * VIA KEYBOARD ENTRY.REFER TO THE PROGRAM DESCRIPTION FOR CDT24090
                     * THE OPTION INPUT COMMAND STRUCTURE. AFTER THE DESIRED CDT24100
                     * OPTION IS ESTABLISHED THE TEST IS EXECUTED BY ENTERING CDT24110
                     * THE RUN COMMAND. THE TEST CAN BE TERMINATED BY THE USER CDT24120
                     * BY DEPRESSING THE BREAK KEY - DISPLAY WILL PROVIDE   CDT24130
                     * CYLINDER,HEAD AND SECTOR INFORMATION AS DOCUMENTED IN CDT24140
                     * TEST 1                                               CDT24150
                     *                                                      CDT24160
                     * OPTIONS:                                             CDT24170
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                                2417  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:                    CDT24180
                                2418  * LOCYL                                                                 CDT24190
                                2419  * HICYL                                                                 CDT24200
                                2420  * SECNUM                                                                CDT24210
                                2421  * FOR A DESCRIPTION OF THE OPTIONS REFER TO                             CDT24220
                                2422  * PAGE 1 OF THIS DOCUMENT OR APPENDIX THREE OF THE                      CDT24230
                                2423  * PROGRAM DESCRIPTION                                                   CDT24240
                                2424  *                                                                       CDT24250
                                2425  *                                                                       CDT24260
1F0C   41F0 28C8                2426  TEST8    BAL    RETN,MODINIT                                            CDT24270
1F10   4010 35EA                2427           STH    R1,DTSTFLG                                              CDT24280
1F14   C880 1F7A                2428           LHI    WK2,SPIRAL                                              CDT24290
1F18   2307                     2429           BFFS   0,WORST0                                                CDT24300
                                2430  *                                                                       CDT24310
                                2431  *                                                                       CDT24320
                                2432  * WORST CASE DATA TEST                                                  CDT24330
                                2433  *                                                                       CDT24340
                                2434  * TEST 9                                                                CDT24350
                                2435  *                                                                       CDT24360
                                2436  * PURPOSE:                                                              CDT24370
                                2437  *                                                                       CDT24380
                                2438  * DATA PATTERN FOR THIS TEST IS X'BD'.                                   CDT24390
                                2439  * OTHERWISE THE TEST DESCRIPTION IS AS TEST 8                            CDT24400
                                2440  *                                                                       CDT24410
                                2441  *  DESIGN SPCIFICATIONS:                                                CDT24420
                                2442  *                                                                       CDT24430
                                2443  * THIS TEST CHECKS DISC FILE LOGIC AND HARDWARE                          CDT24440
                                2444  *                                                                       CDT24450
                                2445  * HOW TO RUN THE TEST:                                                  CDT24460
                                2446  *                                                                       CDT24470
                                2447  * ENTER TEST 9 AND PROCEED AS IN TEST 8                                  CDT24480
                                2448  *                                                                       CDT24490
                                2449  * OPTIONS:                                                              CDT24500
                                2450  *                                                                       CDT24510
                                2451  * REFER TO TEST 8                                                       CDT24520
                                2452  *                                                                       CDT24530
1F1A   41F0 28C8                2453  TEST9    BAL    RETN,MODINIT                                            CDT24540
1F1E   4010 35EA                2454           STH    R1,DTSTFLG                                              CDT24550
1F22   C880 1F86                2455           LHI    WK2,WORCAS                                              CDT24560
1F26   C890 1FB4                2456  WORST0   LHI    WK3,RANDA3                                              CDT24570
1F2A   2309                     2457           BFFS   0,SWRTST                                                CDT24580
                                2458  *                                                                       CDT24590
                                2459  *                                                                       CDT24600
                                2460  * RANDOM DATA TEST                                                     CDT24610
                                2461  *                                                                       CDT24620
                                2462  * TEST A                                                                CDT24630
                                2463  *                                                                       CDT24640
                                2464  * PURPOSE:                                                              CDT24650
                                2465  *                                                                       CDT24660
                                2466  * THE DATA PATTERN FOR THIS TEST IS RANDOM,                              CDT24670
                                2467  * AND DIFFERENT IN EACH SECTOR.OTHERWISE DESCRIPTION                     CDT24680
                                2468  * IS AS IN TEST 8.                                                      CDT24690
                                2469  *                                                                       CDT24700
                                2470  * DESIGN SPECIFICATIONS:                                                CDT24710
                                2471  *                                                                       CDT24720
                                2472  *                                                                       CDT24730
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                                2473  * THE TEST IS DESIGNED FOR FINDING THOSE PROBLEMS                          CDT24740
                                2474  * WHICH DO NOT SHOW UP WITH OTHER DATA PATTERNS                            CDT24750
                                2475  * THIS TEST IS WORST CASE FOR THE DISC CONTROLLER                          CDT24760
                                2476  * DATA SEPERATION NETWORK.IT IS ESSENTIAL TO RUN THIS                      CDT24770
                                2477  * TEST IF SERVICE WAS PERFORMED ON THE NETWORK                             CDT24780
                                2478  *                                                                         CDT24790
                                2479  * HOW TO RUN THE TEST:                                                    CDT24800
                                2480  *                                                                         CDT24810
                                2481  * ENTER TEST A AND FOLLOW RUN INSTRUCTIONS AS IN TEST 8                   CDT24820
                                2482  * OPTIONS:                                                                CDT24830
                                2483  *                                                                         CDT24840
                                2484  * REFER TO TEST 8                                                         CDT24850
                                2485  *                                                  *                      CDT24860
1F2C  41F0 28C8                 2486  TEST10   BAL     RETN,MODINIT                                            CDT24870
1F30  4010 35EA                 2487           STH     R1,DTSTFLG                                              CDT24880
1F34  C880 1F94                 2488           LHI     WK2,SWRSEK                                              CDT24890
1F38  C890 1FA4                 2489           LHI     WK3,RANDA1                                              CDT24900
                                2490  *-----------------------------COMMON PROCESS STARTS HERE                  CDT24910
1F3C  4080 1F78                 2491  SWRTST   STH     WK2,SWRSW1+2       SET SWITCH 1                         CDT24920
1F40  4090 1FA2                 2492           STH     WK3,SWRSW2+2       SND SWITCH 2                         CDT24930
1F44  41F0 2CF8                 2493           BAL     RETN,DLHDS                                              CDT24940
1F48  48B0 1650                 2494           LH      TRACK,LOTRAK       GET LOW TRACK                        CDT24950
1F4C  C890 3678                 2495           LHI     WK3,OPTSIZ                                              CDT24960
1F50  4200 0000                 2496           NOP                                                             CDT24970
1F54  4880 16F8                 2497           LH      WK2,SECNUM+6                                            CDT24980
1F58  9181                      2498           SLLS    WK2,1                                                   CDT24990
1F5A  0A89                      2499           AHR     WK2,WK3                                                 CDT25000
1F5C  4898 0000                 2500           LH      WK3,0(WK2)                                              CDT25010
1F60  4090 36E0                 2501           STH     WK3,SIZE           IS THE SIZE                          CDT25020
1F64  C860 0201                 2502           LHI     WK0,X'201'         NORMAL READ/WRITE                    CDT25030
1F68  4060 36E2                 2503           STH     WK0,WCMD                                                CDT25040
1F6C  C870 1FB4                 2504           LHI     WK1,RANDA3         SET RERUN ADDRESS                    CDT25050
1F70  4070 36DA                 2505           STH     WK1,RERN                                                CDT25060
1F74  0777                      2506           XHR     WK1,WK1                                                 CDT25070
1F76  4300 0000                 2507  SWRSW1   B       0                  THIS IS A SWITCH                     CDT25080
1F7A  0881                      2508  SPIRAL   LHR     WK2,1              FILL BUFFER WITH SPIRAL DATA         CDT25090
1F7C  D277 3B02                 2509  SPIDA0   STB     WK1,WTF(WK1)                                            CDT25100
1F80  C170 1F7C                 2510           BXLE    WK1,SPIDA0                                              CDT25110
1F84  2308                      2511           BFFS    0,SWRSEK                                                CDT25120
1F86  0882                      2512  WORCAS   LHR     WK2,2              FILL BUFFER WITH WORST-CASE DATA     CDT25130
1F88  C860 BDBD                 2513           LHI     WK0,X'BDBD'        WORST-CASE PATTERN                   CDT25140
1F8C  4067 3B02                 2514  WORST1   STH     WK0,WTF(WK1)                                            CDT25150
1F90  C170 1F8C                 2515           BXLE    WK1,WORST1         LOOP UNTIL DONE                      CDT25160
1F94  C8E0 1FE6                 2516  SWRSEK   LHI     RETN2,RCLDON                                            CDT25170
1F98  41F0 3378                 2517           BAL     RETN,ILLADD                                             CDT25180
1F9C  41F0 284A                 2518           BAL     RETN,SKSR          SEEK TRACK                           CDT25190
1FA0  4300 0000                 2519  SWRSW2   B       0                  THIS IS A SWITCH                     CDT25200
1FA4  C890 03FE                 2520  RANDA1   LHI     WK3,X'3FE'                                              CDT25210
1FA8  41F0 2C8C                 2521  RANDA2   BAL     RETN,RAND          GET A RANDOM NUMBER                  CDT25220
1FAC  4069 3B02                 2522           STH     WK0,WTF(WK3)       STORE IN BUFFER                      CDT25230
1FB0  0B92                      2523           SHR     WK3,2              FILL BUFFER WITH RANDOMS             CDT25240
1FB2  2285                      2524           BFBS    8,RANDA2                                                CDT25250
1FB4  41F0 2AC8                 2525  RANDA3   BAL     RETN,WRIT          WRITE                                CDT25260
1FB8  41F0 11B4                 2526           BAL     RETN,TSTBRK                                             CDT25270
1FBC  41F0 2AB0                 2527           BAL     RETN,READ          READ                                 CDT25280
1FC0  41F0 292A                 2528           BAL     RETN,TDATA         TEST DATA                            CDT25290
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1FC4  4AD0 16F8  2529  RCLDONA  AH    SECT,SECNUM+6                          CDT25300
1FC8  26D1       2530           AIS   SECT,1                                 CDT25305
1FCA  45D0 36EC  2531           CLH   SECT,MXSEC1      MAX SECT + 1           CDT25310
1FCE  4280 1FA0  2532           BL    SWRSW2           NOT DONE               CDT25320
1FD2  41F0 2CFE  2533           BAL   RETN,DLHDSA                             CDT25330
1FD6  4870 36F4  2534           LH    WK1,HEAD         FINISHED A TRACK ARE   CDT25340
1FDA  4570 36F2  2535           CLH   WK1,MXHED1                             CDT25350
1FDE  2384       2536           BFFS  8,RCLDON                               CDT25360
1FE0  07DD       2537           XHR   SECT,SECT                              CDT25370
1FE2  4300 1FA0  2538           B     SWRSW2                                 CDT25380
1FE6  26B1       2539  RCLDON   AIS   TRACK,1                               CDT25390
1FE8  45B0 1668  2540           CLH   TRACK,HITRAK                           CDT25400
1FEC  2332       2541           BES   RCLDON1                               CDT25410
1FEE  2385       2542           BFFS  8,TSTENDB                              CDT25420
1FF0  41F0 2CF8  2543  RCLDON1  BAL   RETN,DLHDS                             CDT25430
1FF4  4300 1F94  2544           B     SWRSEK                                 CDT25440
1FF8  0777       2545  TSTENDB  XHR   WK1,WK1                                CDT25450
1FFA  4070 35EA  2546           STH   WK1,DTSTFLG                            CDT25460
1FFE  4300 0D72  2547           B     TSTEND                                 CDT25470
                 2548  *                                                    *CDT25480
                 2549  *                                                     CDT25490
                 2550  *                                                     CDT25500
                 2551  * MANUAL INTERVENTION:                                CDT25510
                 2552  *                                                     CDT25520
                 2553  *                                                     CDT25530
                 2554  * TEST B                                             CDT25540
                 2555  *                                                     CDT25550
                 2556  * PURPOSE:                                           CDT25560
                 2557  *                                                     CDT25570
                 2558  * THIS TEST FIRST REQUESTS THE OPERATOR TO            CDT25580
                 2559  * PRESS THE DISABLE SWITCH (FOR 40 MEGABYTE DRIVES)   CDT25590
                 2560  * OR PUT RUN/LOAD SWITCH IN LOAD (FOR SERIES 30,40 DRIVES) CDT25600
                 2561  * WHEN COMPLETE,THE APPROPRIATE MESSAGE TO REQUEST THE CDT25610
                 2562  * FILE BE PUT ON-LINE IS MADE. WHEN BACK ON-LINE THE OPERATOR CDT25620
                 2563  * IS REQUESTED TO DEPRESS THE WRITE PROTECT SWITCH, WITH THE FILE CDT25630
                 2564  * WRITE PROTECTED. AN ATTEMPT IS MADE TO WRITE ONE SECTOR OF DATA CDT25640
                 2565  * WRITE PROTECT STATUS IS NOT CHECKED BEFORE THE WRITE BUT DATA CDT25650
                 2566  * TRANSFER ERROR IS EXPECTED. THE REQUEST IS MADE TO RETURN THE CDT25660
                 2567  * FILE TO THE UNPROTECTED STATE. WHEN UNPROTECTED, CONTROL PASSES CDT25670
                 2568  * TO THE NEXT TEST.                                  CDT25680
                 2569  *                                                     CDT25690
                 2570  * DESIGN SPECIFICATIONS:                             CDT25700
                 2571  *                                                     CDT25710
                 2572  * THIS TEST CHECKS THE LOGIC ASSOCIATED WITH         CDT25720
                 2573  * GHE MANUAL CONTROLS ON THE DISC. IT IS NOT INCLUDED CDT25730
                 2574  * IN THE DEFAULT SEQUENCE                            CDT25740
                 2575  *                                                     CDT25750
                 2576  *                                                     CDT25760
                 2577  * HOW TO RUN THE TEST:                               CDT25770
                 2578  *                                                     CDT25780
                 2579  * ENTER TEST B AND ANY OTHER OPTION INFORMATION       CDT25790
                 2580  * DESIRED VIA KEYBOARD:REFER TO THE PROGRAM DESCRIPTION CDT25800
                 2581  * FOR THE OPTION INPUT COMMAND STRUCTURE. ENTER THE   CDT25810
                 2582  * RUN COMMAND AND OBSERVE DIRECTIVES ON THE SYSTEM DEVICE CDT25820
                 2583  * FOR 40 MEGABYTE DRIVER USE THE DISABLE SWITCH DIRECTIVE CDT25830
                 2584  * FOR SERIES 30,40 DRIVES USE THE RUN/LOAD SWITCH    CDT25840
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                                2585  * FOR DRIVES THAT DO NOT HAVE A WRITE PROTECT SWITCH MANUALLY                CDT25850
                                2586  * SET LOCATION LABELLED NWPRTFLG FROM THE DISPLAY FOR NORMAL TEST             CDT25860
                                2587  * TERMINATION.                                                               CDT25870
                                2588  *                                                                           CDT25880
                                2589  * OPTIONS:                                                                   CDT25890
                                2590  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST                          CDT25900
                                2591  * LOCYL                                                                      CDT25910
                                2592  *                                                                           CDT25920
                                2593  *                                                                           CDT25930
2002  41F0 28C8                 2594  TEST11   BAL    RETN,MODINIT                                                CDT25940
2006  4050 3670                 2595           STH    R5,TEMPB                                                    CDT25950
200A  C850 3486                 2596           LHI    R5,FILOFF        TURN FILE OFF LINE                         CDT25960
200E  41F0 109C                 2597           BAL    RETN,PRINT                                                  CDT25970
2012  4850 3670                 2598           LH     R5,TEMPB                                                    CDT25980
2016  C8C0 00E0                 2599           LHI    OPKEY,X'E0'      EXPECTING FILE NOT READY                   CDT25990
201A  C870 0FD8                 2600           LHI    WK1,X'0FD8'                                                 CDT26000
201E  9174                      2601           SLLS   WK1,4                                                       CDT26010
2020  41E0 2C76                 2602  MAN1     BAL    RETN2,MILSEC     WAIT A MILLISECOND                         CDT26020
2024  DE50 33B6                 2603           OC     FUT,RESET                                                   CDT26030
2028  DE30 33B6                 2604           OC     DCAD,RESET                                                  CDT26040
202C  41F0 11B4                 2605           BAL    RETN,TSTBRK                                                 CDT26050
2030  9D5A                      2606           SSR    FUT,STAT         DISC UNAVAILABLE                           CDT26060
2032  2219                      2607           BFBS   1,MAN1                                                     CDT26070
2034  087A                      2608           LHR    WK1,STAT                                                    CDT26080
2036  C470 0009                 2609           NHI    WK1,X'09'                                                   CDT26090
203A  C770 0009                 2610           XHI    WK1,X'09'                                                   CDT26100
203E  4230 3190                 2611           BNZ    ERR1A            AND FILE N RSRW                            CDT26110
2042  08C0                      2612           LHR    OPKEY,0          EXPECTING INITIAL STATUS                   CDT26120
2044  C850 34B0                 2613           LHI    R5,FILON                                                    CDT26130
2048  41F0 109C                 2614           BAL    RETN,PRINT                                                  CDT26140
204C  4850 3670                 2615           LH     R5,TEMPB                                                    CDT26150
2050  C870 0FD8                 2616           LHI    WK1,X'0FD8'                                                 CDT26160
2054  9174                      2617           SLLS   WK1,4                                                       CDT26170
2056  41E0 2C76                 2618  MAN2     BAL    RETN2,MILSEC     WAIT A MILLISECOND                         CDT26180
205A  DE50 33B6                 2619           OC     FUT,RESET                                                   CDT26190
205E  DE30 33B6                 2620           OC     DCAD,RESET                                                  CDT26200
2062  41F0 11B4                 2621           BAL    RETN,TSTBRK                                                 CDT26210
2066  9D5A                      2622           SSR    FUT,STAT         FILE STATUS                                CDT26220
2068  2019                      2623           BTBS   1,MAN2                                                     CDT26230
206A  4870 3596                 2624           LH     WK1,NWPRTFLG     ***SET THIS FLAG AT NWPRTFLG****           CDT26240
206E  4230 0072                 2625           BNZ    TSTEND                                                      CDT26250
2072  41F0 289A                 2626           BAL    RETN,SUBFILE                                                CDT26260
2076  2104                      2627           DC     A(MAN4)                                                     CDT26270
2078  2104                      2628           DC     A(MAN4)                                                     CDT26280
207A  2104                      2629           DC     A(MAN4)                                                     CDT26290
207C  C850 34D8                 2630           LHI    R5,MDWPS                                                    CDT26300
2080  41F0 109C                 2631           BAL    RETN,PRINT                                                  CDT26310
2084  4850 3670                 2632           LH     R5,TEMPB                                                    CDT26320
2088  C8C0 00F0                 2633  MAN1A    LHI    OPKEY,X'F0'                                                 CDT26330
208C  C870 0FD8                 2634           LHI    WK1,X'0FD8'                                                 CDT26340
2090  9174                      2635           SLLS   WK1,4                                                       CDT26350
2092  41E0 2C76                 2636  MAN3     BAL    RETN2,MILSEC     WAIT A MILLISECOND                         CDT26360
2096  DE50 33B6                 2637           OC     FUT,RESET                                                   CDT26370
209A  DE30 33B6                 2638           OC     DCAD,RESET                                                  CDT26380
209E  41F0 11B4                 2639           BAL    RETN,TSTBRK                                                 CDT26390
20A2  9D5A                      2640           SSR    FUT,STAT         FILE STATUS                                CDT26400
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20A4  037A            2641          LHR   WK1,STAT          WRITE PROTECT SHOULD BE SET   CDT26410
20A6  9770 8676       2642          XH    WK1,WPSTAT                                      CDT26420
20AA  235C            2643          BTBS  3,MAN3                                          CDT26430
20AC  48B0 1650       2644          LH    TRACK,LOTRAK      GET FIRST TRACK NUMBER        CDT26440
20B0  C890 00FF       2645          LHI   WK3,X'FF'         ONE SECTOR                    CDT26450
20B4  4090 36E0       2646          STH   WK3,SIZE          IS THE SIZE                   CDT26460
20B8  C860 0201       2647          LHI   WK0,X'201'        NORMAL READ/WRITE             CDT26470
20BC  4060 36E2       2648          STH   WK0,WCMD          COMMANDS                      CDT26480
20C0  41F0 284A       2649          BAL   RETN,SKSR         SEEK LOW TRACK                CDT26490
20C4  C8C0 00D0       2650          LHI   OPKEY,X'D0'       XDX=EXP CYC-CHK/WPV ERR       CDT26500
20C8  4010 36E8       2651          STH   1,ERRFLG          SET EXPECTED ERR              CDT26510
20CC  41F0 2ADA       2652          BAL   RETN,WRITX        WRITE, EXPECT WPV ERR         CDT26520
20D0  C8C0 0070       2653          LHI   OPKEY,X'70'                                     CDT26530
20D4  41F0 2AB0       2654          BAL   RETN,READ                                       CDT26540
20D8  C888 34D8       2655          LHI   R8,MDWPS                                        CDT26550
20DC  41F0 109C       2656          BAL   RETN,PRINT                                      CDT26560
20E0  4850 3670       2657          LH    R5,TEMPB                                        CDT26570
20E4  08C0            2658          LHR   OPKEY,0                                         CDT26580
20E6  C870 0FD8       2659          LHI   WK1,X'0FD8'                                     CDT26590
20EA  9174            2660          SLLS  WK1,4                                           CDT26600
20EC  41E0 2C76       2661  MN4     BAL   RETN2,MILSEC                                    CDT26610
20F0  DE50 33B6       2662          OC    FUT,RESET                                       CDT26620
20F4  DE30 33B6       2663          OC    DCAD,RESET                                      CDT26630
20F8  41F0 11B4       2664          BAL   RETN,TSTBRK                                     CDT26640
20FC  9D5A            2665          SSR   FUT,STAT                                       CDT26650
20FE  2049            2666          BTBS  4,MN4                                           CDT26660
2100  4300 0D72       2667          B     TSTEND                                          CDT26670
2104  48B0 1650       2668  MAN4    LH    TRACK,LOTRAK                                    CDT26680
2108  C890 00FF       2669          LHI   WK3,X'FF'                                       CDT26690
210C  4090 36E0       2670          STH   WK3,SIZE                                        CDT26700
2110  C860 0201       2671          LHI   WK0,X'201'                                      CDT26710
2114  4060 36E2       2672          STH   WK0,WCMD                                        CDT26720
2118  41F0 284A       2673          BAL   RETN,SKSR                                       CDT26730
211C  C8C0 00D0       2674          LHI   OPKEY,X'D0'                                     CDT26740
2120  2465            2675          LIS   WK0,3                                           CDT26750
2122  4060 36E8       2676          STH   WK0,ERRFLG                                      CDT26760
2126  41F0 2ADA       2677          BAL   RETN,WRITX                                      CDT26770
212A  C850 34D8       2678          LHI   R5,MDWPS                                        CDT26780
212E  41F0 109C       2679          BAL   RETN,PRINT                                      CDT26790
2132  4850 3670       2680          LH    R5,TEMPB                                        CDT26800
2136  24C0            2681  MAN4A   LIS   OPKEY,0                                        CDT26810
2138  C870 0FD8       2682          LHI   WK1,X'0FD8'                                     CDT26820
213C  9174            2683          SLLS  WK1,4                                           CDT26830
213E  41E0 2C76       2684  MN5     BAL   RETN2,MILSEC                                    CDT26840
2142  DE50 33B6       2685          OC    FUT,RESET                                       CDT26850
2146  DE30 33B6       2686          OC    DCAD,RESET                                      CDT26860
214A  41F0 11B4       2687          BAL   RETN,TSTBRK                                     CDT26870
214E  9D5A            2688          SSR   FUT,STAT                                       CDT26880
2150  088A            2689          LHR   WK2,STAT                                        CDT26890
2152  C480 0080       2690          NHI   WK2,X'80'                                       CDT26900
2156  203C            2691          BTBS  3,MN5                                           CDT26910
2158  4300 0D72       2692          B     TSTEND                                          CDT26920
                      2693  *                                                           CDT26930
                      2694  *                                                           CDT26940
                      2695  * MULTI-DISC TEST                                          CDT26950
                      2696  *                                                           CDT26960
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                                2697  *                                                                    CDT26970
                                2698  * TEST C                                                             CDT26980
                                2699  *                                                                    CDT26990
                                2700  *                                                                    CDT27000
                                2701  * PURPOSE:                                                           CDT27010
                                2702  *                                                                    CDT27020
                                2703  * THIS TEST SIMULATES ACTUAL MULTI-DISC OPERATIONS USING TWO         CDT27030
                                2704  * DISC FILES.THE STATUS OF EACH FILE IS CHECKED AND BOTH ARE        CDT27040
                                2705  * RESTORED.A SEEK TO THE HIGHEST CYLINDER IS PERFORMED ON ONE       CDT27050
                                2706  * FILE.WHEN CONTROLLER IDLE=1. A SEEK TO CYLINDER 1 IS INITIATED    CDT27060
                                2707  * ON THE MAIN DISC FILE WHICH SHOULD INTERRUPT FIRST. DURING THE    CDT27070
                                2708  * TIME THE FIRST INTERRUPT IS BEING SERVICED. THE SECOND FILE       CDT27080
                                2709  * INTERRUPT IS EXPEDTED TO QUEUE. THIS PROCEDURE CHECKS OVER-       CDT27090
                                2710  * LAPPING SEEK AND INTERRUPT PRIORITY QUEING LOGIC.BOTH FILES       CDT27100
                                2711  * THEN SEEK TO THE CYLINDER SPECIFIED BY LOCYL AND DATA TRANSFERS   CDT27110
                                2712  * ARE EXECUTED WITH RANDOM DATA.THIS TEST CAN ALSO BE EXECUTED ON   CDT27120
                                2713  * 1 10 MEGABYTE DISC FILE                                           CDT27130
                                2714  *                                                                    CDT27140
                                2715  * DESIGN SPECIFICATIONS:                                            CDT27150
                                2716  *                                                                    CDT27160
                                2717  * IF A LOOP OPTION IS EMPLOYED ON THIS TEST,IT PROVIDES              CDT27170
                                2718  * THE USER WITH AN ACTUAL SIMULATED MULTI-DISC OPERATION             CDT27180
                                2719  * AND THEREFORE, THIS TEST IS NOT INCLUDED IN THE DEFAULT            CDT27190
                                2720  * SEQUENCE.                                                         CDT27200
                                2721  *                                                                    CDT27210
                                2722  *                                                                    CDT27220
                                2723  * HOW TO RUN THE TEST:                                              CDT27230
                                2724  *                                                                    CDT27240
                                2725  * ENTER TEST C AND ANY OTHER OPTION INFORMATION DESIRED              CDT27250
                                2726  * VIA KEYBOARD,TO CHECK DATA TRANSFERS BETWEEN THE FIXED             CDT27260
                                2727  * AND REMOVABLE PLATTERS OF A 10 MEGABYTE DRIVE ENTER               CDT27270
                                2728  * A FILE OPTION=1 AND AN XFILE OPTION=0                             CDT27280
                                2729  *                                                                    CDT27290
                                2730  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST                 CDT27300
                                2731  * LOCYL                                                             CDT27310
                                2732  * XFILE                                                             CDT27320
                                2733  * FILE                                                              CDT27330
                                2734  *                                                                    CDT27340
                                2735  *                                                                    CDT27350
215C  41F0 28C8                 2736  TEST12   BAL    RETN,MODINIT                                        CDT27360
2160  4860 1674                 2737           LH     WK0,FILE+6          GET THE DRIVE UNDER TEST       CDT27370
2164  C560 0001                 2738           CLHI   WK0,1               IS IT SERIES 40 FIXED          CDT27380
2168  2332                      2739           BFFS   3,TEST12A                                           CDT27390
216A  2308                      2740           BFFS   0,TEST12B                                           CDT27400
216C  4860 1680                 2741  TEST12A  LH     WK0,XFILE+6         IF XFILE 0 DO 40 MB DATA TRANSFER CDT27410
2170  2138                      2742           BTFS   3,TEST12B                                           CDT27420
2172  4860 3646                 2743           LH     WK0,FILE1           GET MAIN DISC ADDRESS          CDT27430
2176  2661                      2744           AIS    WK0,1                                              CDT27440
2178  4060 363A                 2745           STH    WK0,SECFILAD        STORE IT IN SECOND FILE ADDRESS CDT27450
217C  4300 2234                 2746           B      MODATA3             GO DIRECTLY TO DATA TRANSFERS  CDT27460
2180  4860 1680                 2747  TEST12B  LH     WK0,XFILE+6                                        CDT27470
2184  9161                      2748           SLLS   WK0,1                                              CDT27480
2186  C870 3646                 2749           LHI    WK1,FILE1                                          CDT27490
218A  0A67                      2750           AHR    WK0,WK1             GET THE SECONDARY FILE ADDRESS CDT27500
218C  4876 0000                 2751           LH     WK1,0(WK0)                                         CDT27510
2190  4070 363A                 2752           STH    WK1,SECFILAD                                       CDT27520
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2194  4850 363A                     LH    FUT,SECFILAD       LOAD TARGET REGISTER WITH SECFIL     CDT27530
2198  41F0 2948                     BAL   RETN,RSTSR         RESTORE SECONDARY FILE               CDT27540
219C  4850 3646         TEST12BC    LH    FUT,FILE1                                               CDT27550
21A0  41F0 2948                     BAL   RETN,RSTSR         RESTORE PRIMARY FILE =FILE1          CDT27560
21A4  C8C0 0010         TEST12BD    LHI   OPKEY,X'10'                                             CDT27570
21A8  48B0 36D6                     LH    TRACK,MAXCY        SEEK MAXCYLINDER ON SECONDARY FILE   CDT27580
21AC  4850 363A                     LH    FUT,SECFILAD                                            CDT27590
21B0  41F0 289A                     BAL   RETN,SUBFILE                                            CDT27600
21B4  21C0                          DC    A(CONT21)                                               CDT27610
21B6  21C0                          DC    A(CONT21)                                               CDT27620
21B8  21C0                          DC    A(CONT21)                                               CDT27630
21BA  41F0 2778                     BAL   RETN,WDFTSK                                             CDT27640
21BE  2303                          BS    CONT22                                                  CDT27650
21C0  41F0 2914         CONT21      BAL   RETN,WDFT1                                              CDT27660
21C4  DE50 33B9         CONT22      OC    FUT,ISKCMD         SEEK TO SECONDARY FILE MAXCY         CDT27670
21C8  C8C0 0020                     LHI   OPKEY,X'20'        ZXZ SEEK AFTER COMMAND               CDT27680
21CC  9D3A              MULD1       SSR   DCAD,STAT          WAIT FOR CONTROLLER IDLE             CDT27690
21CE  2221                          BFBS  2,MULD1                                                 CDT27700
21D0  08B1                          LHR   TRACK,R1           GET CYL=1                            CDT27710
21D2  4850 3646                     LH    FUT,FILE1          FILE1 ADDRESS AND SEEK               CDT27720
21D6  41F0 289A                     BAL   RETN,SUBFILE                                            CDT27730
21DA  21E6                          DC    A(CONT23)                                               CDT27740
21DC  21E6                          DC    A(CONT23)                                               CDT27750
21DE  21E6                          DC    A(CONT23)                                               CDT27760
21E0  41F0 2778                     BAL   RETN,WDFTSK                                             CDT27770
21E4  2303                          BS    CONT24                                                  CDT27780
21E6  41F0 2914         CONT23      BAL   RETN,WDFT1                                              CDT27790
21EA  DE50 33B9         CONT24      OC    FUT,ISKCMD                                              CDT27800
21EE  9D3A              SNSD        SSR   DCAD,STAT                                               CDT27810
21F0  2221                          BFBS  2,SNSD                                                  CDT27820
21F2  C870 21FE                     LHI   WK1,MDINT1         SET FOR TAKING INTERRUPT #1          CDT27830
21F6  4070 365C                     STH   WK1,DEVINT         FROM PRIMARY FILE                    CDT27840
21FA  4300 2824                     B     INTSK2             WAIT FOR INTERRUPT                   CDT27850
                        * SEEK INTERRUPT HANDLER FOR PRIMARY FILE INTERRUPT                       CDT27860
21FE  D360 1514         MDINT1      LB    WK0,INTSTA                                              CDT27870
2202  C460 005B                     NHI   WK0,X'5B'          BRANCH IF IN ERROR                   CDT27880
2206  4230 2842                     BNZ   ERR1AA                                                  CDT27890
220A  C860 00B4                     LHI   WK0,180            STAY UNINTERRUPTABLE FOR PERIOD      CDT27900
220E  41E0 2C76         MDINT1A     BAL   RETN2,MILSEC                                            CDT27910
2212  0897                          LHR   WK3,WK1                                                 CDT27920
2214  2233                          BFBS  3,MDINT1A                                               CDT27930
2216  C890 2228                     LHI   WK3,MDINT2         SETUP TO TAKE SECONDARY FILE INTERRT CDT27940
221A  4880 1680                     LH    WK2,XFILE+6                                             CDT27950
221E  9181                          SLLS  WK2,1                                                   CDT27960
2220  4098 365C                     STH   WK3,DEVINT(WK2)                                         CDT27970
2224  4300 2824                     B     INTSK2                                                  CDT27980
                        * SEEK INTERRUPT HANDLER FOR SECONDARY FILE INTERRUPT                     CDT27990
2228  D360 1514         MDINT2      LB    WK0,INTSTA                                              CDT28000
222C  C460 005B                     NHI   WK0,X'5B'                                               CDT28010
2230  4230 2842                     BNZ   ERR1AA                                                  CDT28020
                        * MULTIDISC DATA TRANSFERS START HERE                                     CDT28030
2234  C870 0100         MDDATA3     LHI   WK1,X'100'         ***MODIFY FOR LONGER DELAY******     CDT28040
2238  4070 3638                     STH   WK1,MDSCNT                                              CDT28050
223C  C870 0201                     LHI   WK1,X'201'                                              CDT28060
2240  4070 36E2                     STH   WK1,WCMD                                                CDT28070
2244  4850 3646         MDDATA      LH    FUT,FILE1          GET FILE1 ADDRESS                    CDT28080
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2248  4190 25F2             BAL   WK3,TSECT       GET DESIRED HEAD AND SECOTR          CDT28090
224C  4850 363A             LH    FUT,SECFILAD    AND SEEK FILE 1 TO LOTRACK           CDT28100
2250  40D0 36F6             STH   SECT,TMPSEC                                          CDT28110
2254  41F0 284A             BAL   RETN,SKSR       SEEK SECFILE TO LOWTRACK             CDT28120
2258  48D0 36F6             LH    SECT,TMPSEC                                          CDT28130
225C  C890 04FE             LHI   WK3,X'4FE'      START AT THE TOP OF THE WRITE        CDT28140
2260  41F0 2C8C   RANDA2A   BAL   RETN,RAND       BUFFER AND FILL WITH RANDOM DATA     CDT28150
2264  4069 3B02             STH   WK0,WTF(WK3)                                         CDT28160
2268  0B92                  SHR   WK3,2                                                CDT28170
226A  2285                  BFBS  8,RANDA2A                                            CDT28180
226C  C890 00FF             LHI   WK3,255         SET SIZE TO 256                      CDT28190
2270  4880 16BC             LH    WK2,BUFSIZ+6    GET BUFFER SIZE OPTION               CDT28200
2274  2333                  BFFS  3,NMS2A                                              CDT28210
2276  C890 01FF             LHI   WK3,511         OPTION=1 2 SECTORS                   CDT28220
227A  4090 36E0   NMS2A     STH   WK3,SIZE                                             CDT28230
227E  41F0 2AC8             BAL   RETN,WRIT       WRITE RANDOM DATA                    CDT28240
2282  41F0 11B4             BAL   RETN,TSTBRK                                          CDT28250
2286  41F0 2AB0             BAL   RETN,READ       READ                                 CDT28260
228A  41F0 292A             BAL   RETN,TDATA                                           CDT28270
228E  4850 3646             LH    FUT,FILE1                                            CDT28280
2292  41F0 2AC8             BAL   RETN,WRIT                                            CDT28290
2296  41F0 11B4             BAL   RETN,TSTBRK                                          CDT28300
229A  41F0 2AB0             BAL   RETN,READ                                            CDT28310
229E  41F0 292A             BAL   RETN,TDATA                                           CDT28320
22A2  4890 3638             LH    WK3,MDSCNT                                           CDT28330
22A6  0B91                  SHR   WK3,R1                                               CDT28340
22A8  4330 0D72             BZ    TSTEND                                               CDT28350
22AC  4090 3638             STH   WK3,MDSCNT                                           CDT28360
22B0  4300 2244             B     MDDATA                                               CDT28370
                  *                                                                    CDT28380
                  *                                                                    CDT28390
                  *                                                                    CDT28400
                  *                                                                    CDT28410
                  * NORMAL MODE SCOPE LOOP                                             CDT28420
                  *                                                                    CDT28430
                  * TEST D                                                             CDT28440
                  *                                                                    CDT28450
                  *                                                                    CDT28460
                  * PURPOSE:                                                           CDT28470
                  *                                                                    CDT28480
                  * THIS SUBTEST WILL READ AND WRITE IN THE                            CDT28490
                  * NORMAL MODE.ITS PARTICULAR MODE WILL DEPEND                        CDT28500
                  * ON THE SCOPE AND BUFSIZ OPTIONS. THE SECTOR                        CDT28510
                  * OR SECTORS INVOLVED WILL DEPEND ON THE LOCYL                       CDT28520
                  * AND SECTOR OPTIONS                                                 CDT28530
                  *                                                                    CDT28540
                  * ASSUMPTIONS:                                                       CDT28550
                  * NONE                                                               CDT28560
                  *                                                                    CDT28570
                  *                                                                    CDT28580
                  * HOW TO RUN THE TEST:                                               CDT28590
                  * ENTER TEST D                                                       CDT28600
                  * AND ANY OTHER OPTION INFORMATION DESIRED VIA KEYBOARD:             CDT28610
                  * REFER TO THE PROGRAM DESCRIPTION FOR THE OPTION INPUT COMMAND STRUCT- CDT28620
                  * URE. AFTER THE DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST IS CDT28630
                  * EXECUTED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION OF ANY  CDT28640
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                                2865  * SEEK OPERATION THE CYLINDER NUMBER WILL BE DISPLAYED ON THE PROCESSOR   CDT28650
                                2866  * DISPLAY. THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME BY          CDT28660
                                2867  * DEPRESSING THE BREAK KEY.                                              CDT28670
                                2868  *                                                                        CDT28680
                                2869  *                                                                        CDT28690
                                2870  * OPTIONS:                                                               CDT28700
                                2871  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:                     CDT28710
                                2872  * SCOPE                                                                  CDT28720
                                2873  * BUFSIZ                                                                 CDT28730
                                2874  * LOCYL                                                                  CDT28740
                                2875  * SECTOR                                                                 CDT28750
                                2876  * DATA                                                                   CDT28760
                                2877  * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF THIS DOCUMENT      CDT28770
                                2878  * OR APPENDIX THREE OF THE PROGRAM DWSCRIPTION                           CDT28780
22B4  41F0 28C8                 2879  TEST13  BAL   RETN,MODINIT                                             CDT28790
22B8  4130 25F2                 2880          BAL   WK3,TSECT          GET TRACK AND SECTOR                  CDT28800
22BC  C860 0201                 2881          LHI   WK0,X'201'         NORMAL MODE COMMANDS                  CDT28810
22C0  4060 36E2                 2882          STH   WK0,WCMD                                                 CDT28820
22C4  0777                      2883          XHR   WK1,WK1                                                  CDT28830
22C6  C890 00FF                 2884          LHI   WK3,255            SET SIZE TO 256                       CDT28840
22CA  4880 16BC                 2885          LH    WK2,BUFSIZ+6       CHECK SIZE OPTION                     CDT28850
22CE  2333                      2886          BFFS  3,NMS2                                                   CDT28860
22D0  C890 01FF                 2887          LHI   WK3,511            OPTION = 1                            CDT28870
22D4  4090 36E0                 2888  NMS2    STH   WK3,SIZE           STORE THE # OF BYTES                  CDT28880
22D8  0861                      2889          LHR   WK2,1              FILL DATA FIELD                       CDT28890
22DA  4860 168C                 2890          LH    WK0,DATA+6                                               CDT28900
22DE  D267 3B02                 2891  NMS1    STB   WK0,WTF(WK1)                                             CDT28910
22E2  C170 22DE                 2892          BXLE  WK1,NMS1           LOOP UNTIL DONE                       CDT28920
                                2893  *                                                                      CDT28930
                                2894  *-----------------------------ACTUAL SCOPE LOOP STARTS HERE            CDT28940
22E6  C860 22F6                 2895  SCOP    LHI   WK0,SCOP2                                                CDT28950
22EA  4060 36DA                 2896          STH   WK0,RERN                                                 CDT28960
22EE  C860 05DC                 2897          LHI   WK0,1500                                                 CDT28970
22F2  4060 36F8                 2898          STH   WK0,SCOUNT                                               CDT28980
22F6  4000 36D2                 2899  SCOP2   STH   0,RRCTR                                                  CDT28990
22FA  41F0 1184                 2900          BAL   RETN,TSTBRK                                              CDT29000
22FE  4860 16A4                 2901          LH    WK0,SCOPE+6                                              CDT29010
2302  0866                      2902          LHR   WK0,WK0                                                  CDT29020
2304  4330 232A                 2903          BZ    SCOP3                                                    CDT29030
2308  C560 0001                 2904          CLHI  WK0,1                                                    CDT29040
230C  4330 232E                 2905          BE    SCOP4                                                    CDT29050
2310  C560 0002                 2906          CLHI  WK0,2                                                    CDT29060
2314  2338                      2907          BFFS  3,SCOP6                                                  CDT29070
2316  41F0 2AC8                 2908          BAL   RETN,WRIT                                                CDT29080
231A  41F0 2AB0                 2909          BAL   RETN,READ                                                CDT29090
231E  41F0 292A                 2910          BAL   RETN,TDATA                                               CDT29100
2322  2308                      2911          BFFS  0,SCOP5                                                  CDT29110
2324  41F0 2AC8                 2912  SCOP6   BAL   RETN,WRIT                                                CDT29120
2328  2305                      2913          BFFS  0,SCOP5                                                  CDT29130
232A  41F0 2AC8                 2914  SCOP3   BAL   RETN,WRIT          WRITE                                 CDT29140
232E  41F0 2AB0                 2915  SCOP4   BAL   RETN,READ          READ                                  CDT29150
2332  4890 36F8                 2916  SCOP5   LH    WK3,SCOUNT                                               CDT29160
2336  0B91                      2917          SHR   WK3,1                                                    CDT29170
2338  4330 0D72                 2918          BZ    TSTEND                                                   CDT29180
233C  4090 36F8                 2919          STH   WK3,SCOUNT                                               CDT29190
2340  4300 22F6                 2920          B     SCOP2                                                    CDT29200
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                   *
                   * FORMAT MODE SCOPE LOOP
                   *
                   * TEST E
                   *
                   *
                   * PURPOSE:
                   *
                   * THIS TEST PERFORMS EXACTLY AS TEST D EXCEPT THAT
                   * DATA TRANSFERS ARE DONE IN THE FORMAT MODE. THE HEADER
                   * IS WRITTEN PROPERLY,WITHOUT THE DEF TRK OR 40 MEGABYTE
                   * WRITE PROTECT BITS.
                   * NORMAL PARITY IS ALSO SET
                   *
                   * ASSUMPTIONS
                   *
                   * CONTROLLER FORMAT SWITCH MUST BE IN FORMAT POSITION
                   *
                   * DESIGN SPECIFICATIONS:
                   *
                   * SCOPE LOOP MODES ARE CONTROLLED BY THE SCOPE OPTION
                   * SCOPE N
                   * WHERE N=0-3 FOR A COMPLETE DESCRIPTION SEE PAGE1 OF
                   * THIS DOCUMENT OR APPENDIX 3 OF THE PROGRAM DESCRIPTION
                   *
                   * HOW TO RUN THE TEST:
                   *
                   * ENTER TEST E
                   * AND ANY OTHER OPTION INFORMATION DESIRED VIA KEYBOARD:
                   * REFER TO THE PROGRAM DESCRIPTION FOR THE OPTION INPUT COMMAND STRUCT-
                   * URE. AFTER THE DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST IS
                   * EXECUTED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION OF ANY
                   * SEEK OPERATION THE CYLINDER NUMBER WILL BE DISPLAYED ON THE PROCESSOR
                   * DISPLAY. THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME BY
                   * DEPRESSING THE BREAK KEY.
                   * OPTIONS:
                   * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:
                   * SCOPE
                   * SECTOR
                   * BUFSIZ
                   * DATA
                   * LOCYL
                   * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF THIS DOCUMENT
                   * OR APPENDIX THREE OF THE PROGRAM DWSCRIPTION
                   *
2344  41F0 28C8    TEST14   BAL    RETN,MODINIT
2348  4190 25F2             BAL    WK3,TSECT
234C  41F0 289A             BAL    RETN,SUBFILE
2350  237A                  DC     A(CONT19)
2352  237A                  DC     A(CONT19)
2354  237A                  DC     A(CONT19)
2356  D2D0 3B02             STB    SECT,WTF
235A  4870 36F4             LH     WK1,HEAD           SET UP HEADER
235E  917A                  SLHLS  WK1,10
2360  067B                  OHR    WK1,TRACK          BUFFER
2362  9078                  SRHLS  WK1,8
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2364   D270 3B03                 STB   WK1,WTF+1                                 CDT29770
2368   D280 3B04                 STB   TRACK,WTF+2                               CDT29780
                        *                                                        CDT29790
236C   C870 0605                 LHI   WK1,X'605'      FORMAT MODE COMMANDS      CDT29800
2370   4860 168C                 LH    WK0,DATA+6      GET DATA PATTERN          CDT29810
2374   41F0 26F2                 BAL   RETN,FMSUDF     SETUP DATA FIELD          CDT29820
2378   230E                      BFFS  0,CONT20                                  CDT29830
237A   C870 0605        CONT19   LHI   WK1,X'605'                                CDT29840
237E   4860 168C                 LH    WK0,DATA+6                                CDT29850
2382   41F0 273C                 BAL   RETN,FMSUDFA                              CDT29860
2386   4870 36F4                 LH    WK1,HEAD                                  CDT29870
238A   9175                      SLLS  WK1,5                                     CDT29880
238C   088D                      LHR   WK2,SECT                                  CDT29890
238E   0687                      OHR   WK2,WK1                                   CDT29900
2390   D280 3BC2                 STB   WK2,WTF                                   CDT29910
2394   4880 16BC        CONT20   LH    WK2,BUFSIZ+6                              CDT29920
2398   4330 22E6                 BZ    SCOP            1 - OK RETURN             CDT29930
239C   4880 363E                 LH    WK2,FMTSEC                                CDT29940
23A0   2333                      BFFS  3,DSEC1                                   CDT29950
23A2   41F0 2990                 BAL   RETN,SECFMT1                              CDT29960
23A6   41F0 29DA        DSEC1    BAL   RETN,SECFMT2                              CDT29970
                        *                                                        CDT29980
                        * DEFECTIVE TRACK SCOPE LOOP                             CDT29990
                        *                                                        CDT30000
                        * TEST F                                                 CDT30010
                        *                                                        CDT30020
                        * PURPOSE:                                               CDT30030
                        *                                                        CDT30040
                        * THIS TEST WRITES IN THE FORMAT MODE AND SETS THE       CDT30050
                        * DEFECTIVE TRACK BIT IN THE HEADER. IF SCOPE=0 A        CDT30060
                        * NORMAL READ WILL THEN BE ATTEMPTED; DEFECTIVE TRACK STATUS CDT30070
                        * EXPECTED. IN THIS TEST BUFSIZ IS NOT USED, AND SCOPE= 1 WILL CDT30080
                        * RESULT IN AN ILLEGAL OPTION.                           CDT30090
                        * HOW TO RUN THE TEST:                                   CDT30100
                        *                                                        CDT30110
                        * ENTER TEST F                                           CDT30120
                        * AND ANY OTHER OPTION INFORMATION DESIRED VIA KEYBOARD: CDT30130
                        * REFER TO THE PROGRAM DESCRIPTION FOR THE OPTION INPUT COMMAND STRUCT- CDT30140
                        * URE. AFTER THE DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST IS CDT30150
                        * EXECUTED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION OF ANY CDT30160
                        * SEEK OPERATION THE CYLINDER NUMBER WILL BE DISPLAYED ON THE PROCESSOR CDT30170
                        * DISPLAY. THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME BY CDT30180
                        * DEPRESSING THE BREAK KEY.                              CDT30190
                        * OPTIONS:                                               CDT30200
                        * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:     CDT30210
                        * LOCYL                                                  CDT30220
                        * DATA                                                   CDT30230
                        * SECTOR                                                 CDT30240
                        * SCOPE                                                  CDT30250
                        * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF THIS DOCUMENT CDT30260
                        * OR APPENDIX THREE OF THE PROGRAM DWSCRIPTION           CDT30270
23AA   41F0 28C8        TEST15   BAL   RETN,MODINIT                              CDT30280
23AE   4870 16A4                 LH    WK1,SCOPE+6                               CDT30290
23B2   C570 0001                 CLHI  WK1,1                                     CDT30300
23B6   4330 1860                 BE    ERROR13                                   CDT30310
23BA   C570 0003                 CLHI  WK1,3                                     CDT30320
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23BE   4330 1860             BE     ERROR13                                      CDT30330
23C2   4870 363E             LH     WK1,FMTSEC                                   CDT30340
23C6   2336                  BFFS   3,TEST15B                                    CDT30350
23C8   C870 0026             LHI    WK1,X'26'                                    CDT30360
23CC   4070 3700             STH    WK1,RXERFL                                   CDT30370
23D0   2305                  BS     TEST15A                                      CDT30380
23D2   C870 0066   TEST15B   LHI    WK1,X'66'                                    CDT30390
23D6   4070 3700             STH    WK1,RXERFL                                   CDT30400
23DA   4860 168C   TEST15A   LH     WK0,DATA+6                                   CDT30410
23DE   C870 0601             LHI    WK1,X'601'          FORMAT WRITE / NORMAL READ  CDT30420
23E2   4890 363E             LH     WK3,FMTSEC                                   CDT30430
23E6   4330 2416             BZ     FMX3                                         CDT30440
23EA   41F0 26F2             BAL    RETN,FMSUDF                                  CDT30450
23EE   4000 3C30             STH    0,WTF+302           SET NORMAL PARITY        CDT30460
23F2   4190 25F2             BAL    WK3,TSECT                                    CDT30470
23F6   C870 0080             LHI    WK1,X'80'           SET THE DT BIT           CDT30480
23FA   067D        FMX2L     OHR    WK1,SECT                                     CDT30490
23FC   D270 3802   FMX2LX    STB    WK1,WTF                                      CDT30500
2400   4870 36F4             LH     WK1,HEAD                                     CDT30510
2404   917A        FMX3L     SLHLS  WK1,10                                       CDT30520
2406   067B                  OHR    WK1,TRACK                                    CDT30530
2408   9078                  SRHLS  WK1,8                                        CDT30540
240A   D270 3803             STB    WK1,WTF+1                                    CDT30550
240E   D280 3804             STB    TRACK,WTF+2                                  CDT30560
                   *                                                             CDT30570
2412   4300 2534             B      SCOPX                                        CDT30580
2416   41F0 273C   FMX3      BAL    RETN,FMSUDFA                                 CDT30590
241A   4190 25F2             BAL    WK3,TSECT                                    CDT30600
241E   C870 0040             LHI    WK1,X'40'                                    CDT30610
2422   067D        FMX2LA    OHR    WK1,SECT                                     CDT30620
2424   4880 36F4             LH     WK2,HEAD                                     CDT30630
2428   9185                  SLLS   WK2,5                                        CDT30640
242A   0687                  OHR    WK2,WK1                                      CDT30650
242C   D280 3802             STB    WK2,WTF                                      CDT30660
2430   4300 2534             B      SCOPX                                        CDT30670
                   *                                                             CDT30680
                   *                                                             CDT30690
                   * PARITY ERROR SCOPE LOOP                                     CDT30700
                   *                                                             CDT30710
                   * TEST 10                                                     CDT30720
                   *                                                             CDT30730
                   * PURPOSE:                                                    CDT30740
                   *    THIS  SUBTEST WILL WRITE IN THE FORMAT MODE  *           CDT30750
                   *  AND SET A NORMAL HEADER AND BAD PARITY.  IF    *           CDT30760
                   *  SCOPE  = 0 A NORMAL READ WILL BE PERFORMED,    *           CDT30770
                   *  AN A PARITY ERROR WILL BE EXPECTED.            *           CDT30780
                   *    IN THIS TEST BUFSIZ IS NOT USED, AND SCOPE = *           CDT30790
                   *  1 OR 3 WILL RESULT IN AN ILLEGAL OPTION        *           CDT30800
                   *                                                             CDT30810
                   * ASSUMPTIONS:                                                CDT30820
                   * THE DATA OPTION USED IN THIS TEST MUST BE NON-ZERO          CDT30830
                   * IN ORDER TO SYNTHESIZE THE PARITY ERROR EXPECTED STATUS     CDT30840
                   *                                                             CDT30850
                   *                                                             CDT30860
                   * HOW TO RUN THE TEST:                                        CDT30870
                   * ENTER TEST 10                                               CDT30880
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                                3089  * AND ANY OTHER OPTION INFORMATION DESIRED VIA KEYBOARD:                          CDT30890
                                3090  * REFER TO THE PROGRAM DESCRIPTION FOR THE OPTION INPUT COMMAND STRUCT-          CDT30900
                                3091  * URE. AFTER THE DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST IS           CDT30910
                                3092  * EXECUTED BY ENTERING THE RUN COMMAND. AFTER THE COMPLETION OF ANY             CDT30920
                                3093  * SEEK OPERATION THE CYLINDER NUMBER WILL BE DISPLAYED ON THE PROCESSOR         CDT30930
                                3094  * DISPLAY. THE TEST CAN BE TERMINATED BY THE USER AT ANY TIME BY               CDT30940
                                3095  * DEPRESSING THE BREAK KEY.                                                    CDT30950
                                3096  *                                                                             CDT30960
                                3097  *                                                                             CDT30970
                                3098  * OPTIONS:                                                                     CDT30980
                                3099  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:                          CDT30990
                                3100  * SCOPE                                                                       CDT31000
                                3101  * SECTOR                                                                      CDT31010
                                3102  * DATA                                                                        CDT31020
                                3103  * LOCYL                                                                       CDT31030
                                3104  * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1 OF THIS DOCUMENT           CDT31040
                                3105  * OR APPENDIX THREE OF THE PROGRAM DWSCRIPTION                                CDT31050
2434  41F0 28C8                 3106  TEST16   BAL     RETN,MODINIT                                                 CDT31060
2438  2473                      3107           LIS     WK1,3                                                        CDT31070
243A  4070 3700                 3108           STH     WK1,RXERFL                                                   CDT31080
243E  4860 168C                 3109           LH      WK0,DATA+6                                                   CDT31090
2442  C870 0601                 3110           LHI     WK1,X'601'                                                   CDT31100
2446  4890 363E                 3111           LH      WK3,FMTSEC                                                   CDT31110
244A  2338                      3112           BZS     TEST16A                                                      CDT31120
244C  41F0 26F2                 3113           BAL     RETN,FMSUDF                                                  CDT31130
2450  4190 25F2                 3114           BAL     WK3,TSECT                                                    CDT31140
2454  0870                      3115           LHR     WK1,SECT                                                     CDT31150
2456  4300 23FC                 3116           B       FMX2LX                                                       CDT31160
245A  41F0 273C                 3117  TEST16A  BAL     RETN,FMSUDFA                                                 CDT31170
245E  4190 25F2                 3118           BAL     WK3,TSECT                                                    CDT31180
2462  4870 168C                 3119           LH      WK1,DATA+6                                                   CDT31190
2466  4070 3C0E                 3120           STH     WK1,WTF+268                                                  CDT31200
246A  4870 36F4                 3121           LH      WK1,HEAD                                                     CDT31210
246E  9175                      3122           SLLS    WK1,5                                                        CDT31220
2470  088D                      3123           LHR     WK2,SECT                                                     CDT31230
2472  0687                      3124           OHR     WK2,WK1                                                      CDT31240
2474  D280 3B02                 3125           STB     WK2,WTF                                                      CDT31250
2478  4300 2534                 3126           B       SCOPX                                                        CDT31260
                                3127  *                                                                            CDT31270
                                3128  *                                                                            CDT31280
                                3129  *                                                 *                          CDT31290
                                3130  * TEST 11                                                                     CDT31300
                                3131  *                                                 *                          CDT31310
                                3132  * BAD ADDRESS SCOPE LOOP                          *                          CDT31320
                                3133  *                                                 *                          CDT31330
                                3134  * PURPOSE                                                                     CDT31340
                                3135  *    THIS SUBTEST WILL WRITE IN THE FORMAT MODE   *                          CDT31350
                                3136  *  AND SET A BAD SECTOR NUMBER IN THE HEADER, IF  *                          CDT31360
                                3137  *  SCOPE = 0 A NORMAL READ WILL BE PERFORMED, AND *                          CDT31370
                                3138  *  HEADER COMPARE ERROR WILL BE EXPECTED.         *                          CDT31380
                                3139  *    IN THIS TEST BUFSIZ IS NOT USED, AND SCOPE = *                          CDT31390
                                3140  *  1 OR 3 WILL RESULT IN AN ILLEGAL OPTION.       *                          CDT31400
                                3141  *                                                 *                          CDT31410
                                3142  * ALL OTHER INFORMATION AS PER TEST A                                          CDT31420
247C  41F0 28C8                 3143  TEST17   BAL     RETN,MODINIT                                                 CDT31430
2480  4870 16A4                 3144           LH      WK1,SCOPE+6                                                  CDT31440
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2484   C570 0001        3145          CLHI  WK1,1                                         CDT31450
2488   4330 1860        3146          BE    ERROR13                                       CDT31460
248C   C570 0003        3147          CLHI  WK1,3                                         CDT31470
2490   4330 1860        3148          BE    ERROR13                                       CDT31480
2494   C870 0046        3149          LHI   WK1,X'46'                                     CDT31490
2498   4070 3700        3150          STH   WK1,RXERFL                                    CDT31500
249C   4860 168C        3151          LH    WK0,DATA+6                                    CDT31510
24A0   C870 0601        3152          LHI   WK1,X'601'                                    CDT31520
24A4   4890 363E        3153          LH    WK3,FMTSEC                                    CDT31530
24A8   233B             3154          BZS   TEST17A                                       CDT31540
24AA   41F0 26F2        3155          BAL   RETN,FMSUDF                                   CDT31550
24AE   4000 3C30        3156          STH   0,WTF+302                                     CDT31560
24B2   4190 25F2        3157          BAL   WK3,TSECT                                     CDT31570
24B6   C870 003F        3158          LHI   WK1,X'3F'                                     CDT31580
24BA   4300 23FC        3159          B     FMX2LX                                        CDT31590
24BE   41F0 273C        3160 TEST17A  BAL   RETN,FMSUDFA                                  CDT31600
24C2   4190 25F2        3161          BAL   WK3,TSECT                                     CDT31610
24C6   C870 001F        3162          LHI   WK1,X'1F'                                     CDT31620
24CA   D270 3B02        3163          STB   WK1,WTF                                       CDT31630
24CE   4300 2534        3164          B     SCOPX                                         CDT31640
                        3165 *                                                            CDT31650
                        3166 *                                                            CDT31660
                        3167 *                                                  *         CDT31670
                        3168 * TEST 12                                                    CDT31680
                        3169 *                                                  *         CDT31690
                        3170 * FAULTY HEAD SCOPE LOOP                           *         CDT31700
                        3171 *                                                  *         CDT31710
                        3172 * PURPOSE                                                    CDT31720
                        3173 *    THIS SUBTEST WILL WRITE IN THE FORMAT MODE    *         CDT31730
                        3174 *  SCOPE = 0, A NORMAL READ WILL BE EXECUTED AND   *         CDT31740
                        3175 *  HEADER COMPARE ERROR WILL BE EXPECTED.          *         CDT31750
                        3176 *    IN THIS TEST BUFSIZ IS NOT USED, AND SCOPE =  *         CDT31760
                        3177 *  1 OR 3 WILL RESULT IN AN ILLEGAL OPTION.        *         CDT31770
                        3178 *                                                  *         CDT31780
                        3179 * ALL OTHER INFORMATION AS PER TEST A                        CDT31790
24D2   41F0 28C8        3180 TEST18   BAL   RETN,MODINIT                                  CDT31800
24D6   4870 16A4        3181          LH    WK1,SCOPE+6                                   CDT31810
24DA   C570 0001        3182          CLHI  WK1,1                                         CDT31820
24DE   4330 1860        3183          BE    ERROR13                                       CDT31830
24E2   C570 0003        3184          CLHI  WK1,3                                         CDT31840
24E6   4330 1860        3185          BE    ERROR13                                       CDT31850
24EA   C870 0046        3186          LHI   WK1,X'46'                                     CDT31860
24EE   4070 3700        3187          STH   WK1,RXERFL                                    CDT31870
24F2   4860 168C        3188          LH    WK0,DATA+6                                    CDT31880
24F6   C870 0601        3189          LHI   WK1,X'601'                                    CDT31890
24FA   4890 363E        3190          LH    WK3,FMTSEC                                    CDT31900
24FE   233D             3191          BZS   TEST18A                                       CDT31910
2500   41F0 26F2        3192          BAL   RETN,FMSUDF                                   CDT31920
2504   4000 3C30        3193          STH   0,WTF+302                                     CDT31930
2508   4190 25F2        3194          BAL   WK3,TSECT                                     CDT31940
250C   D2D0 3B02        3195          STB   SECT,WTF                                      CDT31950
2510   C870 003F        3196          LHI   WK1,X'3F'                                     CDT31960
2514   4300 2404        3197          B     FMX3L                                         CDT31970
2518   41F0 273C        3198 TEST18A  BAL   RETN,FMSUDFA                                  CDT31980
251C   4190 25F2        3199          BAL   WK3,TSECT                                     CDT31990
2520   4870 36F4        3200          LH    WK1,HEAD                                      CDT32000
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2524  0771                    XHR    WK1,X'01'                             CDT32010
2526  9175                    SLLS   WK1,5                                 CDT32020
2528  088D                    LHR    WK2,SECT                              CDT32030
252A  0687                    OHR    WK2,WK1                               CDT32040
252C  D280 3B02               STB    WK2,WTF                               CDT32050
2530  D2B0 3B04               STB    TRACK,WTF+2                           CDT32060
                *                                                          CDT32070
                *                                                          CDT32080
2534  C860 2544 SCOPX         LHI    WK0,SCOP2X                            CDT32090
2538  4060 36DA               STH    WK0,RERN                              CDT32100
253C  C860 05DC               LHI    WK0,1500                              CDT32110
2540  4060 36F8               STH    WK0,SCOUNT                            CDT32120
2544  4000 36D2 SCOP2X        STH    0,RRCTR                               CDT32130
2548  41F0 11B4               BAL    RETN,TSTBRK                           CDT32140
254C  4860 16A4               LH     WK0,SCOPE+6                           CDT32150
2550  2335                    BFFS   3,SCOP3X                              CDT32160
                *                                                          CDT32170
2552  41F0 2AC8               BAL    RETN,WRIT                             CDT32180
2556  4300 258A               B      SCOP5X                                CDT32190
                *                                                          CDT32200
255A  4860 363E SCOP3X        LH     WK0,FMTSEC                            CDT32210
255E  2334                    BFFS   3,SCOP3XA                             CDT32220
2560  C860 0131               LHI    WK0,305                               CDT32230
2564  2303                    BS     SCOP3XAA                              CDT32240
2566  C860 010D SCOP3XA       LHI    WK0,269                               CDT32250
256A  4060 36E0 SCOP3XAA      STH    WK0,SIZE                              CDT32260
256E  41F0 2AC8               BAL    RETN,WRIT                             CDT32270
                *                                                          CDT32280
2572  C860 00FF               LHI    WK0,255                               CDT32290
2576  4060 36E0               STH    WK0,SIZE                              CDT32300
257A  4870 3700               LH     WK1,RXERFL                            CDT32310
257E  4070 36E8               STH    WK1,ERRFLG                            CDT32320
2582  C8C0 0070               LHI    OPKEY,X'70'                           CDT32330
2586  41F0 2AB8               BAL    RETN,READX                            CDT32340
                *                                                          CDT32350
258A  4890 36F8 SCOP5X        LH     WK3,SCOUNT                            CDT32360
258E  0B91                    SHR    WK3,1                                 CDT32370
2590  4330 0D72               BZ     TSTEND                                CDT32380
2594  4090 36F8               STH    WK3,SCOUNT                            CDT32390
2598  4300 2544               B      SCOP2X                                CDT32400
                *                                                          CDT32410
                *                                                   *      CDT32420
                * TEST 13                                                  CDT32430
                *                                                   *      CDT32440
                * READ-CHECK SCOPE LOOP                             *      CDT32450
                *                                                   *      CDT32460
                * PURPOSE                                                  CDT32470
                *     THIS SUBTEST DOES NOT USE THE SCOPE OR BUFSIZ*       CDT32480
                *  OPTIONS, AND SIMPLY READ CHECKS THE SECTOR       *      CDT32490
                *  INDICATED BY LOCYL AND SECTOR OPTIONS.           *      CDT32500
                *                                                   *      CDT32510
                * ALL OTHER INFORMATION AS PER TEST A                      CDT32520
259C  41F0 28C8 TEST19        BAL    RETN,MODINIT                          CDT32530
25A0  48B0 1650               LH     TRACK,LOTRAK                          CDT32540
25A4  4860 1698               LH     WK0,SECTOR+6                          CDT32550
25A8  9306                    LBR    SECT,WK0        STRIP OUT SECTOR #    CDT32560
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25AA 9068          3257          SRHLS  WK0,8                                    CDT32570
25AC 4060 36F4     3258          STH    WK0,HEAD                                 CDT32580
25B0 40D0 36F6     3259          STH    SECT,TMPSEC                              CDT32590
25B4 41F0 284A     3260          BAL    RETN,SKSR          SEEK                  CDT32600
25B8 48D0 36F6     3261          LH     SECT,TMPSEC                              CDT32610
25BC C870 25D8     3262          LHI    WK1,RCSC01                               CDT32620
25C0 4070 36D0     3263          STH    WK1,CKARET                               CDT32630
25C4 C890 05DC     3264          LHI    WK3,1500                                 CDT32640
25C8 4090 36F8     3265          STH    WK3,SCOUNT                               CDT32650
25CC C870 25D8     3266          LHI    WK1,RCSC01                               CDT32660
25D0 4070 36DA     3267          STH    WK1,RERN                                 CDT32670
25D4 4300 2A2C     3268          B      CKADSE             BRANCH TO CHECK ADDRESS CDT32680
                   3269  *                                SUBROUTINE            CDT32690
25D8 4000 36D2     3270  RCSC01  STH    0,RRCTR                                  CDT32700
25DC 41F0 11B4     3271          BAL    RETN,TSTBRK                              CDT32710
25E0 4870 36F8     3272          LH     WK1,SCOUNT                               CDT32720
25E4 0B71          3273          SHR    WK1,1                                    CDT32730
25E6 4330 0D72     3274          BZ     TSTEND                                   CDT32740
25EA 4070 36F8     3275          STH    WK1,SCOUNT                               CDT32750
25EE 4300 2A2C     3276          B      CKADSE                                   CDT32760
                   3277  *                                                       CDT32770
                   3278  *                                                       CDT32780
                   3279  *-----------------------------COMMON SETUP ROUTINE      CDT32790
25F2 4090 366E     3280  TSECT   STH    WK3,TEMPA                                CDT32800
25F6 48B0 1650     3281          LH     TRACK,LOTRAK                             CDT32810
25FA 4860 1698     3282          LH     WK0,SECTOR+6                             CDT32820
25FE 0886          3283          LHR    WK2,WK0                                  CDT32830
2600 93D6          3284          LBR    SECT,WK0           CYL #                 CDT32840
2602 9068          3285          SRHLS  WK0,8                                    CDT32850
2604 4060 36F4     3286          STH    WK0,HEAD                                 CDT32860
2608 4870 168C     3287          LH     WK1,BUFSIZ+6                             CDT32870
260C 2335          3288          BFFS   3,TSCSK                                  CDT32880
260E 4580 3642     3289          CLH    WK2,TWOSEC                               CDT32890
2612 4330 1850     3290          BE     ERROR5                                   CDT32900
2616 40D0 36F6     3291  TSCSK   STH    SECT,TMPSEC        SAVE SECTOR #         CDT32910
261A 41F0 284A     3292          BAL    RETN,SKSR          SEEK                  CDT32920
261E 48D0 36F6     3293          LH     SECT,TMPSEC        RESTORE THE SECTOR #  CDT32930
2622 4890 366E     3294          LH     WK3,TEMPA                                CDT32940
2626 0309          3295          BR     WK3                                      CDT32950
                   3296  *                                          *            CDT32960
                   3297  *                                                       CDT32970
                   3298  *                                                       CDT32980
                   3299  * SEEK SCOPE LOOP                                       CDT32990
                   3300  *                                                       CDT33000
                   3301  *                                                       CDT33010
                   3302  * TEST 14                                               CDT33020
                   3303  *                                                       CDT33030
                   3304  *                                                       CDT33040
                   3305  * PURPOSE:                                              CDT33050
                   3306  *                                                       CDT33060
                   3307  * THIS TEST HAS TWO MODES OF OPERATION,DEPENDING ON THE CDT33070
                   3308  * VALUE OF THE SEEK OPTION                              CDT33080
                   3309  * SEEK VALUE        OPERATION                           CDT33090
                   3310  *    0          A SEEK TO THE LOW CYLINDER              CDT33100
                   3311  *               SPECIFIED BY THE USER,IS PERFORMED,     CDT33110
                   3312  *               FOLLOWED BY A RESTORE TO CYLINDER ZERO  CDT33120
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                   *    1        A SEEK TO THE LOCYLINDER SPECIFIED BY          CDT33130
                   *             THE USER, IS PERFORMED, FOLLOWED BY A          CDT33140
                   *             SEEK TO THE HICYLINDER SPECIFIED               CDT33150
                   *                                                            CDT33160
                   *                                                            CDT33170
                   *                                                            CDT33180
                   * DESIGN SPECIFICATIONS:                                     CDT33190
                   *                                                            CDT33200
                   * AFTER EACH SEEK THE ADDRESS IS CHECKED,AND                 CDT33210
                   * NORMAL ERROR CHECKING IS PERFORMED.                        CDT33220
                   * DEFECTIVE TRACK SET CAUSES                                 CDT33230
                   * AN ADIVSORY MESSAGE TO BE PRINTED.                         CDT33240
                   *                                                            CDT33250
                   *                                                            CDT33260
                   * HOW TO RUN TEST:                                           CDT33270
                   *                                                            CDT33280
                   * ENTER TEST 14 AND OTHER OPTIONS DESIRED AS IN              CDT33290
                   * PREVIOUS TESTS.EXECUTE THE TEST WITH THE RUN               CDT33300
                   * COMMAND                                                    CDT33310
                   *                                                            CDT33320
                   *                                                            CDT33330
                   * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST:         CDT33340
                   * SEEK                                                       CDT33350
                   * BYCKAD                                                     CDT33360
                   * LOCYL                                                      CDT33370
                   * HICYL                                                      CDT33380
                   *                                                            CDT33390
                   *                                                            CDT33400
                   *                                                            CDT33410
2628  41F0 28C8    TEST20  BAL   RETN,MODINIT                                   CDT33420
262C  4000 36F4            STH   0,HEAD                                         CDT33430
2630  C890 050C            LHI   WK3,1500       SET FOR 1500 ITERATIONS         CDT33440
2634  4090 363C            STH   WK3,SKCOUNT                                    CDT33450
2638  4870 16C8            LH    WK1,SEEK+6                                     CDT33460
263C  2135                 BTFS  3,SKSC2                                        CDT33470
263E  C890 01F4            LHI   WK3,500                                        CDT33480
2642  4090 363C            STH   WK3,SKCOUNT                                    CDT33490
2646  48B0 1650    SKSC2   LH    TRACK,LOTRAK                                   CDT33500
264A  41F0 11B4            BAL   RETN,TSTBRK                                    CDT33510
264E  41F0 284A            BAL   RETN,SKSR                                      CDT33520
2652  41F0 2A14            BAL   RETN,CKADSR                                    CDT33530
2656  4870 16C8            LH    WK1,SEEK+6                                     CDT33540
265A  4330 267C            BZ    SKSC1          SEEK = 0, DO A RESTORE          CDT33550
265E  48B0 1668            LH    TRACK,HITRAK   SEEK = 1, DO A SEEK             CDT33560
2662  41F0 284A            BAL   RETN,SKSR      TO THE HITRAK OPTION            CDT33570
2666  41F0 2A14    SKSC3   BAL   RETN,CKADSR                                    CDT33580
266A  4890 363C            LH    WK3,SKCOUNT                                    CDT33590
266E  0891                 SHR   WK3,1                                          CDT33600
2670  4330 0D72            BZ    TSTEND                                         CDT33610
2674  4090 363C            STH   WK3,SKCOUNT                                    CDT33620
2678  4300 2646            B     SKSC2                                          CDT33630
267C  41F0 2948    SKSC1   BAL   RETN,RSTSR                                     CDT33640
2680  2200                 BFBS  0,SKSC3                                        CDT33650
                   *                                   *                        CDT33660
                   *                                                            CDT33670
                   *                                                            CDT33680
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                                3369  * READ ONLY TEST                                                                  CDT33690
                                3370  *                                                                                 CDT33700
                                3371  * TEST 15                                                                         CDT33710
                                3372  *                                                                                 CDT33720
                                3373  * PURPOSE:                                                                        CDT33730
                                3374  *                                                                                 CDT33740
                                3375  * THIS TEST FIRST SEEKS TO THE LOCYLINDER SPECIFIED                               CDT33750
                                3376  * BY THE USER. IT THEN READS THE CYLINDER SECTOR BY                               CDT33760
                                3377  * BY THE USER. IT THEN READS THE CYLINDER SECTOR BY                               CDT33770
                                3378  * SECTOR, TRACK BY TRACK UNTIL ALL THE CYLINDERS BETWEEN                         CDT33780
                                3379  * THE LOW AND HIGH VALUES SPECIFIED HAVE BEEN READ                               CDT33790
                                3380  *                                                                                 CDT33800
                                3381  * DESIGN SPECIFICATIONS:                                                         CDT33810
                                3382  *                                                                                 CDT33820
                                3383  * THIS TEST PERFORMS ONLY SEEK AND READ OPERATIONS                                CDT33830
                                3384  * WITH NORMAL ERROR CHECKING.IT DOES NOT ALTER THE                               CDT33840
                                3385  * DATA ON THE DISC                                                               CDT33850
                                3386  *                                                                                 CDT33860
                                3387  *                                                                                 CDT33870
                                3388  * HOW TO RUN THE TEST:                                                           CDT33880
                                3389  *                                                                                 CDT33890
                                3390  * ENTER TEST 15 AND FOLLOW INSTRUCTIONS AS IN                                    CDT33900
                                3391  * DATA TESTS 8,9,A                                                               CDT33910
                                3392  *                                                                                 CDT33920
                                3393  * THE FOLLOWING OPTIONS ARE APPLICABLE                                           CDT33930
                                3394  * TO THIS TEST                                                                   CDT33940
                                3395  *  LOCYL                                                                         CDT33950
                                3396  *  HICYL                                                                         CDT33960
                                3397  *                                                                                 CDT33970
 2682   41F0 28C8               3398  TEST21    BAL     RETN,MODINIT                                                    CDT33980
 2686   48B0 1650               3399            LH      TRACK,LOTRAK                                                    CDT33990
 268A   C890 00FF               3400            LHI     WK3,X'FF'                                                       CDT34000
 268E   4090 36E0               3401            STH     WK3,SIZE                                                        CDT34010
 2692   C860 0201               3402            LHI     WK0,X'201'                                                      CDT34020
 2696   4060 36E2               3403            STH     WK0,WCMD                                                        CDT34030
 269A   C870 26BA               3404            LHI     WK1,RDNEXT      SET RETURN ADDRESS                              CDT34040
 269E   4070 36DA               3405            STH     WK1,RERN                                                        CDT34050
 26A2   4000 36F4               3406  RDSEEK    STH     0,HEAD                                                          CDT34060
 26A6   C8E0 26DA               3407            LHI     RETN2,RDX                                                       CDT34070
 26AA   41F0 3378               3408            BAL     RETN,ILLADD                                                     CDT34080
 26AE   41F0 284A               3409            BAL     RETN,SKSR       SEEK TRACK                                      CDT34090
 26B2   41F0 2AB0               3410  RDSAME    BAL     RETN,READ                                                       CDT34100
 26B6   41F0 11B4               3411            BAL     RETN,TSTBRK                                                     CDT34110
 26BA   4000 36D2               3412  RDNEXT    STH     0,RRCTR                                                         CDT34120
 26BE   0AD1                    3413            AHR     SECT,1          INC. THE LOCATION                               CDT34130
 26C0   45D0 36EC               3414            CLH     SECT,MXSEC1     SHILL OK?                                       CDT34140
 26C4   2089                    3415            BTBS    8,RDSAME                                                        CDT34150
 26C6   4870 36F4               3416            LH      WK1,HEAD        NO, GET HEAD #                                  CDT34160
 26CA   0A71                    3417            AHR     WK1,1           INC. THE HEAD                                   CDT34170
 26CC   4070 36F4               3418            STH     WK1,HEAD                                                        CDT34180
 26D0   07DD                    3419            XHR     SECT,SECT                                                       CDT34190
 26D2   4570 36F2               3420            CLH     WK1,MXHED1      STILL OK ?                                      CDT34200
 26D6   4280 26B2               3421            BL      RDSAME                                                          CDT34210
                                3422  *                                                                                 CDT34220
 26DA   26B1                    3423  RDX       AIS     TRACK,1                                                         CDT34230
 26DC   45B0 1668               3424            CLH     TRACK,HITRAK                                                    CDT34240
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26E0  4330 26A2              BE     RDSEEK                                  CDT34250
26E4  2383                   BFFS   8,TSTENDA                               CDT34260
26E6  4300 26A2              B      RDSEEK                                  CDT34270
26EA  4000 36F4    TSTENDA   STH    R0,HEAD                                 CDT34280
26EE  4300 0D72              B      TSTEND                                  CDT34290
                   *                                                        CDT34300
                   *         FORMAT MODE DATA FIELD SETUP                   CDT34310
                   *                                                        CDT34320
                   *         BAL   RETN,FMSUDF                              CDT34330
                   *         WITH DATA BYTE IN WK0                          CDT34340
                   *         AND COMMAND BYTES IN WK1                       CDT34350
                   *                                                        CDT34360
26F2  4070 36E2    FMSUDF    STH    WK1,WCMD                                CDT34370
26F6  C890 0131              LHI    WK3,305                                 CDT34380
26FA  4090 36E0              STH    WK3,SIZE                                CDT34390
26FE  D370 33BA              LB     WK1,GAP1                                CDT34400
2702  07EE                   XHR    14,14                                   CDT34410
2704  D27E 3B05    FMSU1     STB    WK1,WTF+3(14)                           CDT34420
2708  C5E0 0014              CLHI   14,20                                   CDT34430
270C  2333                   BFFS   3,FMSU2                                 CDT34440
270E  0AE1                   AHR    14,1                                    CDT34450
2710  2206                   BFBS   0,FMSU1                                 CDT34460
2712  D370 33BB    FMSU2     LB     WK1,GAP2                                CDT34470
2716  07EE                   XHR    14,14                                   CDT34480
2718  D27E 3B1A    FMSU3     STB    WK1,WTF+24(14)                          CDT34490
271C  C5E0 0014              CLHI   14,20                                   CDT34500
2720  2333                   BFFS   3,FMSU4                                 CDT34510
2722  0AE1                   AHR    14,1                                    CDT34520
2724  2206                   BFBS   0,FMSU3                                 CDT34530
2726  2473         FMSU4     LIS    WK1,3                                   CDT34540
2728  D270 3B2F              STB    WK1,WTF+45                              CDT34550
272C  C870 002E              LHI    WK1,46                                  CDT34560
2730  2481                   LIS    WK2,1                                   CDT34570
2732  D267 3B02    FMSU5     STB    WK0,WTF(WK1)                            CDT34580
2736  C170 2732              BXLE   WK1,FMSU5                               CDT34590
273A  030F                   BR     RETN                                    CDT34600
                   *                                                        CDT34610
                   *                                                        CDT34620
                   *                                                        CDT34630
                   *FORMAT MODE DATA FIELD SETUP FOR SERIES 30,40           CDT34640
                   *                                                        CDT34650
                   *BAL RETN,FMSUDF1                                        CDT34660
                   *WITH DATA BYTE IN WK0                                   CDT34670
                   *AND COMMAND BYTES IN WK1                                CDT34680
                   *HEAD/SECTOR IN SECT                                     CDT34690
                   *AND CYLINDER NUMBER IN TRACK                            CDT34700
273C  4070 36E2    FMSUDFA   STH    WK1,WCMD       SET READ/WRITE COMMANDS  CDT34710
2740  C890 010D              LHI    WK3,269        SET SIZE OF BLOCK        CDT34720
2744  4090 36E0              STH    WK3,SIZE       TO 270 BYTES             CDT34730
2748  4000 3B04              STH    R0,WTF+2       SETUP HEADER PORTION OF BUFFER CDT34740
274C  4000 3B06              STH    R0,WTF+4                                CDT34750
2750  4000 3B08              STH    R0,WTF+6                                CDT34760
2754  4000 3B0A              STH    R0,WTF+8                                CDT34770
2758  2473                   LIS    WK1,3                                   CDT34780
275A  4070 3B0C              STH    WK1,WTF+10     TO HEADER                CDT34790
275E  247C                   LIS    WK1,12                                  CDT34800
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2760  0881                     LHR   WK2,1                                            CDT34810
2762  0267 3B02       FMSU1B   STB   WK0,WTF(WK1)                                     CDT34820
2766  C170 2762                BXLE  WK1,FMSU1B                                       CDT34830
276A  4000 3C0E                STH   0,WTF+268         SET CYCLIC CHECK FOR NORMAL MODE  CDT34840
276E  D2B0 3B03                STB   TRACK,WTF+1                                      CDT34850
2772  D2D0 3B02                STB   SECT,WTF                                         CDT34860
2776  030F                     BR    RETN                                             CDT34870
                      *        WRITE CYLINDER NUMBER TO FILE SUBROUTINE               CDT34880
                      *                                                               CDT34890
                      *        BAL  RETN,WDFT                                         CDT34900
                      *                                                               CDT34910
                      *        ACCOMODATES HI OR LO DENSITY FILE                      CDT34920
                      *                                                               CDT34930
2778  087F            WDFTSK   LHR   WK1,RETN                                         CDT34940
277A  C8E0 1838                LHI   RETN2,ERROR2                                     CDT34950
277E  41F0 3378                BAL   RETN,ILLADD       TO BE SURE A CE DISC IS NOT DAM.  CDT34960
2782  08F7                     LHR   RETN,WK1          RESTORE RETURN ADDRESS         CDT34970
2784  985B                     WHR   FUT,TRACK                                        CDT34980
2786  DE50 33B0                OC    FUT,CYLCMD                                       CDT34990
278A  C870 06D6                LHI   WK1,1750                                         CDT35000
278E  41E0 2C76       WDFTRZ   BAL   RETN2,MILSEC                                     CDT35010
2792  9D3A                     SSR   DCAD,STAT                                        CDT35020
2794  2223                     BFBS  2,WDFTRZ                                         CDT35030
2796  DE50 33B3       WDFT     OC    FUT,RSTATT                                       CDT35040
279A  C870 06D6                LHI   WK1,1750                                         CDT35050
279E  41E0 2C76       WDFTRX   BAL   RETN2,MILSEC                                     CDT35060
27A2  9D3A                     SSR   DCAD,STAT                                        CDT35070
27A4  2223                     BFBS  2,WDFTRX                                         CDT35080
27A6  DE50 33B2                OC    FUT,RSTHED                                       CDT35090
27AA  C870 06D6                LHI   WK1,1750                                         CDT35100
27AE  41E0 2C76       WDFTRW   BAL   RETN2,MILSEC                                     CDT35110
27B2  9D3A                     SSR   DCAD,STAT                                        CDT35120
27B4  2223                     BFBS  2,WDFTRW                                         CDT35130
27B6  D850 36F4                WH    FUT,HEAD                                         CDT35140
27BA  DE50 33B1                OC    FUT,HEDCMD                                       CDT35150
27BE  C870 06D6                LHI   WK1,1750                                         CDT35160
27C2  41E0 2C76       WDFTRY   BAL   RETN2,MILSEC                                     CDT35170
27C6  9D3A                     SSR   DCAD,STAT                                        CDT35180
27C8  2223                     BFBS  2,WDFTRY                                         CDT35190
27CA  030F                     BR    RETN                                             CDT35200
                      *                                                               CDT35210
                      ***************************************************************  CDT35220
                      *                                                               CDT35230
                      * FILE READY TO SEEK/READ/WRITE SUBROUTINE                      CDT35240
                      *                                                               CDT35250
                      * BAL RETN,FRSSR                                                CDT35260
                      * RETURN WHEN RSRW                                              CDT35270
                      *                                                               CDT35280
27CC  C870 06D6       FRSSR    LHI   WK1,1750          1.75 SECOND TIMEOUT            CDT35290
27D0  41E0 2C76       FSTM     BAL   RETN2,MILSEC      WAIT A MILLISECOND             CDT35300
27D4  9D4A                     SSR   SLAD,STAT         SELCH STATUS                   CDT35310
27D6  2083                     BTBS  8,FSTM                                           CDT35320
27D8  DE40 33BC                OC    SLAD,STOP                                        CDT35330
27DC  9D3A                     SSR   DCAD,STAT         DC STATUS                      CDT35340
27DE  2227                     BFBS  2,FSTM                                           CDT35350
27E0  9D5A                     SSR   FUT,STAT          FILE STATUS                    CDT35360
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27E2  086A          3537          LHR   WK0,STAT          CHECK ERROR                          CDT35370
27E4  C460 0043     3538          NHI   WK0,X'43'         BUT NOT F.A.I.L. OR ILL. ADS         CDT35380
27E8  4230 3190     3539          BNZ   ERR1A                                                  CDT35390
27EC  9D5A          3540          SSR   FUT,STAT                                              CDT35400
27EE  208F          3541          BTBS  8,FSTM                                                 CDT35410
27F0  030F          3542          BR    RETN              RETURN                               CDT35420
                    3543  * INTERRUPT SEEK SUBROUTINE                                          CDT35430
                    3544  *       BAL   RETN2,INTSK                                          CDT35440
                    3545  * NORMAL RETURN                                                     CDT35450
                    3546  *       ENTERED WITH DESIRED CYL ADS IN REG "TRACK"                 CDT35460
                    3547  *                                                                  CDT35470
27F2  C8C0 0010     3548  INTSK   LHI   OPKEY,X'10'       X1X=SEEK, BEFORE CMD                 CDT35480
27F6  4000 36F4     3549          STH   0,HEAD                                                 CDT35490
27FA  07DD          3550          XHR   SECT,SECT         SET SECTOR # FOR PRINTOUT            CDT35500
27FC  40E0 36DC     3551          STH   RETN2,INTSKR      SAVE RETURN ADDRESS                  CDT35510
2800  41F0 27CC     3552          BAL   RETN,FRSSR        FILE RSRW TEST                       CDT35520
2804  41F0 289A     3553          BAL   RETN,SUBFILE                                           CDT35530
2808  2814          3554          DC    A(CONT7)                                               CDT35540
280A  2814          3555          DC    A(CONT7)                                               CDT35550
280C  2814          3556          DC    A(CONT7)                                               CDT35560
280E  41F0 2778     3557          BAL   RETN,WDFTSK                                          CDT35570
2812  2303          3558          BFFS  0,CONT8                                              CDT35580
2814  41F0 2914     3559  CONT7   BAL   RETN,WDFT1                                          CDT35590
2818  DE50 3389     3560  CONT8   OC    FUT,ISKCMD                                           CDT35600
281C  C8C0 0020     3561          LHI   OPKEY,X'20'       X2X=SEEK, AFTER CMD                  CDT35610
2820  41F0 2882     3562          BAL   RETN,WRITE                                           CDT35620
2824  C870 00C8     3563  INTSK2  LHI   WK1,200                                              CDT35630
2828  C860 40F0     3564          LHI   WK0,X'40F0'                                          CDT35640
282C  9586          3565          EPSR  WK2,WK0                                              CDT35650
282E  4300 1F06     3566          B     ITMLP                                                CDT35660
                    3567  *                                                                  CDT35670
                    3568  *       SEEK INTERRUPT                                             CDT35680
                    3569  *                                                                  CDT35690
2832  D360 1514     3570  SKINTA  LB    WK0,INTSTA                                           CDT35700
2836  C460 005B     3571          NHI   WK0,X'5B'         B IF ERR (NOT IA)                    CDT35710
283A  2134          3572          BTFS  3,ERR1AA                                             CDT35720
283C  48E0 36DC     3573          LH    RETN2,INTSKR      GET RETURN ADDRESS                   CDT35730
2840  030E          3574          BR    RETN2                                                CDT35740
2842  D3A0 1514     3575  ERR1AA  LB    STAT,INTSTA                                          CDT35750
2846  4300 3190     3576          B     ERR1A                                                CDT35760
                    3577  * SEEK SUBROUTINE                                                  CDT35770
                    3578  *                                                                  CDT35780
                    3579  *       BAL   RETN,SKSR         DESIRED CYL ADS IN "TRACK"           CDT35790
                    3580  *                                                                  CDT35800
284A  40F0 36CC     3581  SKSR    STH   RETN,SKRTN        SAVE RETURN                          CDT35810
284E  C8C0 0010     3582          LHI   OPKEY,X'10'       X1X=SEEK, BEFORE CMD                 CDT35820
2852  07DD          3583          XHR   SECT,SECT         SET SECTOR # FOR PRINTOUT            CDT35830
2854  41F0 27CC     3584          BAL   RETN,FRSSR        FILE RSRW TEST                       CDT35840
2858  41F0 289A     3585          BAL   RETN,SUBFILE                                         CDT35850
285C  2868          3586          DC    A(CONT5)                                             CDT35860
285E  2868          3587          DC    A(CONT5)                                             CDT35870
2860  2868          3588          DC    A(CONT5)                                             CDT35880
2862  41F0 2778     3589          BAL   RETN,WDFTSK                                          CDT35890
2866  2303          3590          BS    CONT6                                                CDT35900
2868  41F0 2914     3591  CONT5   BAL   RETN,WDFT1                                          CDT35910
286C  DE50 3387     3592  CONT6   OC    FUT,SEEKC                                            CDT35920
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2870  C8C0 0020          3593          LHI    OPKEY,X'20'        X2X=SEEK, AFTER CMD                CDT35930
2874  41F0 27CC          3594          BAL    RETN,FRSSR         FILE RSRW TEST                     CDT35940
2878  41F0 2882          3595          BAL    RETN,WRITE                                            CDT35950
287C  48F0 36CC          3596          LH     RETN,SKRTN         RETURN                             CDT35960
2880  030F               3597          BR     RETN                                                  CDT35970
                         3598  * SUBROUTINE WRITE WILL WRITE THE TRACK NUMBER                       CDT35980
                         3599  * TO THE DISPLAY ON A SEEK COMMAND                                   CDT35990
                         3600  * CALLING SEQUENCE   BAL RETN,WRITE                                  CDT36000
                         3601  * TRACK CONTAINS THE CYLINDER NUMBER ON A SEEK                       CDT36010
2882  2461               3602  WRITE  LIS    R6,1                                                  CDT36020
2884  DE60 33BE          3603          OC     R6,INCRMT                                             CDT36030
2888  9A6D               3604          WDR    R6,SECT                                               CDT36040
288A  DA60 36F5          3605          WD     R6,HEAD+1                                             CDT36050
288E  94BB               3606          EXBR   TRACK,TRACK                                           CDT36060
2890  986B               3607          WHR    R6,TRACK                                              CDT36070
2892  DE60 33BF          3608          OC     R6,NORM1                                              CDT36080
2896  94BB               3609          EXBR   TRACK,TRACK                                           CDT36090
2898  030F               3610          BR     RETN                                                  CDT36100
                         3611  ************************************************************         CDT36110
                         3612  * SUBROUTINE SUBFILE WILL DETERMINE DRIVE UNDER TEST AND VECTOR      CDT36120
                         3613  * TO THE APPROPRIATE RETURN FOR THE GIVEN SEQUENCE OF CODE           CDT36130
                         3614  * CALLING SEQUENCE BAL RETN,SUBFILE                                  CDT36140
289A  4860 1674          3615  SUBFILE LH     WK0,FILE+6                                            CDT36150
289E  C560 0001          3616          CLHI   WK0,1              ITS A SERIES 40 DRIVE FIXED        CDT36160
28A2  4330 28C2          3617          BE     EXIT                                                  CDT36170
28A6  26F2               3618          AIS    RETN,2                                                CDT36180
28A8  C560 0002          3619          CLHI   WK0,2              ITS A SERIES 40 REMOVABLE          CDT36190
28AC  2336               3620          BFFS   3,EXIT                                               CDT36200
28AE  26F2               3621          AIS    RETN,2                                                CDT36210
28B0  C560 0003          3622          CLHI   WK0,3              ITS A SERIES 30 DISC               CDT36220
28B4  2337               3623          BFFS   3,EXIT                                               CDT36230
28B6  C560 0004          3624          CLHI   WK0,4                                                 CDT36240
28BA  4230 1836          3625          BNE    ERROR2                                                CDT36250
28BE  26F2               3626          AIS    RETN,2                                                CDT36260
28C0  030F               3627          BR     RETN                                                  CDT36270
28C2  489F 0000          3628  EXIT    LH     R9,0(RETN)                                            CDT36280
28C6  0309               3629          BR     R9                                                    CDT36290
                         3630  * THIS SUBROUTINE WILL INITIALIZE REGISTERS UPON ENTRY TO TEST MOD   CDT36300
                         3631  * CALLING SEQUENCE BAL RETN,MODINIT                                  CDT36310
28C8  4840 1620          3632  MODINIT LH     SLAD,SELCH+6                                          CDT36320
28CC  4830 162C          3633          LH     DCAD,DISCON+6                                         CDT36330
28D0  4850 3644          3634          LH     FUT,FUTADRS                                           CDT36340
28D4  DE40 33BC          3635          OC     SLAD,STOP                                             CDT36350
28D8  DE30 33B6          3636          OC     DCAD,RESET                                            CDT36360
28DC  DE50 33B6          3637          OC     FUT,RESET                                             CDT36370
28E0  0700               3638          XHR    R0,R0                                                 CDT36380
28E2  4000 36D2          3639          STH    R0,RRCTR                                              CDT36390
28E6  080F               3640          LHR    R0,RETN                                               CDT36400
28E8  4000 36DA          3641          STH    R0,RERN                                               CDT36410
28EC  0700               3642          XHR    R0,R0                                                 CDT36420
28EE  4000 35EA          3643          STH    R0,DTSTFLG                                            CDT36430
28F2  4000 3636          3644          STH    R0,FMFLG                                              CDT36440
28F6  4000 365C          3645          STH    R0,DEVINT                                             CDT36450
28FA  4000 365E          3646          STH    R0,DEVINT+2                                           CDT36460
28FE  4000 3660          3647          STH    R0,DEVINT+4                                           CDT36470
2902  4000 3662          3648          STH    R0,DEVINT+6                                           CDT36480
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2906  4000 3664     3649           STH    R0,DEVINT+8                              CDT36490
290A  4000 3666     3650           STH    R0,DEVINT+10                             CDT36500
290E  2411          3651           LIS    R1,1                                     CDT36510
2910  2422          3652           LIS    R2,2                                     CDT36520
2912  030F          3653           BR     RETN                                     CDT36530
                    3654 *WRITE CYLINDER TO FILE SUBROUTINE SERIES 30,40               CDT36540
                    3655 *                                                         CDT36550
                    3656 *BAL RETN,WDFT                                            CDT36560
                    3657 *                                                         CDT36570
                    3658 *ACCOMODATES HI OR LO DENSITY FILE                        CDT36580
2914  4500 1680     3659 WDFT1     CLH    R0,TRKDEN+6                              CDT36590
2918  2337          3660           BFFS   3,WDFT1A                                 CDT36600
291A  C580 0100     3661           CLHI   TRACK,256                                CDT36610
291E  2383          3662           BFFS   8,WDFT0                                  CDT36620
2920  9A50          3663           WDR    FUT,R0                                   CDT36630
2922  2302          3664           BFFS   0,WDFT1A                                 CDT36640
2924  9A51          3665 WDFT0     WDR    FUT,R1                                   CDT36650
2926  9A5B          3666 WDFT1A    WDR    FUT,TRACK                                CDT36660
2928  030F          3667           BR     RETN                                     CDT36670
                    3668 *                                                         CDT36680
                    3669 *****************************************************     CDT36690
                    3670 *                                                         CDT36700
                    3671 *         DATA TEST ROUTINE                               CDT36710
                    3672 *                                                         CDT36720
                    3673 *         BAL   RETN,TDATA                                CDT36730
                    3674 *                                                         CDT36740
292A  4890 36E0     3675 TDATA     LH     WK3,SIZE             GET SIZE            CDT36750
292E  C8C0 0080     3676 TDATAX    LHI    OPKEY,X'80'          X8X=CORE COMPARISON CDT36760
2932  0870          3677           LHR    WK1,0                                    CDT36770
2934  0882          3678           LHR    WK2,2                                    CDT36780
2936  4867 3B02     3679 TDATA1    LH     WK0,WTF(WK1)         WRITE DATA          CDT36790
293A  4567 3702     3680           CLH    WK0,RDF(WK1)                             CDT36800
293E  4230 318A     3681           BNZ    ERR4                 B IF ERROR          CDT36810
2942  C170 2936     3682           BXLE   WK1,TDATA1           LOOP UNTIL DONE     CDT36820
2946  030F          3683           BR     RETN                 RETURN              CDT36830
                    3684 * RESTORE SUBROUTINE                                      CDT36840
                    3685 *                                                         CDT36850
                    3686 * BAL RETN,RSTSR                                         CDT36860
                    3687 *         RETURN WITH TRACK = 0                           CDT36870
                    3688 *                                                         CDT36880
2948  40F0 36CE     3689 RSTSR     STH    RETN,RSRET           SAVE RETURN         CDT36890
294C  C8C0 0030     3690           LHI    OPKEY,X'30'          X3X= RESTORE, BEFORE CMD CDT36900
2950  07DD          3691           XHR    SECT,SECT            SET SECTOR # FOR PRINTOUT CDT36910
2952  07BB          3692           XHR    TRACK,TRACK          ZERO CURRENT TRACK  CDT36920
2954  4000 36F4     3693           STH    0,HEAD                                   CDT36930
2958  C870 06D6     3694           LHI    WK1,1750             1.75 SECOND TIMEOUT CDT36940
295C  41E0 2C76     3695 RSTM      BAL    RETN2,MILSEC         WAIT A MILLISECOND  CDT36950
2960  9D4A          3696           SSR    SLAD,STAT            WAIT FOR SELCH      CDT36960
2962  2083          3697           BTBS   8,RSTM                                   CDT36970
2964  9D3A          3698           SSR    DCAD,STAT            WAIT FOR DC IDLE    CDT36980
2966  2225          3699           BFBS   2,RSTM                                   CDT36990
2968  9D5A          3700           SSR    FUT,STAT             EXIT IF FILE NOT READY CDT37000
296A  4210 3190     3701           BM     ERR1A                                    CDT37010
296E  41F0 289A     3702           BAL    RETN,SUBFILE                             CDT37020
2972  297A          3703           DC     A(CONT1)                                 CDT37030
2974  297A          3704           DC     A(CONT1)                                 CDT37040
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2976   297A            3705            DC     A(CONT1)                                       CDT37050
2978   2303            3706            BFFS   0,CONT2                                        CDT37060
297A   41F0 2914       3707  CONT1     BAL    RETN,WDFT1                                     CDT37070
297E   DE50 3388       3708  CONT2     OC     FUT,RESTOC                                     CDT37080
2982   C8C0 0040       3709            LHI    OPKEY,X'40'        X4X = RESTORE, AFTER COMMAND CDT37090
2986   41F0 27CC       3710            BAL    RETN,FRSSR         FILE RSRW TEST              CDT37100
298A   48F0 36CE       3711            LH     RETN,RSRET         RETURN                      CDT37110
298E   030F            3712            BR     RETN                                           CDT37120
                       3713  *                                                               CDT37130
                       3714  *                                                               CDT37140
                       3715  * SUBROUTINE SECFOMT1 FORMATS THE SECOND SECTOR ON BUFSIZE 40 MGBYTE CDT37150
2990   C870 0263       3716  SECFMT1   LHI    WK1,611            612 BYTES   2 SECTORS       CDT37160
2994   4070 36E0       3717            STH    WK1,SIZE                                       CDT37170
2998   0870            3718            LHR    WK1,0              DOUBLE THE BUFFER SIZE      CDT37180
299A   2482            3719            LIS    WK2,2                                          CDT37190
299C   C890 0131       3720            LHI    WK3,305                                        CDT37200
29A0   4867 3B02       3721  FMSC1L    LH     WK0,WTF(WK1)                                   CDT37210
29A4   4067 3C34       3722            STH    WK0,WTF+306(WK1)                               CDT37220
29A8   C170 29A0       3723            BXLE   WK1,FMSC1L                                     CDT37230
29AC   45D0 36EA       3724            CLH    SECT,MAXSEC        IS THIS ON A HEAD BOUNDRY ? CDT37240
29B0   2337            3725            BFFS   3,FMSC2X                                       CDT37250
29B2   089D            3726            LHR    WK3,SECT                                       CDT37260
29B4   0A91            3727            AHR    WK3,1              SECOND SECTOR               CDT37270
29B6   D290 3C34       3728            STB    WK3,WTF+306                                    CDT37280
29BA   4300 22E6       3729            B      SCOP                                           CDT37290
29BE   D200 3C34       3730  FMSC2X    STB    0,WTF+306                                      CDT37300
29C2   4890 36F4       3731            LH     WK3,HEAD                                       CDT37310
29C6   0A91            3732            AHR    WK3,1                                          CDT37320
29C8   919A            3733            SLHLS  WK3,10                                         CDT37330
29CA   069B            3734            OHR    WK3,TRACK                                      CDT37340
29CC   9098            3735            SRHLS  WK3,8                                          CDT37350
29CE   D290 3C35       3736            STB    WK3,WTF+307                                    CDT37360
29D2   D2B0 3C36       3737            STB    TRACK,WTF+308                                  CDT37370
                       3738  *                                                               CDT37380
29D6   4300 22E6       3739            B      SCOP               GO TO SCOPE LOOP            CDT37390
                       3740  *                                                               CDT37400
                       3741  *                                                               CDT37410
                       3742  * SUBROUTINE SECFMT2 FORMATS THE SECOND SECTOR ON BUFIZE OPTION CDT37420
29DA   C870 021B       3743  SECFMT2   LHI    WK1,539                                        CDT37430
29DE   4070 36E0       3744            STH    WK1,SIZE                                       CDT37440
29E2   0870            3745            LHR    WK1,R0                                         CDT37450
29E4   2482            3746            LIS    WK2,2                                          CDT37460
29E6   C890 010D       3747            LHI    WK3,269                                        CDT37470
29EA   4867 3B02       3748  FMSCILA   LH     WK0,WTF(WK1)                                   CDT37480
29EE   4067 3C10       3749            STH    WK0,WTF+270(WK1)                               CDT37490
29F2   C170 29EA       3750            BXLE   WK1,FMSCILA                                    CDT37500
29F6   45D0 36EA       3751            CLH    SECT,MAXSEC                                    CDT37510
29FA   2337            3752            BFFS   3,FMSC2XA                                      CDT37520
29FC   089D            3753            LHR    WK3,SECT                                       CDT37530
29FE   0A91            3754            AHR    WK3,R1                                         CDT37540
2A00   D290 3C10       3755            STB    WK3,WTF+270                                    CDT37550
2A04   4300 22E6       3756            B      SCOP                                           CDT37560
2A08   0891            3757  FMSC2XA   LHR    WK3,R1                                         CDT37570
2A0A   9195            3758            SLLS   WK3,5                                          CDT37580
2A0C   D290 3C10       3759            STB    WK3,WTF+270                                    CDT37590
2A10   4300 22E6       3760            B      SCOP                                           CDT37600
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                                3761  * CHECK ADDRESS SUBROUTINE                                                    CDT37610
                                3762  *                                                                           CDT37620
                                3763  * BAL RETN,CKADSR                                                          CDT37630
                                3764  *                                                                           CDT37640
2A14  40F0 36D0                 3765  CKADSR    STH     RETN,CKARET       SAVE RETURN                           CDT37650
2A18  4870 16E0                 3766            LH      WK1,BYCKAD+6                                            CDT37660
2A1C  023F                      3767            BNZR    RETN              OPTION                                CDT37670
2A1E  2303                      3768            BS      CKADSR2                                                 CDT37680
2A20  40F0 36D0                 3769  CKADSR1   STH     RETN,CKARET                                             CDT37690
2A24  C8E0 1838                 3770  CKADSR2   LHI     RETN2,ERROR2                                            CDT37700
2A28  41F0 3378                 3771            BAL     RETN,ILLADD       TO PREVENT DESTROYING A "CE"          CDT37710
2A2C  41F0 27CC                 3772  CKADSE    BAL     RETN,FRSSR                                              CDT37720
2A30  4000 36FA                 3773            STH     0,RDER                                                  CDT37730
2A34  C8C0 0050                 3774  CKRDX     LHI     OPKEY,X'50'       X5X=ADDRESS CHECK                     CDT37740
2A38  41F0 2CF8                 3775            BAL     RETN,DLHDS                                              CDT37750
2A3C  41F0 289A                 3776            BAL     RETN,SUBFILE                                            CDT37760
2A40  2A58                      3777            DC      A(CONT3)                                                CDT37770
2A42  2A58                      3778            DC      A(CONT3)                                                CDT37780
2A44  2A58                      3779            DC      A(CONT3)                                                CDT37790
2A46  41F0 2796                 3780            BAL     RETN,WDFT                                               CDT37800
2A4A  4870 36F4                 3781            LH      WK1,HEAD                                                CDT37810
2A4E  917A                      3782            SLHLS   WK1,10                                                  CDT37820
2A50  067B                      3783            OHR     WK1,TRACK                                               CDT37830
2A52  9A3D                      3784            WDR     DCAD,SECT                                               CDT37840
2A54  9837                      3785            WHR     DCAD,WK1                                                CDT37850
2A56  230A                      3786            BFFS    0,CONT4                                                 CDT37860
2A58  41F0 2914                 3787  CONT3     BAL     RETN,WDFT1                                              CDT37870
2A5C  4890 36F4                 3788            LH      WK3,HEAD                                                CDT37880
2A60  9195                      3789            SLLS    WK3,5                                                   CDT37890
2A62  080D                      3790            LHR     R0,SECT                                                 CDT37900
2A64  0609                      3791            OHR     R0,WK3                                                  CDT37910
2A66  9A30                      3792            WDR     DCAD,R0                                                 CDT37920
2A68  070C                      3793            XHR     R0,R0                                                   CDT37930
2A6A  DE30 3385                 3794  CONT4     OC      DCAD,RCHECK                                             CDT37940
2A6E  C870 0050                 3795            LHI     WK1,80            SET TIME CONSTANT                     CDT37950
2A72  41E0 2C76                 3796  CKTL      BAL     RETN2,MILSEC      WAIT A MILLISECOND                    CDT37960
2A76  9D4A                      3797            SSR     SLAD,STAT         SELCH STATUS                          CDT37970
2A78  2083                      3798            BTBS    8,CKTL                                                  CDT37980
2A7A  DE40 33BC                 3799            OC      SLAD,STOP         STOP SELCH                            CDT37990
2A7E  9D3A                      3800            SSR     DCAD,STAT         DC STATUS                             CDT38000
2A80  2227                      3801            BFBS    2,CKTL                                                  CDT38010
2A82  2159                      3802  ERRCKA    BTFS    5,ERRCK                                                 CDT38020
                                3803  *                                                 *                       CDT38030
2A84  4870 36FA                 3804  CKAOK     LH      WK1,RDER          DID IT FAIL THE FIRST READ, IF ANY ?  CDT38040
2A88  2333                      3805            BFFS    3,CKOK                                                  CDT38050
2A8A  4300 3182                 3806            B       ERR8              YES RECOVERABLE READ                  CDT38060
2A8E  48F0 36D0                 3807  CKOK      LH      RETN,CKARET                                             CDT38070
2A92  030F                      3808            BR      RETN                                                    CDT38080
                                3809  *                                                 *                       CDT38090
                                3810  *                                                 *                       CDT38100
2A94  4870 3636                 3811  ERRCK     LH      WK1,FMFLG                                               CDT38110
2A98  4230 187E                 3812            BNZ     ERROR12                                                 CDT38120
2A9C  4870 36FA                 3813            LH      WK1,RDER                                                CDT38130
2AA0  4230 3184                 3814            BNZ     ERR7              FAILED THE SECOND READ CHECK          CDT38140
2AA4  4010 36FA                 3815            STH     1,RDER            INDICATE SECOND READ CHECK            CDT38150
2AA8  41F0 27CC                 3816            BAL     RETN,FRSSR                                              CDT38160
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2AAC   4300 2A34                     B       CKRDX                                          CDT38170
                              *                                                *           CDT38180
                              *                                                *           CDT38190
                              *           READ/WRITE ROUTINE                               CDT38200
                              *           BAL   RETN,READ                                  CDT38210
                              *               OR                                           CDT38220
                              *           BAL   RETN,WRIT                                  CDT38230
                              *                                                            CDT38240
                              *           BUT IF EXPECTING ERRORS:                         CDT38250
                              *                                                            CDT38260
                              *           BAL   RETN,READX                                 CDT38270
                              *               OR                                           CDT38280
                              *           BAL   RETN,WRITX                                 CDT38290
                              *                                                            CDT38300
                              *           WHICH DOES NOT CLEAR "ERRFLG" OR CHANGE "OPKEY"  CDT38310
                              *           ALSO, WRITX DOES NOT CHECK FOR WRITE PROTECT     CDT38320
                              *                                                            CDT38330
2AB0   4000 36E6              READ      STH     0,ERRFLG                                   CDT38340
2AB4   C8C0 0070                        LHI     OPKEY,X'70'         X7X=READ               CDT38350
2AB8   D370 36E3              READX     LB      WK1,RCMD            GET READ COMMAND       CDT38360
2ABC   C880 0030                        LHI     WK2,X'30'           SELCH COMMAND          CDT38370
2AC0   C860 3702                        LHI     WK0,RDF             READ DATA FIELD ADDRESS CDT38380
2AC4   4300 2AE6                        B       RWCOM               ENTER COMMON PROCESS   CDT38390
                              *                                                            CDT38400
2AC8   4000 36E6              WRIT      STH     0,ERRFLG                                   CDT38410
2ACC   C8C0 0060                        LHI     OPKEY,X'60'         X6X=WRITE              CDT38420
2AD0   9D56                             SSR     FUT,WK0                                    CDT38430
2AD2   C460 0080                        NHI     WK0,X'80'           WRITE PROTECT?         CDT38440
2AD6   4230 333C                        BNZ     WTPON                                      CDT38450
2ADA   D370 36E2              WRITX     LB      WK1,WCMD            WRITE COMMAND          CDT38460
2ADE   C880 0010                        LHI     WK2,X'10'           SELCH COMMAND          CDT38470
2AE2   C860 3B02                        LHI     WK0,WTF             WRITE FIELD ADDRESS    CDT38480
2AE6   4060 36C2              RWCOM     STH     WK0,SA              SAVE START ADDRESS     CDT38490
2AEA   4A60 36E0                        AH      WK0,SIZE                                   CDT38500
2AEE   4060 36C4                        STH     WK0,FA              SAVE FINAL ADDRESS     CDT38510
2AF2   40F0 36FC                        STH     RETN,RWSAVE                                CDT38520
2AF6   41F0 2882                        BAL     RETN,WRITE                                 CDT38530
2AFA   48F0 36FC                        LH      RETN,RWSAVE                                CDT38540
2AFE   DE40 33BC                        OC      SLAD,STOP                                  CDT38550
2B02   4860 35EA                        LH      WK0,DTSTFLG                                CDT38560
2B06   2334                             BZS     STNDSLCH                                   CDT38570
2B08   41E0 2F80                        BAL     RETN2,SLCH                                 CDT38580
2B0C   2309                             BS      CONT25                                     CDT38590
2B0E   DA40 36C2              STNDSLCH  WD      SLAD,SA                                    CDT38600
2B12   DA40 36C3                        WD      SLAD,SA+1                                  CDT38610
2B16   DA40 36C4                        WD      SLAD,FA                                    CDT38620
2B1A   DA40 36C5                        WD      SLAD,FA+1                                  CDT38630
2B1E   40F0 36FC              CONT25    STH     RETN,RWSAVE                                CDT38640
2B22   4070 36FE                        STH     WK1,RWOCMD          TRANSFER THE CONTENTS  CDT38650
2B26   41F0 289A                        BAL     RETN,SUBFILE                               CDT38660
2B2A   2B5A                             DC      A(CONT11)                                  CDT38670
2B2C   2B5A                             DC      A(CONT11)                                  CDT38680
2B2E   2B5A                             DC      A(CONT11)                                  CDT38690
2B30   41F0 2796                        BAL     RETN,WDFT           WRITE TRACK # TO FILE  CDT38700
2B34   48F0 36FC                        LH      RETN,RWSAVE                                CDT38710
2B38   4870 36FE                        LH      WK1,RWOCMD                                 CDT38720
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2B3C   9D3A           3873           SSR     DCAD,STAT                                   CDT38730
2B3E   086A           3874           LHR     WK0,STAT                                    CDT38740
2B40   C460 0010      3875           NHI     WK0,X'10'      CYL OVERFLOW                 CDT38750
2B44   4230 2BB4      3876           BNZ     RWER           YES - BYPASS OPERATION       CDT38760
2B48   4860 36F4      3877           LH      WK0,HEAD                                    CDT38770
2B4C   916A           3878           SLHLS   WK0,10                                      CDT38780
2B4E   066B           3879           OHR     WK0,TRACK                                   CDT38790
2B50   9A3D           3880           WDR     DCAD,SECT                                   CDT38800
2B52   9836           3881           WHR     DCAD,WK0                                    CDT38810
2B54   9E37           3882           OCR     DCAD,WK1       START DC                     CDT38820
2B56   9E48           3883           OCR     SLAD,WK2       START SELCH                  CDT38830
2B58   230E           3884           BFFS    0,CONT12                                    CDT38840
2B5A   41F0 2914      3885   CONT11  BAL     RETN,WDFT1                                  CDT38850
2B5E   48F0 36FC      3886           LH      RETN,RWSAVE                                 CDT38860
2B62   4890 36F4      3887           LH      WK3,HEAD                                    CDT38870
2B66   9195           3888           SLLS    WK3,5                                       CDT38880
2B68   080D           3889           LHR     R0,SECT                                     CDT38890
2B6A   0609           3890           OHR     R0,WK3                                      CDT38900
2B6C   9A30           3891           WDR     DCAD,R0                                     CDT38910
2B6E   9E37           3892           OCR     DCAD,WK1                                    CDT38920
2B70   9E48           3893           OCR     SLAD,WK2                                    CDT38930
2B72   0700           3894           XHR     R0,R0                                       CDT38940
2B74   C870 005A      3895   CONT12  LHI     WK1,90                                      CDT38950
2B78   41E0 2C76      3896   DXTL    BAL     RETN2,MILSEC   WAIT ONE MILLISECOND         CDT38960
2B7C   9D4A           3897           SSR     SLAD,STAT      SELCH STATUS                 CDT38970
2B7E   2083           3898           BTBS    8,DXTL                                      CDT38980
2B80   DE40 33BC      3899           OC      SLAD,STOP      STOP WHEN NONBUSY            CDT38990
2B84   9D3A           3900           SSR     DCAD,STAT      DC STATUS                    CDT39000
2B86   2227           3901           BFBS    2,DXTL                                      CDT39010
2B88   4250 2BB4      3902           BTC     5,RWER         B IF ERROR                   CDT39020
2B8C   4870 36E8      3903           LH      WK1,ERRFLG     EXPECTING ERROR?             CDT39030
2B90   2333           3904           BFFS    3,DXTL1                                     CDT39040
2B92   4300 317A      3905           B       ERRC           YES, BUT THERE WASN'T ANY    CDT39050
2B96   4870 35EA      3906   DXTL1   LH      WK1,DTSTFLG                                 CDT39060
2B9A   2334           3907           BZS     STNDSLC1                                    CDT39070
2B9C   41E0 2EF6      3908           BAL     RETN2,SLCHK                                 CDT39080
2BA0   030F           3909           BR      RETN                                        CDT39090
2BA2   D940 3594      3910   STNDSLC1 RH     SLAD,SELAD                                  CDT39100
2BA6   4870 3594      3911           LH      WK1,SELAD                                   CDT39110
2BAA   4570 36C4      3912           CLH     WK1,FA                                      CDT39120
2BAE   4230 3186      3913           BNE     ERR6                                        CDT39130
2BB2   030F           3914           BR      RETN                                        CDT39140
                      3915   *                                                           CDT39150
2BB4   4880 36E8      3916   RWER    LH      WK2,ERRFLG     PICKUP ERROR FLAG            CDT39160
2BB8   2335           3917           BFFS    3,FMERR                                     CDT39170
2BBA   078A           3918           XHR     WK2,STAT       TEST ERR BITS                CDT39180
2BBC   C480 00F5      3919           NHI     WK2,X'F5'                                   CDT39190
2BC0   033F           3920           BZR     RETN           RETURN IF AS EXPECTED        CDT39200
2BC2   4880 36FE      3921   FMERR   LH      WK2,RWOCMD     GET THE LAST COMMAND OUTPUT  CDT39210
2BC6   C580 0006      3922           CLHI    WK2,X'06'      FORMAT WRITE COMMAND ?       CDT39220
2BCA   2339           3923           BFFS    3,FMERR1                                    CDT39230
2BCC   C580 0005      3924           CLHI    WK2,X'05'      FORMAT READ COMMAND ?        CDT39240
2BD0   2336           3925           BFFS    3,FMERR1                                    CDT39250
2BD2   C580 0001      3926           CLHI    WK2,X'01'                                   CDT39260
2BD6   233A           3927           BFFS    3,RDAGN                                     CDT39270
2BD8   4300 318C      3928           B       ERR3                                        CDT39280
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2BDC C880 0080          3929 FMERR1  LHI   WK2,X'80'          SET UP MASK FOR WRT PROT.          CDT39290
2BE0 046A               3930         NHR   WK2,STAT           MASK THE BIT, WAS IT SET ?         CDT39300
2BE2 4330 318C          3931         BZ    ERR3               NO, ERROR 3                        CDT39310
2BE6 4300 3174          3932         B     ERRF               YES, THEN FORMAT SWITCH NOT ON     CDT39320
                        3933 *                                                 *                  CDT39330
2BEA DE40 33BC          3934 RDAGN   OC    SLAD,STOP                                             CDT39340
2BEE 4870 35EA          3935         LH    WK1,DTSTFLG                                           CDT39350
2BF2 2334               3936         BZS   STNDSLC2                                              CDT39360
2BF4 41E0 2F80          3937         BAL   RETN2,SLCH                                            CDT39370
2BF8 2309               3938         BS    CONT26                                                CDT39380
2BFA DA40 36C2          3939 STNDSLC2 WD   SLAD,SA                                               CDT39390
2BFE DA40 36C3          3940         WD    SLAD,SA+1                                             CDT39400
2C02 DA40 36C4          3941         WD    SLAD,FA                                               CDT39410
2C06 DA40 36C5          3942         WD    SLAD,FA+1                                             CDT39420
2C0A 4870 36FE          3943 CONT26  LH    WK1,RWOCMD                                            CDT39430
2C0E C880 0030          3944         LHI   WK2,X'30'          ERROR STILL EXISTS                 CDT39440
2C12 41F0 289A          3945         BAL   RETN,SUBFILE                                          CDT39450
2C16 2C32               3946         DC    A(CONT13)                                             CDT39460
2C18 2C32               3947         DC    A(CONT13)                                             CDT39470
2C1A 2C32               3948         DC    A(CONT13)                                             CDT39480
2C1C 48F0 36FC          3949         LH    RETN,RWSAVE        REWRITE AND SEE IF                 CDT39490
2C20 4860 36F4          3950         LH    WK0,HEAD                                              CDT39500
2C24 916A               3951         SLHLS WK0,10                                                CDT39510
2C26 066B               3952         OHR   WK0,TRACK                                             CDT39520
2C28 9A3D               3953         WDR   DCAD,SECT                                             CDT39530
2C2A 9836               3954         WHR   DCAD,WK0                                              CDT39540
2C2C 9E37               3955         OCR   DCAD,WK1                                              CDT39550
2C2E 9E48               3956         OCR   SLAD,WK2                                              CDT39560
2C30 2306               3957         BFFS  0,CONT14                                              CDT39570
2C32 48F0 36FC          3958 CONT13  LH    RETN,RWSAVE                                           CDT39580
2C36 9A3D               3959         WDR   DCAD,SECT                                             CDT39590
2C38 9E37               3960         OCR   DCAD,WK1                                              CDT39600
2C3A 9E48               3961         OCR   SLAD,WK2                                              CDT39610
2C3C C870 005A          3962 CONT14  LHI   WK1,90                                                 CDT39620
2C40 41E0 2C76          3963 RDAGN1  BAL   RETN2,MILSEC                                          CDT39630
2C44 9D4A               3964         SSR   SLAD,STAT                                             CDT39640
2C46 2083               3965         BTBS  8,RDAGN1                                              CDT39650
2C48 DE40 33BC          3966         OC    SLAD,STOP                                             CDT39660
2C4C 9D3A               3967         SSR   DCAD,STAT                                             CDT39670
2C4E 2227               3968         BFBS  2,RDAGN1                                              CDT39680
2C50 4250 3184          3969         BTC   5,ERR7             STILL A READ ERROR                 CDT39690
2C54 4870 35EA          3970         LH    WK1,DTSTFLG                                           CDT39700
2C58 2335               3971         BZS   CONT27                                                CDT39710
2C5A 41E0 2EF6          3972         BAL   RETN2,SLCHK                                           CDT39720
2C5E 4300 3182          3973         B     ERR8                                                  CDT39730
2C62 D940 3594          3974 CONT27  RH    SLAD,SELAD                                            CDT39740
2C66 4870 3594          3975         LH    WK1,SELAD                                             CDT39750
2C6A 4570 36C4          3976         CLH   WK1,FA                                                CDT39760
2C6E 4230 3186          3977         BNE   ERR6                                                  CDT39770
                        3978 *                                 AFTER SECOND READ                  CDT39780
                        3979 *                                                                    CDT39790
2C72 4300 3182          3980         B     ERR8                NO ERROR ON THE SECOND READ        CDT39800
                        3981 *                                 RECOVERABLE READ ERROR             CDT39810
                        3982 *                                                 *                  CDT39820
                        3983 *                                                 *                  CDT39830
                        3984 *       MILLISECOND TIMER                                            CDT39840
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                                3985  *        LHI   WK1,VALUE          LENGTH OF TIMEOUT IN MSEC                CDT39880
                                3986  *        BAL   RETN2,MILSEC                                               CDT39890
                                3987  *                                                                         CDT39900
                                3988  *        MODEL     TIME CONST     ACTUAL TIME INCL BAL                     CDT39880
                                3989  *                                                                         CDT39890
                                3990  *         50        247           0.9985  MILLISECOND                      CDT39900
                                3991  *         70        247           0.9985  MILLISECOND                      CDT39910
                                3992  *         74        208           1.0005  MILLISECOND                      CDT39920
                                3993  *         80        600           0.99981 MILLISECOND                      CDT39930
                                3994  *         85        600           0.99981 MILLISECOND                      CDT39940
                                3995  *       7/16        208           1.0005 MILLISECOND                       CDT39950
                                3996  *                                                                         CDT39960
2C76  4860 0A1C                 3997  MILSEC   LH     WK0,TIME                                                  CDT39970
2C7A  0B61                      3998  MILS1    SHR    WK0,1             LOOP THAT NUMBER                       CDT39980
2C7C  2031                      3999           BTBS   3,MILS1                                                   CDT39990
2C7E  0B71                      4000           SHR    WK1,1             NOW DOWNCOUNT THE TIME VALUE           CDT40000
2C80  038E                      4001  ERRMIL   BNLR   RETN2             RETURN IF NO TIMEOUT                   CDT40010
2C82  C860 00F0                 4002           LHI    WK0,X'F0'                                                CDT40020
2C86  9576                      4003           EPSR   WK1,WK0                                                  CDT40030
2C88  4300 318E                 4004           B      ERR2                                                     CDT40040
                                4005  *                                                                         CDT40050
                                4006  ************************************************************             CDT40060
                                4007  *        125 US TIMER                                                     CDT40070
                                4008  *        LHI  WK1,TIMEOUT VALUE                                           CDT40080
                                4009  *        BAL  RETN2,QKTIME                                                CDT40090
                                4010  *                                                  *                     CDT40100
                                4011  *        PSEUDO-RANDOM GENERATOR                                          CDT40110
                                4012  *        BAL   RETN,RAND                                                  CDT40120
                                4013  *        RETURNS RESULT IN WK0                                            CDT40130
                                4014  *                                                                         CDT40140
2C8C  4860 36C6                 4015  RAND     LH     WK0,RND1          FIBONACCI                              CDT40150
2C90  4870 36C8                 4016           LH     WK1,RND2          NUMBER                                 CDT40160
2C94  4070 36C6                 4017           STH    WK1,RND1          GENERATOR                              CDT40170
2C98  0A67                      4018           AHR    WK0,WK1                                                  CDT40180
2C9A  4060 36C8                 4019           STH    WK0,RND2                                                 CDT40190
2C9E  030F                      4020           BR     RETN              RETURN                                 CDT40200
                                4021  * SUBROUTINE TENSECT USED BY FORMAT MODE TEST TO CHECK FO 12 CONSECUTV   CDT40210
                                4022  * FREE SECTORS FROM SECTOR 0 FOR USE IN FORMAT MODE TESTING              CDT40220
                                4023  * ASSUMES BYCKAD=0                                                       CDT40230
                                4024  * BAL RETN,TENSECT                                                       CDT40240
2CA0  40E0 3618                 4025  TENSECT  STH    RETN2,RETN2S                                             CDT40250
2CA4  4010 3636                 4026           STH    R1,FMFLG                                                 CDT40260
2CA8  07DD                      4027           XHR    SECT,SECT         SET FORMAT ADVISORY AND SET SEC=0      CDT40270
2CAA  40D0 16E0                 4028           STH    SECT,BYCKAD+6                                            CDT40280
2CAE  41F0 2A14                 4029  GOCHECK  BAL    RETN,CKADSR       CHECK ADDRESS SUBROUTINE CALL          CDT40290
2CB2  26D1                      4030           AIS    SECT,1                                                   CDT40300
2CB4  C5D0 000D                 4031           CLHI   SECT,13           CHECKED TWELVE CONSECUTIVE SECTORS     CDT40310
2CB8  2085                      4032           BTBS   8,GOCHECK                                               CDT40320
2CBA  4000 3636                 4033           STH    R0,FMFLG                                                 CDT40330
2CBE  48E0 3618                 4034           LH     RETN2,RETN2S                                             CDT40340
2CC2  030E                      4035           BR     RETN2                                                    CDT40350
                                4036  * ************************************************************           CDT40360
                                4037  * SUBROUTINE RSTRFORMAT PROPERLY FORMATS 12 SECTORS USED IN F            CDT40370
                                4038  * CALLING SEQUENCE BAL RETN2,RSTRFMT                                      CDT40380
2CC4  40E0 3618                 4039  RSTRFMT  STH    RETN2,RETN2S                                             CDT40390
2CC8  07DD                      4040           XHR    SECT,SECT                                                CDT40400
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2CCA  D2D0 3802  4041 CONTFMT STB   SECT,WTF          SET UP SECTOR NUMBER IN BUFFER          CDT40410
2CCE  41F0 2AC8  4042        BAL   RETN,WRIT          FORMAT WRITE DEFECTIVE FREE             CDT40420
2CD2  26D1       4043        AIS   SECT,1                                                     CDT40430
2CD4  C5D0 000D  4044        CLHI  SECT,13            = SECTOR 13                             CDT40440
2CD8  2087       4045        BTBS  8,CONTFMT                                                  CDT40450
2CDA  48E0 3618  4046        LH    RETN2,RETN2S                                               CDT40460
2CDE  030E       4047        BR    RETN2                                                      CDT40470
                 4048 * SUBROUTINE CHECK TRANSFER LENGTH WILL CHECK THE NUMBER OF SECTORS     CDT40480
                 4049 *TO TRANSFERRED ON ANY GIVEN DATA TRANSFER AGAINST ALLOWED LIMITS      CDT40490
                 4050 * BAL R14,CHKTRNSF                                                     CDT40500
2CE0  4870 16F8  4051 CHKTRNSF LH    WK1,SECNUM+6                                           CDT40510
2CE4  0976       4052        CHR   WK1,R6                                                   CDT40520
2CE6  023E       4053        BNER  R14                                                      CDT40530
2CE8  2463       4054        LIS   R6,3                                                     CDT40540
2CEA  4060 16F8  4055        STH   R6,SECNUM+6                                              CDT40550
2CEE  C850 3458  4056        LHI   R5,MSG15                                                 CDT40560
2CF2  41F0 109C  4057        BAL   RETN,PRINT                                               CDT40570
2CF6  030E       4058        BR    R14                                                      CDT40580
                 4059 * SUBROUTINE DLHDS DECODES HEADS TO BE DELETED FROM DATA TRANSFER TESTS CDT40590
                 4060 * BAL RETN,DLHDS                                                       CDT40600
                 4061 * START HEAD SLEECTION SELECTION FROM HEAD0                            CDT40610
2CF8  0766       4062 DLHDS   XHR   WK0,WK0             ZERO HEAD TO START                  CDT40620
2CFA  4060 3672  4063        STH   WK0,NEXTHD          STORE IN NEXT HEAD                      CDT40630
2CFE  4870 3672  4064 DLHDSA  LH    WK1,NEXTHD          GET NEXT HEAD                           CDT40640
2D02  2461       4065 DLHDSB  LIS   WK0,1                                                   CDT40650
2D04  916F       4066        SLHLS WK0,15                                                   CDT40660
2D06  CC67 0000  4067        SRHL  WK0,0(WK1)                                               CDT40670
2D0A  C570 0010  4068        CLHI  WK1,X'10'                                                CDT40680
2D0E  2185       4069        BLS   DLHD42                                                   CDT40690
2D10  4460 171C  4070        NH    WK0,HEADSA+6                                             CDT40700
2D14  2337       4071        BFFS  3,DLHD55                                                 CDT40710
2D16  2304       4072        BS    DLHD43                                                   CDT40720
2D18  4460 171E  4073 DLHD42  NH    WK0,HEADSA+8                                             CDT40730
2D1C  2333       4074        BFFS  3,DLHD55                                                 CDT40740
2D1E  2671       4075 DLHD43  AIS   WK1,1                                                   CDT40750
2D20  220F       4076        BFBS  0,DLHDS8                                                 CDT40760
2D22  4070 36F4  4077 DLHD55  STH   WK1,HEAD                                                CDT40770
2D26  2671       4078        AIS   WK1,1                                                   CDT40780
2D28  4070 3672  4079        STH   WK1,NEXTHD                                               CDT40790
2D2C  030F       4080        BR    RETN                EXIT                               CDT40800
                 4081 *SUBROUTINES S30,20S,S40V,S40F DISC FILE ADDRESS ROUTINES              CDT40810
                 4082 *BUILD THE CORRECT FILE UNDER TEST ADDRESSES GIVEN THE                 CDT40820
                 4083 *DISC CONTROLLER ADDRESS                                               CDT40830
                 4084 *ROUTINES WILL ALSO CALCULATE ALL FILE ADDRESSES                       CDT40840
                 4085 *BAL R13,TSADRS                                                        CDT40850
                 4086 *BAL R13,STHADS                                                        CDT40860
                 4087 *BAL R13,FRTYADR                                                       CDT40870
2D2E  0A51       4088 TSADRS  AHR   FUT,R1              TWENTY SURFACE ADDRESSES            CDT40880
2D30  0A53       4089        AHR   FUT,DCAD            GET FUT AND ADD TO DISC             CDT40890
2D32  4050 3644  4090        STH   FUT,FUTADRS                                              CDT40900
2D36  0788       4091        XHR   R8,R8               CONTROLLER ADDRESS                  CDT40910
2D38  0A81       4092        AHR   R8,R1               TO FORM CORRECT FILE UNDER          CDT40920
2D3A  0A83       4093        AHR   R8,DCAD             TEST ADDRESS                        CDT40930
2D3C  4080 3646  4094        STH   R8,FILE1                                                 CDT40940
2D40  2681       4095        AIS   R8,1                                                     CDT40950
2D42  4080 3648  4096        STH   R8,FILE2            FORM CORRECT PHYSICAL               CDT40960
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2D46   2601              4097            AIS    R8,1                                   CDT40970
2D48   4080 364A         4098            STH    R8,FILE3          & FILES              CDT40980
2D4C   2601              4099            AIS    R8,1                                   CDT40990
2D4E   4080 364C         4100            STH    R8,FILE4                               CDT41000
2D52   030F              4101            BR     RETN                                   CDT41010
2D54   0A51              4102  STHADRS   AHR    FUT,R1            ADD1 TO FUT          CDT41020
2D56   9154              4103            SLHLS  FUT,4                                  CDT41030
2D58   0A53              4104            AHR    FUT,DCAD          AND ADD TO CONT ADDRS CDT41040
2D5A   4050 3644         4105            STH    FUT,FUTADRS                            CDT41050
2D5E   0788              4106  STHADRS1  XHR    R8,R8                                  CDT41060
2D60   0A81              4107            AHR    R8,R1             VALID,FILE ADDRESSES CDT41070
2D62   9184              4108            SLHLS  R8,4                                   CDT41080
2D64   0A83              4109            AHR    R8,DCAD                                CDT41090
2D66   4080 3646         4110            STH    R8,FILE1                               CDT41100
2D6A   CA80 0010         4111            AHI    R8,16                                  CDT41110
2D6E   4080 3648         4112            STH    R8,FILE2                               CDT41120
2D72   CA80 0010         4113            AHI    R8,16                                  CDT41130
2D76   4080 364A         4114            STH    R8,FILE3                               CDT41140
2D7A   CA80 0010         4115            AHI    R8,16                                  CDT41150
2D7E   4080 364C         4116            STH    R8,FILE4                               CDT41160
2D82   030F              4117            BR     RETN                                   CDT41170
                         4118  ***************************************************************** CDT41180
2D84   0A51              4119  FRTYADR   AHR    FUT,R1                                 CDT41190
2D86   9154              4120            SLHLS  FUT,4                                  CDT41200
2D88   0A53              4121            AHR    FUT,DCAD                               CDT41210
2D8A   0A51              4122            AHR    FUT,R1                                 CDT41220
2D8C   4050 3644         4123            STH    FUT,FUTADRS                            CDT41230
2D90   4300 2D5E         4124            B      STHADRS1                               CDT41240
                         4125  *SUBROUTINE TEST INITIALIZE WILL VERIFY TEST PARAMETERS CDT41250
                         4126  *AND INITIALIZE TEST VARIABLES                          CDT41260
                         4127  *R1=INDEX INTO PARAMETER BLOCK                          CDT41270
                         4128  *BAL R14,TSTINIT                                        CDT41280
2D94   40E0 366E         4129  TSTINIT   STH    RETN2,TEMPA                            CDT41290
2D98   4870 1650         4130            LH     R7,LOCYL+6        GET THE LOCYLINDER OPTIN CDT41300
2D9C   C570 FFFF         4131            CLHI   R7,X'FFFF'                             CDT41310
2DA0   4330 1840         4132            BE     ERROR3                                 CDT41320
2DA4   4576 0000         4133            CLH    R7,0(R6)          COMPARE WITH MAX VALID FOR FUT CDT41330
2DA8   4380 1840         4134            BNL    ERROR3                                 CDT41340
2DAC   4876 0000         4135  TSTINIT1  LH     R7,0(R6)                               CDT41350
2DB0   2771              4136            SIS    R7,1                                   CDT41360
2DB2   4070 3606         4137            STH    R7,MAXCY                               CDT41370
2DB6   4870 1698         4138            LH     R7,SECTOR+6       CHECK HEAD/SECTOR OPTIN CDT41380
2DBA   C470 00FF         4139            NHI    R7,X'FF'          EXTRACT LOW ORDER    CDT41390
2DBE   4576 0002         4140            CLH    R7,2(R6)          COMPARE WITH MAX SECTOR FOR FUT CDT41400
2DC2   2333              4141            BFFS   3,TSTINIT2                             CDT41410
2DC4   4380 1850         4142            BNL    ERROR5                                 CDT41420
2DC8   4870 1698         4143  TSTINIT2  LH     R7,SECTOR+6                            CDT41430
2DCC   9078              4144            SRHLS  R7,8                                   CDT41440
2DCE   4576 0004         4145            CLH    R7,4(R6)          COMPARE WITH MAX ALLOWED FOR FUT CDT41450
2DD2   2333              4146            BES    GO                                     CDT41460
2DD4   4380 1850         4147            BNL    ERROR5                                 CDT41470
2DD8   4830 162C         4148  GO        LH     DCAD,DISCON+6     GET DISC CONTROLLER IN R3 CDT41480
2DDC   4840 1620         4149            LH     SLAD,SELCH+6      GET SELCH ADDRESS IN R4 CDT41490
2DE0   4000 36CA         4150            STH    R0,LPCNT          ZERO LOOP COUNTER    CDT41500
2DE4   4010 36C6         4151            STH    R1,RND1           INITIALIZE RANDOM NUMBER PARAMETERS CDT41510
2DE8   4020 36C8         4152            STH    R2,RND2                                CDT41520
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2DEC  4850 1614   4153           LH    FUT,TFILE+6       GET FILE UNDER TEST                  CDT41530
2DF0  C550 0005   4154           CLHI  FUT,5                                                  CDT41540
2DF4  4380 1858   4155           BNL   ERROR7                                                 CDT41550
2DF8  4876 0006   4156           LH    R7,6(R6)          GET THE CORRECT ADDRESS              CDT41560
2DFC  C570 0001   4157           CLHI  R7,1              CONSTRUCTION                         CDT41570
2E00  2337        4158           BES   TSADR             FLAG AND VECTOR TO THE               CDT41580
2E02  C570 0002   4159           CLHI  R7,2              CORRECT ADDRESS CONSTRUCTION         CDT41590
2E06  2337        4160           BES   THRTYAD           ROUTINE                              CDT41600
2E08  C570 0003   4161           CLHI  R7,3                                                   CDT41610
2E0C  2337        4162           BES   FRTYFX                                                 CDT41620
2E0E  41F0 2D2E   4163 TSADR     BAL   RETN,TSADRS       CONST 20 SURFACE ADDRESSES           CDT41630
2E12  2306        4164           BS    CONT                                                   CDT41640
2E14  41F0 2D54   4165 THRTYAD   BAL   RETN,STHADRS      CONST 30 ADDRESSES                   CDT41650
2E18  2303        4166           BS    CONT                                                   CDT41660
2E1A  41F0 2D84   4167 FRTYFX    BAL   RETN,FRTYADR      CONST 40 FXED ADDRESSES              CDT41670
2E1E  4876 0002   4168 CONT      LH    R7,2(R6)          GET MAX SECTORS FOR FUT              CDT41680
2E22  4070 36EA   4169           STH   R7,MAXSEC                                              CDT41690
2E26  0A71        4170           AHR   R7,R1                                                  CDT41700
2E28  4070 36EC   4171           STH   R7,MXSEC1                                              CDT41710
2E2C  0A71        4172           AHR   R7,R1                                                  CDT41720
2E2E  4070 36EE   4173           STH   R7,MXSEC2                                              CDT41730
2E32  4876 0004   4174           LH    R7,4(R6)          GET MAXHEAD                          CDT41740
2E36  4070 36F0   4175           STH   R7,MXHED                                               CDT41750
2E3A  0A71        4176           AHR   R7,R1                                                  CDT41760
2E3C  4070 36F2   4177           STH   R7,MXHED1                                              CDT41770
2E40  4876 0000   4178           LH    R7,0(R6)          GET MAXCYLINDERS                     CDT41780
2E44  4070 36D8   4179           STH   R7,MAXCY1         SET MAX CYLINDERS+1                  CDT41790
2E48  4870 1650   4180           LH    R7,LOCYL+6        CHECK FOR LEGAL TRACK SPEC           CDT41800
2E4C  4570 36D8   4181           CLH   R7,MAXCY1                                              CDT41810
2E50  4380 1840   4182           BNL   ERROR3                                                 CDT41820
2E54  4870 1668   4183           LH    R7,HICYL+6                                             CDT41830
2E58  4570 36D8   4184           CLH   R7,MAXCY1                                              CDT41840
2E5C  2384        4185           BFFS  8,TCK1                                                 CDT41850
2E5E  4570 1650   4186           CLH   R7,LOCYL+6        CAN'T BE LESS THAN LOCYL+6           CDT41860
2E62  2388        4187           BFFS  8,MODT                                                 CDT41870
2E64  0A71        4188 TCK1      AHR   R7,R1                                                  CDT41880
2E66  4230 1848   4189           BNZ   ERROR4                                                 CDT41890
2E6A  4870 1650   4190           LH    R7,LOCYL+6                                             CDT41900
2E6E  4070 1668   4191           STH   R7,HICYL+6                                             CDT41910
2E72  4870 16D4   4192 MODT      LH    R7,TIMECON+6                                           CDT41920
2E76  4330 1870   4193           BZ    ERROR10                                                CDT41930
2E7A  4070 0A1C   4194           STH   R7,TIME                                                CDT41940
2E7E  48B0 1668   4195           LH    TRACK,HICYL+6                                          CDT41950
2E82  C8E0 1876   4196           LHI   RETN2,ERROR11                                          CDT41960
2E86  41F0 3378   4197           BAL   RETN,ILLADD                                            CDT41970
2E8A  48B0 1650   4198           LH    TRACK,LOCYL+6                                          CDT41980
2E8E  41F0 3378   4199           BAL   RETN,ILLADD                                            CDT41990
2E92  48E0 366E   4200 RESTAR    LH    RETN2,TEMPA                                            CDT42000
2E96  030E        4201           BR    R14                                                    CDT42010
                  4202 * SUBROUTINE ERRANLYS DETERMINES SOURCE OF ERROR FOR PRINTOUT          CDT42020
                  4203 * AND SETS UP R1 WITH CORRECT DEVICE ADDRESS                           CDT42030
                  4204 * BAL RETN,ERRANLYS                                                    CDT42040
2E98  2461        4205 ERRANLYS  LIS   WK0,1                                                  CDT42050
2E9A  0700        4206           XHR   R0,R0                                                  CDT42060
2E9C  C890 3682   4207           LHI   WK3,VECADR                                             CDT42070
2EA0  4809 0000   4208 ERRANA    LH    R0,0(WK3)                                              CDT42080
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2EA4   0986                       CHR    WK2,WK0                             CDT42090
2EA6   0330                       BER    R0             BR ON VECTOR IF EQUAL CDT42100
2EA8   2661                       AIS    WK0,1          INCREMENT MASK       CDT42110
2EAA   2692                       AIS    WK3,2                               CDT42120
2EAC   2206                       BFBS   0,ERRANA                            CDT42130
2EAE   C860 36A0       SET7       LHI    WK0,ERRTBL1                         CDT42140
2EB2   0700                       XHR    R0,R0                               CDT42150
2EB4   C880 36A8                  LHI    WK2,VECADR1                         CDT42160
2EB8   4808 0000       SET7A      LH     R0,0(WK2)                           CDT42170
2EBC   D476 0000                  CLB    WK1,0(WK0)     COMPARE ERROR NUMBER CDT42180
2EC0   0330                       BER    R0             WITH MASK            CDT42190
2EC2   2661                       AIS    WK0,1          ADD 1 TO MASK        CDT42200
2EC4   2682                       AIS    WK2,2          INCREMENT TABLE      CDT42210
2EC6   C580 36B5                  CLHI   WK2,LNZB                            CDT42220
2ECA   4380 2EB8                  BNL    SET7A                               CDT42230
2ECE   4300 2EF0                  B      UNDEF                               CDT42240
2ED2   4810 3644       SET1A      LH     R1,FUTADRS                          CDT42250
2ED6   030F                       BR     RETN                                CDT42260
2ED8   4810 162C       SET3A      LH     R1,DISCON+6                         CDT42270
2EDC   030F                       BR     RETN                                CDT42280
2EDE   4810 1620       SET4A      LH     R1,SELCH+6                          CDT42290
2EE2   030F                       BR     RETN                                CDT42300
2EE4   4810 363A       SET5A      LH     R1,SECFILAD                         CDT42310
2EE8   030F                       BR     RETN                                CDT42320
2EEA   4810 1510       SET6A      LH     R1,INTDEV                           CDT42330
2EEE   030F                       BR     RETN                                CDT42340
2EF0   4810 162C       UNDEF      LH     R1,DISCON+6                         CDT42350
2EF4   030F                       BR     RETN                                CDT42360
                       * SUBROUTINE SELCHECK WILL READ AND VERIFY             CDT42370
                       * SELCH DATA CHECK:  BAL RETN2,SLCHK                   CDT42380
2EF6   4890 150E       SLCHK      LH     WK3,MOD32      16 BIT PROCESSOR     CDT42390
2EFA   4230 2F14                  BNZ    EXTSLCH1                            CDT42400
2EFE   DE40 33BC                  OC     SLAD,STOP                           CDT42410
2F02   D940 3594                  RH     SLAD,SELAD                          CDT42420
2F06   4890 3594                  LH     WK3,SELAD                           CDT42430
2F0A   4590 36C4                  CLH    WK3,FA                              CDT42440
2F0E   4230 3186                  BNE    ERR6                                CDT42450
2F12   030E                       BR     RETN2                               CDT42460
2F14   DE40 33BD       EXTSLCH1   OC     SLAD,ESTOP                          CDT42470
2F18   DB40 361F                  RD     SLAD,EXSELAD+1  USE EXTENDED SELECTOR CDT42480
2F1C   DB40 3620                  RD     SLAD,EXSELAD+2  CHANNEL MODE        CDT42490
2F20   DB40 3621                  RD     SLAD,EXSELAD+3                      CDT42500
2F24   4070 362E                  STH    WK1,WK1SV                           CDT42510
2F28   4080 3632                  STH    WK2,WK2SV                           CDT42520
2F2C   4060 3634                  STH    WK0,WK0SV                           CDT42530
2F30   4860 361E                  LH     WK0,EXSELAD                         CDT42540
2F34   ED60 0010                  SLL    WK0,16                              CDT42550
2F38   4040 361A                  STH    R4,R4SV                             CDT42560
2F3C   4840 3620                  LH     R4,EXSELAD+2                        CDT42570
2F40   ED40 0010                  SLL    R4,16                               CDT42580
2F44   EC40 0010                  SRL    R4,16                               CDT42590
2F48   0664                       OHR    WK0,R4                              CDT42600
2F4A   4840 3626                  LH     R4,FBUFADR                          CDT42610
2F4E   ED40 0010                  SLL    R4,16                               CDT42620
2F52   4880 3628                  LH     WK2,FBUFADR+2  GET SECOND HALFWORD  CDT42630
2F56   ED80 0010                  SLL    WK2,16                              CDT42640
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2F5A  EC80 0010              SRL   WK2,16                                    CDT42650
2F5E  0648                   OHR   R4,WK2                                    CDT42660
2F60  0564                   CLHR  WK0,R4                                    CDT42670
2F62  4230 2F78              BNE   ERR6A                                     CDT42680
2F66  4840 361A              LH    R4,R4SV                                   CDT42690
2F6A  4860 3634              LH    WK0,WK0SV                                 CDT42700
2F6E  4870 362E              LH    WK1,WK1SV                                 CDT42710
2F72  4880 3632              LH    WK2,WK2SV                                 CDT42720
2F76  030E                   BR    RETN2                                     CDT42730
2F78  4840 361A      ERR6A   LH    R4,R4SV                                   CDT42740
2F7C  4300 3186              B     ERR6                                      CDT42750
                     * SUBROUTINE SLCH DOES BUFFER RELOCATION AND            CDT42760
                     * SELCH SETUP FOR 16 BIT OR 32 BIT PROCESSORS           CDT42770
                     * CALLING SEQUENCE:                                     CDT42780
                     * BAL RETN2,SLCH                                        CDT42790
2F80  40E0 3618      SLCH    STH   RETN2,RETN2S      SAVE RETURN ADDRESS     CDT42800
2F84  4890 150E              LH    WK3,MOD32         CHECK FOR 32 BIT PROCESSOR CDT42810
2F88  4230 2FCE              BNZ   EXTSLCH                                   CDT42820
2F8C  DE40 33BC              OC    SLAD,STOP         NORMAL SELCH STOP       CDT42830
2F90  4890 172C              LH    WK3,BUFFERAD+10                           CDT42840
2F94  4330 2FAC              BZ    STKBF                                     CDT42850
2F98  C590 4000              CLHI  WK3,X'4000'       BUFFER MUST START BEYOND TEST END CDT42860
2F9C  4280 1868              BTC   8,ERROR14                                 CDT42870
2FA0  4090 36C2              STH   WK3,SA                                    CDT42880
2FA4  4A90 36E0              AH    WK3,SIZE                                  CDT42890
2FA8  4090 36C4              STH   WK3,FA                                    CDT42900
2FAC  DA40 36C2      STKBF   WD    SLAD,SA                                   CDT42910
2FB0  DA40 36C3              WD    SLAD,SA+1                                 CDT42920
2FB4  DA40 36C4              WD    SLAD,FA                                   CDT42930
2FB8  DA40 36C5              WD    SLAD,FA+1                                 CDT42940
2FBC  4080 362A              STH   WK2,CMNDS         STORE SELCH COMMAND FOR BUFFERMOVE CDT42950
2FC0  41E0 3066              BAL   RETN2,SXBUFMVR                            CDT42960
2FC4  4880 362A              LH    WK2,CMNDS                                 CDT42970
2FC8  48E0 3618              LH    RETN2,RETN2S      RESTORE RETURN ADDRESS  CDT42980
2FCC  030E                   BR    RETN2             RETURN                  CDT42990
2FCE  4080 362A      EXTSLCH STH   WK2,CMNDS                                 CDT43000
2FD2  DE40 33BD              OC    SLAD,ESTOP        EXTENDED READ STOP TO SELCH CDT43010
2FD6  4890 172A              LH    WK3,BUFFERAD+8                            CDT43020
2FDA  4230 2FE6              BNZ   EXTSL1            NONZERO RELOCATE THE SELCH CDT43030
2FDE  4890 172C              LH    WK3,BUFFERAD+10                           CDT43040
2FE2  4330 3020              BZ    S3216KBF                                  CDT43050
2FE6  4060 3634      EXTSL1  STH   WK0,WK0SV                                 CDT43060
2FEA  4860 3622              LH    WK0,BUFADR                                CDT43070
2FEE  ED60 0010              SLL   WK0,16                                    CDT43080
2FF2  4880 3624              LH    WK2,BUFADR+2                              CDT43090
2FF6  ED80 0010              SLL   WK2,16                                    CDT43100
2FFA  EC80 0010              SRL   WK2,16                                    CDT43110
2FFE  0668                   OHR   WK0,WK2                                   CDT43120
3000  C560 4000              CLHI  WK0,X'4000'                               CDT43130
3004  4280 1868              BTC   8,ERROR14                                 CDT43140
                     *                                                       CDT43150
3008  4A60 36E0              AH    WK0,SIZE                                  CDT43160
300C  4060 3628              STH   WK0,FBUFADR+2                             CDT43170
3010  EC60 0010              SRL   WK0,16                                    CDT43180
3014  4060 3626              STH   WK0,FBUFADR                               CDT43190
3018  4860 3634              LH    WK0,WK0SV                                 CDT43200
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301C  4300 303A     4321          B     SLCHOUT                                        CDT43210
3020  0799          4322 S3216KBF XHR   WK3,WK3                                        CDT43220
3022  4090 3622     4323          STH   WK3,BUFADR                                     CDT43230
3026  4090 3626     4324          STH   WK3,FBUFADR                                    CDT43240
302A  4890 36C2     4325          LH    WK3,SA                                         CDT43250
302E  4090 3624     4326          STH   WK3,BUFADR+2                                   CDT43260
3032  4890 36C4     4327          LH    WK3,FA                                         CDT43270
3036  4090 3628     4328          STH   WK3,FBUFADR+2                                  CDT43280
303A  DA40 3623     4329 SLCHOUT  WD    SLAD,BUFADR+1                                  CDT43290
303E  DA40 3624     4330          WD    SLAD,BUFADR+2                                  CDT43300
3042  DA40 3625     4331          WD    SLAD,BUFADR+3                                  CDT43310
3046  DA40 3627     4332          WD    SLAD,FBUFADR+1                                 CDT43320
304A  DA40 3628     4333          WD    SLAD,FBUFADR+2                                 CDT43330
304E  DA40 3629     4334          WD    SLAD,FBUFADR+3                                 CDT43340
3052  41E0 30C6     4335          BAL   RETN2,T2BUFMVR                                 CDT43350
3056  C880 0040     4336          LHI   WK2,X'40'                                      CDT43360
305A  4680 362A     4337          OH    WK2,CMNDS                                      CDT43370
305E  0700          4338          XHR   R0,R0                                          CDT43380
3060  48E0 3618     4339          LH    RETN2,RETN2S                                   CDT43390
3064  030E          4340          BR    RETN2                                          CDT43400
                    4341 *                                                             CDT43410
                    4342 *                                                             CDT43420
                    4343 *                                                             CDT43430
                    4344 *                                                             CDT43440
                    4345 *                                                             CDT43450
                    4346 *                                                             CDT43460
                    4347 *                                                             CDT43470
                    4348 *                                                             CDT43480
                    4349 * SUBROUTINE BUFFERMOVE RELOCATES THE BUFFER                  CDT43490
                    4350 * AS REQUIRED BY EITHER A READ OR WRITE OPERATION             CDT43500
                    4351 * 2 ENTRY POINTS ENABLE ENTRY FROM HALFWORD PROCESSORS        CDT43510
                    4352 * OR FULLWORD PROCESSORS                                      CDT43520
                    4353 *                                                             CDT43530
                    4354 * CALLING SEQUENCE   BAL  RETN2,16BUFMVR:FOR HALFWORD PROCESSORS CDT43540
                    4355          BAL   RETN2,32BUFMVR:FOR FULLWORD PROCESSORS         CDT43550
3066  4890 362A     4356 SXBUFMVR LH    WK3,CMNDS                                      CDT43560
306A  C590 0010     4357          CLHI  WK3,X'10'        IF SELCH COMMAND SPECIFIES WRITE CDT43570
306E  4330 30A4     4358          BE    SXMOVUP                                        CDT43580
3072  4890 36C2     4359          LH    WK3,SA                                         CDT43590
3076  C590 3702     4360          CLHI  WK3,RDF          DOWN                          CDT43600
307A  4330 30A2     4361          BE    EXIT3                                          CDT43610
307E  C890 3702     4362          LHI   WK3,RDF                                        CDT43620
3082  4880 3624     4363          LH    WK2,BUFADR+2                                   CDT43630
3086  4070 362E     4364          STH   WK1,WK1SV                                      CDT43640
308A  0879          4365          LHR   WK1,WK3                                        CDT43650
308C  4A70 36E0     4366          AH    WK1,SIZE                                       CDT43660
3090  40E0 3630     4367 EXIT1    STH   RETN2,RETN2S1                                  CDT43670
3094  41E0 315C     4368          BAL   RETN2,MVR2                                     CDT43680
3098  0700          4369          XHR   R0,R0                                          CDT43690
309A  4870 362E     4370          LH    WK1,WK1SV                                      CDT43700
309E  48E0 3630     4371 EXIT2    LH    RETN2,RETN2S1                                  CDT43710
30A2  030E          4372 EXIT3    BR    RETN2                                          CDT43720
30A4  4890 36C2     4373 SXMOVUP  LH    WK3,SA                                         CDT43730
30A8  C590 3B02     4374          CLHI  WK3,WTF                                        CDT43740
30AC  4330 30A2     4375          BE    EXIT3                                          CDT43750
30B0  4070 362E     4376          STH   WK1,WK1SV                                      CDT43760
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3084  C880 3B02                LHI   WK2,WTF                                              CDT43770
3088  4890 3624                LH    WK3,BUFADR+2                                         CDT43780
308C  0879                     LHR   WK1,WK3                                              CDT43790
308E  4A70 36E0                AH    WK1,SIZE                                             CDT43800
30C2  4300 3090                B     EXIT1                                                CDT43810
30C6  4890 362A       T2BUFMVR LH    WK3,CMNDS                                            CDT43820
30CA  C590 0010                CLHI  WK3,X'10'                                            CDT43830
30CE  4330 3116                BE    T2MOVUP                                              CDT43840
30D2  4890 3622                LH    WK3,BUFADR                                           CDT43850
30D6  4230 30E6                BNZ   T2BFM1                                               CDT43860
30DA  4890 3624                LH    WK3,BUFADR+2                                         CDT43870
30DE  4590 36C2                CLH   WK3,SA                                               CDT43880
30E2  4330 30A2                BE    EXIT3                                                CDT43890
30E6  4880 3622       T2BFM1   LH    WK2,BUFADR                                           CDT43900
30EA  ED80 0010                SLL   WK2,16                                               CDT43910
30EE  4060 3634                STH   WK0,WK0SV                                            CDT43920
30F2  4860 3624                LH    WK0,BUFADR+2                                         CDT43930
30F6  ED60 0010                SLL   WK0,16                                               CDT43940
30FA  EC60 0010                SRL   WK0,16                                               CDT43950
30FE  0686                     OHR   WK2,WK0                                              CDT43960
3100  C890 3702                LHI   WK3,RDF                                              CDT43970
3104  4070 362E                STH   WK1,WK1SV                                            CDT43980
3108  0879                     LHR   WK1,WK3                                              CDT43990
310A  4A70 36E0                AH    WK1,SIZE                                             CDT44000
310E  4860 3634                LH    WK0,WK0SV                                            CDT44010
3112  4300 3090                B     EXIT1                                                CDT44020
3116  4070 362E       T2MOVUP  STH   WK1,WK1SV                                            CDT44030
311A  4890 3622                LH    WK3,BUFADR                                           CDT44040
311E  4230 312E                BNZ   T2BFM2                                               CDT44050
3122  4890 3624                LH    WK3,BUFADR+2                                         CDT44060
3126  4590 36C2                CLH   WK3,SA                                               CDT44070
312A  4330 30A2                BE    EXIT3                                                CDT44080
312E  4880 3622       T2BFM2   LH    WK2,BUFADR                                           CDT44090
3132  ED80 0010                SLL   WK2,16                                               CDT44100
3136  4060 3634                STH   WK0,WK0SV                                            CDT44110
313A  4860 3624                LH    WK0,BUFADR+2                                         CDT44120
313E  ED60 0010                SLL   WK0,16                                               CDT44130
3142  EC60 0010                SRL   WK0,16                                               CDT44140
3146  0668                     OHR   WK0,WK2                                              CDT44150
3148  0896                     LHR   WK3,WK0                                              CDT44160
314A  C880 3B02                LHI   WK2,WTF                                              CDT44170
314E  0879                     LHR   WK1,WK3                                              CDT44180
3150  4A70 36E0                AH    WK1,SIZE                                             CDT44190
3154  4860 3634                LH    WK0,WK0SV                                            CDT44200
3158  4300 3090                B     EXIT1                                                CDT44210
                      * SUBROUTINE MOVE WILL RELOCATE DATA FROM THE BASE BUFFER TO         CDT44220
                      * TO THE NEW LOCATION AS SPECIFIED BY THE USER IN THE BUFFER OPTION CDT44230
315C  4808 0000      MVR2      LH    R0,0(WK2)                                            CDT44240
3160  4009 0000                STH   R0,0(WK3)                                            CDT44250
3164  2682                     AIS   WK2,2                                                CDT44260
3166  2692                     AIS   WK3,2                                                CDT44270
3168  0597                     CLHR  WK3,WK1                                              CDT44280
316A  4330 315C                BE    MVR2                                                 CDT44290
316E  038E                     BNLR  RETN2                                                CDT44300
3170  4300 315C                B     MVR2                                                 CDT44310
                      *        ERROR HANDLER                                              CDT44320
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                 *                                                  CDT44330
                 *                                                  CDT44340
                 * FILE STATUS DICTIONARY                           CDT44350
                 *                                                  CDT44360
                 *       BIT 0 = FILE WRITE PROTECT                 CDT44370
                 *       BIT 1 = WRITE CHECK                        CDT44380
                 *       BIT 2 = GATED ATTENTION                    CDT44390
                 *       BIT 3 = DISC UNSAFE                        CDT44400
                 *       BIT 4 = NOT READY TO SEEK, READ, WRITE     CDT44410
                 *       BIT 5 = EXAMINE                            CDT44420
                 *       BIT 6 = SEEK INCOMPLETE                    CDT44430
                 *       BIT 7 = FILE NOT READY                     CDT44440
                 *                                                  CDT44450
                 *                                                  CDT44460
                 * CONTROLLER STATUS DICTIONARY                     CDT44470
                 *                                                  CDT44480
                 *       BIT 0 = WRITE PROTECT                      CDT44490
                 *       BIT 1 = HEADER COMPARE FAILURE             CDT44500
                 *       BIT 2 = DEFECTIVE TRACK                    CDT44510
                 *       BIT 3 = CYLINDER OVERFLOW                  CDT44520
                 *       BIT 4 = BUSY (IGNORE THIS BIT)             CDT44530
                 *       BIT 5 = EXAMINE                            CDT44540
                 *       BIT 6 = CONTROLLER IDLE                    CDT44550
                 *       BIT 7 = DATA TRANSFER ERROR                CDT44560
                 *                                                  CDT44570
                 *                                                  CDT44580
                 *                                                  CDT44590
                 *                                                  CDT44600
                 * "Y" FIELD ERROR DICTIONARY                       CDT44610
                 *                                                  CDT44620
                 * X0X = EXPECTING INITIAL STATUS                   CDT44630
                 * X1X = SEEK, PRIOR TO COMMAND                     CDT44640
                 * X2X = SEEK, AFTER COMMAND                        CDT44650
                 * X3X = RESTORE, PRIOR TO COMMAND                  CDT44660
                 * X4X = RESTORE, AFTER COMMAND                     CDT44670
                 * X5X = ADDRESS CHECK                              CDT44680
                 * X6X = WRITE                                      CDT44690
                 * X7X = READ                                       CDT44700
                 * X8X = CORE COMPARISON                            CDT44710
                 * X9X = EXPECTING WRITE PROTECT STATUS FROM THE FILE CDT44720
                 * XAX = EXPECTING DEFECTIVE TRACK STATUS           CDT44730
                 * XBX = EXPECTING ADS CMP ERR STATUS               CDT44740
                 * XCX = EXPECTING CYLINDER OVERFLOW STATUS         CDT44750
                 * XDX = EXPECTING LPC ERR/WPV STATUS               CDT44760
                 * XEX = EXPECTING FILE NOT READY STATUS            CDT44770
                 * XFX = EXPECTING WRITE PROTECT STATUS             CDT44780
                 *                                                  CDT44790
                 *                                                  CDT44800
                 * "Z" FIELD ERROR DICTIONARY                       CDT44810
                 *                                                  CDT44820
3174   0A01      ERRF     AHR   0,1      FORMAT SWITCH NOT ON       CDT44830
3176   0A01      ERRE     AHR   0,1      SECOND FILE ADS WRONG      CDT44840
3178   0A01      ERRD1A   AHR   0,1                                 CDT44850
317A   0A01      ERRC     AHR   0,1      EXPECTING ERR, GOT NONE    CDT44860
317C   0A01      ERRB     AHR   0,1      BAD SELCH STATUS           CDT44870
317E   0A01      ERRA     AHR   0,1      DC ADS WRONG               CDT44880
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3180  0A01          4489  ERR9    AHR   0,1     SELCH ADS ERROR                          CDT44910
3182  0A01          4490  ERR8    AHR   0,1     RECOVERABLE READ ERROR                   CDT44920
3184  0A01          4491  ERR7    AHR   0,1     SOLID READ ERROR, POSSIBLE BAD WRITE     CDT44930
                    4492  *                                 POSSIBLE SEEK ERR        CDT44940
3186  0A01          4493  ERR6    AHR   0,1     SELCH FINAL ADDRESS CHECK FAILURE        CDT44950
3188  0A01          4494  ERR5    AHR   0,1     ERR ON OFFSET READ                       CDT44960
318A  0A01          4495  ERR4    AHR   0,1     ERR ON FIRST READ                        CDT44970
318C  0A01          4496  ERR3    AHR   0,1     UNEXPECTED OC ERR                        CDT44980
318E  0A01          4497  ERR2    AHR   0,1     TIME OUT                                 CDT44990
3190  0A01          4498  ERR1A   AHR   0,1     BAD FILE STATUS                          CDT45000
                    4499  *                                                              CDT45010
3192  0880          4500        LHR   WK2,0     ERR CODE TO WK2                          CDT45020
3194  0700          4501        XHR   0,0       REZERO R0                                CDT45030
3196  4800 15FC     4502        LH    R0,NOMSG+6                                         CDT45040
319A  4080 35C0     4503        STH   R0,NOMSGSV                                         CDT45050
319E  0700          4504        XHR   R0,R0                                              CDT45060
31A0  4000 15FC     4505        STH   R0,NOMSG+6                                         CDT45070
31A4  4060 36E4     4506        STH   WK0,SW0   SAVE WK0                                 CDT45080
31A8  4070 36E6     4507        STH   WK1,SW1   AND WK1                                  CDT45090
31AC  DE40 33BC     4508        OC    SLAD,STOP                                          CDT45100
31B0  9D4A          4509        SSR   SLAD,STAT                                          CDT45110
31B2  D2A0 36BE     4510        STB   STAT,SELSTAT                                       CDT45120
31B6  9D3A          4511        SSR   DCAD,STAT                                          CDT45130
31B8  D2A0 36C0     4512        STB   STAT,CONSTAT                                       CDT45140
31BC  9D5A          4513        SSR   FUT,STAT                                          CDT45150
31BE  D2A0 36BF     4514        STB   STAT,FILSTAT                                       CDT45160
                    4515  *                       DISC TEST.                           CDT45170
31C2  087C          4516  ERRH1   LHR   WK1,OPKEY LOAD THE APPROPRIATE OPKEY           CDT45180
31C4  0678          4517        OHR   WK1,WK2     OR IN THE DETAIL CODE                CDT45190
31C6  0817          4518        LHR   R1,WK1      SET UP FOR CONVERSION                CDT45200
31C8  C820 155C     4519        LHI   R2,ERRNO    STORE ASCII IN ERRNO                 CDT45210
31CC  2402          4520        LIS   R0,2                                             CDT45220
31CE  41F0 106A     4521        BAL   R15,HEXASC  CALL HEX TO ASCII                    CDT45230
31D2  D300 36BE     4522  LASTAT  LB    R0,SELSTAT                                     CDT45240
31D6  D200 1515     4523        STB   R0,ERRSTA                                        CDT45250
31DA  2402          4524        LIS   R0,2                                             CDT45260
31DC  D310 36C0     4525        LB    R1,CONSTAT                                       CDT45270
31E0  C820 1589     4526        LHI   R2,DEVMSG+15                                     CDT45280
31E4  41F0 106A     4527        BAL   R15,HEXASC                                       CDT45290
31E8  2402          4528        LIS   R0,2                                             CDT45300
31EA  C820 158C     4529        LHI   R2,DEVMSG+18                                     CDT45310
31EE  D310 36BF     4530        LB    R1,FILSTAT                                       CDT45320
31F2  41F0 106A     4531        BAL   R15,HEXASC                                       CDT45330
31F6  41F0 2E98     4532        BAL   RETN,ERRANLYS                                    CDT45340
31FA  4010 1512     4533        STH   R1,ERRDEV                                        CDT45350
31FE  41F0 0E98     4534        BAL   R15,ERRDS                                        CDT45360
3202  C810 2020     4535        LHI   R1,X'2020'                                       CDT45370
3206  D210 1589     4536        STB   R1,DEVMSG+15                                     CDT45380
320A  D210 158A     4537        STB   R1,DEVMSG+16                                     CDT45390
320E  4010 158C     4538        STH   R1,DEVMSG+18                                     CDT45400
3212  4050 3670     4539        STH   R5,TEMPB                                         CDT45410
3216  081B          4540        LHR   R1,TRACK    GET THE CYLINDER FOR OUTPUT          CDT45420
3218  2403          4541        LIS   R0,3        CONVERT 3 HEX DIGITS                 CDT45430
321A  C820 3553     4542        LHI   R2,CYLNO    STORE THE ASCII IN CYLNO             CDT45440
321E  41F0 106A     4543        BAL   R15,HEXASC  CONVERT IT AND STORE IT              CDT45450
3222  081D          4544        LHR   R1,SECT                                          CDT45460
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3224  C5C0 0080          4545          CLHI   OPKEY,X'80'     CORE COMPARISON ERROR          CDT45450
3228  4230 3252          4546          BTC    3,ERRH2                                        CDT45460
322C  D390 36E3          4547          LB     WK3,RCMD        YES IS THIS FORMAT READ        CDT45470
3230  C590 0005          4548          CLHI   WK3,5           IF SO BYPASS NEXT              CDT45480
3234  233F               4549          BFFS   3,ERRH2                                        CDT45490
3236  9118               4550          SLHLS  R1,8                                           CDT45500
3238  4A10 36E6          4551          AH     R1,SW1          CAN GET THE EXACT              CDT45510
323C  9018               4552          SRHLS  R1,8                                           CDT45520
323E  C510 36EC          4553          CLHI   R1,MXSEC1                                      CDT45530
3242  2188               4554          BLS    ERRH2                                          CDT45540
3244  4800 36F4          4555          LH     R0,HEAD                                        CDT45550
3248  2601               4556          AIS    R0,1                                           CDT45560
324A  4000 36F4          4557          STH    R0,HEAD                                        CDT45570
324E  0700               4558          XHR    R0,R0                                          CDT45580
3250  0800               4559          LHR    R0,SECT                                        CDT45590
3252  C820 3566          4560  ERRH2   LHI    R2,SECTNO       USING THE BYTE                 CDT45600
3256  2403               4561          LIS    R0,3            COUNTER                        CDT45610
3258  41F0 106A          4562          BAL    R15,HEXASC      CONVERT                        CDT45620
325C  4810 36F4          4563          LH     R1,HEAD         GET THE HEAD NUMBER            CDT45630
3260  C820 355C          4564          LHI    R2,HEADNO       STORE THE ASCII                CDT45640
3264  2402               4565          LIS    R0,2            IN HEAD NO                     CDT45650
3266  41F0 106A          4566          BAL    R15,HEXASC                                     CDT45660
326A  C850 354A          4567          LHI    R5,MSG13        LOAD MESSAGE ADRESS            CDT45670
326E  41F0 109C          4568          BAL    R15,PRINT                                      CDT45680
3272  4850 3670          4569          LH     R5,TEMPB                                       CDT45690
3276  2411               4570          LIS    R1,1                                           CDT45700
3278  2422               4571          LIS    R2,2                                           CDT45710
327A  C5C0 0080          4572          CLHI   OPKEY,X'80'     CORE COMPARISON?               CDT45720
327E  4230 32D8          4573          BNE    TSOLID          B IF NO                        CDT45730
3282  4870 36E6          4574          LH     WK1,SW1         GET THE BYTE NUMBER            CDT45740
3286  D390 36E3          4575          LB     WK3,RCMD        AGAIN CHECK FOR FORMAT         CDT45750
328A  C590 0005          4576          CLHI   WK3,5                                          CDT45760
328E  2333               4577          BFFS   3,ERRH4                                       CDT45770
3290  C470 00FF          4578          NHI    WK1,X'FF'                                      CDT45780
3294  0817               4579  ERRH4   LHR    R1,WK1          CONVERT 3 HEX DIGITS           CDT45790
3296  C820 352C          4580          LHI    R2,ERMS3+6                                     CDT45800
329A  2403               4581          LIS    R0,3                                           CDT45810
329C  41F0 106A          4582          BAL    R15,HEXASC                                     CDT45820
32A0  4810 36E4          4583          LH     R1,SW0          YES GET GOOD                   CDT45830
32A4  C820 3538          4584          LHI    R2,ERMS3+18                                    CDT45840
32A8  2404               4585          LIS    R0,4            4 HEX DIGITS                   CDT45850
32AA  41F0 106A          4586          BAL    R15,HEXASC                                     CDT45860
32AE  4810 36E6          4587          LH     R1,SW1          BAD DATA                       CDT45870
32B2  4811 3702          4588          LH     R1,RDF(R1)      CONVERT 4                      CDT45880
32B6  C820 3543          4589          LHI    R2,ERMS3+29                                    CDT45890
32BA  2404               4590          LIS    R0,4                                           CDT45900
32BC  41F0 106A          4591          BAL    R15,HEXASC                                     CDT45910
32C0  C850 3526          4592          LHI    R5,ERMS3                                       CDT45920
32C4  41F0 109C          4593          BAL    R15,PRINT                                      CDT45930
32C8  2411               4594          LIS    R1,1                                           CDT45940
32CA  2422               4595          LIS    R2,2                                           CDT45950
32CC  4850 3670          4596          LH     R5,TEMPB                                       CDT45960
32D0  4800 35C0          4597          LH     R0,NOMSGSV                                     CDT45970
32D4  4000 15FC          4598          STH    R0,NOMSG+6                                     CDT45980
32D8  0700               4599  TSOLID  XHR    R0,R0                                          CDT45990
32DA  4870 35EA          4600          LH     WK1,DTSTFLG                                    CDT46000
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32DE  2337       4601         BFFS  3,TSOLIDA                          CDT46010
32E0  D370 1515  4602         LB    WK1,ERRSTA                         CDT46020
32E4  C470 0020  4603         NHI   WK1,X'20'                          CDT46030
32E8  4230 1FC4  4604         BNZ   RCLDONA                            CDT46040
32EC  4860 36D2  4605 TSOLIDA LH    WK0,RRCTR                          CDT46050
32F0  4560 1638  4606         CLH   WK0,RETRY+6                        CDT46060
32F4  2386       4607         BFFS  8,EURC                             CDT46070
32F6  0A61       4608         AHR   WK0,1             BUMP RERUN COUNTER CDT46080
32F8  4060 36D2  4609         STH   WK0,RRCTR                          CDT46090
32FC  4300 3356  4610         B     RERUN             GO RERUN         CDT46100
                 4611 *       SOLID ERROR --- ABORT TEST SECTION       CDT46110
                 4612 *                                                CDT46120
3300  4800 15FC  4613 EURC    LH    R0,NOMSG+6                         CDT46130
3304  4000 35C0  4614         STH   R0,NOMSGSV                         CDT46140
3308  0700       4615         XHR   R0,R0                              CDT46150
330A  4000 15FC  4616         STH   R0,NOMSG+6                         CDT46160
330E  4050 3670  4617         STH   R5,TEMPB                           CDT46170
3312  C850 3516  4618         LHI   R5,ERMS2                           CDT46180
3316  41F0 109C  4619 TABORT  BAL   R15,PRINT                          CDT46190
331A  4860 155A  4620         LH    WK0,ETESTNO                        CDT46200
331E  4060 3586  4621         STH   WK0,MSTA+6                         CDT46210
3322  C850 3580  4622         LHI   R5,MSTA                            CDT46220
3326  41F0 109C  4623         BAL   R15,PRINT                          CDT46230
332A  4800 35C0  4624         LH    R0,NOMSGSV                         CDT46240
332E  4000 15FC  4625         STH   R0,NOMSG+6                         CDT46250
3332  0700       4626         XHR   R0,R0                              CDT46260
3334  4850 3670  4627         LH    R5,TEMPB                           CDT46270
3338  4300 0D72  4628         B     TSTEND                             CDT46280
                 4629 *                                                CDT46290
                 4630 *       WRITE PROTECT ON ---- ABORT TEST SECTION CDT46300
                 4631 *                                                CDT46310
333C  4050 3670  4632 WTPON   STH   R5,TEMPB                           CDT46320
3340  4800 15FC  4633         LH    R0,NOMSG+6                         CDT46330
3344  4000 35C0  4634         STH   R0,NOMSGSV                         CDT46340
3348  0700       4635         XHR   R0,R0                              CDT46350
334A  4010 1526  4636         STH   R1,NOERR                           CDT46360
334E  C850 356C  4637         LHI   R5,MSWP                            CDT46370
3352  4300 3316  4638         B     TABORT            ABORT TEST       CDT46380
3356  DE40 33BC  4639 RERUN   OC    SLAD,STOP         STOP SELCH       CDT46390
335A  DE30 33B6  4640         OC    DCAD,RESET        RESET DATA CONT  CDT46400
335E  DE50 33B6  4641         OC    FUT,RESET                          CDT46410
3362  41F0 11B4  4642         BAL   RETN,TSTBRK                        CDT46420
3366  9037       4643         SSR   DCAD,WK1                           CDT46430
3368  C470 0010  4644         NHI   WK1,X'10'         CYLINDER OVERFLOW? CDT46440
336C  2333       4645         BFFS  3,RER1                             CDT46450
336E  DE50 33B2  4646         OC    FUT,RSTHED                         CDT46460
3372  48F0 36DA  4647 RER1    LH    RETN,RERN         GET THE RERUN ADDRESS CDT46470
3376  030F       4648         BR    RETN              RERUN            CDT46480
                 4649 *  CHECKS IF THE DISC IS A CE PACK, AND IF SO    CDT46490
                 4650 *    IS THE CURRENT CYLINDER VOID ?              CDT46500
                 4651 *                                                CDT46510
                 4652 *                                                CDT46520
                 4653 *    BAL   RETN,ILLADD                           CDT46530
                 4654 *    RETN2 = VOID RETURN                         CDT46540
                 4655 *                                                CDT46550
                 4656 *                                                CDT46560
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3378  4500 16E6          4657  ILLADD   CLH    0,PACTYP          CE DISC PACK?                    CDT46570
337C  023F               4658           BNER   RETN              NO - NORMAL RETURN               CDT46580
337E  C5B0 0046          4659           CLHI   TRACK,70          < 70                             CDT46590
3382  020F               4660           BCR    RETN              OK                               CDT46600
3384  C5B0 004C          4661           CLHI   TRACK,76          70-75                            CDT46610
3388  028E               4662           BCR    RETN2             REJECT                           CDT46620
338A  C5B0 0073          4663           CLHI   TRACK,115         76-114                           CDT46630
338E  020F               4664           BCR    RETN              OK                               CDT46640
3390  C5B0 0079          4665           CLHI   TRACK,121         115-120                          CDT46650
3394  028E               4666           BCR    RETN2             REJECT                           CDT46660
3396  C5B0 008C          4667           CLHI   TRACK,140         121-139                          CDT46670
339A  020F               4668           BCR    RETN              OK                               CDT46680
339C  C5B0 0097          4669           CLHI   TRACK,151         140-150                          CDT46690
33A0  028E               4670           BCR    RETN2             REJECT                           CDT46700
33A2  C5B0 00E6          4671           CLHI   TRACK,230         151-229                          CDT46710
33A6  020F               4672           BCR    RETN              OK                               CDT46720
33A8  C5B0 00F1          4673           CLHI   TRACK,241         230-240                          CDT46730
33AC  028E               4674           BCR    RETN2             REJECT                           CDT46740
33AE  030F               4675           BR     RETN              >240                             CDT46750
                         4676  *                                  OK                               CDT46760
                         4677  *                                                                   CDT46770
                         4678  * COMMAND BYTES                                                     CDT46780
                         4679  *                                                                   CDT46790
33B0  10                 4680  CYLCMD   DB     X'10'                                              CDT46800
33B1  20                 4681  HEDCMD   DB     X'20'                                              CDT46810
33B2  04                 4682  RSTHED   DB     X'04'                                              CDT46820
33B3  08                 4683  RSTATT   DB     X'08'                                              CDT46830
33B4  A4                 4684  RDTTY    DB     X'A4'                                              CDT46840
33B5  03                 4685  RCHECK   DB     3                 CONTROLLER READ BACK CHECK       CDT46850
33B6  C8                 4686  RESET    DB     X'C8'             CONTROLLER RESET                 CDT46860
33B7  C2                 4687  SEEKC    DB     X'C2'             SEEK                             CDT46870
33B8  C1                 4688  RESTOC   DB     X'C1'             RESTORE                          CDT46880
33B9  42                 4689  ISKCMD   DB     X'42'             INTERRUPT SEEK COMMAND           CDT46890
33BA  00                 4690  GAP1     DB     X'00'                                              CDT46900
33BB  00                 4691  GAP2     DB     X'00'                                              CDT46910
33BC  08                 4692  STOP     DB     X'08'                                              CDT46920
33BD  48                 4693  ESTOP    DB     X'48'                                              CDT46930
33BE  4080               4694  INCRMT   DC     X'4080'                                            CDT46940
      0000 33BF          4695  NORM1    EQU    *-1                                                CDT46950
33C0                     4696           DB     *                 END OF COMMAND BYTES             CDT46960
                         4697  *                                                                   CDT46970
33C0  3702               4698  IDSA     DC     RDF               ADDRESSES FOR SELCH              CDT46980
33C2  3705               4699  IDFA     DC     RDF+3                                              CDT46990
33C4  4130               4700  IDDC     DC     X'4130'                                            CDT47000
                         4701  *                                                                   CDT47010
                         4702  *                                                                   CDT47020
                         4703  *        MESSAGES                                                   CDT47030
                         4704  *                                                                   CDT47040
33C6  454E5445           4705  MSG1     DC     C'ENTER HEADS TO BE DELETED',X'0D00'               CDT47050
      52204845
      41445320
      544F2042
      45204445
      4C455445
      4420
33E0  0D00
```

```
33E2  44495343  4706  MSG2    DC  C'DISC FILE SELECT ERROR',X'0D00'          CDT47060
      2046494C
      45205345
      4C454354
      20455252
      4F52
33F8  0D00
33FA  494E5641  4707  MSG3    DC  C'INVALID          OPTION',X'0D00'         CDT47070
      4C494420
      20202020
      20202020
      204F5054
      494F4E20
3412  0D00
3414  494C4C45  4708  MSG12   DC  C'ILLEGAL TRACK ADR-CE PACK',X'0D00'       CDT47080
      47414C20
      54524143
      48204144
      52204345
      20504143
      4820
342E  0D00
3430  44454645  4709  MSG14   DC  C'DEFECTIVE LOTRACK FOR FORMAT MODE TEST',X'0D00'  CDT47090
      43544956
      45204C4F
      54524143
      4820464F
      5220464F
      524D4154
      204D4F44
      45205445
      5354
3456  0D00
3458  494E5641  4710  MSG15   DC  C'INVALID SECNUM OPTION-DEFAULTED TO 4 SECTORS',X'0D00'  CDT47100
      4C494420
      5345434E
      554D204F
      5054494F
      4E204445
      4641554C
      54454420
      544F2034
      20534543
      544F5253
3484  0D00
3486  44455052  4711  FILOFF  DC  C'DEPRESS DISABLE OR PUT RUN/LOAD IN LOAD'  CDT47110
      45535320
      44495341
      424C4520
      4F522050
      55542052
      554E2F4C
      4F414420
      494E204C
      4F414420
34AE  0D0A      4712          DC  X'0D0A'                                     CDT47120
```

```
34B0 44455052          4713  FILON   DC    C'DEPRESS DISABLE OR PUT RUN/LOAD IN RUN'          CDT47130
     45535320
     44495341
     424C4520
     4F522050
     55542052
     554E2F4C
     4F414420
     494E2052
     554E
34D6 0D0A              4714          DC    X'D0A'                                             CDT47140
34D8 44455052          4715  MDWPS   DC    C'DEPRESS THE WRITE PROTECT SWITCH',X'D0A'         CDT47150
     45535320
     54484520
     57524954
     45205052
     4F544543
     54205357
     49544348
34F8 0D0A
34FA 44455052          4716  MDDSS   DC    C'DEPRESS THE DISABLE SWITCH',X'D0A'               CDT47160
     45535320
     54484520
     44495341
     424C4520
     53574954
     4348
3514 0D0A
3516 534F4C49          4717  ERMS2   DC    C'SOLID ERROR: ',X'0D00'                           CDT47170
     44204552
     524F523A
     2020
3524 0000
3526 42595445          4718  ERMS3   DC    C'BYTE        GOOD        BAD        ',X'0D00'     CDT47180
     20202020
     20202020
     474F4F44
     20202020
     20202042
     41442020
     20202020
     2020
3548 0D00
354A 43594C49          4719  MSG13   DC    C'CYLINDER TTT HEAD HH SECTOR KKK',X'0D00'         CDT47190
     4E444552
     20545454
     20484541
     44204848
     20534543
     544F5220
     4B4B4B20
356A 0D00
     0000 3566         4720  SECTNO  EQU   MSG13+28                                          CDT47200
     0000 355C         4721  HEADNO  EQU   MSG13+18                                          CDT47210
     0000 3553         4722  CYLNO   EQU   MSG13+9                                           CDT47220
356C 57524954          4723  MSWP    DC    C'WRITE PROTECT ON: ',X'0D00'                      CDT47230
```

```
                45205052
                4F544543
                54204F4E
                3A20
357E            0D00
3580  54455354                 4724  MSTA      DC      C'TEST  XX  ABORTED',X'D00'                                  CDT47240
      20205858
      20204142
      4F525445
      4420
3592  0D00
3594  0000                      4725  SELAD     DC      X'0'                                                         CDT47250
3596  0000                      4726  NWPRTFLG  DC      X'0'                                                         CDT47260
                                4727  *         BUFFERS                                                              CDT47270
                                4728  *                                                                              CDT47280
                                4729  *TEST PARAMETER TABLE                                                        CDT47290
3598  0196                      4730  TSFPRM    DC      H'406'                                                       CDT47300
359A  0013                      4731            DC      H'19'             MAX SECTORS                                CDT47310
359C  0013                      4732            DC      H'19'             MAX HEADS                                  CDT47320
359E  0001                      4733            DC      H'01'             ADDR CONSTRUCTION FLAG                     CDT47330
35A0  0001                      4734            DC      H'01'             CHECK ILL ADDRESS FLAG                     CDT47340
35A2  00CB                      4735  STHPRM    DC      H'203'                                                       CDT47350
35A4  0017                      4736            DC      H'23'                                                        CDT47360
35A6  0001                      4737            DC      H'01'                                                        CDT47370
35A8  0002                      4738            DC      H'02'                                                        CDT47380
35AA  0000                      4739            DC      H'00'                                                        CDT47390
35AC  0198                      4740  SFTFIX    DC      H'408'                                                       CDT47400
35AE  0017                      4741            DC      H'23'                                                        CDT47410
35B0  0001                      4742            DC      H'01'                                                        CDT47420
35B2  0003                      4743            DC      H'03'                                                        CDT47430
35B4  0000                      4744            DC      H'00'                                                        CDT47440
35B6  0198                      4745  TSFTRMV   DC      H'408'                                                       CDT47450
35B8  0017                      4746            DC      H'23'                                                        CDT47460
35BA  0001                      4747            DC      H'01'                                                        CDT47470
35BC  0002                      4748            DC      H'02'                                                        CDT47480
35BE  0000                      4749            DC      H'00'                                                        CDT47490
35C0  0000                      4750  NOMSGSV   DC      X'0'                                                         CDT47500
35C2  0000                      4751  R15SAV    DC      X'0'                                                         CDT47510
                                4752  *ETPE CONSTANTS SUPPLIED BY USING PROGRAM                                    CDT47520
35C4  434F4D4D                  4753  TITLE     DC      C'COMMON DISC TEST 06-173R01F01 ',X'0D00'                    CDT47530
      4F4E2044
      49534320
      54455354
      2030362D
      31373352
      30314630
      3120
35E2  0D00
35E4  FFE0                      4754  DEFTESTS  DC      X'FFE0'                                                      CDT47540
35E6  0000                      4755            DC      0                                                            CDT47550
35E8  0015                      4756  MAXTST    DC      H'21'                                                        CDT47560
35EA  0000                      4757  DTSTFLG   DC      X'0'                                                         CDT47570
35EC  19CA                      4758  TESTS     DC      TEST0,TEST1,TEST2,TEST3,TEST4,TEST5,TEST6,TEST7,TEST8        CDT47580
35EE  19FA
35F0  1A4E
35F2  1A96
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35F4  1AD2
35F6  1AFE
35F8  1D6E
35FA  1E58
35FC  1F0C
35FE  1F1A          4759          DC      TEST9,TEST10,TEST11,TEST12,TEST13,TEST14,TEST15          CDT47590
3600  1F2C
3602  2002
3604  215C
3606  22B4
3608  2344
360A  23AA
360C  2434          4760          DC      TEST16,TEST17,TEST18,TEST19,TEST20,TEST21                CDT47600
360E  247C
3610  24D2
3612  259C
3614  2628
3616  2682
3618  0000          4761  RETN2S  DC      X'0'                                                     CDT47610
361A  0000          4762  R4SV    DC      X'0'                                                     CDT47620
361C  0000          4763  RETNSV  DC      X'0'                                                     CDT47630
361E  0000          4764  EXSELAD DC      X'0'                                                     CDT47640
3620  0000          4765          DC      X'0'                                                     CDT47650
3622  0000          4766  BUFADR  DC      X'0'                                                     CDT47660
3624  0000          4767          DC      X'0'                                                     CDT47670
3626  0000          4768  FBUFADR DC      X'0'                                                     CDT47680
3628  0000          4769          DC      X'0'                                                     CDT47690
362A  0000          4770  CMNDS   DC      X'0'                                                     CDT47700
362C  0000          4771  RETN2SVC DC     X'0'                                                     CDT47710
362E  0000          4772  WK1SV   DC      X'0'                                                     CDT47720
3630  0000          4773  RETN2S1 DC      X'0'                                                     CDT47730
3632  0000          4774  WK2SV   DC      X'0'                                                     CDT47740
3634  0000          4775  WK0SV   DC      X'0'                                                     CDT47750
3636  0000          4776  FMFLG   DC      X'0'                                                     CDT47760
3638  0000          4777  MDSCNT  DC      X'0'                                                     CDT47770
363A  0000          4778  SECFILAD DC     X'0'                                                     CDT47780
363C  0000          4779  SKCOUNT DC      X'0'                                                     CDT47790
363E  0000          4780  FMTSEC  DC      X'0'                                                     CDT47800
3640  0000          4781  SECADSTA DC     X'0'                                                     CDT47810
3642  0000          4782  TWOSEC  DC      X'0'                                                     CDT47820
3644  0000          4783  FUTADRS DC      X'0'                                                     CDT47830
3646  0000          4784  FILE1   DC      X'0'                                                     CDT47840
3648  0000          4785  FILE2   DC      X'0'                                                     CDT47850
364A  0000          4786  FILE3   DC      X'0'                                                     CDT47860
364C  0000          4787  FILE4   DC      X'0'                                                     CDT47870
364E  0000          4788  DEVSADR DC      X'0'                                                     CDT47880
3650  0000          4789          DC      X'0'                                                     CDT47890
3652  0000          4790          DC      X'0'                                                     CDT47900
3654  0000          4791          DC      X'0'                                                     CDT47910
3656  0000          4792          DC      X'0'                                                     CDT47920
3658  0000          4793          DC      X'0'                                                     CDT47930
365A  FFFF          4794          DC      X'FFFF'                                                  CDT47940
365C  0000          4795  DEVINT  DC      X'0'                                                     CDT47950
365E  0000          4796          DC      X'0'                                                     CDT47960
3660  0000          4797          DC      X'0'                                                     CDT47970
3662  0000          4798          DC      X'0'                                                     CDT47980
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3664  0000          4799          DC    X'0'                                            CDT47990
3666  0000          4800          DC    X'0'                                            CDT48000
3668  0000          4801  INTLVL  DC    X'0'                                            CDT48010
366A  0000          4802          DC    X'0'                                            CDT48020
366C  0000          4803          DC    X'0'                                            CDT48030
366E  0000          4804  TEMPA   DC    X'0'                                            CDT48040
3670  0000          4805  TEMPB   DC    X'0'                                            CDT48050
3672  0000          4806  NEXTHD  DC    X'0'                                            CDT48060
3674  0000          4807  RSTFLG  DC    X'0'                                            CDT48070
3676  0000          4808  WPSTAT  DC    X'0'                                            CDT48080
3678  00FF          4809  OPTSIZ  DC    H'255',H'511',H'767',H'1023',H'1279'            CDT48090
367A  01FF
367C  02FF
367E  03FF
3680  04FF
3682  2ED2          4810  VECADR  DC    A(SET1A),A(UNDEF),A(SET3A),A(UNDEF),A(UNDEF),A(SET6A)   CDT48100
3684  2EF0
3686  2ED8
3688  2EF0
368A  2EF0
368C  2EEA
368E  2ED8          4811          DC    A(SET3A),A(SET3A),A(SET6A),A(SET6A),A(SET6A),A(SET7)    CDT48110
3690  2ED8
3692  2EEA
3694  2EEA
3696  2EEA
3698  2EAE
369A  2EE4          4812          DC    A(SET5A),A(SET6A),A(SET3A)                      CDT48120
369C  2EEA
369E  2ED8
36A0  ECFC9CAC      4813  ERRTBL1 DB    X'EC',X'FC',X'9C',X'AC',X'BC',X'CC',X'DC'       CDT48130
      BCCCDC
36A8  2ED2          4814  VECADR1 DC    A(SET1A),A(SET1A),A(SET3A),A(SET3A),A(SET3A),A(SET3A)   CDT48140
36AA  2ED2
36AC  2ED8
36AE  2ED8
36B0  2ED8
36B2  2ED8
36B4  2ED8          4815          DC    A(SET3A)                                        CDT48150
      0000 36B5     4816  LNZB    EQU   *-1                                             CDT48160
36B6                4817  OPTBUF  DS    6                 OPTION INPUT BUFFER           CDT48170
36BC                4818  IOSAVE  DS    2                 USER'S I/O CHOICE             CDT48180
36BE                4819  SELSTAT DS    1                                               CDT48190
36BF                4820  FILSTAT DS    1                                               CDT48200
36C0                4821  CONSTAT DS    1                                               CDT48210
36C1                4822          DS    1                                               CDT48215
36C2                4823  SA      DS    2                 START ADDRESS                 CDT48220
36C4                4824  FA      DS    2                 FINAL ADDRESS                 CDT48230
36C6                4825  RND1    DS    2                                               CDT48240
36C8                4826  RND2    DS    2                                               CDT48250
36CA                4827  LPCNT   DS    2                                               CDT48260
36CC                4828  SKRTN   DS    2                                               CDT48270
36CE                4829  RSRET   DS    2                                               CDT48280
36D0                4830  CKARET  DS    2                                               CDT48290
36D2                4831  RRCTR   DS    2                 RERUN COUNTER                 CDT48300
36D4                4832  ENTSAV  DS    2                 ENTRY POINT SAVER             CDT48310
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36D6                MAXCY    DS     2
36D8                MAXCY1   DS     2
36DA                RERN     DS     2
36DC                INTSKR   DS     2
36DE                TIMCON   DS     2
36E0                SIZE     DS     2
36E2                WCMD     DS     2
     0000 36E3      RCMD     EQU    WCMD+1
36E4                SW0      DS     2
36E6                SW1      DS     2
36E8                ERRFLG   DS     2                EXPECTED ERROR BITS
36EA                MAXSEC   DS     2
36EC                MXSEC1   DS     2                MAX SECT + 1
36EE                MXSEC2   DS     2                MAX SECT + 2
36F0                MXHED    DS     2
36F2                MXHED1   DS     2
36F4                HEAD     DS     2
36F6                TMPSEC   DS     2
36F8                SCOUNT   DS     2
36FA                RDER     DS     2
36FC                RWSAVE   DS     2
36FE                RWOCMD   DS     2
3700                RXERFL   DS     2
3702                RDF      DS     1024
3B02                WTF      DS     1024
3F08                         ALIGN  8
3F08                ERRSAVE  DSF    16
     0000 3F48      RSAVE    EQU    *
                    * THE FOLLOWING CODE IS NOT PART OF THE TEST
                    **CHKSUM
                    *
                             IF     0
3F48                IF1      IF     1
                    *
3F48 C810 0A00      CHKSUM   LHI    R1,X'A00'        START OF CHKSUM GENERATE ROUTINE
3F4C 2421                    LIS    R2,1
3F4E C830 36B5               LHI    R3,LNZB
3F52 0744                    XHR    R4,R4
3F54 D351 0000      GEN      LB     R5,0(R1)
3F58 0745                    XHR    R4,R5            R4 = CHKSUM
3F5A C110 3F54               BXLE   R1,GEN
3F5E C810 0080               LHI    R1,X'80'
3F62 9E21                    OCR    R2,R1            DISPLAY : NORMAL MODE
3F64 9A24                    WDR    R2,R4            DISPLAY CHKSUM BYTE = X'MN' SAY
3F66 9411                    EXBR   R1,R1            R1 = X'8000'
3F68 9521                    EPSR   R2,R1            HALT PROCESSOR
3F6A 4300 3F48               B      CHKSUM
3F6E                         END
```

NO ERRORS 0 SQUEZ PASSES

CAL 04-00

			1513	1517	1519	4053	4058	4201						
	R15	000F	289	303	310	429	642	733	752	796	880	925	1188	1190	1207
			1214	1218	1220	1233	1373	1374	1375	1376	1393	1394	1395	1396	1405
			1407	1414	1422	1425	1466	1542	4521	4527	4531	4534	4543	4562	4566
			4568	4582	4586	4591	4593	4619	4623						
	R15SAV	35C2													
	R2	0002	201	205	212	220	226	257	259	260	264	266	294	295	341
			342	346	346	347	349	350	354	356	381	386	388	389	391
			413	414	503	506	507	514	516	517	518	519	521	523	524
			532	533	533	534	580	581	583	594	620	627	632	637	643
			648	659	660	661	680	688	696	700	713	721	724	771	784
			785	787	787	788	788	790	797	815	816	831	851	859	863
			866	869	870	939	940	944	1034	1077	1079	1079	1080	1091	1093
			1094	1097	1101	1110	1111	1123	1124	1129	1140	1167	1171	1183	1184
			1185	1192	1202	1203	1204	1211	1212	1215	1226	1237	1238	1372	1392
			1426	1427	1430	1431	1477	2080	2084	2087	2101	2106	2111	3652	4152
			4519	4526	4529	4542	4560	4564	4571	4580	4584	4589	4595	4868	4875
			4876	4878											
	R3	0003	207	322	322	326	330	332	343	354	381	387	387	392	393
			454	455	459	460	607	610	760	763	763	772	804	805	805
			806	806	807	809	817	840	843	1035	1040	1044	1047	1048	1051
			1052	1059	1060	1069	1070	1076	1080	1086	1091	1094	1097	1098	1102
			1123	1130	1168	1170	1171	1428	4869						
	R4	0004	209	210	213	215	221	223	302	311	313	315	347	355	358
			361	363	366	368	370	371	373	375	377	389	395	407	409
			422	425	436	461	608	734	736	738	740	742	743	753	755
			789	790	791	792	793	795	808	809	810	811	812	814	815
			841	887	900	901	904	905	911	913	917	990	995	1049	1050
			1054	1058	1066	1067	1068	1093	1103	1111	1131	1413	4256	4257	4258
			4259	4260	4261	4262	4266	4267	4269	4274	4870	4870	4872	4876	
	R4SV	361A	4256	4269	4274										
	R5	0005	213	215	216	216	218	219	221	223	288	324	326	352	352
			353	364	364	379	379	382	388	444	449	526	552	571	602
			605	613	673	682	690	702	704	705	706	707	708	715	726
			789	850	857	926	1061	1062	1088	1089	1137	1137	1138	1142	1144
			1149	1153	1221	1222	1404	1416	1424	1434	1436	1438	1440	1442	1444
			1446	1448	1450	1452	1454	1458	1461	1464	2595	2596	2598	2613	2615
			2630	2632	2655	2657	2678	2680	4056	4539	4567	4569	4592	4596	4617
			4618	4622	4627	4632	4637	4871	4872						
	R5HEX	102E	398	606	614										
	R5X	1046	798												
	R5XA	105C	794												
	R5XB	1064	783	786											
	R6	0006	208	219	220	323	324	331	402	403	405	405	431	449	451
			457	732	732	750	751	761	764	1138	1140	1144	1146	1147	1151
			1165	1166	1364	1365	1366	1367	1368	1368	1369	1379	1380	1381	1382
			1383	1386	1387	1388	1389	1390	1399	1401	1402	1402	1403	1408	1409
			1478	1479	1480	1481	1482	1483	1484	1486	1493	1494	1495	1496	1497
			1498	1499	1501	1504	1506	1510	1512	1516	1518	1520	1521	1522	1523
			1524	1525	1526	1527	1528	1529	1530	1531	1532	1533	1534	1535	1536
			1537	1538	1539	1540	1543	1544	3602	3603	3604	3605	3607	3608	4052
			4054	4055	4133	4135	4140	4145	4156	4168	4174	4178			
	R7	0007	211	212	225	225	226	4130	4131	4133	4135	4136	4137	4136	4139
			4140	4143	4144	4145	4156	4157	4159	4161	4168	4169	4170	4171	4172
			4173	4174	4175	4176	4177	4178	4179	4180	4181	4183	4184	4186	4188
			4190	4191	4192	4194									

		4062 4062 4063 4065 4066 4067 4070 4073 4205 4209 4211 4214 4218
		4220 4253 4254 4255 4260 4267 4270 4306 4307 4308 4312 4313 4316
		4317 4318 4319 4320 4392 4393 4394 4395 4396 4401 4411 4412 4413
		4414 4415 4416 4420 4506 4605 4606 4608 4609 4620 4621
	WK0SV	3634 4253 4270 4306 4320 4392 4401 4411 4420
	WK1	0007 1362 1458 1459 1595 1596 1820 1823 1929 1936 1937 1938 1939 1971
		1972 1973 1974 1982 1984 1985 1997 1999 2000 2060 2063 2064 2065
		2066 2074 2115 2199 2199 2201 2201 2202 2212 2215 2216 2218 2223
		2226 2227 2229 2310 2313 2315 2315 2318 2329 2330 2331 2333 2340
		2341 2343 2344 2349 2504 2505 2506 2506 2509 2509 2510 2514 2515
		2534 2535 2545 2545 2546 2600 2601 2608 2609 2610 2616 2617 2624
		2634 2635 2641 2642 2659 2660 2682 2683 2749 2750 2751 2752 2783
		2784 2792 2804 2805 2806 2807 2883 2883 2891 2892 2973 2974 2975
		2976 2977 2980 2984 2987 2988 2990 3029 3030 3032 3034 3036 3037
		3039 3040 3042 3048 3049 3050 3051 3052 3053 3054 3055 3061 3062
		3065 3107 3108 3110 3115 3119 3120 3121 3122 3124 3144 3145 3147
		3149 3150 3152 3158 3162 3163 3181 3182 3184 3186 3187 3189 3196
		3200 3201 3202 3204 3231 3232 3262 3263 3266 3267 3272 3273 3275
		3287 3346 3354 3404 3405 3416 3417 3418 3420 3437 3440 3442 3447
		3449 3454 3455 3456 3458 3459 3471 3478 3479 3480 3482 3483 3494
		3497 3500 3505 3510 3516 3529 3563 3677 3679 3680 3682 3694 3716
		3717 3718 3721 3722 3723 3743 3744 3745 3748 3749 3750 3766 3781
		3782 3783 3785 3795 3804 3811 3813 3836 3846 3865 3872 3882 3892
		3895 3903 3906 3911 3912 3935 3943 3955 3960 3962 3970 3975 3976
		4000 4003 4016 4017 4018 4051 4052 4064 4067 4068 4075 4077 4078
		4079 4218 4251 4271 4364 4365 4366 4370 4376 4379 4380 4398 4399
		4400 4403 4418 4419 4428 4507 4516 4517 4518 4574 4578 4579 4600
		4602 4603 4643 4644
	WK1SV	362E 4251 4271 4364 4370 4376 4398 4403
	WK2	0008 1457 1459 1460 1462 1670 1673 1673 1677 1682 1771 1782 1821 1822
		1823 1981 1996 2200 2213 2224 2311 2312 2313 2316 2317 2318 2350
		2351 2428 2455 2488 2491 2497 2498 2499 2500 2508 2512 2689 2690
		2795 2796 2797 2820 2885 2889 2989 2990 2991 2992 2994 3063 3064
		3065 3066 3123 3124 3125 3203 3204 3205 3283 3289 3457 3481 3565
		3678 3719 3746 3837 3847 3883 3893 3916 3918 3919 3921 3922 3924
		3926 3929 3930 3944 3956 3961 4209 4216 4217 4221 4222 4252 4263
		4264 4265 4266 4272 4295 4297 4300 4309 4310 4311 4312 4336 4337
		4363 4377 4390 4391 4396 4409 4410 4415 4417 4424 4426 4500 4517
	WK2SV	3632 4252 4272
	WK3	0009 1456 1456 1980 1995 2197 2198 2205 2214 2219 2220 2225 2233 2234
		2235 2236 2240 2241 2245 2246 2456 2489 2492 2495 2499 2500 2501
		2520 2522 2523 2645 2646 2669 2670 2792 2794 2797 2809 2814 2816
		2817 2819 2822 2823 2833 2834 2836 2880 2884 2887 2888 2916 2917
		2919 2967 3043 3047 3060 3111 3114 3118 3153 3157 3161 3190 3194
		3199 3236 3237 3239 3264 3265 3280 3294 3295 3344 3345 3348 3349
		3359 3360 3362 3400 3401 3438 3439 3472 3473 3675 3720 3726 3727
		3728 3731 3732 3733 3734 3735 3736 3747 3753 3754 3755 3757 3758
		3759 3788 3789 3791 3887 3888 3890 4207 4208 4212 4239 4243 4244
		4281 4284 4286 4288 4289 4290 4302 4304 4322 4322 4323 4324 4325
		4326 4327 4328 4356 4357 4359 4360 4362 4365 4373 4374 4378 4379
		4382 4383 4385 4387 4388 4397 4399 4404 4406 4407 4416 4418 4425
		4427 4428 4547 4548 4575 4576
	WORCAS	1F86 2455
	WORST0	1F26 2429
	WORST1	1F8C 2515
	WPSTAT	3676 1473 1498 2642

```
PROG= *NONE*      ASSEMBLED BY CAL 03-[illegible]

                    SCRAT                                                                  CDF00020
                    CROSS                                                                  CDF00030
  0000R             SQCHK                                                                  CDF00031
                    TARGT  16                                                              CDF00040
                    WIDTH  128                                                             CDF00060
              * *********************COMMON DISC FORMATTER*************************        CDF00070
              * COPYRIGHT INTERDATA,INC. FEB 1976                                          CDF00071
              * THIS PROGRAM WILL FORMAT SERIES 30,40 AND 20 SURFACE DRIVES AS             CDF00080
              * SUPPORTED BY INTERDATA                                                     CDF00090
              *****************************************************************           CDF00100
              *SYSTEM REQUIREMENTS********                                                 CDF00110
              *PROCESSOR:                                                                  CDF00120
              *MODEL 50,70,74,80,85,7/16,7/32,8/32                                         CDF00130
              *MEMORY:                                                                     CDF00140
              *16KB                                                                        CDF00150
              *DEVICES UNDER TEST                                                          CDF00160
              *DISC CONTROLLER,1-4 DISC FILES,SERIES 30,40,OR 20 SURFACE DISC DRIVE        CDF00170
              *TTYADS= X'02'   CHANGE MEMLOC TTYADS AS NECESSARY                           CDF00180
              *SELCH=  X'F0'  CAN BE MODIFIED BY SELCH NN OPTION                           CDF00190
              *20 SURFACE CONTROLLER ADDRESS=X'FB' CAN BE CHANGED THROUGH DISCON NN        CDF00200
              *OPTION                                                                      CDF00210
              *SERIES 30,40  CONTR ADDR=X'B6' MODIFY USING DISCON NN OPTION                CDF00220
              *****************************************************************           CDF00230
              *LOADING PROCEDURES:                                                         CDF00240
              *TAPE FORMAT:ABSOLUTE NON-ZONED OBJECT TAPE(M17) WITH FRONT END BOOT         CDF00250
              *LOADER  ORG X'0A00'                                                         CDF00260
              *LOAD WITH 50 SEQUENCE                                                       CDF00270
              *SYSIN= (X'0A10')                                                            CDF00280
              *X'01' GDT/CRT ON PASLA/PALM INTERFACE FDX OP                                CDF00290
              *X'02' TTY ON TTY INTERFACE - GDT/CRT ON CURRENT LOOP INTERFACE              CDF00300
              *X'03'-X'FF' RESERVED PROGRAM DEFAULTS TO 2                                  CDF00310
              *SYSLST=(X'0A11')                                                            CDF00320
              *X'01' SAME AS ABOVE                                                         CDF00330
              *X'02' AS ABOVE                                                              CDF00340
              *X'03' LINE PRINTER ON LP INTERFACE                                          CDF00350
              *X'01'-X'FF' DEFAULTS TO 2                                                   CDF00360
              ***DEVICE ADDRESSES:                                                         CDF00370
              *CRT/GDT  (PASLA)=X'10',X'11' MODIFY (CRTADR) AT X'0A12'                     CDF00380
              *CRT/GDT  (CURRENT LOOP)=X'02'MODIFY (TTYADR) AT X'0A04'                     CDF00390
              *LINE PRINTER=X'62'           MODIFY (LPADR) AT  X'0A16'                     CDF00400
              ******************@***********************************************          CDF00410
              *EXECUTE AT X'A00' FOR SERIES 32 PROCESSORS                                  CDF00420
              *EXECUTE AT X'A04' FOR SERIES 16 PROCESSORS                                  CDF00430
              *                                                                            CDF00440
              *                                                                            CDF00450
              *                                                                            CDF00460
              *                                                                            CDF00470
              *                                                                            CDF00480
              *OPTION FORMAT: (SEE  PROGRAM DESCRIPTION)                                   CDF00490
              *TFILE N       FILE NUMBER ON THE CONTROLLER                                 CDF00500
              *SELCH NN      SELECTOR CHANNEL DEVICE ADDRESS                               CDF00510
              *DISCON NN     DISC CONTROLLER DEVICE ADDRESS                                CDF00520
              *RETRY N       ERROR RETRIES                                                 CDF00530
              *HICYL NNN     HI CYLINDER FOR READ/WRITE                                    CDF00540
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                                      55  *FILE  N       DRIVE SELECT 1= SERIES 40 FIXED                          CDF00550
                                      56  *                           2= SERIES 40 REMOVABLE                      CDF00560
                                      57  *                           3= SERIES 30                                CDF00570
                                      58  *                           4= SERIES 20 SURFACE                        CDF00580
                                      59  *TEST N1,N2,N3 TEST SELECTIONS                                          CDF00590
                                      60  *RUN           INITIATE TESTING                                         CDF00600
                                      61  *TIMCON NNN    1MSEC TIME OUT                                           CDF00610
                                      62  *BYCKAD        ADDRESS CHECK                                            CDF00620
                                      63  *PACTYP N      CUSTOMER ENGINEER DISC PACK                              CDF00630
                                      64  **ETPE                                                                  CDF00640
                                      65  *                                                                       CDF00650
                                      66  *                                                                       CDF00660
0000 0000                             67  R0        EQU   0                                                       CDF00670
0000 0001                             68  R1        EQU   1                                                       CDF00680
0000 0002                             69  R2        EQU   2                                                       CDF00690
0000 0003                             70  R3        EQU   3                                                       CDF00700
0000 0004                             71  R4        EQU   4                                                       CDF00710
0000 0005                             72  R5        EQU   5                                                       CDF00720
0000 0006                             73  R6        EQU   6                                                       CDF00730
0000 0007                             74  R7        EQU   7                                                       CDF00740
0000 0008                             75  R8        EQU   8                                                       CDF00750
0000 0009                             76  R9        EQU   9                                                       CDF00760
0000 000A                             77  R10       EQU   10                                                      CDF00770
0000 000B                             78  R11       EQU   11                                                      CDF00780
0000 000C                             79  R12       EQU   12                                                      CDF00790
0000 000D                             80  R13       EQU   13                                                      CDF00800
0000 000E                             81  R14       EQU   14                                                      CDF00810
0000 000E                             82  RET       EQU   14                                                      CDF00820
0000 000F                             83  R15       EQU   15                                                      CDF00830
0000 000F                             84  LINK      EQU   15                                                      CDF00840
                                      85  *                                                                       CDF00850
                                      86  *  BOOTLOADER WITH CHKSUM                                               CDF00860
                                      87  *                                                                       CDF00870
0000R                                 88            ORG   X'80'                                                   CDF00880
0080  2421                            89            LIS   R2,1                                                    CDF00890
0082  2303                            90            BS    BOOT                                                    CDF00900
0084  0100                            91            DC    X'100'        CURRENT PSW SAVE POINTER(32-BIT M/C)      CDF00910
0086  0108                            92            DC    X'108'        REGISTER SAVE POINTER(32-BIT M/C)         CDF00920
0088  4020 0022                       93  BOOT      STH   R2,X'22'      REGISTER SAVE POINTER(16-BIT M/C)         CDF00930
008C  C810 0A00                       94            LHI   R1,X'A00'     R1 = ADR( FIRST BYTE OF TEST PROG )       CDF00940
0090  C830 2B0F                       95            LHI   R3,LNZB                                                 CDF00950
0094  C860 0004                       96  MN        LHI   R6,X'04'      R6 = CHKSUM BYTE = X'MN'                  CDF00960
0098  D340 0078                       97            LB    R4,X'78'      INPUT DEV ADR                             CDF00970
009C  DE40 0079                       98            OC    R4,X'79'                                                CDF00980
00A0  C870 0080                       99            LHI   R7,X'80'                                                CDF00990
00A4  9E27                           100            OCR   R2,R7         DISPLAY  : NORMAL MODE                    CDF01000
00A6  9D45                           101  LEADER    SSR   R4,R5                                                   CDF01010
00A8  2091                           102            BTBS  9,1           DU,BSY                                    CDF01020
00AA  9B45                           103            RDR   R4,R5                                                   CDF01030
00AC  0855                           104            LHR   R5,R5                                                   CDF01040
00AE  2234                           105            BZS   LEADER        IGNORE LEADER                             CDF01050
00B0  D251 0000                      106  LOAD      STB   R5,0(R1)      STORE 1ST NON-ZERO & SUBSEQUENT BYTE      CDF01060
00B4  0765                           107            XHR   R6,R5         GENERATE CHKSUM                           CDF01070
00B6  9A26                           108            WDR   R2,R6         DISPLAY PARTIAL / FINAL CHKSUM            CDF01080
00B8  9D45                           109            SSR   R4,R5                                                   CDF01090
00BA  2091                           110            BTBS  9,1           DU,BSY                                    CDF01100
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00BC   9845           111     RDR    R4,R5                                            CDF01110
00BE   C110 00B0      112     BXLE   R1,LOAD        LOAD TILL LAST BYTE               CDF01120
00C2   9477           113     EXBR   R7,R7          R7 = X'8000'                      CDF01130
00C4   9527           114     EPSR   R2,R7          HALT PROCESSOR                    CDF01140
00C6   4300 0A04      115     B      X'A04'         BRANCH TO TEST ( 16-BIT PROCESSOR )  CDF01150
```

```
00CA                         ORG    X'A00'                                           CDF01170
0A00  4300 0A30    ORIGIN1   B      START1       START HERE FOR 32-BIT PROCESSOR     CDF01180
0A04  4300 0A44    ORIGIN2   B      START2       START HERE FOR 16-BIT PROCESSOR     CDF01190
0A08  4300 0A58    ORIGIN3   B      START3       SPECIAL 32-BIT PROCESSOR START      CDF01200
0A0C  4300 0A5C    ORIGIN4   B      START4       SPECIAL 16-BIT PROCESSOR START      CDF01210
                   *                                                                 CDF01220
                   *------------------------------                                   CDF01230
                   *   TEST CONSTANTS                          *                     CDF01240
                   *                                                                 CDF01250
0A10  0202         IO        DC     X'0202'      I/O DEVICE(S) IDENTIFIER            CDF01260
0A12  1011         CRTADR    DC     X'1011'                                          CDF01270
0A14  0202         TTYADR    DC     X'0202'                                          CDF01280
0A16  6262         LPADR     DC     X'6262'                                          CDF01290
0A18  0000                   DC     0            SECOND DEVICE ADR IF NECESSARY      CDF01300
0A1A  0000                   DC     0            RESERVED                            CDF01310
0A1C  0140         TIME      DC     X'140'       CONSTANT FOR 1 MS DELAY(X'C8'-MOD70) CDF01320
0A1E  0000                   DC     0            RESERVED                            CDF01330
0A20  70F0         PSW       DC     X'70F0'      PSW USED IN PROGRAM                 CDF01340
0A22  0000                   DC     0            RESERVED                            CDF01350
0A24  0000                   DC     0            RESERVED                            CDF01360
0A26  0000                   DC     0            RESERVED                            CDF01370
0A28  0000                   DC     0            RESERVED                            CDF01380
0A2A  0000                   DC     0            RESERVED                            CDF01390
0A2C  0000                   DC     0            RESERVED                            CDF01400
0A2E  0000                   DC     0            RESERVED                            CDF01410
                   *------------------------------                                   CDF01420
                   *                                                                 CDF01430
0A30  0711         START1    XHR    R1,R1                                            CDF01440
0A32  C820 00F0              LHI    R2,X'F0'                                         CDF01450
0A36  4010 0030              STH    R1,X'30'     DISABLE INT AT PROCESSOR LEVEL      CDF01460
0A3A  4020 0032              STH    R2,X'32'     SELECT REG SET 15                   CDF01470
0A3E  4020 158E              STH    R2,MOD32     SET MODEL 32 PROCESSOR FLAG         CDF01480
0A42  2304                   BS     ST                                               CDF01490
0A44  0711         START2    XHR    R1,R1                                            CDF01500
0A46  4010 158E              STH    R1,MOD32     RESET MOD 32 PROCESSOR FLAG         CDF01510
0A4A  C820 0A60    ST        LHI    R2,START                                         CDF01520
0A4E  4010 0034              STH    R1,X'34'                                         CDF01530
0A52  4020 0036              STH    R2,X'36'     II INT NEW PSW LOC                  CDF01540
0A56  0000                   DC     0            TAKE AN ILLEGAL INSTRUCTION INT     CDF01550
                   *                                                                 CDF01560
0A58  4300 0A30    START3    B      START1       INSERT SPECIAL ROUTINE HERE         CDF01570
0A5C  4300 0A44    START4    B      START2       INSERT SPECIAL ROUTINE HERE         CDF01580
                   *                                                                 CDF01590
                   *                                                                 CDF01600
0A60  4800 0A10    START     LH     R0,IO                                            CDF01610
0A64  4000 2B16              STH    R0,IOSAVE    SAVE USER'S I/O CHOICE              CDF01620
0A68  D300 0A10              LB     R0,IO        GET KEYBOARD DEVICE                 CDF01630
0A6C  9410                   EXBR   R1,R0                                            CDF01640
0A6E  0601                   OHR    R0,R1                                            CDF01650
0A70  4000 0A10              STH    R0,IO        KB DEVICE = LIST DEVICE             CDF01660
0A74  D310 0A14              LB     R1,TTYADR                                        CDF01670
0A78  D300 0A10              LB     R0,IO        GET I/O IDENTIFIER                  CDF01680
0A7C  C500 0001              CLHI   R0,1         CRT ?                               CDF01690
0A80  2135                   BNES   GOTIT                                            CDF01700
0A82  D310 0A12              LB     R1,CRTADR                                        CDF01710
0A86  DE10 159C              OC     R1,SECOND    SET UP PALSA / PALM                 CDF01720
```

```
0A8A   D210 1596    GOTIT    STB    R1,KBADR          STORE AS KEYBOARD DEV ADR          CDF01730
0A8E   41F0 1342             BAL    LINK,LCORE        SET UP LOW CORE                    CDF01740
0A92   41F0 11F8             BAL    LINK,CRLF                                            CDF01750
0A96   C850 2A56             LHI    R5,TITLE                                             CDF01760
0A9A   41F0 111C             BAL    R15,PRINT         PRINT TEST PROGRAM TITLE           CDF01770
                    *---------------------------                                          CDF01780
                    *  KEYBOARD INPUT ROUTINE                                             CDF01790
                    *                                                                     CDF01800
       0000 0A9E    OPTIN    EQU    *                                                    CDF01810
0A9E   C820 00F0             LHI    R2,X'F0'                                             CDF01820
0AA2   9512                  EPSR   R1,R2             NO INT, REG SET 15                 CDF01830
0AA4   41F0 11F8             BAL    LINK,CRLF         CR,LF TO LIST DEVICE               CDF01840
       0000 0AA8    OPTIN1   EQU    *                                                    CDF01850
0AA8   D300 0A10             LB     R0,IO             GET KEYBOARD DEVICE                CDF01860
0AAC   9410                  EXBR   R1,R0                                                CDF01870
0AAE   0601                  OHR    R0,R1                                                CDF01880
0AB0   4000 0A10             STH    R0,IO             KB DEVICE = LIST DEVICE            CDF01890
0AB4   C840 002A             LHI    R4,X'2A'                                             CDF01900
0AB8   41F0 11B4             BAL    R15,OUTCHR        WE ARE READY FOR INPUT             CDF01910
0ABC   C8C0 121A             LHI    R12,QUESTN        SET UP R12 FOR ERR ROUTINE         CDF01920
0AC0   C800 2020             LHI    R0,X'2020'        BLANK OUT TTY BUFFER               CDF01930
0AC4   4000 2810             STH    R0,OPTBUF         WHICH WILL CONTAIN OPTION          CDF01940
0AC8   4000 2812             STH    R0,OPTBUF+2       NAME                               CDF01950
0ACC   4000 2814             STH    R0,OPTBUF+4                                          CDF01960
0AD0   0711                  XHR    R1,R1             CLEAR TTYBUF INDEX                 CDF01970
0AD2   41F0 11E6    RDCHR    BAL    R15,GETCHR        GET A CHAR IN R4                   CDF01980
0AD6   C540 000D             CLHI   R4,X'0D'          IS IT CR?                          CDF01990
0ADA   233A                  BES    LOOKUP            YES, TRY MATCH                     CDF02000
0ADC   C540 0020             CLHI   R4,X'20'          IS IT A BLANK?                     CDF02010
0AE0   2337                  BES    LOOKUP            YES, TRY MATCH                     CDF02020
0AE2   D241 2810             STB    R4,OPTBUF(R1)     STORE THE CHAR                     CDF02030
0AE6   2611                  AIS    R1,1              BUMP BUFFER INDEX                  CDF02040
0AE8   C510 0007             CLHI   R1,7              HAVE WE REACHED 6 CHARS?           CDF02050
0AEC   203D                  BNES   RDCHR             NO,READ ANOTHER CHARACTER          CDF02060
                    *  OPTION MATCH ROUTINE                                               CDF02070
                    *                                                                     CDF02080
0AEE   C810 1640    LOOKUP   LHI    R1,OPT            SET R1 = A(OPT)                    CDF02090
0AF2   0733         LOOK1    XHR    R3,R3             CLEAR IN BUFF INDEX                CDF02100
0AF4   0861                  LHR    R6,R1             SET OPTION WORD INDEX              CDF02110
0AF6   4856 0000    LOOK2    LH     R5,0(R6)                                             CDF02120
0AFA   021C                  BMR    R12               IF MINUS, THEN NO MATCH = ERROR    CDF02130
0AFC   4553 2810             CLH    R5,OPTBUF(R3)     COMPARE TO OPTBUF HW               CDF02140
0B00   2333                  BES    LOOK3                                                CDF02150
0B02   261C                  AIS    R1,12                                                CDF02160
0B04   2209                  BS     LOOK1                                                CDF02170
0B06   2632         LOOK3    AIS    R3,2              TRY NEXT HW                        CDF02180
0B08   2662                  AIS    R6,2                                                 CDF02190
0B0A   C530 0006             CLHI   R3,6              3 MATCHING HW FOUND ?              CDF02200
0B0E   203C                  BNES   LOOK2             NO, LOOP                           CDF02210
                    *---------------------------                                          CDF02220
                    *  TO PROCESS INPUT COMMANDS : RUN , OPTION                           CDF02230
                    *                                                                     CDF02240
0B10   C510 1754             CLHI   R1,RUN            RUN COMMAND ?                      CDF02250
0B14   4330 0CA4             BE     RUNIT                                                CDF02260
0B18   C510 1748             CLHI   R1,OPTION         OPTION CMD ?                       CDF02270
0B1C   4230 0C18             BNE    LOOK4             NO, LOOK FURTHER                   CDF02280
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0B20  4820 1750             LH     R2,OPTION+8                                  CDF02290
0B24  0232                  BNZR   R2                                           CDF02300
0B26  C830 1640   OPTRTN    LHI    R3,TEST                                      CDF02310
0B2A  C8E0 0BAE             LHI    R14,OPTCMD8                                  CDF02320
0B2E  41F0 11F8             BAL    LINK,CRLF                                    CDF02330
0B32  0722        OPTCMD    XHR    R2,R2                                        CDF02340
0B34  D342 1640   OPTCMD1   LB     R4,OPT(R2)        TO PRINT TEST              CDF02350
0B38  41F0 11B4             BAL    LINK,OUTCHR                                  CDF02360
0B3C  2621                  AIS    R2,1                                         CDF02370
0B3E  C520 0006             CLHI   R2,6                                         CDF02380
0B42  2087                  BLS    OPTCMD1                                      CDF02390
0B44  0755                  XHR    R5,R5             TO PRINT TEST OPTION VALUES CDF02400
0B46  4050 15A8             STH    R5,FIRST                                     CDF02410
0B4A  4823 0008             LH     R2,8(R3)                                     CDF02420
0B4E  C840 0030   OPTCMD2   LHI    R4,C'0'           START WITH TEST 0          CDF02430
0B52  9121        OPTCMD3   SLHLS  R2,1                                         CDF02440
0B54  4380 0B82             BNC    OPTCMD7                                      CDF02450
0B58  4040 15AA   OPTCMD4   STH    R4,TEMP           OPTION VALUE FOUND,        CDF02460
0B5C  4800 15A8             LH     R0,FIRST          IS IT FIRST ?              CDF02470
0B60  2335                  BZS    OPTCMD5                                      CDF02480
0B62  C840 002C             LHI    R4,C','           NO, OUTPUT COMMA           CDF02490
0B66  41F0 11B4             BAL    LINK,OUTCHR                                  CDF02500
0B6A  4040 15A8   OPTCMD5   STH    R4,FIRST                                     CDF02510
0B6E  0855                  LHR    R5,R5             TEST VALUE FROM SECOND HW  CDF02520
0B70  2335                  BZS    OPTCMD6           NO                         CDF02530
0B72  C840 0031             LHI    R4,C'1'           YES,OUTPUT '1'             CDF02540
0B76  41F0 11B4             BAL    LINK,OUTCHR                                  CDF02550
0B7A  4840 15AA   OPTCMD6   LH     R4,TEMP           RESTORE R4                 CDF02560
0B7E  41F0 11B4             BAL    LINK,OUTCHR       OUTPUT 0-F                 CDF02570
0B82  2641        OPTCMD7   AIS    R4,1              INCREMENT TEST #           CDF02580
0B84  C540 0047             CLHI   R4,C'G'                                      CDF02590
0B88  238C                  BNLS   OPTCMD71                                     CDF02600
0B8A  C540 0041             CLHI   R4,C'A'                                      CDF02610
0B8E  4380 0B52             BNL    OPTCMD3           R4 = B-F                   CDF02620
0B92  C540 003A             CLHI   R4,X'3A'                                     CDF02630
0B96  4280 0B52             BL     OPTCMD3           R4 = 0-9                   CDF02640
0B9A  2647                  AIS    R4,7                                         CDF02650
0B9C  4300 0B52             B      OPTCMD3           R4 = A                     CDF02660
0BA0  0855        OPTCMD71  LHR    R5,R5             DONE ?                     CDF02670
0BA2  023E                  BNZR   R14                                          CDF02680
0BA4  4823 0006             LH     R2,6(R3)                                     CDF02690
0BA8  2451                  LIS    R5,1              R5 = 1 FOR SECOND TEST HW  CDF02700
0BAA  4300 0B4E             B      OPTCMD2                                      CDF02710
                  *  TO OUTPUT OTHER OPTION NAMES & VALUES                      CDF02720
0BAE  41F0 11F8   OPTCMD8   BAL    LINK,CRLF                                    CDF02730
0BB2  C820 164C             LHI    R2,OPT+12         R2 POINTS TO THE NAME      CDF02740
0BB6  0733        OPTCMD9   XHR    R3,R3                                        CDF02750
0BB8  4852 0006             LH     R5,6(R2)          R5 = OPTION VALUE          CDF02760
0BBC  D342 0000   OPTCMD10  LB     R4,0(R2)                                     CDF02770
0BC0  41F0 11B4             BAL    LINK,OUTCHR       OUTPUT OPTION NAME CHAR    CDF02780
0BC4  2621                  AIS    R2,1                                         CDF02790
0BC6  2631                  AIS    R3,1                                         CDF02800
0BC8  C530 0006             CLHI   R3,6              6 CHAR OUTPUTED ?          CDF02810
0BCC  2088                  BLS    OPTCMD10          NO,LOOP                    CDF02820
0BCE  C840 0020             LHI    R4,C' '                                      CDF02830
0BD2  41F0 11B4             BAL    LINK,OUTCHR       OUTPUT ONE SPACE           CDF02840
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0BD6   2404           285            LIS   R0,4                                                      CDF02850
0BD8   41F0 101E      286            BAL   LINK,R5HEX         WRITE OPTION VALUE IN HEX (4 DIGITS)   CDF02860
0BDC   2401           287            LIS   R0,1                                                      CDF02870
0BDE   D400 0A11      288            CLB   R0,IO+1                                                   CDF02880
0BE2   4230 0C02      289            BNE   OPTCMD12                                                  CDF02890
0BE6   2663           290            AIS   R6,3                                                      CDF02900
0BE8   C560 0018      291            CLHI  R6,24                                                     CDF02910
0BEC   218B           292            BLS   OPTCMD12                                                  CDF02920
0BEE   0766           293            XHR   R6,R6                                                     CDF02930
0BF0   41F0 11E6      294  OPTCMD11  BAL   LINK,GETCHR                                               CDF02940
0BF4   C540 000D      295            CLHI  R4,13                                                     CDF02950
0BF8   4330 0A9E      296            BE    OPTIN                                                     CDF02960
0BFC   C540 000A      297            CLHI  R4,10                                                     CDF02970
0C00   2038           298            BNES  OPTCMD11                                                  CDF02980
0C02   41F0 11F8      299  OPTCMD12  BAL   LINK,CRLF                                                 CDF02990
0C06   41F0 1234      300            BAL   LINK,TSTBRK                                               CDF03000
0C0A   2626           301            AIS   R2,6                                                      CDF03010
0C0C   C520 1748      302            CLHI  R2,OPTEND          ALL OPTIONS DONE ?                     CDF03020
0C10   4280 0BB6      303            BL    OPTCMD9            NO,LOOP FOR NEXT ONE                   CDF03030
0C14   4300 0AA8      304            B     OPTIN1                                                    CDF03040
0C18   C510 1640      305  LOOK4     CLHI  R1,TEST            TEST OPTION ?                          CDF03050
0C1C   4330 0C40      306            BE    TESTOP                                                    CDF03060
                      307  *----------------------------                                             CDF03070
                      308  *  TO PROCESS OPTIONS OTHER THAN TEST                                     CDF03080
                      309  *                                                                         CDF03090
0C20   C540 000D      310            CLHI  R4,13              OPT FOLLOWED BY CR ?                   CDF03100
0C24   033C           311            BER   R12                YES, ERROR                             CDF03110
0C26   41E0 0FBA      312            BAL   R14,OPTVAL         GET OPTION VALUE IN R6                 CDF03120
0C2A   C540 000D      313            CLHI  R4,13              TERMINATED BY CR ?                     CDF03130
0C2E   023C           314            BNER  R12                                                       CDF03140
0C30   48E1 0008      315            LH    R14,8(R1)          GET THE DISPLACEMENT                   CDF03150
0C34   2332           316            BZS   LOOK5                                                     CDF03160
0C36   01FE           317            BALR  R15,R14                                                   CDF03170
       0000 0C38      318  LOOK5     EQU   *                                                         CDF03180
0C38   4061 0006      319            STH   R6,6(R1)           STORE OPTION VALUE                     CDF03190
0C3C   4300 0A9E      320            B     OPTIN              GO TO BEGINING                         CDF03200
                      321  *----------------------------                                             CDF03210
                      322  *  TEST OPTION PROCESS ROUTINE                                            CDF03220
                      323  *                                                                         CDF03230
0C40   C540 000D      324  TESTOP    CLHI  R4,13              TEST OPT FOLLOWED BY CR ?              CDF03240
0C44   213B           325            BNES  TESTOP1                                                   CDF03250
0C46   4800 2ACA      326            LH    R0,DEFTESTS        YES, SET TEST OPTION TO                CDF03260
0C4A   4000 1648      327            STH   R0,TEST+8                                                 CDF03270
0C4E   4800 2ACC      328            LH    R0,DEFTESTS+2      ALL DEFAULT TESTS IN PROGRAM           CDF03280
0C52   4000 1646      329            STH   R0,TEST+6                                                 CDF03290
0C56   4300 0A9E      330            B     OPTIN                                                     CDF03300
0C5A   C810 1640      331  TESTOP1   LHI   R1,TEST                                                   CDF03310
0C5E   4850 2A7C      332            LH    R5,MAXTST                                                 CDF03320
0C62   0700           333  TSTOP1A   XHR   R0,R0                                                     CDF03330
0C64   4001 0006      334            STH   R0,6(R1)                                                  CDF03340
0C68   4001 0008      335            STH   R0,8(R1)                                                  CDF03350
0C6C   41E0 0FBA      336  TSTOP2    BAL   R14,OPTVAL         GET OPTION VALUE IN R6                 CDF03360
0C70   0565           337            CLHR  R6,R5                                                     CDF03370
0C72   022C           338            BPR   R12                                                       CDF03380
0C74   C560 0010      339            CLHI  R6,16              R6 < 16 ?                              CDF03390
0C78   2386           340            BNLS  TSTOP3             NO                                     CDF03400
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0C7A  41E0 0FF6             BAL   R14,UNARY       GET UNARY OPERAND IN R3          CDF03410
0C7E  4631 0008             OH    R3,8(R1)                                         CDF03420
0C82  4031 0008             STH   R3,8(R1)                                         CDF03430
0C86  2309                  BS    TSTOP4                                           CDF03440
0C88  CB60 0010    TSTOP3   SHI   R6,16           R6 = 0-F                         CDF03450
0C8C  41E0 0FF6             BAL   R14,UNARY                                        CDF03460
0C90  4631 0006             OH    R3,6(R1)                                         CDF03470
0C94  4031 0006             STH   R3,6(R1)                                         CDF03480
0C98  C540 000D    TSTOP4   CLHI  R4,13           TERMINATED BY CR ?               CDF03490
0C9C  4230 0C6C             BNE   TSTOP2                                           CDF03500
0CA0  4300 0A9E             B     OPTIN           GO TO BEGINING                   CDF03510
                   *-----------------------------                                  CDF03520
                   *                                                               CDF03530
      0000 0CA4    RUNIT    EQU   *                                                CDF03540
0CA4  41F0 11F8             BAL   LINK,CRLF                                        CDF03550
0CA8  4800 2B16             LH    R0,IOSAVE                                        CDF03560
0CAC  4000 0A10             STH   R0,IO           RESTORE USER'S I/O CHOICE        CDF03570
0CB0  41F0 11F8             BAL   LINK,CRLF                                        CDF03580
0CB4  41F0 17DC             BAL   LINK,INIT       LINK USER INITIALIZATION ROUTINE CDF03590
      0000 0CB8    INITRET  EQU   *                                                CDF03600
0CB8  240F                  LIS   R0,15           TO FIND HIGHEST SELECTED THST #  CDF03610
0CBA  4810 1646             LH    R1,TEST+6       CHECK SECOND TEST HW             CDF03620
0CBE  9011         KEEP1    SRLS  R1,1                                             CDF03630
0CC0  2188                  BCS   FOUND1          R0 = F-0                         CDF03640
0CC2  2701                  SIS   R0,1                                             CDF03650
0CC4  2213                  BNMS  KEEP1           TRY NEXT DIGIT                   CDF03660
0CC6  240F                  LIS   R0,15           INITIALIZE AGAIN                 CDF03670
0CC8  4810 1648             LH    R1,TEST+8       CHECK FIRST TEST HW              CDF03680
0CCC  9011         KEEP2    SRLS  R1,1                                             CDF03690
0CCE  2186                  BCS   FOUND1+4        R0 = F-0 = TEST #                CDF03700
0CD0  2701                  SIS   R0,1                                             CDF03710
0CD2  2213                  BNMS  KEEP2           LOOP                             CDF03720
0CD4  030C                  BR    R12             TEST NOT SELECTED                CDF03730
0CD6  CA00 0010    FOUND1   AHI   R0,16           ADJUST TEST # FOR SECOND HW      CDF03740
0CDA  4000 15AC             STH   R0,SELTST                                        CDF03750
                   *  RESET TEST PARAMETERS                                        CDF03760
0CDE  0700                  XHR   R0,R0                                            CDF03770
0CE0  4000 15B4             STH   R0,BTESTNO      RESET THESE FLAGS TO 0           CDF03780
0CE4  4000 15B2             STH   R0,TOTAL                                         CDF03790
0CE8  4000 15B0             STH   R0,TOTERR                                        CDF03800
0CEC  4000 15AE             STH   R0,WASDU                                         CDF03810
0CF0  C810 3030             LHI   R1,C'00'                                         CDF03820
0CF4  4010 15D0             STH   R1,MTESTNO      RESET THESE FLAGS TO C'00'       CDF03830
0CF8  4010 15DA             STH   R1,ETESTNO                                       CDF03840
0CFC  4010 15DC             STH   R1,ERRNO                                         CDF03850
                   *  START SELECTION FROM TEST 0                                  CDF03860
0D00  0700         KEEP3    XHR   R0,R0                                            CDF03870
0D02  4000 15B4             STH   R0,BTESTNO                                       CDF03880
0D06  4000 15B8             STH   R0,NEXTST       RESET NEXT TEST #                CDF03890
                   *  TO FIND THE NEXT SLEECTED TEST                               CDF03900
0D0A  4820 15B8    KEEP4    LH    R2,NEXTST       GET NEXT TEST #                  CDF03910
0D0E  2401         KEEP41   LIS   R0,1                                             CDF03920
0D10  910F                  SLHLS R0,15           R0 = X'8000'                     CDF03930
0D12  CC02 0000             SRHL  R0,0(R2)        R0 = NEXT TEST BIT               CDF03940
0D16  C520 0010             CLHI  R2,X'10'        NEXT TEST < 16                   CDF03950
0D1A  2185                  BLS   KEEP42                                           CDF03960
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0D1C   4400 1646                NH    R0,TEST+6         LOOK AT TEST HW 2                CDF03970
0D20   2137                     BNZS  KEEP5                                              CDF03980
0D22   2304                     BS    KEEP43                                             CDF03990
0D24   4400 1648      KEEP42    NH    R0,TEST+8         LOOK AT 'TEST' HW                CDF04000
0D28   2133                     BNZS  KEEP5                                              CDF04010
0D2A   2621           KEEP43    AIS   R2,1                                               CDF04020
0D2C   220F                     BS    KEEP41            LOOP FOR NEXT TEST #             CDF04030
0D2E   4020 15B4      KEEP5     STH   R2,BTESTNO        CURRENT TEST #                   CDF04040
0D32   0812                     LHR   R1,R2             R1 = TEST # IN BINARY            CDF04050
0D34   2621                     AIS   R2,1                                               CDF04060
0D36   4020 15B8                STH   R2,NEXTST                                          CDF04070
0D3A   2402                     LIS   R0,2              SET DIGITS TO PRINT = 2          CDF04080
0D3C   C820 15D0                LHI   R2,MTESTNO        R2 = A(MTESTNO)                  CDF04090
0D40   41F0 1096                BAL   LINK,HEXASC       STORE TEST # IN ASCII @ MTESTNO  CDF04100
0D44   4820 15D0                LH    R2,MTESTNO                                         CDF04110
0D48   4020 15DA                STH   R2,ETESTNO        STORE TEST # IN ASCII @ ETESTNO  CDF04120
0D4C   41F0 1234                BAL   LINK,TSTBRK       TEST BREAK                       CDF04130
0D50   C850 15CA                LHI   R5,TSTMSG                                          CDF04140
0D54   41F0 111C                BAL   LINK,PRINT        PRINT 'TEST NN'                  CDF04150
0D58   0700                     XHR   R0,R0                                              CDF04160
0D5A   4000 15A6                STH   R0,NOERR          RESET ERROR FLAG                 CDF04170
0D5E   4000 15B6                STH   R0,COUNT          RESET COUNT                      CDF04180
0D62   41F0 1342      KEEP6     BAL   LINK,LCORE        SET UP LOW CORE                  CDF04190
0D66   4820 15B4                LH    R2,BTESTNO        R2 = TEST #                      CDF04200
0D6A   0A22                     AHR   R2,R2                                              CDF04210
0D6C   4812 2834                LH    R1,TESTS(R2)                                       CDF04220
0D70   0301                     BR    R1                GO TO TEST MODULE                CDF04230
                      *-----------------------------                                     CDF04240
                      *                                                                  CDF04250
                      *  TEST MODULE END ROUTINE                                         CDF04260
                      *                                                                  CDF04270
       0000 0D72      TSTEND    EQU   *                                                  CDF04280
0D72   C810 00F0                LHI   R1,X'F0'                                           CDF04290
0D76   9501                     EPSR  R0,R1             DISABLE INT @ PROCESSOR LEVEL    CDF04300
0D78   4800 15B6                LH    R0,COUNT                                           CDF04310
0D7C   2601                     AIS   R0,1              INCREMENT COUNT                  CDF04320
0D7E   4000 15B6                STH   R0,COUNT                                           CDF04330
0D82   4500 1652                CLH   R0,LOOP+6         IF COUNT > LOOP,                 CDF04340
0D86   2385                     BNLS  KEEP7             GO TO NEXT TEST MODULE           CDF04350
0D88   41F0 1234                BAL   LINK,TSTBRK       IF BREAK GO TO OPTIN             CDF04360
0D8C   4300 0D62                B     KEEP6             OTHERWISE, REPEAT SAME TEST      CDF04370
0D90   4800 15A6      KEEP7     LH    R0,NOERR          LOOK @ ERROR FLAG                CDF04380
0D94   2135                     BNZS  KEEP71                                             CDF04390
0D96   C850 15F0                LHI   R5,NOERMSG                                         CDF04400
0D9A   41F0 111C                BAL   LINK,PRINT        PRINT "NO ERROR"                 CDF04410
0D9E   4810 15B4      KEEP71    LH    R1,BTESTNO        GET TEST #                       CDF04420
0DA2   4510 15AC                CLH   R1,SELTST         IS THE LAST SELECTED TEST DONE ? CDF04430
0DA6   4230 0D0A                BNE   KEEP4             NO, GO SELECT NEXT TEST          CDF04440
                      *  ALL THE SELECTED TESTS ARE NOW RUN                              CDF04450
0DAA   4200 0000                NOP                                                      CDF04460
0DAE   41F0 1272                BAL   LINK,TSTDU        RETURN WITH R1 = DU BIT          CDF04470
0DB2   0811                     LHR   R1,R1             DU = 1 NOW ?                     CDF04480
0DB4   4230 0DE4                BNZ   KEEP9                                              CDF04490
0DB8   4810 15AE                LH    R1,WASDU          DU WAS = 1 ?                     CDF04500
0DBC   4230 0E22                BNZ   KEEP10            YES, PRINT TOTAL, TOTERR         CDF04510
0DC0   41F0 1234                BAL   LINK,TSTBRK                                        CDF04520
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0DC4   4810 165E              LH     R1,CONTIN+6       IF CONTIN = 1,              CDF04530
0DC8   4230 0D00              BNZ    KEEP3             GO TO TEST 0                CDF04540
0DCC   D300 0A10              LB     R0,IO             GET KEYBOARD IDENTIFIER     CDF04550
0DD0   9410                   EXBR   R1,R0                                         CDF04560
0DD2   0601                   OHR    R0,R1                                         CDF04570
0DD4   4000 0A10              STH    R0,IO             KB DEVICE = LIST DEVICE     CDF04580
0DD8   C850 1630              LHI    R5,EOTMSG                                     CDF04590
0DDC   41F0 111C              BAL    LINK,PRINT        'END OF TEST'               CDF04600
0DE0   4300 0A9E              B      OPTIN             OTHERWISE, END TESTING.     CDF04610
                     * ROUTINE INCREMENTS,DISPLAYS & CHECKS 'TOTAL'                CDF04620
                     *                                                             CDF04630
0DE4   4010 15AE     KEEP9    STH    R1,WASDU          SET 'WASDU' FLAG            CDF04640
0DE8   4810 15B2              LH     R1,TOTAL          INCREMENT TOTAL             CDF04650
0DEC   2611                   AIS    R1,1                                          CDF04660
0DEE   4010 15B2              STH    R1,TOTAL                                      CDF04670
0DF2   2421          KEEP91   LIS    R2,1                                          CDF04680
0DF4   DE20 1597              OC     R2,NORM                                       CDF04690
0DF8   9411                   EXBR   R1,R1                                         CDF04700
0DFA   9821                   WHR    R2,R1             DISPLAY IT                  CDF04710
0DFC   9411                   EXBR   R1,R1                                         CDF04720
0DFE   C510 7FFF              CLHI   R1,X'7FFF'                                    CDF04730
0E02   2389                   BNLS   HALT9                                         CDF04740
0E04   4800 15B4              LH     R0,BTESTNO        R0 = CURRENT TEST #         CDF04750
0E08   4500 15AC              CLH    R0,SELTST         IS IT LAST TEST ?           CDF04760
0E0C   4280 0D0A              BL     KEEP4             NO, GO TO NEXT TEST         CDF04770
0E10   4300 0D00              B      KEEP3             GO TO TEST 0                CDF04780
                     *                                                             CDF04790
0E14   2411          HALT9    LIS    R1,1                                          CDF04800
0E16   911F                   SLHLS  R1,15             R1 = X'8000'                CDF04810
0E18   9521                   EPSR   R2,R1             HALT PROCESSOR              CDF04820
                     * WHEN EXE/RUN IS PRESSED, RPINT TOTAL & LTOTERR              CDF04830
0E1A   41F0 1272              BAL    LINK,TSTDU        SEE IF LIST DEV IS ON       CDF04840
0E1E   0811                   LHR    R1,R1                                         CDF04850
0E20   2036                   BNZS   HALT9             NO, HALT                    CDF04860
0E22   0700          KEEP10   XHR    R0,R0                                         CDF04870
0E24   4000 15AE              STH    R0,WASDU          RESET FLAG                  CDF04880
0E28   41F0 11F8              BAL    LINK,CRLF                                     CDF04890
0E2C   C850 15E0              LHI    R5,TOTMSG                                     CDF04900
0E30   41F0 111C              BAL    LINK,PRINT        PRINT 'TOTAL   TOTERR'      CDF04910
0E34   2404                   LIS    R0,4              TO PRINT 4 HEX DIGITS       CDF04920
0E36   4850 15B2              LH     R5,TOTAL                                      CDF04930
0E3A   41F0 101E              BAL    LINK,R5HEX        PRINT TOTAL IN HEX          CDF04940
0E3E   2434                   LIS    R3,4                                          CDF04950
0E40   C840 0020              LHI    R4,C' '           SPACE                       CDF04960
0E44   41F0 11B4     KEEP101  BAL    LINK,OUTCHR       OUTPUT IT                   CDF04970
0E48   2731                   SIS    R3,1                                          CDF04980
0E4A   2033                   BNZS   KEEP101           4 TIMES                     CDF04990
0E4C   2404                   LIS    R0,4              TO PRINT 4 HEX DIGITS       CDF05000
0E4E   4850 15B0              LH     R5,TOTERR                                     CDF05010
0E52   41F0 101E              BAL    LINK,R5HEX        PRINT TOTERR IN HEX         CDF05020
0E56   4300 0A9E              B      OPTIN             GO TO BEGINNING             CDF05030
                     * *********************************                           CDF05040
                     *  ERROR ROUTINES                                             CDF05050
                     *                                                             CDF05060
0E5A   D000 35E0     ERR      STM    R0,ERRSAVE        STORE REGISTERS             CDF05070
0E5E   4120 0EDC              BAL    R2,ERRCOM         RETURN IF LIST DEVICE IS ON CDF05080
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0E62  41E0 0F0A            BAL   RET,ERR1         PRINT 'ERROR TTNN'
0E66  0700       ERRCOM2   XHR   R0,R0
0E68  4000 15A4            STH   R0,ISITERR       RESET ERROR FLAG
0E6C  D100 35E0            LM    R0,ERRSAVE       RESTORE REGISTERS
0E70  030F                 BR    LINK             RETURN TO TEST
0E72  D000 35E0  ERRD      STM   R0,ERRSAVE       STORE REGISTERS
0E76  4120 0EDC            BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON
0E7A  41E0 0F0A            BAL   RET,ERR1         PRINT 'ERROR TTNN'
0E7E  41E0 0F14            BAL   RET,ERRD1        PRINT 'DEV DDD'
0E82  220E                 BS    ERRCOM2
0E84  D000 35E0  ERRS      STM   R0,ERRSAVE       STORE REGISTERS
0E88  4120 0EDC            BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON
0E8C  41E0 0F0A            BAL   RET,ERR1         PRINT 'ERROR TTNN'
0E90  41E0 0F2C            BAL   RET,ERRS1        PRINT 'STA SS'
0E94  4300 0E66            B     ERRCOM2
0E98  D000 35E0  ERRDS     STM   R0,ERRSAVE       STORE REGISTERS
0E9C  4120 0EDC            BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON
0EA0  41E0 0F0A            BAL   RET,ERR1         PRINT 'ERROR TTNN'
0EA4  41E0 0F44            BAL   RET,ERRDS1       PRINT 'DEV DDD STA SS'
0EA8  4300 0E66            B     ERRCOM2
0EAC  D000 35E0  ERRL      STM   R0,ERRSAVE       STORE REGISTERS
0EB0  40F0 158A            STH   R15,OLOC         STORE ERROR LOC TO PRINT
0EB4  4120 0EDC            BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON
0EB8  41E0 0F0A            BAL   RET,ERR1         PRINT 'ERROR TTNN'
0EBC  41E0 0F7E            BAL   RET,ERRL1        PRINT 'LOC LLLL'
0EC0  4300 0E66            B     ERRCOM2
0EC4  D000 35E0  ERRALL    STM   R0,ERRSAVE       STORE REGISTERS
0EC8  4120 0EDC            BAL   R2,ERRCOM        RETURN IF LIST DEVICE IS ON
0ECC  41E0 0F0A            BAL   RET,ERR1         PRINT 'ERROR TTNN'
0ED0  41E0 0F44            BAL   RET,ERRDS1       PRINT 'DEV DDD STA SS'
0ED4  41E0 0F96            BAL   RET,ERRPL1       PRINT 'PSW PPPP  LOC LLLL'
0ED8  4300 0E66            B     ERRCOM2
                 *  COMMON ERROR ROUTINE
0EDC  C810 00F0  ERRCOM    LHI   R1,X'F0'
0EE0  9501                 EPSR  R0,R1            DISABLE INT. @ PROCESSOR LEVEL
0EE2  41F0 1272            BAL   LINK,TSTDU       GET LIST DEVICE DU BIT IN R1
0EE6  0A11                 AHR   R1,R1
0EE8  2136                 BNZS  ERRCOM1
0EEA  4020 15A4            STH   R2,ISITERR       SET ERROR FLAG
0EEE  4020 15A6            STH   R2,NOERR
0EF2  0302                 BR    R2               GO, PRINT ERROR MESSAGE
                 *
0EF4  4810 1580  ERRCOM1   LH    R1,TOTERR        LIST DEVICE IS OFF
0EF8  2611                 AIS   R1,1
0EFA  4010 1580            STH   R1,TOTERR        INCREMENT TOTERR
0EFE  C510 7FFF            CLHI  R1,X'7FFF'       BEYOND LIMIT ?
0F02  4280 0DF2            BL    KEEP91           NO, ABORT CURRENT TEST & GOTO NEXT
0F06  4300 0E14            B     HALT9            YES, HALT PROCESSOR
                 *-----------------------------
                 *  ERROR SUPPORT (MESSAGE PRINT) ROUTINES
                 *
                 *  TO PRINT 'ERROR TTNN'
0F0A  C850 15D4  ERR1      LHI   R5,ERRMSG
0F0E  41F0 111C            BAL   LINK,PRINT       PRINT 'ERROR TTNN'
                 *                                TT = TEST #, NN = ERROR #
0F12  030E                 BR    R14              RETURN
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                  * TO PRINT 'DEV DDD'                                     CDF05650
0F14  2403        ERRD1    LIS   R0,3           SET UP DIGITS = 3          CDF05660
0F16  4810 1592            LH    R1,ERRDEV      R1 = ERROR DEV # IN BINARY CDF05670
0F1A  C820 1616            LHI   R2,ASCIDEV2                               CDF05680
0F1E  41F0 1096            BAL   LINK,HEXASC    CONVERT IT TO ASCII        CDF05690
0F22  C850 1612            LHI   R5,DEVMSG2                                CDF05700
0F26  41F0 111C            BAL   LINK,PRINT     PRINT 'DEV DD'             CDF05710
0F2A  030E                 BR    RET            RETURN                     CDF05720
                  * TO PRINT 'STA SS'                                      CDF05730
0F2C  2402        ERRS1    LIS   R0,2           SET UP DIGITS = 2          CDF05740
0F2E  D310 1595            LB    R1,ERRSTA      R1 = ERROR STATUS          CDF05750
0F32  C820 1606            LHI   R2,ASCISTA                                CDF05760
0F36  41F0 1096            BAL   LINK,HEXASC    CONVERT IT TO ASCII        CDF05770
0F3A  C850 1602            LHI   R5,STAMSG                                 CDF05780
0F3E  41F0 111C            BAL   LINK,PRINT     PRINT 'STA SS'             CDF05790
0F42  030E                 BR    RET            RETURN                     CDF05800
                  * TO PRINT 'DEV DDD STA SS'                              CDF05810
0F44  2403        ERRDS1   LIS   R0,3           SET UP DIGITS = 3          CDF05820
0F46  4810 1592            LH    R1,ERRDEV      R1 = ERROR DEV #           CDF05830
0F4A  C820 15FE            LHI   R2,ASCIDEV                                CDF05840
0F4E  41F0 1096            BAL   LINK,HEXASC    CONVERT IT TO ASCII        CDF05850
0F52  2402                 LIS   R0,2           SET UP DIGITS = 2          CDF05860
0F54  D310 1595            LB    R1,ERRSTA      R1 = ERROR STATUS          CDF05870
0F58  C820 1606            LHI   R2,ASCISTA                                CDF05880
0F5C  41F0 1096            BAL   LINK,HEXASC    CONVERT IT TO ASCII        CDF05890
0F60  C850 15FA            LHI   R5,DEVMSG                                 CDF05900
0F64  41F0 111C            BAL   LINK,PRINT     PRINT 'DEV DD STA SS'      CDF05910
0F68  C850 2020            LHI   R5,X'2020'                                CDF05920
0F6C  D250 1609            STB   R5,DEVMSG+15                              CDF05930
0F70  D250 160A            STB   R5,DEVMSG+16                              CDF05940
0F74  D250 160C            STB   R5,DEVMSG+18                              CDF05950
0F78  D250 160D            STB   R5,DEVMSG+19                              CDF05960
0F7C  030E                 BR    RET            RETURN                     CDF05970
                  * TO PRINT 'LOC LLLL'                                    CDF05980
0F7E  2404        ERRL1    LIS   R0,4           SET UP DIGITS = 4          CDF05990
0F80  4810 158A            LH    R1,OLOC        R1= OLD LOC                CDF06000
0F84  C820 162A            LHI   R2,ASCILOC                                CDF06010
0F88  41F0 1096            BAL   LINK,HEXASC    CONVERT IT TO ASCII        CDF06020
0F8C  C850 1626            LHI   R5,LOCMSG                                 CDF06030
0F90  41F0 111C            BAL   LINK,PRINT     PRINT 'LOC LLLL'           CDF06040
0F94  030E                 BR    RET            RETURN                     CDF06050
                  * TO PRINT 'PSW PPPP  LOC LLLL'                          CDF06060
0F96  2404        ERRPL1   LIS   R0,4           SET UP DIGITS = 4          CDF06070
0F98  4810 1586            LH    R1,OPSW        R1 = OLD PSW               CDF06080
0F9C  C820 1620            LHI   R2,ASCIPSW                                CDF06090
0FA0  41F0 1096            BAL   LINK,HEXASC    CONVERT IT TO ASCII        CDF06100
0FA4  4810 158A            LH    R1,OLOC        R1= OLD LOC                CDF06110
0FA8  C820 162A            LHI   R2,ASCILOC                                CDF06120
0FAC  41F0 1096            BAL   LINK,HEXASC    CONVERT IT TO ASCII        CDF06130
0FB0  C850 161C            LHI   R5,PSWMSG                                 CDF06140
0FB4  41F0 111C            BAL   LINK,PRINT     PRINT 'PSW PPPP  LOC LLLL' CDF06150
0FB8  030E                 BR    RET            RETURN                     CDF06160
                  * *********************************                      CDF06170
                  * TO OBTAIN OPTION VALUE IN R6                           CDF06180
                  *                                                        CDF06190
0FBA  0766        OPTVAL   XHR   R6,R6          INITIALIZE R6              CDF06200
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0FBC  41F0 11E6        621           BAL    R15,GETCHR         GET A CHAR IN R4                     CDF06210
0FC0  C540 0030        622  OPTVAL1  CLHI   R4,C'0'            CHECK IF VALID HEX CHAR              CDF06220
0FC4  028C             623           BLR    R12                NO                                   CDF06230
0FC6  C540 003A        624           CLHI   R4,X'3A'                                                CDF06240
0FCA  2188             625           BLS    OPTVAL2            YES                                  CDF06250
0FCC  C540 0041        626           CLHI   R4,C'A'                                                 CDF06260
0FD0  028C             627           BLR    R12                                                     CDF06270
0FD2  C540 0047        628           CLHI   R4,C'G'                                                 CDF06280
0FD6  038C             629           BNLR   R12                NO                                   CDF06290
0FD8  2649             630           AIS    R4,9                                                    CDF06300
0FDA  C440 000F        631  OPTVAL2  NHI    R4,15              ISOLATE 4 BITS                       CDF06310
0FDE  9164             632           SLHLS  R6,4               SHIFT LEFT 4                         CDF06320
0FE0  0664             633           OHR    R6,R4              OR IN NEW CHARACTER                  CDF06330
0FE2  41F0 11E6        634           BAL    R15,GETCHR         GET NEXT CHAR                        CDF06340
0FE6  C540 000D        635           CLHI   R4,13              EXIT IF CR                           CDF06350
0FEA  033E             636           BER    R14                                                     CDF06360
0FEC  C540 002C        637           CLHI   R4,X'2C'           OR COMMA                             CDF06370
0FF0  4230 0FC0        638           BNE    OPTVAL1            LOOP TO PROCESS                      CDF06380
0FF4  030E             639           BR     R14                RETURN                               CDF06390
                       640  *  TO CONVERT FROM BINARY TO UNARY PATTERN                               CDF06400
                       641  *                                                                       CDF06410
0FF6  2431             642  UNARY    LIS    R3,1               INITIALIZE                           CDF06420
0FF8  C560 000F        643  UNARY1   CLHI   R6,15              DONE ?                               CDF06430
0FFC  033E             644           BER    R14                RETURN                               CDF06440
0FFE  0A33             645           AHR    R3,R3                                                   CDF06450
1000  2661             646           AIS    R6,1                                                    CDF06460
1002  2205             647           BS     UNARY1                                                  CDF06470
                       648  *-----------------------------                                          CDF06480
                       649  *  TO PROVIDE # OF MILLISECONDS DELAY SPECIFIED BY R0                   CDF06490
                       650  *                                                                       CDF06500
1004  D000 3620        651  TIMER    STM    R0,RSAVE           SAVE REGISTERS                       CDF06510
1008  2410             652           LIS    R1,0                                                    CDF06520
100A  2421             653           LIS    R2,1                                                    CDF06530
100C  4830 0A1C        654           LH     R3,TIME            R3 = TIME CONSTANT FOR 1 MS DELAY    CDF06540
1010  C110 1010        655           BXLE   R1,*                                                    CDF06550
1014  2701             656           SIS    R0,1                                                    CDF06560
1016  2037             657           BNZS   TIMER+4            LOOP TILL SPECIFIED DELAY            CDF06570
1018  D100 3620        658           LM     R0,RSAVE           RESTORE REGISTERS                    CDF06580
101C  030F             659           BR     LINK               RETURN                               CDF06590
                       660  *-----------------------------                                          CDF06600
                       661  *  R5HEX PRINTS CONTENTS OF R5 IN HEX                                   CDF06610
                       662  *        PRINTS UPTO 4 DIGITS                                           CDF06620
101E  D000 3620        663  R5HEX    STM    R0,RSAVE           STORE REGISTERS                      CDF06630
1022  C500 0005        664           CLHI   R0,5               MORE THAN 4 DIGITS ?                 CDF06640
1026  4380 1054        665           BNL    R5XB               YES, EXIT                            CDF06650
102A  0820             666           LHR    R2,R0              R2 = # OF DIGITS TO BE PRINTED       CDF06660
102C  2721             667           SIS    R2,1                                                    CDF06670
102E  4210 1054        668           BM     R5XB                                                    CDF06680
1032  0A22             669           AHR    R2,R2                                                   CDF06690
1034  0A22             670           AHR    R2,R2              R2 = 4(DIGITS-1)                     CDF06700
1036  0845             671  R5X      LHR    R4,R5                                                   CDF06710
1038  CC42 0000        672           SRHL   R4,0(R2)                                                CDF06720
103C  C440 000F        673           NHI    R4,15              R4 = HEX DIGIT                       CDF06730
1040  CA40 0030        674           AHI    R4,X'30'                                                CDF06740
1044  C540 003A        675           CLHI   R4,X'3A'                                                CDF06750
1048  2182             676           BLS    R5XA                                                    CDF06760
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104A  2647                      AIS    R4,7             ALIGN ASCII CHAR                 CDF06770
104C  41F0 1184       R5XA      BAL    R15,OUTCHR                                        CDF06780
1050  2724                      SIS    R2,4                                              CDF06790
1052  221E                      BNMS   R5X              LOOP TILL ALL DIGITS             CDF06800
1054  D100 3620       R5XB      LM     R0,RSAVE         RESTORE REGISTERS                CDF06810
1058  030F                      BR     LINK             RETURN                           CDF06820
                      *-----------------------------                                     CDF06830
                      *  R5BIN PRINTS CONTENTS OF R5 IN BINARY                           CDF06840
                      *         PRINTS UPTO 16 DIGITS                                    CDF06850
105A  D000 3620       R5BIN     STM    R0,RSAVE         STORE REGISTERS                  CDF06860
105E  0830                      LHR    R3,R0            R3 = # OF DIGITS TO BE PRINTED   CDF06870
1060  C810 0010                 LHI    R1,16                                             CDF06880
1064  0B13                      SHR    R1,R3                                             CDF06890
1066  211C                      BMS    R5B2             EXIT                             CDF06900
1068  CD51 0000                 SLHL   R5,0(R1)         R5 = DATA TO BE PRINTED          CDF06910
106C  C840 0030       R5B       LHI    R4,C'0'                                           CDF06920
1070  9151                      SLHLS  R5,1                                              CDF06930
1072  2382                      BNCS   R5B1                                              CDF06940
1074  2641                      AIS    R4,1             IF CARRY, PRINT 1                CDF06950
1076  41F0 1184       R5B1      BAL    LINK,OUTCHR                                       CDF06960
107A  2731                      SIS    R3,1             R3 = # OF REMAINING DIGITS       CDF06970
107C  2134                      BNZS   R5B3                                              CDF06980
107E  D100 3620       R5B2      LM     R0,RSAVE         RESTORE REGISTERS                CDF06990
1082  030F                      BR     LINK             RETURN                           CDF07000
1084  C330 0003       R5B3      THI    R3,3             4,8 OR 12 DIGITS LEFT ?          CDF07010
1088  2135                      BNZS   R5B4             NO                               CDF07020
108A  C840 0020                 LHI    R4,C' '          YES, OUTPUT ONE SPACE            CDF07030
108E  41F0 1184                 BAL    R15,OUTCHR                                        CDF07040
1092  4300 106C       R5B4      B      R5B              LOOP FOR NEXT DIGIT              CDF07050
                      *-----------------------------                                     CDF07060
                      *  TO CONVERT BINARY DATA IN R1 INTO ASCII CHAR & STORE @ 0(R2)    CDF07070
                      *                                                                  CDF07080
1096  D000 3620       HEXASC    STM    R0,RSAVE         STORE REGISTERS                  CDF07090
109A  0830                      LHR    R3,R0            R3 = DIGITS                      CDF07100
109C  0A33                      AHR    R3,R3                                             CDF07110
109E  0A33                      AHR    R3,R3                                             CDF07120
10A0  2734                      SIS    R3,4             R3 = 4(DIGITS)-4                 CDF07130
10A2  0841            HEXASC1   LHR    R4,R1            R4 = HEX DATA                    CDF07140
10A4  CC43 0000                 SRHL   R4,0(R3)                                          CDF07150
10A8  C440 000F                 NHI    R4,15            R4 = HEX DIGIT TO BE CONVERTED   CDF07160
10AC  CA40 0030                 AHI    R4,X'30'                                          CDF07170
10B0  C540 003A                 CLHI   R4,X'3A'                                          CDF07180
10B4  2182                      BLS    HEXASC2                                           CDF07190
10B6  2647                      AIS    R4,7             ADJUST TO A-F                    CDF07200
10B8  D242 0000       HEXASC2   STB    R4,0(R2)         STORE ASCII CHAR                 CDF07210
10BC  2621                      AIS    R2,1                                              CDF07220
10BE  2734                      SIS    R3,4                                              CDF07230
10C0  221F                      BNMS   HEXASC1          LOOP TILL ALL DIGITS             CDF07240
10C2  D100 3620                 LM     R0,RSAVE         RESTORE REGISTERS                CDF07250
10C6  030F                      BR     LINK             RETURN                           CDF07260
                      *-----------------------------                                     CDF07270
                      *  TO CONVERT BINARY DATA IN R1 INTO DECIMAL DIGITS                CDF07280
                      *      AND STORE THEM IN ASCII @ 0(R2)                             CDF07290
                      *                                                                  CDF07300
10C8  D000 3620       DECASC    STM    R0,RSAVE         STORE REGISTERS                  CDF07310
10CC  C830 3030                 LHI    R3,C'00'         INITIALIZE DECI BUFFER           CDF07320
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1000  4030 15BA                STH   R3,DECI                                CDF07330
1004  4030 15BC                STH   R3,DECI+2                              CDF07340
1008  4030 15BE                STH   R3,DECI+4                              CDF07350
100C  0744                     XHR   R4,R4           CLEAR INDICES          CDF07360
100E  0755                     XHR   R5,R5                                  CDF07370
10E0  4514 15C0         DEC1   CLH   R1,DECITAB(R4)  COMPARE TO TABLE VALUE CDF07380
10E4  2187                     BLS   DEC2                                   CDF07390
10E6  2631                     AIS   R3,1                                   CDF07400
10E8  D235 15BA                STB   R3,DECI(R5)     STORE PARTIAL/FINAL DEC DIGIT  CDF07410
10EC  4B14 15C0                SH    R1,DECITAB(R4)                         CDF07420
10F0  2208                     BS    DEC1                                   CDF07430
10F2  C830 0030         DEC2   LHI   R3,C'0'                                CDF07440
10F6  2642                     AIS   R4,2            INCREMENT TABLE INDEX BY 2  CDF07450
10F8  2651                     AIS   R5,1                                   CDF07460
10FA  C550 0005                CLHI  R5,5                                   CDF07470
10FE  208F                     BLS   DEC1            LOOP TILL 5 DIGITS     CDF07480
1100  0850                     SHR   R5,R0           ALIGN R5               CDF07490
1102  211A                     BMS   DEC4                                   CDF07500
1104  D345 15BA         DEC3   LB    R4,DECI(R5)                            CDF07510
1108  D242 0000                STB   R4,0(R2)        STORE # OF DIGITS REQUESTED  CDF07520
110C  2621                     AIS   R2,1                                   CDF07530
110E  2651                     AIS   R5,1                                   CDF07540
1110  C550 0005                CLHI  R5,5                                   CDF07550
1114  2088                     BLS   DEC3            LOOP                   CDF07560
1116  D100 3620         DEC4   LM    R0,RSAVE        RESTORE REGISTERS      CDF07570
111A  030F                     BR    LINK            RETURN                 CDF07580
                        *-----------------------------                      CDF07590
                        *  TO PRINT THE ASCII MESSAGE                       CDF07600
                        *                                                   CDF07610
111C  D000 3620         PRINT  STM   R0,RSAVE        STORE REGISTERS        CDF07620
1120  41F0 1272                BAL   LINK,TSTDU                             CDF07630
1124  0811                     LHR   R1,R1                                  CDF07640
1126  2335                     BZS   P1                                     CDF07650
1128  4010 15AE                STH   R1,WASDU        SET FLAG               CDF07660
112C  4300 11AE                B     PRINT5          EXIT                   CDF07670
1130  4820 15AE         P1     LH    R2,WASDU                               CDF07680
1134  4330 115A                BZ    P3                                     CDF07690
1138  4010 15AE                STH   R1,WASDU        RESET FLAG             CDF07700
113C  4810 0A1C                LH    R1,TIME         GET CONSTANT FOR APPROX 1 SEC DELAY  CDF07710
1140  C800 1000                LHI   R0,X'1000'                             CDF07720
1144  2701                     SIS   R0,1                                   CDF07730
1146  2031                     BTBS  3,1                                    CDF07740
1148  2711                     SIS   R1,1                                   CDF07750
114A  2035                     BTBS  3,5             LOOP TILL TIMEOUT      CDF07760
114C  2434                     LIS   R3,4                                   CDF07770
114E  C840 00FF                LHI   R4,X'FF'                               CDF07780
1152  41F0 11B4         P2     BAL   LINK,OUTCHR                            CDF07790
1156  2731                     SIS   R3,1                                   CDF07800
1158  2033                     BNZS  P2                                     CDF07810
115A  4800 166A         P3     LH    R0,NOMSG+6                             CDF07820
115E  2335                     BZS   PRINT1          NO, PRINT ALL MESSAGES CDF07830
1160  4800 15A4                LH    R0,ISITERR                             CDF07840
1164  4330 11AE                BZ    PRINT5          NOT AN ERROR MSG. EXIT CDF07850
1168  4110 1308         PRINT1 BAL   R1,SETUP        SET UP LIST DEV FOR PRINTING  CDF07860
116C  D315 0000         PRINT2 LB    R1,0(R5)        GET A MESSAGE BYTE     CDF07870
1170  9D02                     SSR   R0,R2                                  CDF07880
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1172 4210 11AE  789          BTC    1,PRINT5        IF DU, EXIT                    CDF07890
1176 2083       790          BTBS   8,3             IF BUSY, LOOP                  CDF07900
1178 9A01       791          WDR    R0,R1           WRITE A CHARACTER              CDF07910
117A C510 000D  792          CLHI   R1,13                                          CDF07920
117E 2333       793          BES    PRINT3          MSG OVER                       CDF07930
1180 2651       794          AIS    R5,1                                           CDF07940
1182 2208       795          BS     PRINT2          LOOP FOR NEXT CHAR             CDF07950
1184 242A       796 PRINT3   LIS    R2,10           LF                             CDF07960
1186 D310 0A11  797          LB     R1,IO+1         GET LIST DEV IDENTIFIER        CDF07970
118A C510 0003  798          CLHI   R1,3            LINE PRINTER ?                 CDF07980
118E 2132       799          BNES   PRINT3A         NO, OUTPUT LF                  CDF07990
1190 2421       800          LIS    R2,1            YES, OUTPUT X'01'              CDF08000
1192 9D01       801 PRINT3A  SSR    R0,R1                                          CDF08010
1194 2081       802          BTBS   8,1                                            CDF08020
1196 9A02       803          WDR    R0,R2                                          CDF08030
1198 9D01       804          SSR    R0,R1                                          CDF08040
119A 2081       805          BTBS   8,1             WAIT TILL LF COMPLETE          CDF08050
119C D320 0A11  806 PRINT4   LB     R2,IO+1                                        CDF08060
11A0 C520 0001  807          CLHI   R2,1            CRT ?                          CDF08070
11A4 2135       808          BNES   PRINT5                                         CDF08080
11A6 DA00 175A  809          WD     R0,RUN+6        OUTPUT 1 NULL CHARACTER        CDF08090
11AA 9D01       810          SSR    R0,R1                                          CDF08100
11AC 2081       811          BTBS   8,1                                            CDF08110
11AE D100 3620  812 PRINT5   LM     R0,RSAVE        RESTORE REGISTERS              CDF08120
11B2 030F       813          BR     LINK            RETURN                         CDF08130
                814 *------------------------                                      CDF08140
                815 *  SMALL SUPPORT ROUTINES                                      CDF08150
                816 *                                                             CDF08160
11B4 40F0 11E4  817 OUTCHR   STH    R15,OUT1+2      SET UP RETURN ADDRESS          CDF08170
11B8 41F0 1272  818          BAL    LINK,TSTDU                                     CDF08180
11BC 0811       819          LHR    R1,R1                                          CDF08190
11BE 4230 11E2  820          BNZ    OUT1            DEVICE UNAVAILABLE, EXIT       CDF08200
11C2 4110 1308  821          BAL    R1,SETUP        SET UP LIST DEVICE             CDF08210
11C6 9D01       822          SSR    R0,R1                                          CDF08220
11C8 2081       823          BTBS   8,1             WAIT TILL BSY DROPS            CDF08230
11CA 9A04       824          WDR    R0,R4                                          CDF08240
11CC 9D01       825          SSR    R0,R1                                          CDF08250
11CE 2081       826          BTBS   8,1                                            CDF08260
11D0 D310 0A11  827          LB     R1,IO+1                                        CDF08270
11D4 C510 0001  828          CLHI   R1,1                                           CDF08280
11D8 023F       829          BNER   LINK            RETURN                         CDF08290
11DA DA00 175A  830          WD     R0,RUN+6        OUTPUT 1 NULL CHARACTER        CDF08300
11DE 9D01       831          SSR    R0,R1                                          CDF08310
11E0 2081       832          BTBS   8,1                                            CDF08320
11E2 4300 0000  833 OUT1     B      0               RETURN AS SET UP ABOVE         CDF08330
                834 *--------------------------                                    CDF08340
                835 *  TO GET A CHAR FROM KEYBOARD (IN REG R4)                     CDF08350
                836 *                                                             CDF08360
11E6 4140 12B2  837 GETCHR   BAL    R4,KBREAD       PUT KB DEVICE IN READ MODE     CDF08370
11EA 9D04       838          SSR    R0,R4                                          CDF08380
11EC 021F       839          BTCR   1,LINK          IF DU, RETURN                  CDF08390
11EE 2082       840          BTBS   8,2             IF BUSY, LOOP                  CDF08400
11F0 9B04       841          RDR    R0,R4           READ A CHAR IN R4              CDF08410
11F2 C440 007F  842          NHI    R4,X'7F'        REMOVE PARITY BIT              CDF08420
11F6 030F       843          BR     LINK            RETURN                         CDF08430
                844 *--------------------------                                    CDF08440
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                                845  *  TO OUTPUT CR,LF TO LIST DEVICE                                  CDF08450
                                846  *                                                                 CDF08460
11F8  D000 3620                 847  CRLF     STM    R0,RSAVE          STORE REGISTERS               CDF08470
11FC  244D                      848           LIS    R4,13                                           CDF08480
11FE  41F0 11B4                 849           BAL    LINK,OUTCHR       OUTPUT CR                     CDF08490
1202  244A                      850           LIS    R4,10             LF                            CDF08500
1204  D310 0A11                 851           LB     R1,IO+1           GET LIST DEV IDENTIFIER       CDF08510
1208  C510 0003                 852           CLHI   R1,3              LP ?                          CDF08520
120C  2132                      853           BNES   CRLF1             NO, OUTPUT LF                 CDF08530
120E  2441                      854           LIS    R4,1              YES, OUTPUT X'01'             CDF08540
1210  41F0 11B4                 855  CRLF1    BAL    LINK,OUTCHR                                     CDF08550
1214  D100 3620                 856           LM     R0,RSAVE          RESTORE REGISTERS             CDF08560
1218  030F                      857           BR     LINK              RETURN                        CDF08570
                                858  *-----------------------------                                  CDF08580
                                859  *  TO OUTPUT '?' TO CONSOLE                                     CDF08590
                                860  *                                                               CDF08600
121A  41F0 11F8                 861  QUESTN   BAL    LINK,CRLF                                       CDF08610
121E  40F0 15A4                 862           STH    R15,ISITERR                                     CDF08620
1222  C850 163E                 863           LHI    R5,QMSG                                         CDF08630
1226  41F0 111C                 864           BAL    LINK,PRINT        PRINT '?'                     CDF08640
122A  0700                      865           XHR    R0,R0                                           CDF08650
122C  4000 15A4                 866           STH    R0,ISITERR                                      CDF08660
1230  4300 0AA8                 867           B      OPTIN1            GO TO BEGINING                CDF08670
                                868  *-----------------------------                                  CDF08680
                                869  *  IF 'BREAK' PRESSED,GOTO 'OPTIN', OTHERWISE RETURN            CDF08690
                                870  *                                                               CDF08700
1234  D000 3620                 871  TSTBRK   STM    R0,RSAVE          STORE REGISTERS               CDF08710
1238  D300 1596                 872           LB     R0,KBADR          GET KEYBOARD DEVICE ADR       CDF08720
123C  9D01                      873           SSR    R0,R1                                           CDF08730
123E  C310 0020                 874           THI    R1,X'20'          'BREAK' KEY PRESSED ?         CDF08740
1242  4330 126C                 875           BZ     TSTBRK3           NO, EXIT                      CDF08750
1246  D320 0A10                 876           LB     R2,IO                                           CDF08760
124A  C520 0001                 877           CLHI   R2,1              CRT ?                         CDF08770
124E  2137                      878           BNES   TSTBRK1                                         CDF08780
1250  9D01                      879           SSR    R0,R1                                           CDF08790
1252  2081                      880           BTBS   8,1                                             CDF08800
1254  9B02                      881           RDR    R0,R2                                           CDF08810
1256  9D01                      882           SSR    R0,R1                                           CDF08820
1258  2281                      883           BFBS   8,1                                             CDF08830
125A  2305                      884           BS     TSTBRK2                                         CDF08840
125C  9D01                      885  TSTBRK1  SSR    R0,R1                                           CDF08850
125E  C310 0020                 886           THI    R1,X'20'                                        CDF08860
1262  2033                      887           BTBS   3,3               WAIT TILL BREAK KEY IS DEPRESSED CDF08870
1264  D100 3620                 888  TSTBRK2  LM     R0,RSAVE          RESTORE REGISTERS             CDF08880
1268  4300 0A9E                 889           B      OPTIN                                           CDF08890
126C  D100 3620                 890  TSTBRK3  LM     R0,RSAVE          RESTORE REGISTERS             CDF08900
1270  030F                      891           BR     LINK              RETURN TO PROGRAM             CDF08910
                                892  *-----------------------------                                  CDF08920
                                893  *  TO SEE IF LIST DEVICE IS OFF (R1 IS NON-ZERO IF OFF)         CDF08930
                                894  *                                                               CDF08940
1272  D310 0A11                 895  TSTDU    LB     R1,IO+1           GET LIST DEV IDENTIFIER       CDF08950
1276  C510 0001                 896           CLHI   R1,1              CRT ?                         CDF08960
127A  213B                      897           BNES   TSTDU1                                          CDF08970
127C  D300 0A12                 898           LB     R0,CRTADR                                       CDF08980
1280  9D01                      899           SSR    R0,R1                                           CDF08990
1282  C410 000C                 900           NHI    R1,12                                           CDF09000
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1286   C510 000C              CLHI   R1,12           BSY & EX SET ?          CDF09010
128A   033F                   BER    LINK                                    CDF09020
128C   0711                   XHR    R1,R1                                   CDF09030
128E   030F                   BR     LINK            RETURN                  CDF09040
1290   C510 0002    TSTDU1    CLHI   R1,2            TTY ?                   CDF09050
1294   2336                   BES    TSTDU2                                  CDF09060
1296   C510 0003              CLHI   R1,3            LP ?                    CDF09070
129A   2336                   BES    TSTDU3                                  CDF09080
129C   4200 0000              NOP    PROVISION       TO ADD SPECIAL DEV      CDF09090
12A0   D300 0A14    TSTDU2    LB     R0,TTYADR                               CDF09100
12A4   2303                   BS     TSTDU4                                  CDF09110
12A6   D300 0A16    TSTDU3    LB     R0,LPADR                                CDF09120
12AA   9001         TSTDU4    SSR    R0,R1           GET STATUS IN R1        CDF09130
12AC   C410 0001              NHI    R1,1            R1 = DU BIT             CDF09140
12B0   030F                   BR     LINK            RETURN                  CDF09150
                    *------------------------------                          CDF09160
                    *  TO PUT KEYBOARD DEVICE IN READ MODE                   CDF09170
                    *                                                        CDF09180
12B2   D300 0A10    KBREAD    LB     R0,IO           GET KB DEV IDENTIFIER   CDF09190
12B6   C500 0001              CLHI   R0,1            CRT ?                   CDF09200
12BA   2338                   BES    CRTGET                                  CDF09210
12BC   C500 0002              CLHI   R0,2            TTY ?                   CDF09220
12C0   2333                   BES    TTYGET                                  CDF09230
12C2   4200 0000              NOP    FOR             SPECIAL KB DEVICE       CDF09240
12C6   D300 0A14    TTYGET    LB     R0,TTYADR                               CDF09250
12CA   DE00 159F              OC     R0,TTYRD                                CDF09260
12CE   0304                   BR     R4              RETURN                  CDF09270
12D0   D300 0A12    CRTGET    LB     R0,CRTADR                               CDF09280
12D4   DE00 1599              OC     R0,CRTRD                                CDF09290
12D8   DB00 15AA              RD     R0,TEMP         DUMMY READ              CDF09300
12DC   DE00 159B              OC     R0,RQ2S                                 CDF09310
12E0   0304                   BR     R4              RETURN                  CDF09320
                    *------------------------------                          CDF09330
                    *  TO SET UP KEYBOARD DEV TO READ WITH INT ENABLED       CDF09340
                    *                                                        CDF09350
12E2   D000 3620    KBRD      STM    R0,RSAVE        SAVE REGISTERS          CDF09360
12E6   D300 1596              LB     R0,KBADR        GET KB DEV ADR          CDF09370
12EA   D310 0A10              LB     R1,IO           GET KB IDENTIFIER       CDF09380
12EE   C510 0001              CLHI   R1,1            CRT ?                   CDF09390
12F2   2334                   BES    KBRD1                                   CDF09400
12F4   DE00 15A0              OC     R0,TTYENRD      TTY : ENABLE,READ       CDF09410
12F8   2305                   BS     KBRD1+8                                 CDF09420
12FA   DE00 159A    KBRD1     OC     R0,CRTENRD      CRT : ENABLE,READ       CDF09430
12FE   DE00 159B              OC     R0,RQ2S                                 CDF09440
1302   D100 3620              LM     R0,RSAVE        RESTORE REGISTERS       CDF09450
1306   030F                   BR     LINK            RETURN                  CDF09460
                    *------------------------------                          CDF09470
                    *  LIST DEVICE SETUP ROUTINE                             CDF09480
                    *                                                        CDF09490
1308   D300 0A11    SETUP     LB     R0,IO+1         GET LIST DEV IDENTIFIER CDF09500
130C   C500 0001              CLHI   R0,1            CRT ?                   CDF09510
1310   4330 1338              BE     CRTDRV          YES, GO TO CRT DRIVER   CDF09520
1314   C500 0002              CLHI   R0,2            TTY ?                   CDF09530
1318   2336                   BES    TTYDRV          YES, GO TO TTY DRIVER   CDF09540
131A   C500 0003              CLHI   R0,3            LINE PRINTER ?          CDF09550
131E   2338                   BES    LPDRV                                  CDF09560
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1320  4200 0000              NOP   PROVISION       TO ADD SPECIAL DEV
1324  D300 0A14    TTYDRV    LB    R0,TTYADR
1328  DE00 159E              OC    R0,TTYWRT       WRITE COMMAND TO TTY
132C  0301                   BR    R1              RETURN
132E  D300 0A16    LPDRV     LB    R0,LPADR
1332  DE00 159D              OC    R0,LPWRT        COMMAND TO LINE PRINTER
1336  0301                   BR    R1
1338  D300 0A13    CRTDRV    LB    R0,CRTADR+1
133C  DE00 1598              OC    R0,CRTWRT       TURN LINE TO WRITE
1340  0301                   BR    R1              RETURN
                   * ****************************
                   *  LOW CORE SET UP ROUTINE
                   *
1342  0711         LCORE     XHR   R1,R1
1344  2422                   LIS   R2,2
1346  C830 004E              LHI   R3,X'4E'
134A  0700                   XHR   R0,R0
134C  4001 0000    ZERO1     STH   R0,0(R1)
1350  C110 134C              BXLE  R1,ZERO1        ZERO CORE FROM 0 THRU X'4F'
1354  C810 0080              LHI   R1,X'80'
1358  C830 00CE              LHI   R3,X'CE'
135C  4001 0000    ZERO2     STH   R0,0(R1)
1360  C110 135C              BXLE  R1,ZERO2        ZERO CORE FROM X'80' THRU X'CF'
1364  C800 148E              LHI   R0,XIERR        EXTERNAL INT ERROR ROUTINE START ADR
1368  C830 08CE              LHI   R3,X'8CE'
136C  4001 0000    ZERO3     STH   R0,0(R1)
1370  C110 136C              BXLE  R1,ZERO3        SET UP INT SERVICE POINTER TABLE
1374  C830 151C              LHI   R3,II
1378  4030 0036              STH   R3,X'36'        ILL INST INT NEW PSW LOC
137C  C840 1536              LHI   R4,MM
1380  4040 003E              STH   R4,X'3E'        M. M. INT NEW PSW LOC
1384  C830 14E0              LHI   R3,AF
1388  4030 004E              STH   R3,X'4E'        ARITHMATIC FAULT NEW PSW LOC(32-BIT)
                   *                              FIXED PT DIVIDE FAULT NEW PSW LOC
138C  C840 3620              LHI   R4,RSAVE
1390  4810 158E              LH    R1,MOD32
1394  213C                   BNZS  LCORE32
                   *  SET UP LOW CORE FOR 16 BIT MACHINE
1396  4040 0022              STH   R4,X'22'        REG SAVE POINTER
139A  C830 1570              LHI   R3,FP
139E  4030 002E              STH   R3,X'2E'        FLOATING PT FAULT INT NEW PSW LOC
13A2  C850 1446              LHI   R5,XI16
13A6  4050 0046              STH   R5,X'46'        EXT INT NEW PSW LOC
13AA  030F                   BR    LINK
                   *  SET UP LOW CORE FOR 32 BIT MACHINE
13AC  4040 0086    LCORE32   STH   R4,X'86'        REG SAVE POINTER
13B0  2748                   SIS   R4,8
13B2  4040 0084              STH   R4,X'84'        PSW SAVE AREA
13B6  C830 1578              LHI   R3,RP
13BA  4030 0096              STH   R3,X'96'        RELOC/PROTECT INT NEW PSW LOC
13BE  D310 1596              LB    R1,KBADR        GET KEYBOARD DEV ADR
13C2  0A11                   AHR   R1,R1
13C4  C800 13E2              LHI   R0,KBINT0       R0 = A(KEYBOARD INT HANDLER)
13C8  4001 00D0              STH   R0,X'D0'(R1)    STORE @  X'D0'+2(KB DEV ADR)
13CC  0711                   XHR   R1,R1           TO SET UP SERVICE POINTER TABLE
13CE  C830 1454              LHI   R3,XI32
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13D2  4821 2A9A  1013 LCORE32A LH    R2,DEVSADR(R1)     GET DEV ADR FROM TABLE          CDF10130
13D6  021F       1014          BMR   LINK               DONE, RETURN                    CDF10140
13D8  0A22       1015          AHR   R2,R2                                             CDF10150
13DA  4032 00D0  1016          STH   R3,X'D0'(R2)       STORE @  X'D0'+2(DEV ADR)       CDF10160
13DE  2612       1017          AIS   R1,2                                              CDF10170
13E0  2207       1018          BS    LCORE32A                                          CDF10180
                 1019 *--------------------------------                                 CDF10190
                 1020 *  KEYBOARD INTERRUPT HANDLER                                     CDF10200
                 1021 *                                                                 CDF10210
13E2  C330 0020  1022 KBINT0   THI   R3,X'20'           IS BREAK KEY DEPRESSED ?        CDF10220
13E6  4330 140E  1023          BZ    KBINT1             NO                              CDF10230
13EA  D350 0A10  1024          LB    R5,IO                                             CDF10240
13EE  C550 0001  1025          CLHI  R5,1               CRT ?                           CDF10250
13F2  2138       1026          BNES  KBINT0A                                           CDF10260
13F4  9D23       1027          SSR   R2,R3                                             CDF10270
13F6  2081       1028          BTBS  8,1                                               CDF10280
13F8  9B24       1029          RDR   R2,R4                                             CDF10290
13FA  9D23       1030          SSR   R2,R3                                             CDF10300
13FC  2281       1031          BFBS  8,1                                               CDF10310
13FE  4300 0A9E  1032          B     OPTIN                                             CDF10320
1402  9D23       1033 KBINT0A  SSR   R2,R3                                             CDF10330
1404  C330 0020  1034          THI   R3,X'20'                                          CDF10340
1408  2033       1035          BTBS  3,3                WAIT TILL BREAK KEY IS DEPRESSED CDF10350
140A  4300 0A9E  1036          B     OPTIN              GO TO COMMAND MODE              CDF10360
140E  D220 1590  1037 KBINT1   STB   R2,INTDEV                                        CDF10370
1412  D230 1594  1038          STB   R3,INTSTA                                         CDF10380
1416  4840 158E  1039          LH    R4,MOD32                                          CDF10390
141A  2335       1040          BZS   KBINT2                                          CDF10400
141C  4000 1586  1041          STH   R0,OPSW            STORE OLD PSW OF 32-BIT PROCESSOR CDF10410
1420  4010 158A  1042          STH   R1,OLOC            IN ORDER TO RETURN BACK TO TEST CDF10420
1424  4890 15A2  1043 KBINT2   LH    R9,KBINT                                          CDF10430
1428  0259       1044          BNZR  R9                 GO,PROCESS KB INT FURTHER       CDF10440
142A  4300 148E  1045          B     XIERR                                             CDF10450
142E  D320 1596  1046 NOBRK    LB    R2,KBADR           KB INT FROM KEY OTHER THAN BREAK CDF10460
1432  9B24       1047          RDR   R2,R4                                             CDF10470
                 1048 *  TO RETURN ON OLD PSW                                         CDF10480
1434  4890 158E  1049 RETOPSW  LH    R9,MOD32                                          CDF10490
1438  2135       1050          BNZS  RETOPSW1                                        CDF10500
143A  D100 3620  1051          LM    R0,RSAVE           RESTORE REGISTERS               CDF10510
143E  C200 0040  1052          LPSW  X'40'              RETURN ON OLD PSW AFTER KB INT  CDF10520
1442  C200 1584  1053 RETOPSW1 LPSW  OPSW32                                          CDF10530
                 1054 * ********************************************                   CDF10540
                 1055 *  EXTERNAL INTERRUPT HANDLER                                    CDF10550
                 1056 *                                                                CDF10560
     0000 1446   1057 XI16      EQU   *                  FOR 16-BIT PROCESSOR            CDF10570
1446  D000 3620  1058          STM   R0,RSAVE           SAVE 16 REGISTERS               CDF10580
144A  9F23       1059          AIR   R2,R3              ACKNOLEDGE INTERRUPT            CDF10590
144C  D420 1596  1060          CLB   R2,KBADR           INT FROM KB DEV ?               CDF10600
1450  4330 13E2  1061          BE    KBINT0             SGO TO PROCESS KEYBOARD INT     CDF10610
     0000 1454   1062 XI32      EQU   *                  32-BIT PROCESSOR INTERUPT HANDLER CDF10620
1454  95AA       1063          EPSR  R10,R10                                         CDF10630
1456  40A0 158C  1064          STH   R10,INTPSW                                      CDF10640
145A  4020 1590  1065          STH   R2,INTDEV          STORE INTERRUPTING DEV ADR      CDF10650
145E  D230 1594  1066          STB   R3,INTSTA                                       CDF10660
1462  4840 158E  1067          LH    R4,MOD32                                        CDF10670
1466  2135       1068          BNZS  XI32A                                           CDF10680
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1468 4800 0040 1069          LH    R0,X'40'          R0 = OLD PSW ( 16 BIT M/C )          CDF10690
146C 4810 0042 1070          LH    R1,X'42'          R1 = OLD PSW LOC ( 16 BIT M/C )      CDF10700
1470 4000 1586 1071 XI32A    STH   R0,OPSW                                                CDF10710
1474 4010 158A 1072          STH   R1,OLOC                                                CDF10720
1478 0755      1073          XHR   R5,R5                                                  CDF10730
147A 4865 2A9A 1074 XI1      LH    R6,DEVSADR(R5)    GET DEV ADR FROM TABLE               CDF10740
147E 4210 148E 1075          BM    XIERR                                                  CDF10750
1482 0562      1076          CLHR  R6,R2             COMPARE IT WITH INTERRUPTING DEV ADR CDF10760
1484 2333      1077          BES   XI2                                                    CDF10770
1486 2652      1078          AIS   R5,2                                                   CDF10780
1488 2207      1079          BS    XI1                                                    CDF10790
148A 4865 2AA8 1080 XI2      LH    R6,DEVINT(R5)     GET DEV INTERRUPT HANDLER ADDRESS    CDF10800
148E 4330 148E 1081          BZ    XIERR                                                  CDF10810
1492 4060 148C 1082          STH   R6,XIEXIT                                              CDF10820
1496 4860 158E 1083          LH    R6,MOD32                                               CDF10830
149A 233E      1084          BZS   XI3                                                    CDF10840
149C 9051      1085          SRLS  R5,1              TO CHECK INTERRUPT LEVEL             CDF10850
149E 90A4      1086          SRLS  R10,4                                                  CDF10860
14A0 C860 4636 1087          LHI   R6,C'F6'                                               CDF10870
14A4 C4A0 000F 1088          NHI   R10,15            R10 = INTERRUPT LEVEL                CDF10880
14A8 D4A5 2AB4 1089          CLB   R10,INTLVL(R5)    COMPARE IT WITH THE ASSIGNED ONE     CDF10890
14AC 213B      1090          BNES  XIERR+4                                                CDF10900
               1091 *                                                                     CDF10910
14AE C810 00F0 1092          LHI   R1,X'F0'                                               CDF10920
14B2 9501      1093          EPSR  R0,R1             DIS INT , REG SET 15                 CDF10930
14B4 2303      1094          BS    XI3+4                                                  CDF10940
14B6 D100 3620 1095 XI3      LM    R0,RSAVE          RESTORE REG (16-BIT PROCESSOR)       CDF10950
14BA 4300 0000 1096          B     0                 RETURN TO TEST                       CDF10960
     0000 14BC 1097 XIEXIT   EQU   *-2                                                   CDF10970
               1098 *---------------------------------                                   CDF10980
               1099 *     EXTERNAL INTERRUPT ERROR ROUTINE                              CDF10990
               1100 *                                                                    CDF11000
14BE C860 4634 1101 XIERR    LHI   R6,C'F4'                                               CDF11010
14C2 4060 15DC 1102          STH   R6,ERRNO                                               CDF11020
14C6 4020 1592 1103          STH   R2,ERRDEV                                              CDF11030
14CA D230 1595 1104          STB   R3,ERRSTA                                              CDF11040
14CE D100 3620 1105          LM    R0,RSAVE          RESTORE REGISTERS                    CDF11050
14D2 C830 00F0 1106          LHI   R3,X'F0'                                               CDF11060
14D6 9523      1107          EPSR  R2,R3             REG SET 15                           CDF11070
14D8 41F0 0EC4 1108          BAL   LINK,ERRALL       'ERROR XXF4', 'DEV DDD STA SS'       CDF11080
               1109 *                                'PSW PPPP  LOC LLLL'                 CDF11090
14DC 4300 0AA8 1110          B     OPTIN1            GO TO BEGINNING                      CDF11100
               1111 *---------------------------                                         CDF11110
               1112 *  SPURIOUS INTERRUPT HANDLERS                                       CDF11120
               1113 *                                                                    CDF11130
               1114 *                                                                    CDF11140
               1115 *  ARITHMATIC FAULT INT (32-BIT PROCESSOR) TRAP                      CDF11150
               1116 *  FIXED-PT DIVIDE FAULT INT (16-BIT PROCESSOR) TRAP                 CDF11160
               1117 *                                                                    CDF11170
     0000 14E0 1118 AF       EQU   *                                                    CDF11180
14E0 C820 4631 1119          LHI   R2,C'F1'                                               CDF11190
14E4 4020 15DC 1120          STH   R2,ERRNO          SET ERROR # F1                       CDF11200
14E8 4820 158E 1121          LH    R2,MOD32                                               CDF11210
14EC 2135      1122          BNZS  COMM                                                   CDF11220
14EE 48E0 0048 1123          LH    R14,X'48'         OLD PSW (16-BIT PROCESSOR)           CDF11230
14F2 48F0 004A 1124          LH    R15,X'4A'         OLD LOC                              CDF11240
```

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14F6  40E0 1586  1125  COMM   STH   R14,OPSW                                  CDF11250
14FA  40F0 158A  1126         STH   R15,OLOC                                  CDF11260
14FE  C800 00F0  1127  COMM1  LHI   R0,X'F0'                                  CDF11270
1502  9520       1128         EPSR  R2,R0            NO INT. , REG SET 15     CDF11280
1504  41F0 0E5A  1129         BAL   LINK,ERR         PRINT 'ERROR XXFN'       CDF11290
1508  2401       1130         LIS   R0,1                                      CDF11300
150A  4000 15A4  1131         STH   R0,ISITERR                                CDF11310
150E  41E0 0F96  1132         BAL   RET,ERRPL1       PRINT 'PSW PPPP  LOC LLLL' CDF11320
1512  0700       1133         XHR   R0,R0                                     CDF11330
1514  4000 15A4  1134         STH   R0,ISITERR       RESET ERROR FLAG         CDF11340
1518  4300 0AA8  1135         B     OPTIN1           GO TO BEGINING           CDF11350
                 1136  *  ILLEGAL INSTRUCTION INTERRUPT TRAP                   CDF11360
      0000 151C  1137  II     EQU   *                                         CDF11370
151C  C820 4632  1138         LHI   R2,C'F2'                                  CDF11380
1520  4020 15DC  1139         STH   R2,ERRNO         SET ERROR # F2           CDF11390
1524  4820 158E  1140         LH    R2,MOD32                                  CDF11400
1528  2135       1141         BNZS  II32                                      CDF11410
152A  48E0 0030  1142         LH    R14,X'30'        OLD PSW                  CDF11420
152E  48F0 0032  1143         LH    R15,X'32'        OLD LOC                  CDF11430
1532  4300 14F6  1144  II32   B     COMM                                      CDF11440
                 1145  *  MACHINE MALFUNCTION INTERRUPT TRAP                   CDF11450
      0000 1536  1146  MM     EQU   *                                         CDF11460
1536  C820 4633  1147         LHI   R2,C'F3'                                  CDF11470
153A  4020 15DC  1148         STH   R2,ERRNO         SET ERROR # F3           CDF11480
153E  48E0 0022  1149         LH    R14,X'22'        OLD PSW ( 32-BIT PROCESSOR) CDF11490
1542  48F0 0026  1150         LH    R15,X'26'        OLD LOC                  CDF11500
1546  4820 158E  1151         LH    R2,MOD32                                  CDF11510
154A  2135       1152         BNZS  MM32                                      CDF11520
154C  48E0 0038  1153         LH    R14,X'38'        OLD PSW (16-BIT M/C )    CDF11530
1550  48F0 003A  1154         LH    R15,X'3A'        OLD LOC                  CDF11540
1554  40E0 1586  1155  MM32   STH   R14,OPSW                                  CDF11550
1558  40F0 158A  1156         STH   R15,OLOC                                  CDF11560
155C  C850 7FFF  1157         LHI   R5,X'7FFF'                                CDF11570
1560  2751       1158  ABOVE  SIS   R5,1                                     CDF11580
1562  2031       1159         BNZS  ABOVE                                     CDF11590
1564  C800 080F  1160         LHI   R0,X'080F'                                CDF11600
1568  9104       1161         SLHLS R0,4             R0 = X'80F0'             CDF11610
156A  9520       1162         EPSR  R2,R0            HALT PROCESSOR           CDF11620
                 1163  *   WHEN EXE/RUN IS DEPRESSED, ERROR MSG IS PRINTED.    CDF11630
156C  4300 14FE  1164         B     COMM1                                     CDF11640
                 1165  *  FLOATING-PT ARITH FAULT INT TRAP                     CDF11650
                 1166  *                                                      CDF11660
      0000 1570  1167  FP     EQU   *                                         CDF11670
1570  48E0 0028  1168         LH    R14,X'28'        OLD PSW (16-BIT PROCESSOR) CDF11680
1574  48F0 002A  1169         LH    R15,X'2A'        OLD LOC                  CDF11690
                 1170  *  RELOCATION/PROTECTION INT TRAP                       CDF11700
                 1171  *                                                      CDF11710
      0000 1578  1172  RP     EQU   *                                         CDF11720
1578  C820 4635  1173         LHI   R2,C'F5'                                  CDF11730
157C  4020 15DC  1174         STH   R2,ERRNO         SET ERROR # F5           CDF11740
1580  4300 14F6  1175         B     COMM                                      CDF11750
                 1176  * ***************************                          CDF11760
                 1177  *  ETPE CONSTANTS & STORAGE AREAS                       CDF11770
                 1178  *                                                      CDF11780
                 1179  *------------------------                             CDF11790
1584  0000       1180  OPSW32 DC    0                OLD PSW STORAGE AREA     CDF11800
```

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1586  0000            OPSW     DC    0                                                       CDF11810
1588  0000                     DC    0                                                       CDF11820
158A  0000            OLOC     DC    0                                                       CDF11830
                      *-------------------------                                             CDF11840
158C  0000            INTPSW   DC    0                     (FOR 32-BIT M/C ONLY)             CDF11850
158E  0000            MOD32    DC    0                     FLAG FOR 32-BIT M/C(NON-ZERO)     CDF11860
1590  0000            INTDEV   DC    0                     INTERRUPTING DEV ADR              CDF11870
1592  0000            ERRDEV   DC    0                     ERROR DEVICE #                    CDF11880
1594  00              INTSTA   DB    0                     INTERRUPTING DEV STATUS           CDF11890
1595  00              ERRSTA   DB    0                     ERRONEOUS STATUS                  CDF11900
1596  02              KBADR    DB    2                     KEYBOARD DEV ADR                  CDF11910
1597  80              NORM     DB    X'80'                                                   CDF11920
1598  AB              CRTWRT   DB    X'AB'                                                   CDF11930
1599  B9              CRTRD    DB    X'B9'                                                   CDF11940
159A  79              CRTENRD  DB    X'79'                                                   CDF11950
159B  3B              RQ2S     DB    X'3B'                                                   CDF11960
159C  78              SECOND   DB    X'78'                                                   CDF11970
159D  80              LPWRT    DB    X'80'                                                   CDF11980
159E  D8              TTYWRT   DB    X'D8'                                                   CDF11990
159F  A4              TTYRD    DB    X'A4'                                                   CDF12000
15A0  64              TTYENRD  DB    X'64'                                                   CDF12010
                      *                                                                      CDF12020
15A2  142E            KBINT    DC    NOBRK                 KEYBOARD INT RETURN ADR           CDF12030
15A4  0000            ISITERR  DC    0                                                       CDF12040
15A6  0000            NOERR    DC    0                                                       CDF12050
15A8  0000            FIRST    DC    0                                                       CDF12060
15AA  0000            TEMP     DC    0                     TEMPORARY STORAGE LOC             CDF12070
15AC  0000            SELTST   DC    0                     HIGHEST SELECTED TEST #           CDF12080
15AE  0000            WASDU    DC    0                     1 IF KEYBOARD DEVICE WAS OFF      CDF12090
15B0  0000            TOTERR   DC    0                     TOTAL ERRORS DETECTED WHILE DU    CDF12100
15B2  0000            TOTAL    DC    0                     # OF TIMES THE SELECTED TESTS RUN CDF12110
15B4  0000            BTESTNO  DC    0                     CURRENT TEST # IN BINARY          CDF12120
15B6  0000            COUNT    DC    0                                                       CDF12130
15B8  0000            NEXTST   DC    0                     NEXT TEST #                       CDF12140
15BA  3030            DECI     DC    C'00',C'00',C'00'                                       CDF12150
15BC  3030
15BE  3030
15C0  2710            DECITAB  DC    10000,1000,100,10,1                                     CDF12160
15C2  03E8
15C4  0064
15C6  000A
15C8  0001
                      *------------------------------                                        CDF12170
                      *  ETPE MESSAGES                                                       CDF12180
                      *                                                                      CDF12190
15CA  54455354        TSTMSG   DC    C'TEST  00',X'0D00'                                     CDF12200
      20203030
15D2  0D00
      0000 15D0       MTESTNO  EQU   *-4                                                     CDF12210
15D4  4552524F        ERRMSG   DC    C'ERROR 0000',X'0D00'                                   CDF12220
      52203030
      3030
15DE  0D00
      0000 15DA       ETESTNO  EQU   *-6                   STORED BY ETPE                    CDF12230
      0000 15DC       ERRNO    EQU   *-4                   STORE ERRNO AS CHAR CONSTANT      CDF12240
15E0  544F5441        TOTMSG   DC    C'TOTAL   TOTERR',X'0D00'                               CDF12250
```

```
        4C202020
        544F5445
        5252
15EE    0D00
15F0    4E4F2045          1226  NOERMSG  DC    C'NO ERROR',X'0D00'                   CDF12260
        52524F52
15F8    0D00
15FA    44455620          1227  DEVMSG   DC    C'DEV 000 STA 00       ',X'0D00'      CDF12270
        30303020
        53544120
        30302020
        20202020
        2020
1610    0D00
        0000 15FE         1228  ASCIDEV  EQU   DEVMSG+4                              CDF12280
        0000 1602         1229  STAMSG   EQU   DEVMSG+8                              CDF12290
        0000 1606         1230  ASCISTA  EQU   DEVMSG+12                             CDF12300
1612    44455620          1231  DEVMSG2  DC    C'DEV 000',X'0D00'                    CDF12310
        30303020
161A    0D00
        0000 1616         1232  ASCIDEV2 EQU   *-6                                   CDF12320
161C    50535720          1233  PSWMSG   DC    C'PSW 0000  LOC 0000',X'0D00'         CDF12330
        30303030
        20204C4F
        43203030
        3030
162E    0D00
        0000 1620         1234  ASCIPSW  EQU   *-16                                  CDF12340
        0000 1626         1235  LOCMSG   EQU   *-10                                  CDF12350
        0000 162A         1236  ASCILOC  EQU   *-6                                   CDF12360
1630    454E4420          1237  EOTMSG   DC    C'END OF TEST',X'0D00'                CDF12370
        4F462054
        45535420
163C    0D00
163E    3F0D              1238  QMSG     DC    X'3F0D'                               CDF12380
```

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                          1240  *----------------------------                                      CDF12400
                          1241  *  OPTION/COMMAND TABLE                                            CDF12410
                          1242  *                                                                  CDF12420
         0000 1640        1243  OPT     EQU     *                                                  CDF12430
  1640   54455354         1244  TEST    DC      C'TEST  ',0,X'C000',0                              CDF12440
         2020
  1646   0000
  1648   C000
  164A   0000
  164C   4C4F4F50         1245  LOOP    DC      C'LOOP  ',0,0,0                                    CDF12450
         2020
  1652   0000
  1654   0000
  1656   0000
  1658   434F4E54         1246  CONTIN  DC      C'CONTIN',0,0,0                                    CDF12460
         494E
  165E   0000
  1660   0000
  1662   0000
  1664   4E4F4D53         1247  NOMSG   DC      C'NOMSG ',0,0,0                                    CDF12470
         4720
  166A   0000
  166C   0000
  166E   0000
                          1248  *  OPTION TABLE ENTRIES                                            CDF12480
  1670   494E544C         1249  INTLEV  DC      C'INTLEV',0,0,0                                    CDF12490
         4556
  1676   0000
  1678   0000
  167A   0000
  167C   44454653         1250  DEFSEC  DC      C'DEFSEC',X'0000',0000000,0        IF SET DEF SEC ABORT   CDF12500
         4543
  1682   0000
  1684   0000
  1686   0000
  1688   464D5457         1251  FMTWP   DC      C'FMTWP ',0,0,0                                    CDF12510
         5020
  168E   0000
  1690   0000
  1692   0000
  1694   464D5245         1252  FMREAD  DC      C'FMREAD',2,0,0                                    CDF12520
         4144
  169A   0002
  169C   0000
  169E   0000
  16A0   5446494C         1253  TFILE   DC      C'TFILE ',0,0,0                                    CDF12530
         4520
  16A6   0000
  16A8   0000
  16AA   0000
  16AC   5345434E         1254  SECNUM  DC      C'SECNUM',0,0,0                                    CDF12540
         554D
  16B2   0000
  16B4   0000
  16B6   0000
  16B8   53454C43         1255  SELCH   DC      C'SELCH ',X'F0',0,0                                CDF12550
```

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                4820
      16BE      00F0
      16C0      0000
      16C2      0000
      16C4      44495343          1256  DISCON   DC     C'DISCON',X'B6',0,0                CDF12560
                4F4E
      16CA      00B6
      16CC      0000
      16CE      0000
      16D0      52455452          1257  RETRY    DC     C'RETRY ',5,0,0                    CDF12570
                5920
      16D6      0005
      16D8      0000
      16DA      0000
      16DC      4C4F4359          1258  LOCYL    DC     C'LOCYL ',X'FFFF',0,0              CDF12580
                4C20
      16E2      FFFF
      16E4      0000
      16E6      0000
      16E8      48494359          1259  HICYL    DC     C'HICYL ',X'FFFF',0,0              CDF12590
                4C20
      16EE      FFFF
      16F0      0000
      16F2      0000
      16F4      46494C45          1260  FILE     DC     C'FILE  ',0,0,0                    CDF12600
                2020
      16FA      0000
      16FC      0000
      16FE      0000
      1700      53434F50          1261  SCOPE    DC     C'SCOPE ',0,0,0                    CDF12610
                4520
      1706      0000
      1708      0000
      170A      0000
      170C      53454354          1262  SECTOR   DC     C'SECTOR',0,0,0                    CDF12620
                4F52
      1712      0000
      1714      0000
      1716      0000
      1718      54494D43          1263  TIMECON  DC     C'TIMCON',0,0,0                    CDF12630
                4F4E
      171E      0000
      1720      0000
      1722      0000
      1724      42594341          1264  BYCKAD   DC     C'BYCKAD',0,0,0                    CDF12640
                4144
      172A      0000
      172C      0000
      172E      0000
      1730      50414354          1265  PACTYP   DC     C'PACTYP',0,0,0                    CDF12650
                5950
      1736      0000
      1738      0000
      173A      0000
      173C      54524B44          1266  TRKDEN   DC     C'TRKDEN',0,0,0                    CDF12660
                454E
```

```
1742  0000
1744  0000
1746  0000
      0000 1748          1267  OPTEND   EQU    *                                    CDF12670
1748  4F505449           1268  OPTION   DC     C'OPTION',0,0,0                      CDF12680
      4F4E
174E  0000
1750  0000
1752  0000
1754  52554E20           1269  RUN      DC     C'RUN   ',0,0,0                      CDF12690
      2020
175A  0000
175C  0000
175E  0000
1760  FFFF               1270           DC     -1                                   CDF12700
      0000 0003          1271  DCAD     EQU    3                                    CDF12710
      0000 0004          1272  SLAD     EQU    4                                    CDF12720
      0000 0005          1273  FUT      EQU    5                                    CDF12730
      0000 0006          1274  WK0      EQU    6                                    CDF12740
      0000 0007          1275  WK1      EQU    7                                    CDF12750
      0000 0008          1276  WK2      EQU    8                                    CDF12760
      0000 0009          1277  WK3      EQU    9                                    CDF12770
      0000 000A          1278  STAT     EQU    10                                   CDF12780
      0000 000B          1279  TRACK    EQU    11                                   CDF12790
      0000 000C          1280  OPKEY    EQU    12                                   CDF12800
      0000 000D          1281  SECT     EQU    13                                   CDF12810
      0000 000E          1282  RETN2    EQU    14                                   CDF12820
      0000 000F          1283  RETN     EQU    15                                   CDF12830
      0000 16E2          1284  LOTRAK   EQU    LOCYL+6                              CDF12840
      0000 16EE          1285  HITRAK   EQU    HICYL+6                              CDF12850
      0000 16A6          1286  FIL      EQU    TFILE+6                              CDF12860
                         1287  *                                                   CDF12870
                         1288  *                                                   CDF12880
                         1289  *                                                   CDF12890
                         1290  *OPTION ENTRY HANDLERS                              CDF12900
                         1291  *                                                   CDF12910
                         1292  *                                                   CDF12920
                         1293  *                                                   CDF12930
                         1294  *ERROR ROUTINES USED DURING DISC TEST INITIALIZATION ROUTINE CDF12940
1762  C850 285A          1295  ERROR1   LHI    R5,MSG2          DISC FILE SELECT OPTION CDF12950
1766  4300 17D0          1296           B      PRINTIT                              CDF12960
176A  C850 16F4          1297  ERROR2   LHI    R5,FILE          INVALID FILE OPTION CDF12970
176E  4300 17B2          1298           B      SETMSG                               CDF12980
1772  C850 16DC          1299  ERROR3   LHI    R5,LOCYL         INVALID LOCYL OPTION CDF12990
1776  4300 17B2          1300           B      SETMSG                               CDF13000
177A  C850 16E8          1301  ERROR4   LHI    R5,HICYL         INVALID HICYL OPTION CDF13010
177E  4300 17B2          1302           B      SETMSG                               CDF13020
1782  C850 170C          1303  ERROR5   LHI    R5,SECTOR        INVALID SECTOR OPTION CDF13030
1786  4300 17B2          1304           B      SETMSG                               CDF13040
178A  C850 16A0          1305  ERROR7   LHI    R5,TFILE         INVALID TFILE OPTION CDF13050
178E  4300 17B2          1306           B      SETMSG                               CDF13060
1792  C850 1700          1307  ERROR13  LHI    R5,SCOPE                             CDF13070
1796  4300 17B2          1308           B      SETMSG                               CDF13080
179A  C850 1718          1309  ERROR10  LHI    R5,TIMECON                           CDF13090
179E  4300 17B2          1310           B      SETMSG                               CDF13100
17A2  C850 288C          1311  ERROR11  LHI    R5,MSG12         ILLEGAL TRACK ADR-CE PACK CDF13110
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17A6   4300 17D0                 B     PRINTIT                                                  CDF13120
17AA   C850 28A8        ERROR12  LHI   R5,MSG14         INVALID LOCYL FOR FORMT MODE TESTING    CDF13130
17AE   4300 17D0                 B     PRINTIT                                                  CDF13140
17B2   0799             SETMSG   XHR   WK3,WK3                                                  CDF13150
17B4   C880 287B                 LHI   WK2,MSG3+9                                               CDF13160
17B8   D375 0000        SETMSG1  LB    WK1,0(R5)                                                CDF13170
17BC   D278 0000                 STB   WK1,0(WK2)                                               CDF13180
17C0   2681                      AIS   WK2,1                                                    CDF13190
17C2   2651                      AIS   R5,1                                                     CDF13200
17C4   C580 2882                 CLHI  WK2,MSG3+16                                              CDF13210
17C8   4280 17B8                 BTC   8,SETMSG1                                                CDF13220
17CC   C850 2872                 LHI   R5,MSG3                                                  CDF13230
17D0   41F0 11F8        PRINTIT  BAL   LINK,CRLF                                                CDF13240
17D4   41F0 111C                 BAL   R15,PRINT                                                CDF13250
17D8   4300 18EE                 B     RSTR1                                                    CDF13260
                        *INITIALIZATION                                                         CDF13270
17DC   40F0 15AA        INIT     STH   RETN,TEMP                                                CDF13280
17E0   C800 008E                 LHI   R0,X'8E'         GET OVERRUN STATUS IN SECADSTA          CDF13290
17E4   4000 2A8C                 STH   R0,SECADSTA                                              CDF13300
17E8   C800 2020                 LHI   R0,X'2020'                                               CDF13310
17EC   4000 2966                 STH   R0,MSDTF+22                                              CDF13320
17F0   C800 0080                 LHI   R0,X'80'                                                 CDF13330
17F4   4000 2AD0                 STH   R0,WPSTAT                                                CDF13340
17F8   0700                      XHR   R0,R0                                                    CDF13350
17FA   4000 2A8A                 STH   R0,FMTSEC                                                CDF13360
17FE   2411                      LIS   R1,1                                                     CDF13370
1800   2422                      LIS   R2,2                                                     CDF13380
1802   C860 0117                 LHI   R6,X'0117'       CYLINDER OVERUN CONDITION S30,40        CDF13390
1806   4060 2A8E                 STH   R6,TWOSEC                                                CDF13400
180A   C860 8000                 LHI   R6,X'8000'       UNARY OPERATOR FOR TEST+4               CDF13410
180E   4660 1648                 OH    R6,TEST+8        TEST HALFWORD LOW ORDER TESTS           CDF13420
1812   4060 1648                 STH   R6,TEST+8        SET TESTO BIT                           CDF13430
1816   4860 166A                 LH    R6,NOMSG+6       SAVE STATE OF NOMSG FLAG                CDF13440
181A   4060 2A52                 STH   R6,NOMSGSV                                               CDF13450
181E   4000 166A                 STH   R0,NOMSG+6                                               CDF13460
1822   4860 16FA                 LH    R6,FILE+6        FILE OPTION                             CDF13470
1826   4330 1762                 BZ    ERROR1           MUST NOT BE ZERO                        CDF13480
182A   41F0 20B4                 BAL   RETN,SUBFILE     DETERMINE FILE TYPE                     CDF13490
182E   1870                      DC    A(SFRTYFX)       RETURN ADDRESS FOR SERIES 40 FIX        CDF13500
1830   1884                      DC    A(SFRTYVR)       RETURN ADDRESS FOR SERIES 40 REMOV      CDF13510
1832   1860                      DC    A(STHIRTY)       RETURN ADDRESS FOR SERIES 30            CDF13520
1834   4010 2A8A        TWNTYSF  STH   R1,FMTSEC                                                CDF13530
1838   C860 1313                 LHI   R6,X'1313'                                               CDF13540
183C   4060 2A8E                 STH   R6,TWOSEC                                                CDF13550
1840   C860 0046                 LHI   R6,X'46'         OVERRUN STATUS FOR 20 SURFACE           CDF13560
1844   4060 2A8C                 STH   R6,SECADSTA                                              CDF13570
1848   C860 0084                 LHI   R6,X'84'                                                 CDF13580
184C   4060 2AD0                 STH   R6,WPSTAT                                                CDF13590
1850   C860 2A2A                 LHI   R6,TSFPRM                                                CDF13600
1854   41E0 2402                 BAL   R14,TSTINIT      INITIALIZE TEST PARAMETERS              CDF13610
1858   C860 0003                 LHI   R6,3                                                     CDF13620
185C   4300 1894                 B     LCORE1                                                   CDF13630
1860   C860 2A34        STHIRTY  LHI   R6,STHPRM                                                CDF13640
1864   41E0 2402                 BAL   R14,TSTINIT      INITIALIZE TEST PARAMETERS              CDF13650
1868   C860 0005                 LHI   R6,5                                                     CDF13660
186C   4300 1894                 B     LCORE1                                                   CDF13670
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1870  4010 1742   1368  SFRTYFX  STH   R1,TRKDEN+6        SET HI-TRACK DENSITY FLAG          CDF13680
1874  C860 2A3E   1369           LHI   R6,SFTFIX                                           CDF13690
1878  41E0 2402   1370           BAL   R14,TSTINIT        INITIALIZE TEST PARAMETERS         CDF13700
187C  C860 0005   1371           LHI   R6,5                                               CDF13710
1880  4300 1894   1372           B     LCORE1                                             CDF13720
1884  4010 1742   1373  SFRTYVR  STH   R1,TRKDEN+6        SET HITRACK DENSITY FLAG           CDF13730
1888  C860 2A48   1374           LHI   R6,TSFTRMV                                         CDF13740
188C  41E0 2402   1375           BAL   R14,TSTINIT        INITIALIZE TEST PARAMETERS         CDF13750
1890  C860 0005   1376           LHI   R6,5                                               CDF13760
1894  4860 2A92   1377  LCORE1   LH    R6,FILE1           SET DEVICE INTERRUPT TABLE ADDRS   CDF13770
1898  4060 2A9A   1378           STH   R6,DEVSADR         WITH PHYSICAL FILE ADDRESSES       CDF13780
189C  4860 2A94   1379           LH    R6,FILE2                                           CDF13790
18A0  4060 2A9C   1380           STH   R6,DEVSADR+2                                       CDF13800
18A4  4860 2A96   1381           LH    R6,FILE3                                           CDF13810
18A8  4060 2A9E   1382           STH   R6,DEVSADR+4                                       CDF13820
18AC  4860 2A98   1383           LH    R6,FILE4                                           CDF13830
18B0  4060 2AA0   1384           STH   R6,DEVSADR+6                                       CDF13840
18B4  4860 16BE   1385           LH    R6,SELCH+6                                         CDF13850
18B8  4060 2AA2   1386           STH   R6,DEVSADR+8                                       CDF13860
18BC  4860 16CA   1387           LH    R6,DISCON+6                                        CDF13870
18C0  4060 2AA4   1388           STH   R6,DEVSADR+10                                      CDF13880
18C4  4860 1676   1389           LH    R6,INTLEV+6                                        CDF13890
18C8  D260 2AB4   1390           STB   R6,INTLVL                                          CDF13900
18CC  D260 2AB5   1391           STB   R6,INTLVL+1                                        CDF13910
18D0  D260 2AB6   1392           STB   R6,INTLVL+2                                        CDF13920
18D4  D260 2AB7   1393           STB   R6,INTLVL+3                                        CDF13930
18D8  D260 2AB8   1394           STB   R6,INTLVL+4                                        CDF13940
18DC  D260 2AB9   1395           STB   R6,INTLVL+5                                        CDF13950
18E0  4860 2A52   1396  RSTR     LH    R6,NOMSGSV                                         CDF13960
18E4  4060 166A   1397           STH   R6,NOMSG+6                                         CDF13970
18E8  48F0 15AA   1398           LH    RETN,TEMP                                          CDF13980
18EC  030F        1399           BR    R15                NORMAL RETURN                   CDF13990
18EE  4860 2A52   1400  RSTR1    LH    R6,NOMSGSV         ERROR RETURN                    CDF14000
18F2  4060 166A   1401           STH   R6,NOMSG+6                                         CDF14010
18F6  4300 0A9E   1402           B     OPTIN                                              CDF14020
                  1403  * STATUS TEST                                                    CDF14030
                  1404  *                                                                CDF14040
                  1405  * TEST 0                                                         CDF14050
                  1406  *                                                                CDF14060
                  1407  *PURPOSE:                                                       CDF14070
                  1408  *                                                                CDF14080
                  1409  * SENSES THE INITIAL STATUS OF THE SELECTOR                      CDF14090
                  1410  * CHANNEL,DATA CONTROLLER AND FILE CONTROLLER                    CDF14100
                  1411  *                                                                CDF14110
                  1412  * ASSUMPTIONS:                                                   CDF14120
                  1413  *                                                                CDF14130
                  1414  * DRIVE MUST BE ON LINE AND NOT WRITE PROTECTED                  CDF14140
                  1415  *                                                                CDF14150
                  1416  * DESIGN  SPECIFICATIONS:                                        CDF14160
                  1417  *                                                                CDF14170
                  1418  * THIS TEST IS ALWAYS THE FIRST TEST TO BE RUN                   CDF14180
                  1419  * AND CANNOT BE BYPASSED BY ANY OPERATOR INTERVENTION            CDF14190
                  1420  *                                                                CDF14200
                  1421  * OPTIONS:                                                       CDF14210
                  1422  * THE FOLLOWING OPTIONS ARE APPLICABLE TO THIS TEST              CDF14220
                  1423  * FOR A DESCRIPTION OF THE OPTIONS REFER TO PAGE 1               CDF14230
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                                1424  * OF THIS DOCUMENT OR APPENDIX THREE OF THE PROGRAMMING                    CDF14240
                                1425  * DESCRIPTION                                                             CDF14250
                                1426  * TFILE                                                                   CDF14260
                                1427  * SELCH                                                                   CDF14270
                                1428  * DISCON                                                                  CDF14280
                                1429  * FILE                                                                    CDF14290
                                1430  * TIMCON                                                                  CDF14300
                                1431  *                                                                        CDF14310
                                1432  * HOW TO RUN THE TEST:                                                    CDF14320
                                1433  *                                                                        CDF14330
                                1434  * ENTER TEST 0  IF THIS IS THE ONLY DESIRED                              CDF14340
                                1435  * SELECTED TEST ANY ANY OTHER OPTION INFORMATION                         CDF14350
                                1436  * DESIRED VIA KEYBOARD. REFER TO THE PROGRAM DESCRIPTION                 CDF14360
                                1437  * FOR THE OPTION INPUT COMMAND STRUCTURE, AFTER THE                      CDF14370
                                1438  * DESIRED OPTION INFORMATION IS ESTABLISHED THE TEST                     CDF14380
                                1439  * IS EXECUTED BY ENTERING THE RUN COMMAND                                CDF14390
18FA  41F0 20E6                 1440  TEST0    BAL    RETN,MODINIT                                            CDF14400
18FE  07CC                      1441           XHR    OPKEY,OPKEY                                             CDF14410
1900  9D4A                      1442           SSR    SLAD,STAT          SELCH                                CDF14420
1902  4280 25FC                 1443  ERRSLD   BTC    8,ERRB             B IF BAD STATUS                      CDF14430
1906  9D3A                      1444           SSR    DCAD,STAT          DC STATUS                            CDF14440
1908  4250 260C                 1445           BTC    5,ERR3             B IF ERR                             CDF14450
190C  4320 260C                 1446           BNP    ERR3               B IF NOT IDLE                        CDF14460
1910  9D5A                      1447           SSR    FUT,STAT           NOW FILE STATUS                      CDF14470
1912  42F0 2610                 1448           BTC    15,ERR1A           B IF ERR                             CDF14480
1916  41F0 1234                 1449           BAL    RETN,TSTBRK                                             CDF14490
191A  4300 0D72                 1450           B      TSTEND                                                  CDF14500
                                1451  * FORMATTER FOR 2.5,10,AND 40 MEGABYTE DRIVES                            CDF14510
                                1452  *                                                                        CDF14520
                                1453  *  TEST1                                                                 CDF14530
                                1454  *                                                                        CDF14540
                                1455  * PURPOSE:                                                              CDF14550
                                1456  *                                                                        CDF14560
                                1457  * THIS TEST WILL PERFORM A SURFACE ANALYSIS                              CDF14570
                                1458  * AND FORMATTING OF THE 2.5,10,AND 40 MEGABYTE                          CDF14580
                                1459  * DISC DRIVES, DEFECTIVE SECTORS ARE DELETTED AND                       CDF14590
                                1460  * FLAGGED AS DEFECTIVE AS A RESULT OF THE SURFACE                       CDF14600
                                1461  * ANALYSIS                                                              CDF14610
                                1462  *                                                                        CDF14620
                                1463  * ASSUMPTIONS:                                                          CDF14630
                                1464  *                                                                        CDF14640
                                1465  * CONTROLLER FORMAT SWITCHES MUST BE IN THE APPROPRIATE                  CDF14650
                                1466  * POSITION TO ENABLE THE HARDWARE TO RESPOND TO FORMAT                   CDF14660
                                1467  * READ AND WRITE OPERATIONS                                             CDF14670
                                1468  *                                                                        CDF14680
                                1469  *                                                                        CDF14690
                                1470  * HOW TO RUN THE TEST:                                                  CDF14700
                                1471  *                                                                        CDF14710
                                1472  * ENTER TEST 1 AND ANY OTHER OPTION INFORMATION DESIRED                  CDF14720
                                1473  * VIA KEYBOARD: REFER TO THE PROGRAM DESCRIPTION FOR THE DESIRED         CDF14730
                                1474  * OPTION INFORMATION. AFTER THE OPTION INFORMATION IS ESTABLISHED        CDF14740
                                1475  * THE TEST IS EXECUTED BY ENTERING THE RUN COMMAND.                     CDF14750
                                1476  * AFTER THE COMPLETION OF ANY SEEK/READ OR WRITE                        CDF14760
                                1477  * OPERATION THE CYLINDER NUMBER HEAD AND SECTOR                         CDF14770
                                1478  * NUMBERS WILL BE DISPLAYED ON THE PROCESSOR DISPLAY                    CDF14780
                                1479  *                                                                        CDF14790
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                                1480  * OPTIONS:                                                                  CDF14800
                                1481  *                                                                          CDF14810
                                1482  * THE FOLLOWING OPTIONS ARE APLICABLE TO THIS                             CDF14820
                                1483  * TEST:                                                                     CDF14830
                                1484  * LOCYL                                                                     CDF14840
                                1485  * HICYL                                                                     CDF14850
                                1486  * FILE                                                                      CDF14860
                                1487  * FMREAD                                                                    CDF14870
                                1488  * FMWPT   (40 MEGABYTE ONLY)                                               CDF14880
                                1489  * DEFSEC                                                                    CDF14890
                                1490  * TIMCON                                                                    CDF14900
                                1491  * DISCON                                                                    CDF14910
                                1492  * SELCH                                                                     CDF14920
                                1493  *                                                                          CDF14930
                                1494  * FOR A DESCRIPTION OF THE OPTIONS REFER TO                               CDF14940
                                1495  * PAGE 1 OF THIS DOCUMENT OR APPENDIX THREE OF                            CDF14950
                                1496  * THE PROGRAMMING DESCRIPTION                                              CDF14960
 191E  41F0 20E6                1497  TEST1    BAL     RETN,MODINIT                                              CDF14970
 1922  41F0 20B4                1498           BAL     RETN,SUBFILE                                              CDF14980
 1926  1D30                     1499           DC      A(CONT50)                                                 CDF14990
 1928  1D30                     1500           DC      A(CONT50)                                                 CDF15000
 192A  1D30                     1501           DC      A(CONT50)                                                 CDF15010
                                1502  *ACTUAL FORMATTING STARTS HERE                                             CDF15020
                                1503  *                                                                          CDF15030
 192C  C860 00BD                1504           LHI     WK0,X'BD'                                                 CDF15040
 1930  C870 0605                1505           LHI     WK1,X'605'                                                CDF15050
 1934  41F0 1F48                1506           BAL     RETN,FRSUDF                                               CDF15060
 1938  0860                     1507           LHR     WK0,0           WRITE NORMAL PARITY                       CDF15070
 193A  4060 320A                1508           STH     WK0,WTF+302     DATA, TO CYC CHECK BYTES                  CDF15080
 193E  48B0 16E2                1509           LH      TRACK,LOTRAK                                              CDF15090
 1942  4860 16D6                1510           LH      WK0,RETRY+6                                               CDF15100
 1946  4060 2AC6                1511           STH     WK0,FMRTS       AND SAVE IT                               CDF15110
 194A  0A61                     1512           AHR     WK0,1                                                     CDF15120
 194C  4060 16D6                1513           STH     WK0,RETRY+6                                               CDF15130
                                1514  *                                                                          CDF15140
                                1515  *                                                                          CDF15150
 1950  C8E0 18D6                1516  FMLP1B8  LHI     RETN2,FMLP3AB                                             CDF15160
 1954  41F0 27EC                1517           BAL     RETN,ILLADD     A CE DISC PACK, AND IF SO                 CDF15170
 1958  4000 28CE                1518           STH     0,HEAD          DO NOT FORMAT THE TEST                    CDF15180
 195C  41F0 2064                1519           BAL     RETN,SKSR       CYLINDERS                                 CDF15190
 1960  41F0 209C                1520           BAL     RETN,WRITE                                                CDF15200
                                1521  *                                                                          CDF15210
 1964  4860 168E                1522           LH      WK0,FMTWP+6                                               CDF15220
 1968  4330 1972                1523           BZ      FMLP1A          PROTECT BIT                               CDF15230
 196C  0861                     1524           LHR     WK0,1                                                     CDF15240
 196E  CD60 0006                1525           SLHL    WK0,6                                                     CDF15250
 1972  4060 2AC4                1526  FMLP1A   STH     WK0,FMTWPT                                                CDF15260
                                1527  *                                                                          CDF15270
 1976  4860 28CE                1528  FMLP2A   LH      WK0,HEAD        SET UP THE HEAD                           CDF15280
 197A  CD60 000A                1529           SLHL    WK0,10          AND TRACK                                 CDF15290
 197E  0668                     1530           OHR     WK0,TRACK       INFORMATION FOR                           CDF15300
 1980  CC60 0008                1531           SRHL    WK0,8                                                     CDF15310
 1984  D260 30DD                1532           STB     WK0,WTF+1                                                 CDF15320
 1988  D2B0 30DE                1533           STB     TRACK,WTF+2                                               CDF15330
 198C  07DD                     1534           XHR     SECT,SECT                                                 CDF15340
 198E  41F0 1FFC                1535           BAL     RETN,WDFT                                                 CDF15350
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                    *                                           CDF15360
1992  0777                   XHR    WK1,WK1                     CDF15370
1994  0881                   LHR    WK2,1                       CDF15380
1996  4890 2BC4              LH     WK3,MAXSEC                  CDF15390
199A  C860 0010              LHI    WK0,X'10'                   CDF15400
199E  D267 2B28     FMLPBL   STB    WK0,DSTBL(WK1)              CDF15410
19A2  C170 199E              BXLE   WK1,FMLPBL                  CDF15420
19A6  4000 2AC6              STH    0,FMRTS                     CDF15430
                    *                                           CDF15440
19AA  4860 2AC4     FMLP1B   LH     WK0,FMTWPT                  CDF15450
19AE  066D                   OHR    WK0,SECT                    CDF15460
19B0  D260 30DC              STB    WK0,WTF                     CDF15470
19B4  C8C0 0060              LHI    OPKEY,X'60'                 CDF15480
19B8  C860 1976              LHI    WK0,FMLP2A                  CDF15490
19BC  4060 2BB4              STH    WK0,RERN                    CDF15500
19C0  9D56                   SSR    FUT,WK0                     CDF15510
19C2  C460 0080              NHI    WK0,X'80'                   CDF15520
19C6  4230 27B6              BNZ    WTPON                       CDF15530
19CA  D370 2BBC              LB     WK1,WCMD                    CDF15540
19CE  4070 2BD8              STH    WK1,RWOCMD                  CDF15550
19D2  C880 0010              LHI    WK2,X'10'                   CDF15560
19D6  C860 30DC              LHI    WK0,WTF                     CDF15570
19DA  4060 2B18              STH    WK0,SA                      CDF15580
19DE  4A60 2BBA              AH     WK0,SIZE                    CDF15590
19E2  4060 2B1E              STH    WK0,FA                      CDF15600
19E6  41F0 209C              BAL    RETN,WRITE                  CDF15610
19EA  DA40 2B18              WD     SLAD,SA                     CDF15620
19EE  DA40 2B19              WD     SLAD,SA+1                   CDF15630
19F2  DA40 2B1E              WD     SLAD,FA                     CDF15640
19F6  DA40 2B1F              WD     SLAD,FA+1                   CDF15650
19FA  4860 2BCE              LH     WK0,HEAD                    CDF15660
19FE  CD60 000A              SLHL   WK0,10                      CDF15670
1A02  0668                   OHR    WK0,TRACK                   CDF15680
1A04  9A3D                   WDR    DCAD,SECT                   CDF15690
1A06  9836                   WHR    DCAD,WK0                    CDF15700
1A08  9E37                   OCR    DCAD,WK1                    CDF15710
1A0A  9E48                   OCR    SLAD,WK2                    CDF15720
1A0C  C870 02D0              LHI    WK1,720                     CDF15730
1A10  41E0 23D8     FMTL     BAL    RETN2,QKTIME                CDF15740
1A14  9D4A                   SSR    SLAD,STAT                   CDF15750
1A16  4280 1A10              BC     FMTL                        CDF15760
1A1A  DE40 2830              OC     SLAD,STOP                   CDF15770
1A1E  9D3A                   SSR    DCAD,STAT                   CDF15780
1A20  4320 1A10              BNP    FMTL                        CDF15790
1A24  4250 232C              BTC    5,FMERR                     CDF15800
1A28  0AD2                   AHR    SECT,2                      CDF15810
1A2A  45D0 2BC6              CLH    SECT,MXSEC1                 CDF15820
1A2E  4280 19AA              BL     FMLP1B                      CDF15830
1A32  4330 1A3A              BE     FMLP1P                      CDF15840
1A36  4300 1A42              B      FMLP2B                      CDF15850
1A3A  C8D0 0001     FMLP1P   LHI    SECT,1                      CDF15860
1A3E  4300 19AA              B      FMLP1B                      CDF15870
                    *                                           CDF15880
                    *                                           CDF15890
                    *                                           CDF15900
                    *                                           CDF15910
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1A42  07DD          1592  FMLP2B  XHR   SECT,SECT                                    CDF15920
1A44  4080 2BAC     1593        STH   0,RRCTR                                       CDF15930
1A48  4890 169A     1594        LH    WK3,FMREAD+6                                 CDF15940
1A4C  4230 1A52     1595        BNZ   FMLP3B                                       CDF15950
1A50  0891          1596        LHR   WK3,1                                        CDF15960
1A52  4090 2AC2     1597  FMLP3B  STH   WK3,FMRCS                                    CDF15970
1A56  C860 18FA     1598        LHI   WK0,FMLPEA                                   CDF15980
1A5A  4060 2BB4     1599        STH   WK0,RERN                                     CDF15990
1A5E  4380 1A64     1600        B     FMLP2M                                       CDF16000
1A62  0AD2          1601  FMLP2C  AHR   SECT,2                                       CDF16010
1A64  45D0 2BC6     1602  FMLP2M  CLH   SECT,MXSEC1                                  CDF16020
1A68  4280 1A76     1603        BL    FMRC                                         CDF16030
1A6C  4330 1A74     1604        BE    FMRCOD                                       CDF16040
1A70  4300 1AB4     1605        B     FMFNRD                                       CDF16050
1A74  08D1          1606  FMRCOD  LHR   SECT,1                                       CDF16060
1A76  D36D 2B28     1607  FMRC    LB    WK0,DSTBL(SECT)     READ CHECK THIS SECTOR   CDF16070
1A7A  C460 0010     1608        NHI   WK0,X'10'           NO DONT READ             CDF16080
1A7E  4330 1A62     1609        BZ    FMLP2C                                       CDF16090
1A82  C8C0 0050     1610        LHI   OPKEY,X'50'                                  CDF16100
1A86  D380 2BBD     1611        LB    WK2,RCMD                                     CDF16110
1A8A  4080 2BD8     1612        STH   WK2,RWOCMD                                   CDF16120
1A8E  4870 2BCE     1613        LH    WK1,HEAD                                     CDF16130
1A92  CD70 000A     1614        SLHL  WK1,10                                       CDF16140
1A96  067B          1615        OHR   WK1,TRACK                                    CDF16150
1A98  9A3D          1616        WDR   DCAD,SECT                                    CDF16160
1A9A  9837          1617        WHR   DCAD,WK1                                     CDF16170
1A9C  9E38          1618        OCR   DCAD,WK2                                     CDF16180
1A9E  C870 0280     1619        LHI   WK1,640                                      CDF16190
1AA2  41E0 23D8     1620  FMTL1   BAL   RETN2,GKTIME                                CDF16200
1AA6  9D3A          1621        SSR   DCAD,STAT                                    CDF16210
1AA8  4320 1AA2     1622        BNP   FMTL1                                        CDF16220
1AAC  4250 232C     1623        BTC   5,FMERR                                      CDF16230
1AB0  4300 1A62     1624        B     FMLP2C                                       CDF16240
                    1625  *                                                        CDF16250
1AB4  4890 2AC2     1626  FMFNRD  LH    WK3,FMRCS                                    CDF16260
1AB8  07DD          1627        XHR   SECT,SECT                                    CDF16270
1ABA  0891          1628        SHR   WK3,1               REREAD ?                 CDF16280
1ABC  4230 1A52     1629        BNZ   FMLP3B                                       CDF16290
                    1630  *                               NO, LOOP COUNTER = ZERO  CDF16300
1AC0  C860 18BE     1631        LHI   WK0,FMNRER                                   CDF16310
1AC4  4060 2BB4     1632        STH   WK0,RERN                                     CDF16320
1AC8  07DD          1633        XHR   SECT,SECT                                    CDF16330
1ACA  4300 1AE8     1634        B     FMNRD1                                       CDF16340
1ACE  08D1          1635  FMD1    LHR   SECT,1                                       CDF16350
1AD0  4300 1AE8     1636        B     FMNRD1                                       CDF16360
1AD4  08D2          1637  FMD2    LHR   SECT,2                                       CDF16370
1AD6  4300 1AE8     1638        B     FMNRD1                                       CDF16380
1ADA  C8D0 0003     1639  FMD3    LHI   SECT,3                                       CDF16390
1ADE  4300 1AE8     1640        B     FMNRD1                                       CDF16400
1AE2  C870 0004     1641  FMNRD   LHI   WK1,4                                      CDF16410
1AE6  0AD7          1642        AHR   SECT,WK1                                     CDF16420
1AE8  4870 2BC6     1643  FMNRD1  LH    WK1,MXSEC1                                   CDF16430
1AEC  05D7          1644        CLHR  SECT,WK1                                     CDF16440
1AEE  4330 1ACE     1645        BE    FMD1                START WITH 1             CDF16450
1AF2  0A71          1646        AHR   WK1,1                                        CDF16460
1AF4  05D7          1647        CLHR  SECT,WK1                                     CDF16470
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1AF6  4330 1AD4              BE    FMD2              START WITH 2        CDF16480
1AFA  0A71                   AHR   WK1,1                                 CDF16490
1AFC  05D7                   CLHR  SECT,WK1                              CDF16500
1AFE  4330 1ADA              BE    FMD3              START WITH 3        CDF16510
1B02  0A71                   AHR   WK1,1                                 CDF16520
1B04  05D7                   CLHR  SECT,WK1                              CDF16530
1B06  4330 1BA4              BE    FMNFIN            FINISHED THE TRACK  CDF16540
1B0A  D36D 2B28              LB    WK0,DSTBL(SECT)                       CDF16550
1B0E  C460 0010              NHI   WK0,X'10'         READ THIS SECTOR    CDF16560
1B12  4330 1AE2              BZ    FMNRD             NO                  CDF16570
                     *                               YES DO A NORMAL READ CDF16580
1B16  C8C0 0070              LHI   OPKEY,X'70'                           CDF16590
1B1A  0871                   LHR   WK1,1             NORMAL READ CMD     CDF16600
1B1C  C880 0030              LHI   WK2,X'30'                             CDF16610
1B20  C860 2BDC              LHI   WK0,RDF                               CDF16620
1B24  4060 2B18              STH   WK0,SA                                CDF16630
1B28  CA60 00FF              AHI   WK0,255                               CDF16640
1B2C  4060 2B1E              STH   WK0,FA                                CDF16650
1B30  DA40 2B18              WD    SLAD,SA                               CDF16660
1B34  DA40 2B19              WD    SLAD,SA+1                             CDF16670
1B38  DA40 2B1E              WD    SLAD,FA                               CDF16680
1B3C  DA40 2B1F              WD    SLAD,FA+1                             CDF16690
1B40  4860 2BCE              LH    WK0,HEAD                              CDF16700
1B44  CD60 000A              SLHL  WK0,10                                CDF16710
1B48  066B                   OHR   WK0,TRACK                             CDF16720
1B4A  9A3D                   WDR   DCAD,SECT                             CDF16730
1B4C  9836                   WHR   DCAD,WK0                              CDF16740
1B4E  9E37                   OCR   DCAD,WK1                              CDF16750
1B50  9E48                   OCR   SLAD,WK2          READ                CDF16760
                     *                                                   CDF16770
1B52  C870 02D0              LHI   WK1,720                               CDF16780
1B56  41E0 23D8      FMNTO   BAL   RETN2,QKTIME                          CDF16790
1B5A  9D4A                   SSR   SLAD,STAT                             CDF16800
1B5C  4280 1B56              BC    FMNTO                                 CDF16810
1B60  DE40 2B30              OC    SLAD,STOP                             CDF16820
1B64  9D3A                   SSR   DCAD,STAT                             CDF16830
1B66  4320 1B56              BNP   FMNTO                                 CDF16840
1B6A  4250 260C              BTC   5,ERR3                                CDF16850
                     *                                                   CDF16860
1B6E  C8C0 0080              LHI   OPKEY,X'80'                           CDF16870
1B72  C890 00FF              LHI   WK3,255                               CDF16880
1B76  0870                   LHR   WK1,0                                 CDF16890
1B78  0882                   LHR   WK2,2                                 CDF16900
1B7A  C860 BDBD              LHI   WK0,X'BDBD'                           CDF16910
1B7E  4567 2BDC      FMNCK   CLH   WK0,RDF(WK1)                          CDF16920
1B82  4230 260A              BNZ   ERR4                                  CDF16930
1B86  C170 1B7E              BXLE  WK1,FMNCK         COMPARE TO BD       CDF16940
                     *                                                   CDF16950
1B8A  4300 1AE2              B     FMNRD             CONTINUE            CDF16960
                     *                                                   CDF16970
1B8E  D36D 2B28      FMNRER  LB    WK0,DSTBL(SECT)                       CDF16980
1B92  0661                   OHR   WK0,1                                 CDF16990
1B94  D26D 2B28              STB   WK0,DSTBL(SECT)                       CDF17000
1B98  4000 2BAC              STH   0,RRCTR                               CDF17010
1B9C  41F0 1FFC              BAL   RETN,WDFT                             CDF17020
1BA0  4300 1AE2              B     FMNRD                                 CDF17030
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                      *                                                        CDF17040
1BA4  07DD            FMNFIN  XHR   SECT,SECT                                  CDF17050
                      *                             ALL READS COMPLETE         CDF17060
1BA6  0777                    XHR   WK1,WK1                                    CDF17070
1BA8  0881                    LHR   WK2,1                                      CDF17080
1BAA  4890 2BC4               LH    WK3,MAXSEC                                 CDF17090
1BAE  D367 2B28       FMCKRR  LB    WK0,DSTBL(WK1)                             CDF17100
1BB2  C460 0001               NHI   WK0,1                                      CDF17110
1BB6  4230 1C10               BNZ   FMSZER           IF ANY ERRORS PRESENT - REWRITE CDF17120
1BBA  C170 1BAE               BXLE  WK1,FMCKRR                                 CDF17130
1BBE  4890 2BCE       FMIHN   LH    WK3,HEAD         NO ERRORS                 CDF17140
1BC2  0A91                    AHR   WK3,1                                      CDF17150
1BC4  4590 2BCC               CLH   WK3,MXHED1       INCREMENT THE HEAD #      CDF17160
1BC8  4380 1BD6               BNL   FMLP3AB                                    CDF17170
1BCC  4090 2BCE               STH   WK3,HEAD                                   CDF17180
1BD0  07DD                    XHR   SECT,SECT                                  CDF17190
1BD2  4300 1976               B     FMLP2A                                     CDF17200
1BD6  26B1            FMLP3AB AIS   TRACK,1                                    CDF17210
1BD8  45B0 16EE               CLH   TRACK,HITRAK                               CDF17220
1BDC  4330 1BE4               BE    FMTEAA                                     CDF17230
1BE0  4380 1BEC               BNL   FMTEA                                      CDF17240
1BE4  41F0 1234       FMTEAA  BAL   RETN,TSTBRK                                CDF17250
1BE8  4300 1950               B     FMLP1B8                                    CDF17260
                      *                                                        CDF17270
1BEC  4860 16D6       FMTEA   LH    WK0,RETRY+6                                CDF17280
1BF0  0861                    SHR   WK0,1                                      CDF17290
1BF2  4060 16D6               STH   WK0,RETRY+6                                CDF17300
1BF6  41E0 25BC               BAL   RETN2,FMTCK                                CDF17310
                      *                                                        CDF17320
                      *                                                        CDF17330
1BFA  D36D 2B28       FMLPEA  LB    WK0,DSTBL(SECT)  GET CURRENT SECTOR STATUS CDF17340
1BFE  0661                    OHR   WK0,1            AND OR IN A "1"9          CDF17350
1C00  D26D 2B28               STB   WK0,DSTBL(SECT)                            CDF17360
1C04  4000 2BAC               STH   0,RRCTR                                    CDF17370
1C08  41F0 1FFC               BAL   RETN,WDFT                                  CDF17380
1C0C  4300 1A62               B     FMLP2C                                     CDF17390
                      *                                                        CDF17400
                      *                                                        CDF17410
1C10  4870 2AC6       FMSZER  LH    WK1,FMRTS        UPDATE THE RETRY COUNT    CDF17420
1C14  0A71                    AHR   WK1,1                                      CDF17430
1C16  4070 2AC6               STH   WK1,FMRTS                                  CDF17440
1C1A  4880 16D6               LH    WK2,RETRY+6                                CDF17450
1C1E  0881                    SHR   WK2,1                                      CDF17460
1C20  4330 1C46               BZ    FLGDEF                                     CDF17470
1C24  0978                    CHR   WK1,WK2                                    CDF17480
1C26  4330 1C46               BE    FLGDEF           YES--NO MORE RETRIES      CDF17490
                      *                              NO--REWRITE THE DATA      CDF17500
                      *                              SHIFT THE DSTBL BYTES     CDF17510
                      *                               LEFT, SO ONLY THE ONES   CDF17520
                      *                               WITH ERRORS WILL BE REREAD CDF17530
1C2A  0777                    XHR   WK1,WK1                                    CDF17540
1C2C  0881                    LHR   WK2,1                                      CDF17550
1C2E  4890 2BC4               LH    WK3,MAXSEC                                 CDF17560
1C32  D367 2B28       FMSZ2   LB    WK0,DSTBL(WK1)                             CDF17570
1C36  CD60 0004               SLHL  WK0,4                                      CDF17580
1C3A  D267 2B28               STB   WK0,DSTBL(WK1)                             CDF17590
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1C3E  C170 1C32                    BXLE  WK1,FMSZ2                                       CDF17600
1C42  4300 19AA                    B     FMLP1B         REWRITE ENTIRE TRACK             CDF17610
                          *                                                              CDF17620
                          *                                                              CDF17630
1C46  087B                FLGDEF   LHR   WK1,TRACK      PLACE THE CURRENT                CDF17640
1C48  0817                         LHR   R1,WK1                                          CDF17650
1C4A  C820 2960                    LHI   R2,MSDTF+16                                     CDF17660
1C4E  C800 0003                    LHI   R0,3                                            CDF17670
1C52  41F0 1096                    BAL   R15,HEXASC                                      CDF17680
1C56  C810 0001                    LHI   R1,1                                            CDF17690
1C5A  C820 0002                    LHI   R2,2                                            CDF17700
1C5E  0700                         XHR   R0,R0                                           CDF17710
1C60  4890 1682                    LH    WK3,DEFSEC+6                                    CDF17720
1C64  4330 1CD8                    BZ    FMDTLA                                          CDF17730
1C68  0777                FLG0     XHR   WK1,WK1        YES - BY SECTOR                  CDF17740
1C6A  0881                         LHR   WK2,1          FIND THE BAD SECTORS             CDF17750
1C6C  4890 2BC4                    LH    WK3,MAXSEC                                      CDF17760
1C70  D367 2B28           FLG1     LB    WK0,DSTBL(WK1)                                  CDF17770
1C74  C460 0001                    NHI   WK0,1                                           CDF17780
1C78  4230 1C84                    BNZ   FLG2                                            CDF17790
1C7C  C170 1C70                    BXLE  WK1,FLG1                                        CDF17800
1C80  4300 1BBE                    B     FMIHN                                           CDF17810
1C84  08D7                FLG2     LHR   SECT,WK1       UPDATE SECTOR WITH TABLE INC.    CDF17820
1C86  D207 2B28                    STB   0,DSTBL(WK1)   REMOVE THAT ERROR FROM THE TABLE CDF17830
1C8A  C860 0080                    LHI   WK0,X'80'                                       CDF17840
1C8E  0667                         OHR   WK0,WK1                                         CDF17850
1C90  D260 30DC                    STB   WK0,WTF                                         CDF17860
1C94  41F0 2252                    BAL   RETN,WRIT                                       CDF17870
                          *                                                              CDF17880
1C98  4870 2BCE                    LH    WK1,HEAD       STORE THE CURRENT                CDF17890
1C9C  0817                         LHR   R1,WK1                                          CDF17900
1C9E  C820 2964                    LHI   R2,MSDTF+20                                     CDF17910
1CA2  C800 0002                    LHI   R0,2                                            CDF17920
1CA6  41F0 1096                    BAL   R15,HEXASC                                      CDF17930
1CAA  081D                         LHR   R1,SECT                                         CDF17940
1CAC  C820 2966                    LHI   R2,MSDTF+22                                     CDF17950
1CB0  2402                         LIS   R0,2                                            CDF17960
1CB2  41F0 1096                    BAL   R15,HEXASC                                      CDF17970
1CB6  4050 2AC0                    STH   R5,R5SVC                                        CDF17980
1CBA  C850 2950                    LHI   R5,MSDTF                                        CDF17990
1CBE  41F0 111C                    BAL   R15,PRINT                                       CDF18000
1CC2  41F0 11F8                    BAL   R15,CRLF                                        CDF18010
1CC6  4850 2A90                    LH    FUT,FUTADRS                                     CDF18020
1CCA  C810 0001                    LHI   R1,1                                            CDF18030
1CCE  C820 0002                    LHI   R2,2                                            CDF18040
1CD2  0700                         XHR   R0,R0                                           CDF18050
                          *                                                              CDF18060
1CD4  4300 1C68                    B     FLG0                                            CDF18070
1CD8  07DD                FMDTLA   XHR   SECT,SECT                                       CDF18080
1CDA  C870 0080           FMDTL1   LHI   WK1,X'80'                                       CDF18090
1CDE  067D                         OHR   WK1,SECT                                        CDF18100
1CE0  D270 30DC                    STB   WK1,WTF                                         CDF18110
1CE4  41F0 2252                    BAL   RETN,WRIT                                       CDF18120
1CE8  0AD2                         AHR   SECT,2                                          CDF18130
1CEA  45D0 2BC6                    CLH   SECT,MXSEC1                                     CDF18140
1CEE  4280 1CDA                    BL    FMDTL1                                          CDF18150
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1CF2  4330 1CFA                  BE    FMDTL2                                    CDF18160
1CF6  4300 1D00                  B     FMDTL3                                    CDF18170
1CFA  68D1            FMDTL2     LHR   SECT,1                                    CDF18180
1CFC  4300 1CDA                  B     FMDTL1                                    CDF18190
1D00  4870 2BCE       FMDTL3     LH    WK1,HEAD                                  CDF18200
1D04  0817                       LHR   R1,WK1                                    CDF18210
1D06  C800 0002                  LHI   R0,2                                      CDF18220
1D0A  C820 2964                  LHI   R2,MSDTF+20                               CDF18230
1D0E  41F0 1096                  BAL   R15,HEXASC                                CDF18240
1D12  4050 2AC0                  STH   R5,R5SVC                                  CDF18250
1D16  C850 2950                  LHI   R5,MSDTF                                  CDF18260
1D1A  41F0 111C                  BAL   R15,PRINT                                 CDF18270
1D1E  4850 2AC0                  LH    R5,R5SVC                                  CDF18280
1D22  0700                       XHR   R0,R0                                     CDF18290
1D24  C810 0001                  LHI   R1,1                                      CDF18300
1D28  C820 0002                  LHI   R2,2                                      CDF18310
                      *                                                          CDF18320
1D2C  4300 1BBE                  B     FMIHN                                     CDF18330
                      * FORMATTING ALGORITHM FOR 2.5 AND 10 MEGABYTE DRIVES START HERE  CDF18340
1D30  C870 0605       CONT50     LHI   WK1,X'605'                                CDF18350
1D34  C860 00BD                  LHI   WK0,X'BD'                                 CDF18360
1D38  41F0 1F9C                  BAL   RETN,FMSUDFA                              CDF18370
1D3C  4000 2BCE                  STH   R0,HEAD                                   CDF18380
1D40  4860 16D6                  LH    WK0,RETRY+6      GET RETRY COUNT          CDF18390
1D44  4060 2AC6                  STH   WK0,FMRTS        SAVE IT HERE             CDF18400
1D48  0A61                       AHR   WK0,1            CHEAT ERROR HANDLER      CDF18410
1D4A  4060 16D6                  STH   WK0,RETRY+6                               CDF18420
1D4E  C860 1E26                  LHI   WK0,FMLPE        CHANGE RERUN ADDREESS    CDF18430
1D52  4060 2BB4                  STH   WK0,RERN                                  CDF18440
1D56  48B0 16E2                  LH    TRACK,LOTRAK     START AT LOW TRACK       CDF18450
1D5A  41F0 2064       FMLP1      BAL   RETN,SKSR        SEEK                     CDF18460
1D5E  41F0 209C                  BAL   RETN,WRITE                                CDF18470
1D62  D2B0 30DD                  STB   TRACK,WTF+1      SET CYL ADS IN HEADER    CDF18480
1D66  C860 2B28                  LHI   WK0,DSTBL                                 CDF18490
1D6A  4006 0000       FMFILL     STH   R0,0(WK0)                                 CDF18500
1D6E  2661                       AIS   WK0,1                                     CDF18510
1D70  C560 2BA8                  CLHI  WK0,RSRET                                 CDF18520
1D74  4280 1D6A                  BL    FMFILL                                    CDF18530
1D78  4000 2BAC       FMERF      STH   0,RRCTR          ZERO RERUN COUNTER       CDF18540
1D7C  070D            FMERT      XHR   SECT,SECT        START AT SECTOR ZERO     CDF18550
1D7E  4860 2BCE       FMLP2      LH    WK0,HEAD                                  CDF18560
1D82  9165                       SLLS  WK0,5                                     CDF18570
1D84  087D                       LHR   WK1,SECT                                  CDF18580
1D86  0676                       OHR   WK1,WK0                                   CDF18590
1D88  D367 2B28                  LB    WK0,DSTBL(WK1)                            CDF18600
1D8C  0866                       LHR   WK0,WK0          SET COND CODE            CDF18610
1D8E  4230 1DA4                  BNZ   FSKWRT           SKIP WRITE IF YES        CDF18620
1D92  4870 2BCE                  LH    WK1,HEAD                                  CDF18630
1D96  9175                       SLLS  WK1,5                                     CDF18640
1D98  088D                       LHR   WK2,SECT                                  CDF18650
1D9A  0687                       OHR   WK2,WK1                                   CDF18660
1D9C  D280 30DC                  STB   WK2,WTF                                   CDF18670
1DA0  41F0 2252                  BAL   RETN,WRIT        WRITE FORMAT             CDF18680
1DA4  41F0 1EEA       FSKWRT     BAL   RETN,FSHI        INCREMENT SECTOR/HEAD    CDF18690
1DA8  1D7E                       DC    A(FMLP2)         LOOP UNTIL DONE          CDF18700
1DAA  4890 169A                  LH    WK3,FMREAD+6     PICK UP READ COUNT       CDF18710
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1DAE 4090 2AC2 1872 FMLP3  STH  WK3,FMRCS        SAVE IT                    CDF18720
1DB2 07DD      1873        XHR  SECT,SECT                                  CDF18730
1DB4 4860 2BCE 1874 FMLP4  LH   WK0,HEAD                                   CDF18740
1DB8 9165      1875        SLLS WK0,5                                      CDF18750
1DBA 087D      1876        LHR  WK1,SECT                                   CDF18760
1DBC 0676      1877        OHR  WK1,WK0                                    CDF18770
1DBE D367 2B28 1878        LB   WK0,DSTBL(WK1)                             CDF18780
1DC2 0866      1879        LHR  WK0,WK0        SET COND CODE               CDF18790
1DC4 4230 1DF2 1880        BNZ  FSKRD          SKIP READ IF YES            CDF18800
1DC8 4870 2BCE 1881        LH   WK1,HEAD                                   CDF18810
1DCC 9175      1882        SLLS WK1,5                                      CDF18820
1DCE 086D      1883        LHR  WK2,SECT                                   CDF18830
1DD0 0687      1884        OHR  WK2,WK1                                    CDF18840
1DD2 D280 30DC 1885        STB  WK2,WTF                                    CDF18850
1DD6 41F0 223A 1886        BAL  RETN,READ      READ FORMAT                 CDF18860
1DDA C890 000A 1887        LHI  WK3,10         COMPARE FIRST 10 BYTES      CDF18870
1DDE 41F0 2132 1888        BAL  RETN,TDATAX    (HEADER FIELD ONLY)         CDF18880
1DE2 C890 010C 1889        LHI  WK3,268                                    CDF18890
1DE6 4860 31E8 1890        LH   WK0,WTF+268    LOOK AT NORMAL MODE LPC     CDF18900
1DEA 4560 2CE8 1891        CLH  WK0,RDF+268    FIELD AS WELL               CDF18910
1DEE 4230 260A 1892        BNE  ERR4           B IF ERROR                  CDF18920
1DF2 41F0 1EEA 1893 FSKRD  BAL  RETN,FSHI      INCREMENT SECTOR/HEAD       CDF18930
1DF6 1D84      1894        DC   A(FMLP4)       LOOP UNTIL DONE             CDF18940
1DF8 4890 2AC2 1895        LH   WK3,FMRCS      READ COUNT                  CDF18950
1DFC 0B91      1896        SHR  WK3,1          REREAD AS MANY TIMES        CDF18960
1DFE 4230 1DAE 1897        BNZ  FMLP3          AS REQUESTED                CDF18970
1E02 26B1      1898        AIS  TRACK,1                                    CDF18980
1E04 45B0 16EE 1899        CLH  TRACK,HITRAK   DONE ALL CYLS?              CDF18990
1E08 2333      1900        BES  FSKRD1                                     CDF19000
1E0A 4380 1E1A 1901        BNL  FMTE           YES                         CDF19010
1E0E 0700      1902 FSKRD1 XHR  R0,R0                                      CDF19020
1E10 4000 2BCE 1903        STH  R0,HEAD                                    CDF19030
1E14 07DD      1904        XHR  SECT,SECT                                  CDF19040
1E16 4300 1D5A 1905        B    FMLP1                                      CDF19050
               1906 *-----------------------------------TEST COMPLETE      CDF19060
1E1A 4860 2AC6 1907 FMTE   LH   WK0,FMRTS      RESTORE RERUN COUNTER       CDF19070
1E1E 4060 16D6 1908        STH  WK0,RETRY+6                                CDF19080
1E22 41E0 25BC 1909        BAL  RETN2,FMTCK                                CDF19090
               1910 *                                                      CDF19100
               1911 *-----------------------------------FORMATTING LOOP ERROR CDF19110
1E26 4860 2AC6 1912 FMLPE  LH   WK0,FMRTS      EXCEEDED MAX RETRIES?       CDF19120
1E2A 4560 2BAC 1913        CLH  WK0,RRCTR                                  CDF19130
1E2E 4380 1EDC 1914        BNL  FMERTA                                     CDF19140
1E32 0618      1915        LHR  R1,TRACK                                   CDF19150
1E34 C800 0003 1916        LHI  R0,3                                       CDF19160
1E38 C820 2960 1917        LHI  R2,MSGTF+16                                CDF19170
1E3C 41F0 1096 1918        BAL  R15,HEXASC                                 CDF19180
1E40 C810 0001 1919        LHI  R1,1                                       CDF19190
1E44 C820 0002 1920        LHI  R2,2                                       CDF19200
1E48 0700      1921        XHR  R0,R0                                      CDF19210
1E4A 4890 1682 1922        LH   WK3,DEFSEC+6   FLAG BY SECTOR?             CDF19220
1E4E 4230 1E58 1923        BNZ  FMDTL          B IF YES                    CDF19230
1E52 4000 2BCE 1924        STH  R0,HEAD                                    CDF19240
1E56 07DD      1925        XHR  SECT,SECT      N, START AT SECTOR ZERO     CDF19250
1E58 C860 0040 1926 FMDTL  LHI  WK0,X'40'      SET D.T. BIT                CDF19260
1E5C 4870 2BCE 1927        LH   WK1,HEAD                                   CDF19270
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1E60   9175           1928          SLLS  WK1,5                                  CDF19280
1E62   088D           1929          LHR   WK2,SECT                               CDF19290
1E64   0687           1930          OHR   WK2,WK1                                CDF19300
1E66   0686           1931          OHR   WK2,WK0                                CDF19310
1E68   D280 30DC      1932          STB   WK2,WTF                                CDF19320
1E6C   4870 2BCE      1933          LH    WK1,HEAD                               CDF19330
1E70   9175           1934          SLLS  WK1,5                                  CDF19340
1E72   088D           1935          LHR   WK2,SECT                               CDF19350
1E74   0687           1936          OHR   WK2,WK1                                CDF19360
1E76   D218 2B28      1937          STB   1,DSTBL(WK2)                           CDF19370
1E7A   41F0 2252      1938          BAL   RETN,WRIT         WRITE FORMAT         CDF19380
1E7E   4890 1682      1939          LH    WK3,DEFSEC+6                           CDF19390
1E82   4230 1E90      1940          BNZ   FMDT2             B IF YES             CDF19400
1E86   41F0 1EEA      1941          BAL   RETN,FSHI         INCR HEAD/SECT       CDF19410
1E8A   1E58           1942          DC    A(FMDTL)          LOOP UNTIL DONE      CDF19420
1E8C   4300 1EAE      1943          B     FMDT4                                  CDF19430
1E90   081D           1944 FMDT2    LHR   R1,SECT           SETUP HEAD/SECTOR FIELD CDF19440
1E92   C800 0002      1945          LHI   R0,2                                   CDF19450
1E96   C820 2966      1946          LHI   R2,MSDTF+22                            CDF19460
1E9A   41F0 1096      1947          BAL   R15,HEXASC                             CDF19470
1E9E   C820 2964      1948 FMDT3    LHI   R2,MSDTF+20                            CDF19480
1EA2   C800 0002      1949          LHI   R0,2                                   CDF19490
1EA6   4810 2BCE      1950          LH    R1,HEAD                                CDF19500
1EAA   41F0 1096      1951          BAL   R15,HEXASC                             CDF19510
1EAE   C860 2020      1952 FMDT4    LHI   WK0,X'2020'                            CDF19520
1EB2   4060 2966      1953          STH   WK0,MSDTF+22                           CDF19530
1EB6   4060 2964      1954          STH   WK0,MSDTF+20                           CDF19540
1EBA   4050 2AC0      1955          STH   R5,R5SVC                               CDF19550
1EBE   C850 2950      1956          LHI   R5,MSDTF                               CDF19560
1EC2   41F0 111C      1957          BAL   R15,PRINT                              CDF19570
1EC6   41F0 11F8      1958          BAL   LINK,CRLF                              CDF19580
1ECA   0700           1959          XHR   R0,R0                                  CDF19590
1ECC   4000 2BCE      1960          STH   R0,HEAD                                CDF19600
1ED0   4850 2A90      1961          LH    FUT,FUTADRS                            CDF19610
1ED4   2411           1962          LIS   R1,1                                   CDF19620
1ED6   2422           1963          LIS   R2,2                                   CDF19630
1ED8   4300 1D78      1964          B     FMERF                                  CDF19640
1EDC   0700           1965 FMERTA   XHR   R0,R0                                  CDF19650
1EDE   4000 2BCE      1966          STH   R0,HEAD                                CDF19660
1EE2   2411           1967          LIS   R1,1                                   CDF19670
1EE4   2422           1968          LIS   R2,2                                   CDF19680
1EE6   4300 1D7C      1969          B     FMERT                                  CDF19690
                      1970 *        FORMAT MODE SEC TOR/HEAD INCREMENTER         CDF19700
                      1971 *        BAL   RETN,FSHI                              CDF19710
                      1972 *        DC    A(LOOP)           WHERE TO GO IF CYL NOT DONE CDF19720
                      1973 *                                                     CDF19730
                      1974 *        THE FORMAT MODE ROUTINES WRITE AS FOLLOWS:   CDF19740
                      1975 *        HEAD 0 EVEN SECTORS                          CDF19750
                      1976 *        HEAD 1 EVEN                                  CDF19760
                      1977 *        HEAD 0 ODD SECTORS                           CDF19770
                      1978 *        HEAD 1 ODD SECTORS                           CDF19780
                      1979 *        THIS IS DONE TO SAVE TIME.                   CDF19790
                      1980 *                                                     CDF19800
1EEA   0AD2           1981 FSHI     AHR   SECT,2                                 CDF19810
1EEC   45D0 2BC8      1982          CLH   SECT,MXSEC2       END OF ODD SECTORS?  CDF19820
1EF0   4330 1F04      1983          BE    FSHI6             YES GO CHECK HEAD    CDF19830
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1EF4 45D0 2BC6 1984 FSHI7  CLH   SECT,MXSEC1      END OF EVEN SECTORS          CDF19840
1EF8 4330 1F1C 1985        BE    FSHI8            YES GO CHECK HEAD            CDF19850
1EFC 48FF 0000 1986 FSHI3  LH    RETN,0(RETN)                                  CDF19860
1F00 0700      1987        XHR   R0,R0                                        CDF19870
1F02 030F      1988        BR    RETN                                         CDF19880
1F04 4870 2BCE 1989 FSHI6  LH    WK1,HEAD                                     CDF19890
1F08 C570 0001 1990        CLHI  WK1,1            IS HEAD MAX                  CDF19900
1F0C 4330 1F3C 1991        BE    FSHIA                                        CDF19910
1F10 2411      1992        LIS   R1,1                                         CDF19920
1F12 4010 2BCE 1993        STH   R1,HEAD                                      CDF19930
1F16 24D1      1994        LIS   SECT,1                                       CDF19940
1F18 4300 1EFC 1995        B     FSHI3            IF IT IS SET UP TO DO ODDS   CDF19950
1F1C 4870 2BCE 1996 FSHI8  LH    WK1,HEAD                                     CDF19960
1F20 4230 1F30 1997        BNZ   FSHI9                                        CDF19970
1F24 2411      1998        LIS   R1,1                                         CDF19980
1F26 4010 2BCE 1999        STH   R1,HEAD                                      CDF19990
1F2A 07DD      2000        XHR   SECT,SECT                                    CDF20000
1F2C 4300 1EFC 2001        B     FSHI3                                        CDF20010
1F30 0700      2002 FSHI9  XHR   R0,R0                                        CDF20020
1F32 4000 2BCE 2003        STH   R0,HEAD                                      CDF20030
1F36 24D1      2004        LIS   SECT,1                                       CDF20040
1F38 4300 1EFC 2005        B     FSHI3                                        CDF20050
1F3C 0700      2006 FSHIA  XHR   R0,R0                                        CDF20060
1F3E 4000 2BCE 2007        STH   R0,HEAD                                      CDF20070
1F42 07DD      2008        XHR   SECT,SECT                                    CDF20080
1F44 26F2      2009        AIS   RETN,2                                       CDF20090
1F46 030F      2010        BR    RETN                                         CDF20100
               2011 *      FORMAT MODE DATA FIELD SETUP                       CDF20110
               2012 *                                                         CDF20120
               2013 *      BAL   RETN,FMSUDF                                  CDF20130
               2014 *      WITH DATA BYTE IN WK0                              CDF20140
               2015 *      AND COMMAND BYTES IN WK1                           CDF20150
               2016 *                                                         CDF20160
1F48 4070 2BBC 2017 FMSUDF STH   WK1,WCMD                                     CDF20170
1F4C C690 0131 2018        LHI   WK3,305                                      CDF20180
1F50 4090 2BBA 2019        STH   WK3,SIZE                                     CDF20190
1F54 D370 282E 2020        LB    WK1,GAP1                                     CDF20200
1F58 07EE      2021        XHR   14,14                                        CDF20210
1F5A D27E 30DF 2022 FMSU1  STB   WK1,WTF+3(14)                                CDF20220
1F5E C5E0 0014 2023        CLHI  14,20                                        CDF20230
1F62 4330 1F6C 2024        BE    FMSU2                                        CDF20240
1F66 0AE1      2025        AHR   14,1                                         CDF20250
1F68 4300 1F5A 2026        B     FMSU1                                        CDF20260
1F6C D370 282F 2027 FMSU2  LB    WK1,GAP2                                     CDF20270
1F70 07EE      2028        XHR   14,14                                        CDF20280
1F72 D27E 30F4 2029 FMSU3  STB   WK1,WTF+24(14)                               CDF20290
1F76 C5E0 0014 2030        CLHI  14,20                                        CDF20300
1F7A 4330 1F84 2031        BE    FMSU4                                        CDF20310
1F7E 0AE1      2032        AHR   14,1                                         CDF20320
1F80 4300 1F72 2033        B     FMSU3                                        CDF20330
1F84 2473      2034 FMSU4  LIS   WK1,3                                        CDF20340
1F86 D270 3109 2035        STB   WK1,WTF+45                                   CDF20350
1F8A C870 002E 2036        LHI   WK1,46                                       CDF20360
1F8E C880 0001 2037        LHI   WK2,1                                        CDF20370
1F92 D267 300C 2038 FMSU5  STB   WK0,WTF(WK1)                                 CDF20380
1F96 C170 1F92 2039        BXLE  WK1,FMSU5                                    CDF20390
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1F9A   030F               2040             BR      RETN                                                CDF20400
                          2041  *                                                                      CDF20410
                          2042  *                                                                      CDF20420
                          2043  *                                                                      CDF20430
                          2044  *FORMAT MODE DATA FIELD SETUP FOR SERIES 30,40                         CDF20440
                          2045  *                                                                      CDF20450
                          2046  *BAL RETN,FMSUDF1                                                      CDF20460
                          2047  *WITH DATA BYTE IN WK0                                                 CDF20470
                          2048  *AND COMMAND BYTES IN WK1                                              CDF20480
                          2049  *HEAD/SECTOR IN SECT                                                   CDF20490
                          2050  *AND CYLINDER NUMBER IN TRACK                                          CDF20500
1F9C   4070 2BBC          2051  FMSUDFA    STH     WK1,WCMD            SET READ/WRITE COMMANDS         CDF20510
1FA0   C890 010D          2052             LHI     WK3,269             SET SIZE OF BLOCK               CDF20520
1FA4   4090 2BBA          2053             STH     WK3,SIZE            TO 270 BYTES                    CDF20530
1FA8   4000 30DE          2054             STH     R0,WTF+2            SETUP HEADER PORTION OF BUFFER  CDF20540
1FAC   4000 30E0          2055             STH     R0,WTF+4                                            CDF20550
1FB0   4000 30E2          2056             STH     R0,WTF+6                                            CDF20560
1FB4   4000 30E4          2057             STH     R0,WTF+8                                            CDF20570
1FB8   C870 0003          2058             LHI     WK1,3               SYNC BYTE                       CDF20580
1FBC   4070 30E6          2059             STH     WK1,WTF+10          TO HEADER                       CDF20590
1FC0   C870 000C          2060             LHI     WK1,12              FILL DATA PORTION OF BUFFER     CDF20600
1FC4   0881               2061             LHR     WK2,1                                               CDF20610
1FC6   D267 30DC          2062  FMSU1B     STB     WK0,WTF(WK1)                                        CDF20620
1FCA   C170 1FC6          2063             BXLE    WK1,FMSU1B                                          CDF20630
1FCE   4000 31E8          2064             STH     0,WTF+268           SET CYCLIC CHECK FOR NORMAL MODE CDF20640
1FD2   D280 300D          2065             STB     TRACK,WTF+1                                         CDF20650
1FD6   D2D0 30DC          2066             STB     SECT,WTF                                            CDF20660
1FDA   030F               2067             BR      RETN                                                CDF20670
                          2068  *          WRITE CYLINDER NUMBER TO FILE SUBROUTINE                    CDF20680
                          2069  *                                                                      CDF20690
                          2070  *          BAL   RETN,WDFT                                             CDF20700
                          2071  *                                                                      CDF20710
                          2072  *          ACCOMODATES HI OR LO DENSITY FILE                           CDF20720
                          2073  *                                                                      CDF20730
1FDC   087F               2074  WDFTSK     LHR     WK1,RETN                                            CDF20740
1FDE   C8E0 176A          2075             LHI     RETN2,ERROR2                                        CDF20750
1FE2   41F0 27EC          2076             BAL     RETN,ILLADD         TO BE SURE A CE DISC IS NOT DAM. CDF20760
1FE6   08F7               2077             LHR     RETN,WK1            RESTORE RETURN ADDRESS          CDF20770
1FE8   985B               2078             WHR     FUT,TRACK                                           CDF20780
1FEA   DE50 2824          2079             OC      FUT,CYLCMD                                          CDF20790
1FEE   C870 06D6          2080             LHI     WK1,1750                                            CDF20800
1FF2   41E0 23C0          2081  WDFTRZ     BAL     RETN2,MILSEC                                        CDF20810
1FF6   9D3A               2082             SSR     DCAD,STAT                                           CDF20820
1FF8   4320 1FF2          2083             BNP     WDFTRZ                                              CDF20830
1FFC   DE50 2827          2084  WDFT       OC      FUT,RSTATT                                          CDF20840
2000   C870 06D6          2085             LHI     WK1,1750                                            CDF20850
2004   41E0 23C0          2086  WDFTRX     BAL     RETN2,MILSEC                                        CDF20860
2008   9D3A               2087             SSR     DCAD,STAT                                           CDF20870
200A   4320 2004          2088             BNP     WDFTRX                                              CDF20880
200E   DE50 2826          2089             OC      FUT,RSTHED                                          CDF20890
2012   C870 06D6          2090             LHI     WK1,1750                                            CDF20900
2016   41E0 23C0          2091  WDFTRW     BAL     RETN2,MILSEC                                        CDF20910
201A   9D3A               2092             SSR     DCAD,STAT                                           CDF20920
201C   4320 2016          2093             BNP     WDFTRW                                              CDF20930
2020   D850 2BCE          2094             WH      FUT,HEAD                                            CDF20940
2024   DE50 2825          2095             OC      FUT,HEDCMD                                          CDF20950
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2028 C870 06D6 2096          LHI   WK1,1750                                    CDF20960
202C 41E0 23C0 2097 WDFTRY   BAL   RETN2,MILSEC                                CDF20970
2030 903A      2098          SSR   DCAD,STAT                                   CDF20980
2032 4320 202C 2099          BNP   WDFTRY                                      CDF20990
2036 030F      2100          BR    RETN                                        CDF21000
               2101 *                                                          CDF21010
               2102 ********************************************************** CDF21020
               2103 *                                                          CDF21030
               2104 * FILE READY TO SEEK/READ/WRITE SUBROUTINE                 CDF21040
               2105 *                                                          CDF21050
               2106 * BAL RETN,FRSSR                                          CDF21060
               2107 * RETURN WHEN RSRW                                        CDF21070
               2108 *                                                          CDF21080
2038 C870 06D6 2109 FRSSR    LHI   WK1,1750        1.75 SECOND TIMEOUT         CDF21090
203C 41E0 23C0 2110 FSTM     BAL   RETN2,MILSEC    WAIT A MILLISECOND          CDF21100
2040 9D4A      2111          SSR   SLAD,STAT       SELCH STATUS                CDF21110
2042 4280 203C 2112          BC    FSTM            WAIT FOR NOT BUSY           CDF21120
2046 DE40 2830 2113          OC    SLAD,STOP                                   CDF21130
204A 9D3A      2114          SSR   DCAD,STAT       DC STATUS                   CDF21140
204C 4320 203C 2115          BNP   FSTM            WAIT FOR IDLE               CDF21150
2050 9D5A      2116          SSR   FUT,STAT        FILE STATUS                 CDF21160
2052 086A      2117          LHR   WK0,STAT        CHECK ERROR                 CDF21170
2054 C460 0043 2118          NHI   WK0,X'43'       BUT NOT F.A.I.L. OR ILL. ADS CDF21180
2058 4230 2610 2119          BNZ   ERR1A                                       CDF21190
205C 9D5A      2120          SSR   FUT,STAT                                    CDF21200
205E 4280 203C 2121          BC    FSTM            WAIT FOR RSRW               CDF21210
2062 030F      2122          BR    RETN            RETURN                      CDF21220
               2123 * SEEK SUBROUTINE                                          CDF21230
               2124 *                                                          CDF21240
               2125 *       BAL   RETN,SKSR       DESIRED CYL ADS IN "TRACK"  CDF21250
               2126 *                                                          CDF21260
2064 40F0 2B26 2127 SKSR     STH   RETN,SKRTN      SAVE RETURN                 CDF21270
2068 C8C0 0010 2128          LHI   OPKEY,X'10'     X1X=SEEK, BEFORE CMD        CDF21280
206C 07DD      2129          XHR   SECT,SECT       SET SECTOR # FOR PRINTOUT   CDF21290
206E 41F0 2038 2130          BAL   RETN,FRSSR      FILE RSRW TEST              CDF21300
2072 41F0 20B4 2131          BAL   RETN,SUBFILE                                CDF21310
2076 2082      2132          DC    A(CONT5)                                    CDF21320
2078 2082      2133          DC    A(CONT5)                                    CDF21330
207A 2082      2134          DC    A(CONT5)                                    CDF21340
207C 41F0 1FDC 2135          BAL   RETN,WDFTSK                                 CDF21350
2080 2303      2136          BS    CONT6                                       CDF21360
2082 41F0 2112 2137 CONT5    BAL   RETN,WDFT1                                  CDF21370
2086 DE50 282B 2138 CONT6    OC    FUT,SEEKC                                   CDF21380
208A C8C0 0020 2139          LHI   OPKEY,X'20'     X2X=SEEK, AFTER CMD         CDF21390
208E 41F0 2038 2140          BAL   RETN,FRSSR      FILE RSRW TEST              CDF21400
2092 41F0 209C 2141          BAL   RETN,WRITE                                  CDF21410
2096 48F0 2B26 2142          LH    RETN,SKRTN      RETURN                      CDF21420
209A 030F      2143          BR    RETN                                        CDF21430
               2144 * SUBROUTINE WRITE WILL WRITE THE TRACK NUMBER             CDF21440
               2145 * TO THE DISPLAY ON A SEEK COMMAND                         CDF21450
               2146 * CALLING SEQUENCE   BAL RETN,WRITE                        CDF21460
               2147 * TRACK CONTAINS THE CYLINDER NUMBER ON A SEEK              CDF21470
209C 2461      2148 WRITE    LIS   R6,1                                        CDF21480
209E DE60 2832 2149          OC    R6,INCRMT                                   CDF21490
20A2 9A6D      2150          WDR   R6,SECT                                     CDF21500
20A4 DA60 2BCF 2151          WD    R6,HEAD+1                                   CDF21510
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20A8   94BB              EXBR   TRACK,TRACK                                 CDF21520
20AA   986B              WHR    R6,TRACK                                    CDF21530
20AC   DE60 2833         OC     R6,NORM1                                    CDF21540
20B0   94BB              EXBR   TRACK,TRACK                                 CDF21550
20B2   030F              BR     RETN                                        CDF21560
                * SUBROUTINE SUBFILE WILL DETERMINE DRIVE UNDER TEST AND VECTOR CDF21570
                * TO THE APPROPRIATE RETURN FOR THE GIVEN SEQUENCE OF CODE      CDF21580
                * CALLING SEQUENCE BAL RETN,SUBFILE                             CDF21590
20B4   4860 16FA  SUBFILE LH    WK0,FILE+6                                  CDF21600
20B8   C560 0001         CLHI   WK0,1            ITS A SERIES 40 DRIVE FIXED CDF21610
20BC   4330 20E0         BE     EXIT                                        CDF21620
20C0   26F2              AIS    RETN,2                                      CDF21630
20C2   C560 0002         CLHI   WK0,2            ITS A SERIES 40 REMOVABLE  CDF21640
20C6   4330 20E0         BE     EXIT                                        CDF21650
20CA   26F2              AIS    RETN,2                                      CDF21660
20CC   C560 0003         CLHI   WK0,3            ITS A SERIES 30 DISC       CDF21670
20D0   4330 20E0         BE     EXIT                                        CDF21680
20D4   C560 0004         CLHI   WK0,4                                       CDF21690
20D8   4230 176A         BNE    ERROR2                                      CDF21700
20DC   26F2              AIS    RETN,2                                      CDF21710
20DE   030F              BR     RETN                                        CDF21720
20E0   489F 0000  EXIT   LH     R9,0(RETN)                                  CDF21730
20E4   0309              BR     R9                                          CDF21740
                * ***************************************************************  CDF21750
                * THIS SUBROUTINE WILL INITIALIZE REGISTERS UPON ENTRY TO TEST MOD CDF21760
                * CALLING SEQUENCE BAL RETN,MODINIT                             CDF21770
20E6   4840 16BE  MODINIT LH    SLAD,SELCH+6                                CDF21780
20EA   4830 16CA         LH     DCAD,DISCON+6                               CDF21790
20EE   4850 2A90         LH     FUT,FUTADRS                                 CDF21800
20F2   DE40 2830         OC     SLAD,STOP                                   CDF21810
20F6   DE30 282A         OC     DCAD,RESET                                  CDF21820
20FA   DE50 282A         OC     FUT,RESET                                   CDF21830
20FE   0700              XHR    R0,R0                                       CDF21840
2100   4000 2BAC         STH    R0,RRCTR                                    CDF21850
2104   080F              LHR    R0,RETN                                     CDF21860
2106   4000 2BB4         STH    R0,RERN                                     CDF21870
210A   0700              XHR    R0,R0                                       CDF21880
210C   2411              LIS    R1,1                                        CDF21890
210E   2422              LIS    R2,2                                        CDF21900
2110   030F              BR     RETN                                        CDF21910
                * ******************************************************************  CDF21920
                *WRITE CYLINDER TO FILE SUBROUTINE SERIES 30,40                 CDF21930
                *                                                               CDF21940
                *BAL RETN,WDFT                                                  CDF21950
                *                                                               CDF21960
                *ACCOMODATES HI OR LO DENSITY FILE                              CDF21970
2112   4500 1742  WDFT1  CLH    R0,TRKDEN+6                                 CDF21980
2116   4330 212A         BE     WDFT1A                                      CDF21990
211A   C5B0 0100         CLHI   TRACK,256                                   CDF22000
211E   4380 2128         BNL    WDFT0                                       CDF22010
2122   9A50              WDR    FUT,R0                                      CDF22020
2124   4300 212A         B      WDFT1A                                      CDF22030
2128   9A51       WDFT0  WDR    FUT,R1                                      CDF22040
212A   9A5B       WDFT1A WDR    FUT,TRACK                                   CDF22050
212C   030F              BR     RETN                                        CDF22060
                *                                                               CDF22070
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                   *****************************************************   CDF22080
                   *                                                        CDF22090
                   *         DATA TEST ROUTINE                              CDF22100
                   *                                                        CDF22110
                   *         BAL     RETN,TDATA                             CDF22120
                   *                                                        CDF22130
212E  4890 2BBA    TDATA     LH      WK3,SIZE          GET SIZE             CDF22140
2132  C8C0 0080    TDATAX    LHI     OPKEY,X'80'       X8X=CORE COMPARISON  CDF22150
2136  0870                   LHR     WK1,0                                  CDF22160
2138  0882                   LHR     WK2,2                                  CDF22170
213A  4867 30DC    TDATA1    LH      WK0,WTF(WK1)      WRITE DATA           CDF22180
213E  4567 2BDC              CLH     WK0,RDF(WK1)                           CDF22190
2142  4230 260A              BNZ     ERR4              B IF ERROR           CDF22200
2146  C170 213A              BXLE    WK1,TDATA1        LOOP UNTIL DONE      CDF22210
214A  030F                   BR      RETN              RETURN               CDF22220
                   * RESTORE SUBROUTINE                                     CDF22230
                   *                                                        CDF22240
                   * BAL RETN,RSTSR                                         CDF22250
                   *         RETURN WITH TRACK = 0                          CDF22260
                   *                                                        CDF22270
214C  40F0 2BA8    RSTSR     STH     RETN,RSRET        SAVE RETURN          CDF22280
2150  C8C0 0030              LHI     OPKEY,X'30'       X3X= RESTORE, BEFORE CMD  CDF22290
2154  07DD                   XHR     SECT,SECT         SET SECTOR # FOR PRINTOUT CDF22300
2156  07BB                   XHR     TRACK,TRACK       ZERO CURRENT TRACK   CDF22310
2158  4000 2BCE              STH     0,HEAD                                 CDF22320
215C  C870 06D6              LHI     WK1,1750          1.75 SECOND TIMEOUT  CDF22330
2160  41E0 23C0    RSTM      BAL     RETN2,MILSEC      WAIT A MILLISECOND   CDF22340
2164  9D4A                   SSR     SLAD,STAT         WAIT FOR SELCH       CDF22350
2166  4280 2160              BC      RSTM                                   CDF22360
216A  9D3A                   SSR     DCAD,STAT         WAIT FOR DC IDLE     CDF22370
216C  4320 2160              BNP     RSTM                                   CDF22380
2170  9D5A                   SSR     FUT,STAT          EXIT IF FILE NOT READY CDF22390
2172  4210 2610              BM      ERR1A                                  CDF22400
2176  41F0 20B4              BAL     RETN,SUBFILE                           CDF22410
217A  2184                   DC      A(CONT1)                               CDF22420
217C  2184                   DC      A(CONT1)                               CDF22430
217E  2184                   DC      A(CONT1)                               CDF22440
2180  4300 2188              B       CONT2                                  CDF22450
2184  41F0 2112    CONT1     BAL     RETN,WDFT1                             CDF22460
2188  DE50 282C    CONT2     OC      FUT,RESTOC                             CDF22470
218C  C8C0 0040              LHI     OPKEY,X'40'       X4X = RESTORE, AFTER COMMAND CDF22480
2190  41F0 2038              BAL     RETN,FRSSR        FILE RSRW TEST       CDF22490
2194  48F0 2BA8              LH      RETN,RSRET        RETURN               CDF22500
2198  030F                   BR      RETN                                   CDF22510
                   *                                                        CDF22520
                   *                                                        CDF22530
219A  40F0 2BAA    CKADSR    STH     RETN,CKARET                            CDF22540
219E  4870 172A              LH      WK1,BYCKAD+6                           CDF22550
21A2  023F                   BNZR    RETN                                   CDF22560
21A4  2303                   BS      CKADSR2                                CDF22570
21A6  40F0 2BAA    CKADSR1   STH     RETN,CKARET                            CDF22580
21AA  C8E0 176A    CKADSR2   LHI     RETN2,ERROR2                           CDF22590
21AE  41F0 27EC              BAL     RETN,ILLADD       TO PREVENT DESTROYING A "CE" CDF22600
21B2  41F0 2038    CKADSE    BAL     RETN,FRSSR                             CDF22610
21B6  4000 2BD4              STH     0,RDER                                 CDF22620
21BA  C8C0 0050    CKRDX     LHI     OPKEY,X'50'       X5X=ADDRESS CHECK    CDF22630
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21BE   41F0 20B4             BAL   RETN,SUBFILE                                      CDF22640
21C2   21DE                  DC    A(CONT3)                                          CDF22650
21C4   21DE                  DC    A(CONT3)                                          CDF22660
21C6   21DE                  DC    A(CONT3)                                          CDF22670
21C8   41F0 1FFC             BAL   RETN,WDFT                                         CDF22680
21CC   4870 2BCE             LH    WK1,HEAD                                          CDF22690
21D0   CD70 000A             SLHL  WK1,10                                            CDF22700
21D4   0678                  OHR   WK1,TRACK                                         CDF22710
21D6   9A3D                  WDR   DCAD,SECT                                         CDF22720
21D8   9837                  WHR   DCAD,WK1                                          CDF22730
21DA   4300 21EC             B     CONT4                                             CDF22740
21DE   41F0 2112    CONT3    BAL   RETN,WDFT1                                        CDF22750
21E2   4890 2BCE             LH    WK3,HEAD                                          CDF22760
21E6   9195                  SLLS  WK3,5                                             CDF22770
21E8   06D9                  OHR   SECT,WK3                                          CDF22780
21EA   9A3D                  WDR   DCAD,SECT                                         CDF22790
21EC   DE30 2829    CONT4    OC    DCAD,RCHECK                                       CDF22800
21F0   C870 0050             LHI   WK1,80          SET TIME CONSTANT                 CDF22810
21F4   41E0 23C0    CKTL     BAL   RETN2,MILSEC    WAIT A MILLISECOND                CDF22820
21F8   9D4A                  SSR   SLAD,STAT       SELCH STATUS                      CDF22830
21FA   4280 21F4             BC    CKTL            WAIT FOR NOT BSY                  CDF22840
21FE   DE40 2830             OC    SLAD,STOP       STOP SELCH                        CDF22850
2202   9D3A                  SSR   DCAD,STAT       DC STATUS                         CDF22860
2204   4320 21F4             BNP   CKTL            WAIT FOR IDLE                     CDF22870
2208   4250 221E    ERRCKA   BTC   5,ERRCK                                           CDF22880
                    *                                        *                       CDF22890
220C   4870 2BD4    CKAOK    LH    WK1,RDER        DID IT FAIL THE FIRST READ, IF ANY ?  CDF22900
2210   4330 2218             BZ    CKOK            NO RETURN                         CDF22910
2214   4300 2602             B     ERR8            YES RECOVERABLE READ              CDF22920
2218   48F0 2BAA    CKOK     LH    RETN,CKARET                                       CDF22930
221C   030F                  BR    RETN                                              CDF22940
                    *                                        *                       CDF22950
                    *                                        *                       CDF22960
221E   4870 2A82    ERRCK    LH    WK1,FMFLG                                         CDF22970
2222   4230 17AA             BNZ   ERROR12                                           CDF22980
2226   4870 2BD4             LH    WK1,RDER                                          CDF22990
222A   4230 2604             BNZ   ERR7            FAILED THE SECOND READ CHECK      CDF23000
222E   4010 2BD4             STH   1,RDER          INDICATE SECOND READ CHECK        CDF23010
2232   41F0 2038             BAL   RETN,FRSSR                                        CDF23020
2236   4300 21BA             B     CKRDX                                             CDF23030
                    *                                        *                       CDF23040
                    *                                        *                       CDF23050
                    *        READ/WRITE ROUTINE                                      CDF23060
                    *        BAL   RETN,READ                                         CDF23070
                    *            OR                                                  CDF23080
                    *        BAL   RETN,WRIT                                         CDF23090
                    *                                                                CDF23100
                    *        BUT IF EXPECTING ERRORS:                                CDF23110
                    *                                                                CDF23120
                    *        BAL   RETN,READX                                        CDF23130
                    *            OR                                                  CDF23140
                    *        BAL   RETN,WRITX                                        CDF23150
                    *                                                                CDF23160
                    *        WHICH DOES NOT CLEAR "ERRFLG" OR CHANGE "OPKEY"         CDF23170
                    *        ALSO, WRITX DOES NOT CHECK FOR WRITE PROTECT            CDF23180
                    *                                                                CDF23190
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223A 4000 2BC2  2320  READ   STH   0,ERRFLG                          CDF23200
223E C8C0 0070  2321         LHI   OPKEY,X'70'     X7X=READ          CDF23210
2242 D370 2B8D  2322  READX  LB    WK1,RCMD       GET READ COMMAND  CDF23220
2246 C880 0030  2323         LHI   WK2,X'30'      SELCH COMMAND     CDF23230
224A C860 2BDC  2324         LHI   WK0,RDF        READ DATA FIELD ADDRESS CDF23240
224E 4300 2270  2325         B     RWCOM          ENTER COMMON PROCESS CDF23250
                2326  *                                              CDF23260
2252 4000 2BC2  2327  WRIT   STH   0,ERRFLG                          CDF23270
2256 C8C0 0060  2328         LHI   OPKEY,X'60'     X6X=WRITE         CDF23280
225A 9D56       2329         SSR   FUT,WK0                           CDF23290
225C C460 0080  2330         NHI   WK0,X'80'       WRITE PROTECT?    CDF23300
2260 4230 27B6  2331         BNZ   WTPON                             CDF23310
2264 D370 2B8C  2332  WRITX  LB    WK1,WCMD       WRITE COMMAND     CDF23320
2268 C880 0010  2333         LHI   WK2,X'10'      SELCH COMMAND     CDF23330
226C C860 30DC  2334         LHI   WK0,WTF        WRITE FIELD ADDRESS CDF23340
2270 4060 2B18  2335  RWCOM  STH   WK0,SA          SAVE START ADDRESS CDF23350
2274 4A60 2B8A  2336         AH    WK0,SIZE                          CDF23360
2278 4060 2B1E  2337         STH   WK0,FA         SAVE FINAL ADDRESS CDF23370
227C 40F0 2BD6  2338         STH   RETN,RWSAVE                       CDF23380
2280 41F0 209C  2339         BAL   RETN,WRITE                        CDF23390
2284 48F0 2BD6  2340         LH    RETN,RWSAVE                       CDF23400
2288 DA40 2B18  2341         WD    SLAD,SA        SETUP SELCH       CDF23410
228C DA40 2B19  2342         WD    SLAD,SA+1                         CDF23420
2290 DA40 2B1E  2343         WD    SLAD,FA                           CDF23430
2294 DA40 2B1F  2344         WD    SLAD,FA+1                         CDF23440
2298 40F0 2BD6  2345         STH   RETN,RWSAVE                       CDF23450
229C 4070 2BD8  2346         STH   WK1,RWOCMD     TRANSFER THE CONTENTS CDF23460
22A0 41F0 20B4  2347         BAL   RETN,SUBFILE                      CDF23470
22A4 22D8       2348         DC    A(CONT11)                         CDF23480
22A6 22D8       2349         DC    A(CONT11)                         CDF23490
22A8 22D8       2350         DC    A(CONT11)                         CDF23500
22AA 41F0 1FFC  2351         BAL   RETN,WDFT      WRITE TRACK # TO FILE CDF23510
22AE 48F0 2BD6  2352         LH    RETN,RWSAVE                       CDF23520
22B2 4870 2BD8  2353         LH    WK1,RWOCMD                        CDF23530
22B6 9D3A       2354         SSR   DCAD,STAT                         CDF23540
22B8 086A       2355         LHR   WK0,STAT                          CDF23550
22BA C460 0010  2356         NHI   WK0,X'10'      CYL OVERFLOW      CDF23560
22BE 4230 231C  2357         BNZ   RWER           YES - BYPASS OPERATION CDF23570
22C2 4860 2BCE  2358         LH    WK0,HEAD                          CDF23580
22C6 CD60 000A  2359         SLHL  WK0,10                            CDF23590
22CA 066B       2360         OHR   WK0,TRACK                         CDF23600
22CC 9A3D       2361         WDR   DCAD,SECT                         CDF23610
22CE 9836       2362         WHR   DCAD,WK0                          CDF23620
22D0 9E37       2363         OCR   DCAD,WK1       START DC          CDF23630
22D2 9E48       2364         OCR   SLAD,WK2       START SELCH       CDF23640
22D4 4300 22F6  2365         B     CONT12                            CDF23650
22D8 41F0 2112  2366  CONT11  BAL   RETN,WDFT1                       CDF23660
22DC 48F0 2BD6  2367         LH    RETN,RWSAVE                       CDF23670
22E0 4890 2BCE  2368         LH    WK3,HEAD                          CDF23680
22E4 9195       2369         SLLS  WK3,5                             CDF23690
22E6 080D       2370         LHR   R0,SECT                           CDF23700
22E8 0609       2371         OHR   R0,WK3                            CDF23710
22EA 9A30       2372         WDR   DCAD,R0                           CDF23720
22EC 9E37       2373         OCR   DCAD,WK1                          CDF23730
22EE 9E48       2374         OCR   SLAD,WK2                          CDF23740
22F0 4000 2ABE  2375         STH   R0,DSCHDR                         CDF23750
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22F4  0700          2376          XHR   R0,R0                                                  CDF23760
22F6  C870 005A     2377  CONT12  LHI   WK1,90                                                 CDF23770
22FA  41E0 23C0     2378  DXTL    BAL   RETN2,MILSEC      WAIT ONE MILLISECOND                 CDF23780
22FE  9D4A          2379          SSR   SLAD,STAT         SELCH STATUS                         CDF23790
2300  4280 22FA     2380          BC    DXTL                                                   CDF23800
2304  DE40 2830     2381          OC    SLAD,STOP         STOP WHEN NONBUSY                    CDF23810
2308  9D3A          2382          SSR   DCAD,STAT         DC STATUS                            CDF23820
230A  4320 22FA     2383          BNP   DXTL              NO ERR, WAIT FOR IDLE                CDF23830
230E  4250 231C     2384          BTC   5,RWER            B IF ERROR                           CDF23840
2312  4870 2BC2     2385          LH    WK1,ERRFLG        EXPECTING ERROR?                     CDF23850
2316  033F          2386          BZR   RETN              NO                                   CDF23860
2318  4300 25FA     2387          B     ERRC              YES, BUT THERE WASN'T ANY            CDF23870
                    2388  *                                                                    CDF23880
231C  4880 2BC2     2389  RWER    LH    WK2,ERRFLG        PICKUP ERROR FLAG                    CDF23890
2320  4330 232C     2390          BZ    FMERR             BRANCH IF NO ERROR EXPECTED          CDF23900
2324  078A          2391          XHR   WK2,STAT          TEST ERR BITS                        CDF23910
2326  C480 00F5     2392          NHI   WK2,X'F5'                                              CDF23920
232A  033F          2393          BZR   RETN              RETURN IF AS EXPECTED                CDF23930
232C  4880 2BD8     2394  FMERR   LH    WK2,RWOCMD        GET THE LAST COMMAND OUTPUT          CDF23940
2330  C580 0006     2395          CLHI  WK2,X'06'         FORMAT WRITE COMMAND ?               CDF23950
2334  4330 234C     2396          BE    FMERR1            YES                                  CDF23960
2338  C580 0005     2397          CLHI  WK2,X'05'         FORMAT READ COMMAND ?                CDF23970
233C  4330 234C     2398          BE    FMERR1                                                 CDF23980
2340  C580 0001     2399          CLHI  WK2,X'01'                                              CDF23990
2344  4330 235A     2400          BE    RDAGN                                                  CDF24000
2348  4300 260C     2401          B     ERR3                                                   CDF24010
234C  C880 0080     2402  FMERR1  LHI   WK2,X'80'         SET UP MASK FOR WRT PROT.            CDF24020
2350  048A          2403          NHR   WK2,STAT          MASK THE BIT, WAS IT SET ?           CDF24030
2352  4330 260C     2404          BZ    ERR3              NO, ERROR 3                          CDF24040
2356  4300 25F4     2405          B     ERRF              YES, THEN FORMAT SWITCH NOT ON       CDF24050
                    2406  *                                          *                         CDF24060
235A  DA40 2B18     2407  RDAGN   WD    SLAD,SA           READ ERROR ECCURED                   CDF24070
235E  DA40 2B19     2408          WD    SLAD,SA+1                                              CDF24080
2362  DA40 2B1E     2409          WD    SLAD,FA                                                CDF24090
2366  DA40 2B1F     2410          WD    SLAD,FA+1                                              CDF24100
236A  4870 2BD8     2411          LH    WK1,RWOCMD                                             CDF24110
236E  C880 0030     2412          LHI   WK2,X'30'         ERROR STILL EXISTS                   CDF24120
2372  41F0 20B4     2413          BAL   RETN,SUBFILE                                           CDF24130
2376  2396          2414          DC    A(CONT13)                                              CDF24140
2378  2396          2415          DC    A(CONT13)                                              CDF24150
237A  2396          2416          DC    A(CONT13)                                              CDF24160
237C  48F0 2BD6     2417          LH    RETN,RWSAVE       REWRITE AND SEE IF                   CDF24170
2380  4860 2BCE     2418          LH    WK0,HEAD                                               CDF24180
2384  CD60 000A     2419          SLHL  WK0,10                                                 CDF24190
2388  066B          2420          OHR   WK0,TRACK                                              CDF24200
238A  9A3D          2421          WDR   DCAD,SECT                                              CDF24210
238C  9836          2422          WHR   DCAD,WK0                                               CDF24220
238E  9E37          2423          OCR   DCAD,WK1                                               CDF24230
2390  9E48          2424          OCR   SLAD,WK2                                               CDF24240
2392  4300 23A0     2425          B     CONT14                                                 CDF24250
2396  48F0 2BD6     2426  CONT13  LH    RETN,RWSAVE                                            CDF24260
239A  9A3D          2427          WDR   DCAD,SECT                                              CDF24270
239C  9E37          2428          OCR   DCAD,WK1                                               CDF24280
239E  9E48          2429          OCR   SLAD,WK2                                               CDF24290
23A0  C870 005A     2430  CONT14  LHI   WK1,90                                                 CDF24300
23A4  41E0 23C0     2431  RDAGN1  BAL   RETN2,MILSEC                                           CDF24310
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23A8   9D4A                      SSR    SLAD,STAT                                  CDF24320
23AA   4280 23A4                 BC     RDAGN1                                     CDF24330
23AE   DE40 2830                 OC     SLAD,STOP                                  CDF24340
23B2   9D3A                      SSR    DCAD,STAT                                  CDF24350
23B4   4320 23A4                 BNP    RDAGN1                                     CDF24360
23B8   4250 2604                 BTC    5,ERR7          STILL A READ ERROR         CDF24370
                  *                                     AFTER SECOND READ          CDF24380
                  *                                                                CDF24390
23BC   4300 2602                 B      ERR8            NO ERROR ON THE SECOND READ CDF24400
                  *                                     RECOVERABLE READ ERROR     CDF24410
                  *                                                  *             CDF24420
                  *                                                  *             CDF24430
                  *              MILLISECOND TIMER                                 CDF24440
                  *              LHI   WK1,VALUE        LENGTH OF TIMEOUT IN MSEC  CDF24450
                  *              BAL   RETN2,MILSEC                                CDF24460
                  *                                                                CDF24470
                  *              MODEL     TIME CONST   ACTUAL TIME INCL BAL       CDF24480
                  *                                                                CDF24490
                  *               50         247        0.9985  MILLISECOND        CDF24500
                  *               70         247        0.9985  MILLISECOND        CDF24510
                  *               74         208        1.0005  MILLISECOND        CDF24520
                  *               80         600        0.99981 MILLISECOND        CDF24530
                  *               85         600        0.99981 MILLISECOND        CDF24540
                  *             7/16         208        1.0005 MILLISECOND         CDF24550
                  *                                                                CDF24560
23C0   4860 0A1C  MILSEC         LH     WK0,TIME                                   CDF24570
23C4   0B61       MILS1          SHR    WK0,1           LOOP THAT NUMBER           CDF24580
23C6   4230 23C4                 BNZ    MILS1           OF TIMES                   CDF24590
23CA   0B71                      SHR    WK1,1           NOW DOWNCOUNT THE TIME VALUE CDF24600
23CC   038E       ERRMIL         BNLR   RETN2           RETURN IF NO TIMEOUT       CDF24610
23CE   C860 00F0                 LHI    WK0,X'F0'                                  CDF24620
23D2   9576                      EPSR   WK1,WK0                                    CDF24630
23D4   4300 260E                 B      ERR2                                       CDF24640
                  *                                                                CDF24650
                  ***********************************************************      CDF24660
                  *              125 US TIMER                                      CDF24670
                  *              LHI  WK1,TIMEOUT VALUE                            CDF24680
                  *              BAL  RETN2,QKTIME                                 CDF24690
                  *                                                  *             CDF24700
23D8   4860 171E  QKTIME         LH     WK0,TIMECON+6                              CDF24710
23DC   CC60 0003                 SRHL   WK0,3           DIVIDE BY 8                CDF24720
23E0   0B61       QKS1           SHR    WK0,1                                      CDF24730
23E2   4230 23E0                 BNZ    QKS1                                       CDF24740
23E6   0B71                      SHR    WK1,1                                      CDF24750
23E8   038E                      BNLR   RETN2                                      CDF24760
23EA   4300 260E                 B      ERR2                                       CDF24770
                  *                                                  *             CDF24780
                  *                                                                CDF24790
                  *              PSEUDO-RANDOM GENERATOR                           CDF24800
                  *              BAL   RETN,RAND                                   CDF24810
                  *              RETURNS RESULT IN WK0                             CDF24820
                  *                                                                CDF24830
23EE   4860 2B20  RAND           LH     WK0,RND1        FIBONACCI                  CDF24840
23F2   4870 2B22                 LH     WK1,RND2        NUMBER                     CDF24850
23F6   4070 2B20                 STH    WK1,RND1        GENERATOR                  CDF24860
23FA   0A67                      AHR    WK0,WK1                                    CDF24870
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23FC  4060 2B22          2488          STH   WK0,RND2                                          CDF24880
2400  030F               2489          BR    RETN              RETURN                          CDF24890
                         2490  * ************************************************************  CDF24900
                         2491  *SUBROUTINE TEST INITIALIZE WILL VERIFY TEST PARAMETERS          CDF24910
                         2492  *AND INITIALIZE TEST VARIABLES                                   CDF24920
                         2493  *R1=INDEX INTO PARAMETER BLOCK                                   CDF24930
                         2494  *BAL R14,TSTINIT                                                 CDF24940
2402  40E0 2ABA          2495  TSTINIT STH   RETN2,TEMPA                                       CDF24950
2406  4870 16E2          2496          LH    R7,LOCYL+6        GET THE LOCYLINDER OPTIN        CDF24960
240A  C570 FFFF          2497          CLHI  R7,X'FFFF'                                        CDF24970
240E  4330 1772          2498          BE    ERROR3                                            CDF24980
2412  4576 0000          2499          CLH   R7,0(R6)          COMPARE WITH MAX VALID FOR FUT  CDF24990
2416  4380 1772          2500          BNL   ERROR3                                            CDF25000
241A  4876 0000          2501          LH    R7,0(R6)                                          CDF25010
241E  4070 2BB0          2502          STH   R7,MAXCY                                          CDF25020
2422  4830 16CA          2503  GO      LH    DCAD,DISCON+6     GET DISC CONTROLLER IN R3       CDF25030
2426  4840 16BE          2504          LH    SLAD,SELCH+6      GET SELCH ADDRESS IN R4         CDF25040
242A  4000 2B24          2505          STH   R0,LPCNT          ZERO LOOP COUNTER               CDF25050
242E  4010 2B20          2506          STH   R1,RND1           INITIALIZE RANDOM NUMBER PARAMETERS CDF25060
2432  4020 2B22          2507          STH   R2,RND2                                           CDF25070
2436  4850 16A6          2508          LH    FUT,TFILE+6       GET FILE UNDER TEST             CDF25080
243A  C550 0004          2509          CLHI  FUT,4                                             CDF25090
243E  4380 178A          2510          BNL   ERROR7                                            CDF25100
2442  4876 0006          2511          LH    R7,6(R6)          GET THE CORRECT ADDRESS         CDF25110
2446  C570 0001          2512          CLHI  R7,1              CONSTRUCTION                    CDF25120
244A  2337               2513          BES   TSADR             FLAG AND VECTOR TO THE          CDF25130
244C  C570 0002          2514          CLHI  R7,2              CORRECT ADDRESS CONSTRUCTION    CDF25140
2450  2337               2515          BES   THRTYAD           ROUTINE                         CDF25150
2452  C570 0003          2516          CLHI  R7,3                                              CDF25160
2456  2337               2517          BES   FRTYFX                                            CDF25170
2458  41F0 24E8          2518  TSADR   BAL   RETN,TSADRS       CONST 20 SURFACE ADDRESSES      CDF25180
245C  2306               2519          BS    CONT                                              CDF25190
245E  41F0 2514          2520  THRTYAD BAL   RETN,STHADRS      CONST 30 ADDRESSES              CDF25200
2462  2303               2521          BS    CONT                                              CDF25210
2464  41F0 2548          2522  FRTYFX  BAL   RETN,FRTYADR      CONST 40 FXED ADDRESSES         CDF25220
2468  4876 0002          2523  CONT    LH    R7,2(R6)          GET MAX SECTORS FOR FUT         CDF25230
246C  4070 2BC4          2524          STH   R7,MAXSEC                                         CDF25240
2470  0A71               2525          AHR   R7,R1                                             CDF25250
2472  4070 2BC6          2526          STH   R7,MXSEC1                                         CDF25260
2476  0A71               2527          AHR   R7,R1                                             CDF25270
2478  4070 2BC8          2528          STH   R7,MXSEC2                                         CDF25280
247C  4876 0004          2529          LH    R7,4(R6)          GET MAXHEAD                     CDF25290
2480  4070 2BCA          2530          STH   R7,MXHED                                          CDF25300
2484  0A71               2531          AHR   R7,R1                                             CDF25310
2486  4070 2BCC          2532          STH   R7,MXHED1                                         CDF25320
248A  4876 0000          2533          LH    R7,0(R6)          GET MAXCYLINDERS                CDF25330
248E  4070 2BB2          2534          STH   R7,MAXCY1         SET MAX CYLINDERS+1             CDF25340
2492  0871               2535          SHR   R7,R1             SET MAX CYLINDERS               CDF25350
2494  4870 16E2          2536          LH    R7,LOCYL+6        CHECK FOR LEGAL TRACK SPEC      CDF25360
2498  4570 2BB2          2537          CLH   R7,MAXCY1                                         CDF25370
249C  4380 1772          2538          BNL   ERROR3                                            CDF25380
24A0  4870 16EE          2539          LH    R7,HICYL+6                                        CDF25390
24A4  4570 2BB2          2540          CLH   R7,MAXCY1                                         CDF25400
24A8  4380 24B4          2541          BNL   TCK1              B IF OUT OF RANGE               CDF25410
24AC  4570 16E2          2542          CLH   R7,LOCYL+6        CAN'T BE LESS THAN LOCYL+6      CDF25420
24B0  4380 24C2          2543          BNL   MODT              B IF GOOD                       CDF25430
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24B4  0A71          2544  TCK1    AHR   R7,R1              IF ITS -1 ITS OK TOO          CDF25440
24B6  4230 177A     2545          BNZ   ERROR4                                           CDF25450
24BA  4870 16E2     2546          LH    R7,LOCYL+6                                       CDF25460
24BE  4070 16EE     2547          STH   R7,HICYL+6                                       CDF25470
24C2  4870 171E     2548  MODT    LH    R7,TIMECON+6                                     CDF25480
24C6  4330 179A     2549          BZ    ERROR10                                          CDF25490
24CA  4070 0A1C     2550          STH   R7,TIME                                          CDF25500
24CE  48B0 16EE     2551          LH    TRACK,HICYL+6                                    CDF25510
24D2  C8E0 177A     2552          LHI   RETN2,ERROR4                                     CDF25520
24D6  41F0 27EC     2553          BAL   RETN,ILLADD                                      CDF25530
24DA  48B0 16E2     2554          LH    TRACK,LOCYL+6                                    CDF25540
24DE  41F0 27EC     2555          BAL   RETN,ILLADD                                      CDF25550
24E2  48E0 2ABA     2556  RESTAR  LH    RETN2,TEMPA                                      CDF25560
24E6  030E          2557          BR    R14                                              CDF25570
                    2558  *SUBROUTINES S30,20S,S40V,S40F DISC FILE ADDRESS ROUTINES      CDF25580
                    2559  *BUILD THE CORRECT FILE UNDER TEST ADDRESSES GIVEN THE         CDF25590
                    2560  *DISC CONTROLLER ADDRESS                                       CDF25600
                    2561  *ROUTINES WILL ALSO CALCULATE ALL FILE ADDRESSES               CDF25610
                    2562  *BAL R13,TSADRS                                                CDF25620
                    2563  *BAL R13,STHADS                                                CDF25630
                    2564  *BAL R13,FRTYADR                                               CDF25640
24E8  0A51          2565  TSADRS  AHR   FUT,R1             TWENTY SURFACE ADDRESSES      CDF25650
24EA  0A53          2566          AHR   FUT,DCAD           GET FUT AND ADD TO DISC       CDF25660
24EC  4050 2A90     2567          STH   FUT,FUTADRS                                      CDF25670
24F0  0788          2568          XHR   R8,R8              CONTROLLER ADDRESS            CDF25680
24F2  0A81          2569          AHR   R8,R1              TO FORM CORRECT FILE UNDER    CDF25690
24F4  0A83          2570          AHR   R8,DCAD            TEST ADDRESS                  CDF25700
24F6  4080 2A92     2571          STH   R8,FILE1                                         CDF25710
24FA  CA80 0001     2572          AHI   R8,1                                             CDF25720
24FE  4080 2A94     2573          STH   R8,FILE2           FORM CORRECT PHYSICAL         CDF25730
2502  CA80 0001     2574          AHI   R8,1               ADDRESSES FOR ALL             CDF25740
2506  4080 2A96     2575          STH   R8,FILE3           8 FILES                       CDF25750
250A  CA80 0001     2576          AHI   R8,1                                             CDF25760
250E  4080 2A98     2577          STH   R8,FILE4                                         CDF25770
2512  030F          2578          BR    RETN                                             CDF25780
                    2579  ********************************************************       CDF25790
2514  0A51          2580  STHADRS AHR   FUT,R1             ADD1 TO FUT                   CDF25800
2516  CD50 0004     2581          SLHL  FUT,4              SHIFT LEFT 4                  CDF25810
251A  0A53          2582          AHR   FUT,DCAD           AND ADD TO CONT ADDRS         CDF25820
251C  4050 2A90     2583          STH   FUT,FUTADRS                                      CDF25830
2520  0788          2584  STHADRS1 XHR  R8,R8                                            CDF25840
2522  0A81          2585          AHR   R8,R1              VALID,FILE ADDRESSES          CDF25850
2524  CD80 0004     2586          SLHL  R8,4                                             CDF25860
2528  0A83          2587          AHR   R8,DCAD                                          CDF25870
252A  4080 2A92     2588          STH   R8,FILE1                                         CDF25880
252E  CA80 0010     2589          AHI   R8,16                                            CDF25890
2532  4080 2A94     2590          STH   R8,FILE2                                         CDF25900
2536  CA80 0010     2591          AHI   R8,16                                            CDF25910
253A  4080 2A96     2592          STH   R8,FILE3                                         CDF25920
253E  CA80 0010     2593          AHI   R8,16                                            CDF25930
2542  4080 2A98     2594          STH   R8,FILE4                                         CDF25940
2546  030F          2595          BR    RETN                                             CDF25950
                    2596  ********************************************************       CDF25960
2548  0A51          2597  FRTYADR AHR   FUT,R1                                           CDF25970
254A  CD50 0004     2598          SLHL  FUT,4                                            CDF25980
254E  0A53          2599          AHR   FUT,DCAD                                         CDF25990
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2550  0A51                AHR   FUT,R1                                              CDF26000
2552  4050 2A90           STH   FUT,FUTADRS                                         CDF26010
2556  4300 2520           B     STHADRS1                                            CDF26020
                  ***************************************************************   CDF26030
                  * SUBROUTINE ERRANLYS DETERMINES SOURCE OF ERROR FOR PRINTOUT     CDF26040
                  * AND SETS UP R1 WITH CORRECT DEVICE ADDRESS                      CDF26050
                  * BAL RETN,ERRANLYS                                               CDF26060
255A  C860 0001   ERRANLYS LHI  WK0,1                                               CDF26070
255E  0700                 XHR  R0,R0                                               CDF26080
2560  C890 2ADC            LHI  WK3,VECADR                                          CDF26090
2564  4809 0000   ERRANA   LH   R0,0(WK3)                                           CDF26100
2568  0986                 CHR  WK2,WK0                                             CDF26110
256A  0330                 BER  R0                 BR ON VECTOR IF EQUAL            CDF26120
256C  2661                 AIS  WK0,1              INCREMENT MASK                   CDF26130
256E  2692                 AIS  WK3,2                                               CDF26140
2570  4300 2564            B    ERRANA                                              CDF26150
2574  C860 2AFA   SET7     LHI  WK0,ERRTBL1                                         CDF26160
2578  0700                 XHR  R0,R0                                               CDF26170
257A  C880 2B02            LHI  WK2,VECADR1                                         CDF26180
257E  4808 0000   SET7A    LH   R0,0(WK2)                                           CDF26190
2582  D476 0000            CLB  WK1,0(WK0)         COMPARE ERROR NUMBER             CDF26200
2586  0330                 BER  R0                 WITH MASK                        CDF26210
2588  2661                 AIS  WK0,1              ADD 1 TO MASK                    CDF26220
258A  2682                 AIS  WK2,2              INCREMENT TABLE                  CDF26230
258C  C580 2B18            CLHI WK2,SA                                              CDF26240
2590  4380 257E            BNL  SET7A                                               CDF26250
2594  4300 25B6            B    UNDEF                                               CDF26260
2598  4810 2A90   SET1A    LH   R1,FUTADRS                                          CDF26270
259C  030F                 BR   RETN                                                CDF26280
259E  4810 16CA   SET3A    LH   R1,DISCON+6                                         CDF26290
25A2  030F                 BR   RETN                                                CDF26300
25A4  4810 16BE   SET4A    LH   R1,SELCH+6                                          CDF26310
25A8  030F                 BR   RETN                                                CDF26320
25AA  4810 2A86   SET5A    LH   R1,SECFILAD                                         CDF26330
25AE  030F                 BR   RETN                                                CDF26340
25B0  4810 1590   SET6A    LH   R1,INTDEV                                           CDF26350
25B4  030F                 BR   RETN                                                CDF26360
25B6  4810 16CA   UNDEF    LH   R1,DISCON+6                                         CDF26370
25BA  030F                 BR   RETN                                                CDF26380
                  * SUBROUTINE FMTCK CHECKS TO INSURE ALL CYLINDERS FORMATTED PROPERLY   CDF26390
25BC  40E0 2A80   FMTCK    STH  RETN2,RETN2S                                        CDF26400
25C0  41F0 20E6            BAL  RETN,MODINIT                                        CDF26410
25C4  C860 25D6            LHI  WK0,FMTCK1                                          CDF26420
25C8  4060 2BB4            STH  WK0,RERN                                            CDF26430
25CC  48B0 16E2            LH   TRACK,LOTRAK                                        CDF26440
25D0  0766                 XHR  WK0,WK0                                             CDF26450
25D2  4060 2BCE            STH  WK0,HEAD                                            CDF26460
25D6  41F0 2064   FMTCK1   BAL  RETN,SKSR                                           CDF26470
25DA  41F0 21A6            BAL  RETN,CKADSR1                                        CDF26480
25DE  26B1                 AIS  TRACK,1                                             CDF26490
25E0  45B0 16EE            CLH  TRACK,HITRAK                                        CDF26500
25E4  4330 25D6            BE   FMTCK1                                              CDF26510
25E8  4380 25F0            BFC  8,EXIT20                                            CDF26520
25EC  4300 25D6            B    FMTCK1                                              CDF26530
25F0  4300 0D72   EXIT20   B    TSTEND                                              CDF26540
                  *        ERROR HANDLER                                            CDF26550
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                        2656  *                                                                    CDF26560
                        2657  *                                                                    CDF26570
                        2658  * FILE STATUS DICTIONARY                                             CDF26580
                        2659  *                                                                    CDF26590
                        2660  *        BIT 0 = FILE WRITE PROTECT                                  CDF26600
                        2661  *        BIT 1 = WRITE CHECK                                         CDF26610
                        2662  *        BIT 2 = GATED ATTENTION                                     CDF26620
                        2663  *        BIT 3 = DISC UNSAFE                                         CDF26630
                        2664  *        BIT 4 = NOT READY TO SEEK, READ, WRITE                      CDF26640
                        2665  *        BIT 5 = EXAMINE                                             CDF26650
                        2666  *        BIT 6 = SEEK INCOMPLETE                                     CDF26660
                        2667  *        BIT 7 = FILE NOT READY                                      CDF26670
                        2668  *                                                                    CDF26680
                        2669  *                                                                    CDF26690
                        2670  * CONTROLLER STATUS DICTIONARY                                       CDF26700
                        2671  *                                                                    CDF26710
                        2672  *        BIT 0 = WRITE PROTECT                                       CDF26720
                        2673  *        BIT 1 = HEADER COMPARE FAILURE                              CDF26730
                        2674  *        BIT 2 = DEFECTIVE TRACK                                     CDF26740
                        2675  *        BIT 3 = CYLINDER OVERFLOW                                   CDF26750
                        2676  *        BIT 4 = BUSY (IGNORE THIS BIT)                              CDF26760
                        2677  *        BIT 5 = EXAMINE                                             CDF26770
                        2678  *        BIT 6 = CONTROLLER IDLE                                     CDF26780
                        2679  *        BIT 7 = DATA TRANSFER ERROR                                 CDF26790
                        2680  *                                                                    CDF26800
                        2681  *                                                                    CDF26810
                        2682  *                                                                    CDF26820
                        2683  *                                                                    CDF26830
                        2684  *                                                                    CDF26840
                        2685  * "Y" FIELD ERROR DICTIONARY                                         CDF26850
                        2686  *                                                                    CDF26860
                        2687  * X0X = EXPECTING INITIAL STATUS                                     CDF26870
                        2688  * X1X = SEEK, PRIOR TO COMMAND                                      CDF26880
                        2689  * X2X = SEEK, AFTER COMMAND                                         CDF26890
                        2690  * X3X = RESTORE, PRIOR TO COMMAND                                   CDF26900
                        2691  * X4X = RESTORE, AFTER COMMAND                                      CDF26910
                        2692  * X5X = ADDRESS CHECK                                               CDF26920
                        2693  * X6X = WRITE                                                       CDF26930
                        2694  * X7X = READ                                                        CDF26940
                        2695  * X8X = CORE COMPARISON                                            CDF26950
                        2696  * X9X = EXPECTING WRITE PROTECT STATUS FROM THE FILE               CDF26960
                        2697  * XAX = EXPECTING DEFECTIVE TRACK STATUS                           CDF26970
                        2698  * XBX = EXPECTING ADS CMP ERR STATUS                               CDF26980
                        2699  * XCX = EXPECTING CYLINDER OVERFLOW STATUS                         CDF26990
                        2700  * XDX = EXPECTING LPC ERR/WPV STATUS                               CDF27000
                        2701  * XEX = EXPECTING FILE NOT READY STATUS                            CDF27010
                        2702  * XFX = EXPECTING WRITE PROTECT STATUS                             CDF27020
                        2703  *                                                                    CDF27030
                        2704  *                                                                    CDF27040
                        2705  * "Z" FIELD ERROR DICTIONARY                                         CDF27050
                        2706  *                                                                    CDF27060
25F4  0A01              2707  ERRF     AHR    0,1          FORMAT SWITCH NOT ON                   CDF27070
25F6  0A01              2708  ERRE     AHR    0,1          SECOND FILE ADS WRONG                  CDF27080
25F8  0A01              2709  ERRD1A   AHR    0,1                                                 CDF27090
25FA  0A01              2710  ERRC     AHR    0,1          EXPECTING ERR, GOT NONE                CDF27100
25FC  0A01              2711  ERRB     AHR    0,1          BAD SELCH STATUS                       CDF27110
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25FE  0A01              ERRA     AHR    0,1               DC ADS WRONG                       CDF27120
2600  0A01              ERR9     AHR    0,1               SELCH ADS ERROR                    CDF27130
2602  0A01              ERR8     AHR    0,1               RECOVERABLE READ ERROR             CDF27140
2604  0A01              ERR7     AHR    0,1               SOLID READ ERROR, POSSIBLE BAD WRITE CDF27150
                        *                                           POSSIBLE SEEK ERR        CDF27160
2606  0A01              ERR6     AHR    0,1               FILE ADDRESS WRONG                 CDF27170
2608  0A01              ERR5     AHR    0,1               ERR ON OFFSET READ                 CDF27180
260A  0A01              ERR4     AHR    0,1               ERR ON FIRST READ                  CDF27190
260C  0A01              ERR3     AHR    0,1               UNEXPECTED DC ERR                  CDF27200
260E  0A01              ERR2     AHR    0,1               TIME OUT                           CDF27210
2610  0A01              ERR1A    AHR    0,1               BAD FILE STATUS                    CDF27220
                        *                                                                    CDF27230
2612  0880                       LHR    WK2,0             ERR CODE TO WK2                    CDF27240
2614  0700                       XHR    0,0               REZERO R0                          CDF27250
2616  4800 166A                  LH     R0,NOMSG+6                                           CDF27260
261A  4000 2A52                  STH    R0,NOMSGSV                                           CDF27270
261E  0700                       XHR    R0,R0                                                CDF27280
2620  4000 166A                  STH    R0,NOMSG+6                                           CDF27290
2624  4060 2BBE                  STH    WK0,SW0           SAVE WK0                           CDF27300
2628  4070 2BC0                  STH    WK1,SW1           AND WK1                            CDF27310
262C  DE40 2830                  OC     SLAD,STOP                                            CDF27315
2630  9D4A                       SSR    SLAD,STAT                                            CDF27320
2632  D2A0 2B1C                  STB    STAT,SELSTAT                                         CDF27340
2636  9D3A                       SSR    DCAD,STAT                                            CDF27350
2638  D2A0 2B1B                  STB    STAT,CONSTAT                                         CDF27360
263C  9D5A                       SSR    FUT,STAT                                             CDF27370
263E  D2A0 2B1A                  STB    STAT,FILSTAT                                         CDF27380
                        *                                 DISC TEST.                         CDF27390
2642  087C              ERRH1    LHR    WK1,OPKEY         LOAD THE APPROPRIATE OPKEY         CDF27400
2644  0678                       OHR    WK1,WK2           OR IN THE DETAIL CODE              CDF27410
2646  0817                       LHR    R1,WK1            SET UP FOR CONVERSION              CDF27420
2648  C820 15DC                  LHI    R2,ERRNO          STORE ASCII IN ERRNO               CDF27430
264C  C800 0002                  LHI    R0,2              2 HEX DIGITS TO CONVERT            CDF27440
2650  41F0 1096                  BAL    R15,HEXASC        CALL HEX TO ASCII                  CDF27450
2654  D300 2B1C         LASTAT   LB     R0,SELSTAT                                           CDF27460
2658  D200 1595                  STB    R0,ERRSTA                                            CDF27470
265C  2402                       LIS    R0,2                                                 CDF27480
265E  D310 2B1B                  LB     R1,CONSTAT                                           CDF27490
2662  C820 1609                  LHI    R2,DEVMSG+15                                         CDF27500
2666  41F0 1096                  BAL    R15,HEXASC                                           CDF27510
266A  2402                       LIS    R0,2                                                 CDF27520
266C  D310 2B1A                  LB     R1,FILSTAT                                           CDF27530
2670  C820 160C                  LHI    R2,DEVMSG+18                                         CDF27540
2674  41F0 1096                  BAL    R15,HEXASC                                           CDF27550
2678  41F0 255A                  BAL    RETN,ERRANLYS                                        CDF27560
267C  4010 1592                  STH    R1,ERRDEV                                            CDF27570
2680  41F0 0E98                  BAL    R15,ERRDS                                            CDF27580
2684  C810 2020                  LHI    R1,X'2020'                                           CDF27590
2688  D210 1609                  STB    R1,DEVMSG+15                                         CDF27600
268C  D210 160A                  STB    R1,DEVMSG+16                                         CDF27610
2690  4010 160C                  STH    R1,DEVMSG+18                                         CDF27620
2694  4050 2ABC                  STH    R5,TEMPB                                             CDF27630
2698  081B                       LHR    R1,TRACK          GET THE CYLINDER FOR OUTPUT        CDF27640
269A  2403                       LIS    R0,3              CONVERT 3 HEX DIGITS               CDF27650
269C  C820 29E5                  LHI    R2,CYLNO          STORE THE ASCII IN CYLNO           CDF27660
26A0  41F0 1096                  BAL    R15,HEXASC        CONVERT IT AND STORE IT            CDF27670
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26A4 081D                2768                LHR   R1,SECT
26A6 C5C0 0080           2769                CLHI  OPKEY,X'80'       CORE COMPARISON ERROR          CDF27680
26AA 4230 26DA           2770                BNE   ERRH2            NO                             CDF27690
26AE D390 2BBD           2771                LB    WK3,RCMD          YES IS THIS FORMAT READ        CDF27700
26B2 C590 0005           2772                CLHI  WK3,5             IF SO BYPASS NEXT              CDF27710
26B6 4330 26DA           2773                BE    ERRH2             FEW BECAUSE LONGER             CDF27720
26BA CD10 0008           2774                SLHL  R1,8                                               CDF27730
26BE 4A10 2BC0           2775                AH    R1,SW1            CAN GET THE EXACT              CDF27740
26C2 CC10 0008           2776                SRHL  R1,8              SECTOR NUMBER                  CDF27750
26C6 C510 2BC6           2777                CLHI  R1,MXSEC1                                          CDF27760
26CA 2188                2778                BLS   ERRH2                                              CDF27770
26CC 4800 2BCE           2779                LH    R0,HEAD                                            CDF27780
26D0 2601                2780                AIS   R0,1                                               CDF27790
26D2 4000 2BCE           2781                STH   R0,HEAD                                            CDF27800
26D6 0700                2782                XHR   R0,R0                                              CDF27810
26D8 080D                2783                LHR   R0,SECT                                            CDF27820
26DA C820 29F8           2784   ERRH2        LHI   R2,SECTNO         USING THE BYTE                 CDF27830
26DE 2403                2785                LIS   R0,3              COUNTER                        CDF27840
26E0 41F0 1096           2786                BAL   R15,HEXASC        CONVERT                        CDF27850
26E4 4810 2BCE           2787                LH    R1,HEAD           GET THE HEAD NUMBER            CDF27860
26E8 C820 29EE           2788                LHI   R2,HEADNO         STORE THE ASCII                CDF27870
26EC 2402                2789                LIS   R0,2              IN HEAD NO                     CDF27880
26EE 41F0 1096           2790                BAL   R15,HEXASC                                         CDF27890
26F2 C850 29DC           2791                LHI   R5,MSG13          LOAD MESSAGE ADRESS            CDF27900
26F6 41F0 111C           2792                BAL   R15,PRINT                                          CDF27910
26FA 4850 2ABC           2793                LH    R5,TEMPB                                           CDF27920
26FE 2411                2794                LIS   R1,1                                               CDF27930
2700 2422                2795                LIS   R2,2                                               CDF27940
2702 C5C0 0080           2796                CLHI  OPKEY,X'80'       CORE COMPARISON?               CDF27950
2706 4230 2762           2797                BNE   TSOLID-2          B IF NO                        CDF27960
270A 4870 2BC0           2798                LH    WK1,SW1           GET THE BYTE NUMBER            CDF27970
270E D390 2BBD           2799                LB    WK3,RCMD          AGAIN CHECK FOR FORMAT         CDF27980
2712 C590 0005           2800                CLHI  WK3,5                                              CDF27990
2716 4330 271E           2801                BE    ERRH4                                              CDF28000
271A C470 00FF           2802                NHI   WK1,X'FF'                                          CDF28010
271E 0817                2803   ERRH4        LHR   R1,WK1            CONVERT 3 HEX DIGITS           CDF28020
2720 C820 29BE           2804                LHI   R2,ERMS3+6                                         CDF28030
2724 2403                2805                LIS   R0,3                                               CDF28040
2726 41F0 1096           2806                BAL   R15,HEXASC                                         CDF28050
272A 4810 2BBE           2807                LH    R1,SW0            YES GET GOOD                   CDF28060
272E C820 29CA           2808                LHI   R2,ERMS3+18                                        CDF28070
2732 2404                2809                LIS   R0,4              4 HEX DIGITS                   CDF28080
2734 41F0 1096           2810                BAL   R15,HEXASC                                         CDF28090
2738 4810 2BC0           2811                LH    R1,SW1            BAD DATA                       CDF28100
273C 4811 2BDC           2812                LH    R1,RDF(R1)        CONVERT 4                      CDF28110
2740 C820 29D5           2813                LHI   R2,ERMS3+29                                        CDF28120
2744 2404                2814                LIS   R0,4                                               CDF28130
2746 41F0 1096           2815                BAL   R15,HEXASC                                         CDF28140
274A C850 29B8           2816                LHI   R5,ERMS3                                           CDF28150
274E 41F0 111C           2817                BAL   R15,PRINT                                          CDF28160
2752 2411                2818                LIS   R1,1                                               CDF28170
2754 2422                2819                LIS   R2,2                                               CDF28180
2756 4850 2ABC           2820                LH    R5,TEMPB                                           CDF28190
275A 4800 2A52           2821                LH    R0,NOMSGSV                                         CDF28200
275E 4000 166A           2822                STH   R0,NOMSG+6                                         CDF28210
2762 0700                2823                XHR   R0,R0                                              CDF28220
                                                                                                      CDF28230
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2764  4860 2BAC  2824  TSOLID  LH    WK0,RRCTR          CHECK THE RERUN          CDF28240
2768  4560 16D6  2825          CLH   WK0,RETRY+6                               CDF28250
276C  4380 277A  2826          BNL   EURC               B IF TOO MANY            CDF28260
2770  0A61       2827          AHR   WK0,1              BUMP RERUN COUNTER       CDF28270
2772  4060 2BAC  2828          STH   WK0,RRCTR                                 CDF28280
2776  4300 27CC  2829          B     RERUN              GO RERUN                 CDF28290
                 2830  *       SOLID ERROR --- ABORT TEST SECTION              CDF28300
                 2831  *                                                       CDF28310
277A  4800 166A  2832  EURC    LH    R0,NOMSG+6                                CDF28320
277E  4000 2A52  2833          STH   R0,NOMSGSV                                CDF28330
2782  0700       2834          XHR   R0,R0                                     CDF28340
2784  4000 166A  2835          STH   R0,NOMSG+6                                CDF28350
2788  4050 2ABC  2836          STH   R5,TEMPB                                  CDF28360
278C  C850 29A8  2837          LHI   R5,ERMS2                                  CDF28370
2790  41F0 111C  2838  TABORT  BAL   R15,PRINT                                 CDF28380
2794  4860 15DA  2839          LH    WK0,ETESTNO                               CDF28390
2798  4060 2A18  2840          STH   WK0,MSTA+6                                CDF28400
279C  C850 2A12  2841          LHI   R5,MSTA                                   CDF28410
27A0  41F0 111C  2842          BAL   R15,PRINT                                 CDF28420
27A4  4800 2A52  2843          LH    R0,NOMSGSV                                CDF28430
27A8  4000 166A  2844          STH   R0,NOMSG+6                                CDF28440
27AC  0700       2845          XHR   R0,R0                                     CDF28450
27AE  4850 2ABC  2846          LH    R5,TEMPB                                  CDF28460
27B2  4300 0D72  2847          B     TSTEND                                    CDF28470
                 2848  *                                                       CDF28480
                 2849  *       WRITE PROTECT ON ---- ABORT TEST SECTION         CDF28490
                 2850  *                                                       CDF28500
27B6  4050 2ABC  2851  WTPON   STH   R5,TEMPB                                  CDF28510
27BA  4800 166A  2852          LH    R0,NOMSG+6                                CDF28520
27BE  4000 2A52  2853          STH   R0,NOMSGSV                                CDF28530
27C2  0700       2854          XHR   R0,R0                                     CDF28540
27C4  C850 29FE  2855          LHI   R5,MSWP                                   CDF28550
27C8  4300 2790  2856          B     TABORT             ABORT TEST               CDF28560
27CC  DE40 2830  2857  RERUN    OC    SLAD,STOP          STOP SELCH               CDF28570
27D0  DE30 282A  2858          OC    DCAD,RESET         RESET DATA CONT          CDF28580
27D4  DE50 282A  2859          OC    FUT,RESET                                  CDF28590
27D8  9D37       2860          SSR   DCAD,WK1                                   CDF28600
27DA  C470 0010  2861          NHI   WK1,X'10'          CYLINDER OVERFLOW?       CDF28610
27DE  4330 27E6  2862          BZ    RER1               NO                       CDF28620
27E2  DE50 2826  2863          OC    FUT,RSTHED                                 CDF28630
27E6  48F0 2BB4  2864  RER1     LH    RETN,RERN          GET THE RERUN ADDRESS    CDF28640
27EA  030F       2865          BR    RETN               RERUN                    CDF28650
                 2866  *  CHECKS IF THE DISC IS A CE PACK, AND IF SO            CDF28660
                 2867  *     IS THE CURRENT CYLINDER VOID ?                    CDF28670
                 2868  *                                                       CDF28680
                 2869  *                                                       CDF28690
                 2870  *     BAL   RETN,ILLADD                                 CDF28700
                 2871  *     RETN2 = VOID RETURN                               CDF28710
                 2872  *                                                       CDF28720
                 2873  *                                                       CDF28730
27EC  4500 1730  2874  ILLADD  CLH   0,PACTYP           CE DISC PACK?            CDF28740
27F0  023F       2875          BNER  RETN               NO - NORMAL RETURN       CDF28750
27F2  C5B0 0046  2876          CLHI  TRACK,70           < 70                     CDF28760
27F6  028F       2877          BCR   RETN               OK                       CDF28770
27F8  C5B0 004C  2878          CLHI  TRACK,76           70-75                    CDF28780
27FC  028E       2879          BCR   RETN2              REJECT                   CDF28790
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27FE   C5B0 0073      2880          CLHI  TRACK,115         76-114                       CDF28800
2802   028F           2881          BCR   RETN              OK                           CDF28810
2804   C5B0 0079      2882          CLHI  TRACK,121         115-120                      CDF28820
2808   028E           2883          BCR   RETN2             REJECT                       CDF28830
280A   C5B0 008C      2884          CLHI  TRACK,140         121-139                      CDF28840
280E   028F           2885          BCR   RETN              OK                           CDF28850
2810   C5B0 0097      2886          CLHI  TRACK,151         140-150                      CDF28860
2814   028E           2887          BCR   RETN2             REJECT                       CDF28870
2816   C5B0 00E6      2888          CLHI  TRACK,230         151-229                      CDF28880
281A   028F           2889          BCR   RETN              OK                           CDF28890
281C   C5B0 00F1      2890          CLHI  TRACK,241         230-240                      CDF28900
2820   028E           2891          BCR   RETN2             REJECT                       CDF28910
2822   030F           2892          BR    RETN              >240                         CDF28920
                      2893 *                               OK                            CDF28930
                      2894 *                                                             CDF28940
                      2895 *                                                             CDF28950
                      2896 * COMMAND BYTES                                               CDF28960
                      2897 *                                                             CDF28970
2824   10             2898 CYLCMD   DB    X'10'                                          CDF28980
2825   20             2899 HEDCMD   DB    X'20'                                          CDF28990
2826   04             2900 RSTHED   DB    X'04'                                          CDF29000
2827   08             2901 RSTATT   DB    X'08'                                          CDF29010
2828   A4             2902 RDTTY    DB    X'A4'                                          CDF29020
2829   03             2903 RCHECK   DB    3                 CONTROLLER READ BACK CHECK   CDF29030
282A   C8             2904 RESET    DB    X'C8'             CONTROLLER RESET             CDF29040
282B   C2             2905 SEEKC    DB    X'C2'             SEEK                         CDF29050
282C   C1             2906 RESTOC   DB    X'C1'             RESTORE                      CDF29060
282D   42             2907 ISKCMD   DB    X'42'             INTERRUPT SEEK COMMAND       CDF29070
282E   00             2908 GAP1     DB    X'00'                                          CDF29080
282F   00             2909 GAP2     DB    X'00'                                          CDF29090
2830   08             2910 STOP     DB    X'08'                                          CDF29100
2832   4080           2911 INCRMT   DC    X'4080'                                        CDF29110
       0000 2833      2912 NORM1    EQU   *-1                                            CDF29120
2834                  2913          DB    *                 END OF COMMAND BYTES         CDF29130
                      2914 *                                                             CDF29140
2834   18FA           2915 TESTS    DC    TEST0,TEST1                                    CDF29150
2836   191E
2838   28DC           2916 IDSA     DC    RDF               ADDRESSES FOR SELCH          CDF29160
283A   28DF           2917 IDFA     DC    RDF+3                                          CDF29170
283C   4130           2918 IDDC     DC    X'4130'                                        CDF29180
                      2919 *                                                             CDF29190
                      2920 *                                                             CDF29200
                      2921 *        MESSAGES                                             CDF29210
                      2922 *                                                             CDF29220
283E   454E5445       2923 MSG1     DC    C'ENTER HEADS TO BE DELETED',X'0D00'           CDF29230
       52204845
       41445320
       544F2042
       45204445
       4C455445
       4420
2858   0D00
285A   44495343       2924 MSG2     DC    C'DISC FILE SELECT ERROR',X'0D00'              CDF29240
       2046494C
       45205345
       4C454354
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      20455252
      4F52
2870  0D00
2872  494E5641        2925  MSG3     DC    C'INVALID        OPTION',X'0D00'                   CDF29250
      4C494420
      20202020
      20202020
      204F5054
      494F4E20
288A  0D00
288C  494C4C45        2926  MSG12    DC    C'ILLEGAL TRACK ADR-CE PACK',X'0D00'               CDF29260
      47414C20
      54524143
      4B204144
      52204345
      20504143
      4B20
28A6  0D00
28A8  44454645        2927  MSG14    DC    C'DEFECTIVE LOTRACK FOR FORMAT MODE TEST',X'0D00'  CDF29270
      43544956
      45204C4F
      54524143
      4B20464F
      5220464F
      524D4154
      204D4F44
      45205445
      5354
28CE  0D00
28D0  494E5641        2928  MSG15    DC    C'INVALID SECNUM OPTION-DEFAULTED TO 4 SECTORS',X'0D00'  CDF29280
      4C494420
      5345434E
      554D204F
      5054494F
      4E204445
      4641554C
      54454420
      544F2034
      20534543
      544F5253
28FC  0D00
28FE  44455052        2929  FILOFF   DC    C'DEPRESS DISABLE OR PUT RUN/LOAD IN LOAD'         CDF29290
      45535320
      44495341
      424C4520
      4F522050
      55542052
      554E2F4C
      4F414420
      494E204C
      4F414420
2926  0D0A            2930           DC    X'D0A'                                             CDF29300
2928  44455052        2931  FILON    DC    C'DEPRESS DISABLE OR PUT RUN/LOAD IN RUN'          CDF29310
      45535320
      44495341
      424C4520
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         4F522050
         55542052
         554E2F4C
         4F414420
         494E2052
         554E
294E     0D0A               2932          DC     X'D0A'                                        CDF29320
2950     44454620           2933  MSOTF   DC     C'DEF TRK FLAGGED         ',X'D0A'            CDF29330
         54524B20
         464C4147
         47454420
         20202020
         20202020
2968     0D0A
296A     44455052           2934  MDWPS   DC     C'DEPRESS THE WRITE PROTECT SWITCH',X'D0A'    CDF29340
         45535320
         54484520
         57524954
         45205052
         4F544543
         54205357
         49544348
298A     0D0A
298C     44455052           2935  MDDSS   DC     C'DEPRESS THE DISABLE SWITCH',X'D0A'          CDF29350
         45535320
         54484520
         44495341
         424C4520
         53574954
         4348
29A6     0D0A
29A8     534F4C49           2936  ERMS2   DC     C'SOLID ERROR: ',X'0D00'                      CDF29360
         44204552
         524F523A
         2020
29B6     0D00
29B8     42595445           2937  ERMS3   DC     C'BYTE       GOOD       BAD        ',X'0D00'   CDF29370
         20202020
         20202020
         474F4F44
         20202020
         20202042
         41442020
         20202020
         2020
29DA     0D00
29DC     43594C49           2938  MSG13   DC     C'CYLINDER TTT HEAD HH SECTOR KKK',X'0D00'    CDF29380
         4E444552
         20545454
         20484541
         44204848
         20534543
         544F5220
         4B4B4B20
29FC     0D00
         0000 29F8          2939  SECTNO  EQU    MSG13+28                                      CDF29390
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          0000 29EE          2940  HEADNO   EQU    MSG13+18                                       CDF29400
          0000 29E5          2941  CYLNO    EQU    MSG13+9                                        CDF29410
     29FE 57524954           2942  MSWP     DC     C'WRITE PROTECT ON: ',X'0D00'                  CDF29420
          45205052
          4F544543
          54204F4E
          3A20
     2A10 0D00
     2A12 54455354           2943  MSTA     DC     C'TEST  XX  ABORTED',X'D00'                    CDF29430
          20205858
          20204142
          4F525445
          4420
     2A24 0D00
     2A26 0000               2944  SELAD    DC     X'0'                                           CDF29440
     2A28 0000               2945  NWPRTFLG DC     X'0'                                           CDF29450
                             2946  *        BUFFERS                                               CDF29460
                             2947  *                                                              CDF29470
                             2948  *TEST PARAMETER TABLE                                          CDF29480
     2A2A 0196               2949  TSFPRM   DC     H'406'                                         CDF29490
     2A2C 0013               2950           DC     H'19'          MAX SECTORS                     CDF29500
     2A2E 0013               2951           DC     H'19'          MAX HEADS                       CDF29510
     2A30 0001               2952           DC     H'01'          ADDR CONSTRUCTION FLAG          CDF29520
     2A32 0001               2953           DC     H'01'          CHECK ILL ADDRESS FLAG          CDF29530
     2A34 00CB               2954  STHPRM   DC     H'203'                                         CDF29540
     2A36 0017               2955           DC     H'23'                                          CDF29550
     2A38 0001               2956           DC     H'01'                                          CDF29560
     2A3A 0002               2957           DC     H'02'                                          CDF29570
     2A3C 0000               2958           DC     H'00'                                          CDF29580
     2A3E 0198               2959  SFTFIX   DC     H'408'                                         CDF29590
     2A40 0017               2960           DC     H'23'                                          CDF29600
     2A42 0001               2961           DC     H'01'                                          CDF29610
     2A44 0003               2962           DC     H'03'                                          CDF29620
     2A46 0000               2963           DC     H'00'                                          CDF29630
     2A48 0198               2964  TSFTRMV  DC     H'408'                                         CDF29640
     2A4A 0017               2965           DC     H'23'                                          CDF29650
     2A4C 0001               2966           DC     H'01'                                          CDF29660
     2A4E 0002               2967           DC     H'02'                                          CDF29670
     2A50 0000               2968           DC     H'00'                                          CDF29680
     2A52 0000               2969  NOMSGSV  DC     X'0'                                           CDF29690
     2A54 0000               2970  R15SAV   DC     X'0'                                           CDF29700
                             2971  *ETPE CONSTANTS SUPPLIED BY USING PROGRAM                      CDF29710
     2A56 434F4D4D           2972  TITLE    DC     C'COMMON DISC FORMATTER 06-173R01F02 ',X'0D00' CDF29720
          4F4E2044
          49534320
          464F524D
          41545445
          52203036
          2D313733
          52303146
          30322020
     2A7A 0D00
     2A7C 0001               2973  MAXTST   DC     X'01'                                          CDF29730
     2A7E 0000               2974  DTSTFLG  DC     X'0'                                           CDF29740
     2A80 0000               2975  RETN2S   DC     X'0'                                           CDF29750
     2A82 0000               2976  FMFLG    DC     X'0'                                           CDF29760
```

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2A84   0000          2977  MDSCNT    DC   X'0'                                             CDF29770
2A86   0000          2978  SECFILAD  DC   X'0'                                             CDF29780
2A88   0000          2979  SKCOUNT   DC   X'0'                                             CDF29790
2A8A   0000          2980  FMTSEC    DC   X'0'                                             CDF29800
2A8C   0000          2981  SECADSTA  DC   X'0'                                             CDF29810
2A8E   0000          2982  TWOSEC    DC   X'0'                                             CDF29820
2A90   0000          2983  FUTADRS   DC   X'0'                                             CDF29830
2A92   0000          2984  FILE1     DC   X'0'                                             CDF29840
2A94   0000          2985  FILE2     DC   X'0'                                             CDF29850
2A96   0000          2986  FILE3     DC   X'0'                                             CDF29860
2A98   0000          2987  FILE4     DC   X'0'                                             CDF29870
2A9A   0000          2988  DEVSADR   DC   X'0'                                             CDF29880
2A9C   0000          2989            DC   X'0'                                             CDF29890
2A9E   0000          2990            DC   X'0'                                             CDF29900
2AA0   0000          2991            DC   X'0'                                             CDF29910
2AA2   0000          2992            DC   X'0'                                             CDF29920
2AA4   0000          2993            DC   X'0'                                             CDF29930
2AA6   FFFF          2994            DC   X'FFFF'                                          CDF29940
2AA8   0000          2995  DEVINT    DC   X'0'                                             CDF29950
2AAA   0000          2996            DC   X'0'                                             CDF29960
2AAC   0000          2997            DC   X'0'                                             CDF29970
2AAE   0000          2998            DC   X'0'                                             CDF29980
2AB0   0000          2999            DC   X'0'                                             CDF29990
2AB2   0000          3000            DC   X'0'                                             CDF30000
2AB4   0000          3001  INTLVL    DC   X'0'                                             CDF30010
2AB6   0000          3002            DC   X'0'                                             CDF30020
2AB8   0000          3003            DC   X'0'                                             CDF30030
2ABA   0000          3004  TEMPA     DC   X'0'                                             CDF30040
2ABC   0000          3005  TEMPB     DC   X'0'                                             CDF30050
2ABE   0000          3006  DSCHDR    DC   X'0'                                             CDF30060
2AC0   0000          3007  R5SVC     DC   X'0'                                             CDF30070
2AC2   0000          3008  FMRCS     DC   X'0'                                             CDF30080
2AC4   0000          3009  FMTWPT    DC   X'0'                                             CDF30090
2AC6   0000          3010  FMRTS     DC   X'0'                                             CDF30100
2AC8   0000          3011  NEXTHD    DC   X'0'                                             CDF30110
2ACA   C000          3012  DEFTESTS  DC   X'C000'                                          CDF30120
2ACC   0000          3013            DC   X'00'                                            CDF30130
2ACE   0000          3014  RSTFLG    DC   X'0'                                             CDF30140
2AD0   0000          3015  WPSTAT    DC   X'0'                                             CDF30150
2AD2   00FF          3016  OPTSIZ    DC   H'255',H'511',H'767',H'1023',H'1279'             CDF30160
2AD4   01FF
2AD6   02FF
2AD8   03FF
2ADA   04FF
2ADC   2598          3017  VECADR    DC   A(SET1A),A(UNDEF),A(SET3A),A(UNDEF),A(UNDEF),A(SET6A)   CDF30170
2ADE   25B6
2AE0   259E
2AE2   25B6
2AE4   25B6
2AE6   25B0
2AE8   259E          3018            DC   A(SET3A),A(SET3A),A(SET6A),A(SET6A),A(SET6A),A(SET7)    CDF30180
2AEA   259E
2AEC   25B0
2AEE   25B0
2AF0   25B0
2AF2   2574
```

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2AF4  25AA            3019          DC     A(SET5A),A(SET6A),A(SET3A)                           CDF30190
2AF6  25B0
2AF8  259E
2AFA  ECFC9CAC        3020  ERRTBL1 DB     X'EC',X'FC',X'9C',X'AC',X'BC',X'CC',X'DC'            CDF30200
      BCCCDC
2B02  2598            3021  VECADR1 DC     A(SET1A),A(SET1A),A(SET3A),A(SET3A),A(SET3A),A(SET3A) CDF30210
2B04  2598
2B06  259E
2B08  259E
2B0A  259E
2B0C  259E
2B0E  259E            3022          DC     A(SET3A)                                             CDF30220
      0000 2B0F       3023  LNZB    EQU    *-1                                                  CDF30230
2B10                  3024  OPTBUF  DS     6                   OPTION INPUT BUFFER              CDF30240
2B16                  3025  IOSAVE  DS     2                   USER'S I/O CHOICE                CDF30250
2B18                  3026  SA      DS     2                   START ADDRESS                    CDF30260
2B1A                  3027  FILSTAT DS     1                                                    CDF30270
2B1B                  3028  CONSTAT DS     1                                                    CDF30280
2B1C                  3029  SELSTAT DS     1                                                    CDF30290
2B1D                  3030          DS     1                                                    CDF30295
2B1E                  3031  FA      DS     2                   FINAL ADDRESS                    CDF30300
2B20                  3032  RND1    DS     2                                                    CDF30310
2B22                  3033  RND2    DS     2                                                    CDF30320
2B24                  3034  LPCNT   DS     2                                                    CDF30330
2B26                  3035  SKRTN   DS     2                                                    CDF30340
2B28                  3036  DSTBL   DS     128                                                  CDF30350
2BA8                  3037  RSRET   DS     2                                                    CDF30360
2BAA                  3038  CKARET  DS     2                                                    CDF30370
2BAC                  3039  RRCTR   DS     2                   RERUN COUNTER                    CDF30380
2BAE                  3040  ENTSAV  DS     2                   ENTRY POINT SAVER                CDF30390
2BB0                  3041  MAXCY   DS     2                                                    CDF30400
2BB2                  3042  MAXCY1  DS     2                                                    CDF30410
2BB4                  3043  RERN    DS     2                                                    CDF30420
2BB6                  3044  INTSKR  DS     2                                                    CDF30430
2BB8                  3045  TIMCON  DS     2                                                    CDF30440
2BBA                  3046  SIZE    DS     2                                                    CDF30450
2BBC                  3047  WCMD    DS     2                                                    CDF30460
      0000 2BBD       3048  RCMD    EQU    WCMD+1                                               CDF30470
2BBE                  3049  SW0     DS     2                                                    CDF30480
2BC0                  3050  SW1     DS     2                                                    CDF30490
2BC2                  3051  ERRFLG  DS     2                   EXPECTED ERROR BITS              CDF30500
2BC4                  3052  MAXSEC  DS     2                                                    CDF30510
2BC6                  3053  MXSEC1  DS     2                   MAX SECT + 1                     CDF30520
2BC8                  3054  MXSEC2  DS     2                   MAX SECT + 2                     CDF30530
2BCA                  3055  MXHED   DS     2                                                    CDF30540
2BCC                  3056  MXHED1  DS     2                                                    CDF30550
2BCE                  3057  HEAD    DS     2                                                    CDF30560
2BD0                  3058  TMPSEC  DS     2                                                    CDF30570
2BD2                  3059  SCOUNT  DS     2                                                    CDF30580
2BD4                  3060  RDER    DS     2                                                    CDF30590
2BD6                  3061  RWSAVE  DS     2                                                    CDF30600
2BD8                  3062  RWOCMD  DS     2                                                    CDF30610
2BDA                  3063  RXERFL  DS     2                                                    CDF30620
2BDC                  3064  RDF     DS     1280                5 SECTORS                        CDF30630
30DC                  3065  WTF     DS     1280                5 SECTORS                        CDF30640
35E0                  3066          ALIGN  8                                                    CDF30650
```

```
35E0                  ERRSAVE  DSF    16                                          CDF30660
       0000 3620      RSAVE    EQU    *                                           CDF30670
                      * THE FOLLOWING CODE IS NOT PART OF THE TEST                CDF30671
                      **CHKSUM                                                    CDF30680
                      *                                                           CDF30690
                               IF     0                                           CDF30700
3620                  IF1      IF     1                                           CDF30710
                      *                                                           CDF30720
3620   C810 0A00      CHKSUM   LHI    R1,X'A00'     START OF CHKSUM GENERATE ROUTINE  CDF30730
3624   2421                    LIS    R2,1                                        CDF30740
3626   C830 2B0F               LHI    R3,LNZB                                     CDF30750
362A   0744                    XHR    R4,R4                                       CDF30760
362C   D351 0000      GEN      LB     R5,0(R1)                                    CDF30770
3630   0745                    XHR    R4,R5         R4 = CHKSUM                   CDF30780
3632   C110 362C               BXLE   R1,GEN                                      CDF30790
3636   C810 0080               LHI    R1,X'80'                                    CDF30800
363A   9E21                    OCR    R2,R1         DISPLAY : NORMAL MODE         CDF30810
363C   9A24                    WDR    R2,R4         DISPLAY CHKSUM BYTE = X'MN' SAY  CDF30820
363E   9411                    EXBR   R1,R1         R1 = X'8000'                  CDF30830
3640   9521                    EPSR   R2,R1         HALT PROCESSOR                CDF30840
3642   4300 3620               B      CHKSUM                                      CDF30850
3646                           END                                                CDF30860
```

NO ERRORS 0 SQUEZ PASSES

CAL 04-00

FMERR	232C	1580	1623	2390					
FMERR1	234C	2396	2398						
FMERT	1D7C	1969							
FMERTA	1EDC	1914							
FMFILL	1D6A	1853							
FMFLG	2A82	2297							
FMFNRD	1AB4	1605							
FMIHN	18BE	1781	1833						
FMLP1	1D5A	1905							
FMLP1A	1972	1523							
FMLP1B	19AA	1583	1587	1761					
FMLP1B8	1950	1726							
FMLP1P	1A3A	1584							
FMLP2	1D7E	1870							
FMLP2A	1976	1549	1720						
FMLP2B	1A42	1585							
FMLP2C	1A62	1609	1624	1739					
FMLP2M	1A64	1600							
FMLP3	1DAE	1897							
FMLP3AB	1BD6	1516	1717						
FMLP3B	1A52	1595	1629						
FMLP4	1DB4	1894							
FMLPBL	199E	1542							
FMLPE	1E26	1843							
FMLPEA	1BFA	1598							
FMNCK	1B7E	1694							
FMNFIN	1BA4	1654							
FMNRD	1AE2	1657	1696	1703					
FMNRD1	1AE8	1634	1636	1638	1640				
FMNRER	1B8E	1631							
FMNTO	1B56	1681	1684						
FMRC	1A76	1603							
FMRCOD	1A74	1604							
FMRCS	2AC2	1597	1626	1872	1895				
FMREAD	1694	1594	1871						
FMRTS	2AC6	1511	1543	1742	1744	1840	1907	1912	
FMSU1	1F5A	2026							
FMSU1B	1FC6	2063							
FMSU2	1F6C	2024							
FMSU3	1F72	2033							
FMSU4	1F84	2031							
FMSU5	1F92	2039							
FMSUDF	1F48	1506							
FMSUDFA	1F9C	1837							
FMSZ2	1C32	1760							
FMSZER	1C10	1712							
FMTCK	25BC	1731	1909						
FMTCK1	25D6	2642	2651	2653					
FMTE	1E1A	1901							
FMTEA	1BEC	1724							
FMTEAA	1BE4	1723							
FMTL	1A10	1576	1579						
FMTL1	1AA2	1622							
FMTSEC	2A8A	1336	1353						
FMTWP	1688	1522							
FMTWPT	2AC4	1526	1545						

			851	876	895	919	938	950	1024					
IOSAVE	2B16		162	356										
ISITERR	15A4		511	547	784	862	866	1131	1134					
ISKCMD	282D													
KBADR	1596		173	872	937	1007	1046	1060						
KBINT	15A2		1043											
KBINT0	13E2		1009	1061										
KBINT0A	1402		1026											
KBINT1	140E		1023											
KBINT2	1424		1040											
KBRD	12E2													
KBRD1	12FA		940	942										
KBREAD	12B2		837											
KEEP1	0CBE		366											
KEEP10	0E22		451											
KEEP101	0E44		499											
KEEP2	0CCC		372											
KEEP3	0D00		454	478										
KEEP4	0D0A		444	477										
KEEP41	0D0E		403											
KEEP42	0D24		396											
KEEP43	0D2A		399											
KEEP5	0D2E		398	401										
KEEP6	0D62		437											
KEEP7	0D90		435											
KEEP71	0D9E		439											
KEEP9	0DE4		449											
KEEP91	0DF2		555											
LADC	0001													
LASTAT	2654													
LCORE	1342		174	419										
LCORE1	1894		1363	1367	1372									
LCORE32	13AC		993											
LCORE32A	13D2		1018											
LEADER	00A6		105											
LINK	000F		174	175	184	233	236	250	255	257	273	278	284	286	294
			299	300	355	358	359	410	413	415	419	436	441	447	452
			460	484	489	491	494	497	502	513	544	562	569	571	577
			579	585	589	591	602	604	610	613	615	659	682	696	700
			726	758	763	779	813	818	829	839	843	849	855	857	861
			864	891	902	904	915	946	1000	1014	1108	1129	1324	1958	
LNZB	2B0F		95	3077										
LOAD	00B0		112											
LOCMSG	1626		603											
LOCYL	16DC		1284	1299	2496	2536	2542	2546	2554					
LOOK1	0AF2		217											
LOOK2	0AF6		221											
LOOK3	0B06		215											
LOOK4	0C18		228											
LOOK5	0C38		316											
LOOKUP	0AEE		200	202										
LOOP	164C		434											
LOTRAK	16E2		1509	1845	2644									
LPADR	0A16		912	961										
LPCNT	2B24		2505											
LPDRV	132E		956											

		1071 1093 1095 1105 1127 1128 1130 1131 1133 1133 1134 1160 1161
		1162 1329 1330 1331 1332 1333 1334 1335 1335 1336 1346 1767 1771
		1771 1792 1796 1805 1805 1822 1829 1829 1838 1850 1902 1902 1903
		1916 1921 1921 1924 1945 1949 1959 1959 1960 1965 1965 1966 1987
		1987 2002 2002 2003 2006 2006 2007 2054 2055 2056 2057 2184 2184
		2185 2186 2187 2188 2188 2198 2202 2370 2371 2372 2375 2376 2376
		2505 2608 2608 2610 2612 2617 2617 2619 2621 2726 2727 2728 2728
		2729 2744 2746 2747 2748 2752 2765 2779 2780 2781 2782 2782 2783
		2785 2789 2805 2809 2814 2821 2822 2823 2823 2832 2833 2834 2834
		2835 2843 2844 2845 2845 2852 2853 2854 2854
R1	0001	94 106 112 144 144 146 150 150 151 153 164 165 167
		171 172 173 183 187 188 197 197 203 204 205 209 211
		216 225 227 305 315 319 331 334 335 342 343 347 348
		362 363 368 369 382 383 384 385 405 422 423 429 430
		442 443 448 448 450 453 456 457 464 465 466 467 470
		470 471 472 472 473 480 481 482 485 485 542 543 545
		545 551 552 553 554 567 575 583 587 600 608 611 652
		655 688 689 691 714 738 742 764 764 766 770 771 775
		786 787 791 792 797 798 801 804 810 819 819 821 822
		825 827 828 831 851 852 873 874 879 882 885 886 895
		896 899 900 901 903 903 905 907 913 914 938 939 960
		963 966 970 970 974 975 976 978 979 982 983 992 1007
		1008 1008 1010 1011 1011 1013 1017 1042 1070 1072 1092 1093 1337
		1353 1368 1373 1765 1769 1790 1794 1803 1821 1830 1915 1919 1944
		1950 1962 1967 1992 1993 1998 1999 2189 2204 2506 2525 2527 2531
		2535 2544 2565 2569 2580 2585 2597 2600 2627 2629 2631 2633 2635
		2637 2742 2749 2753 2757 2759 2760 2761 2762 2764 2768 2774 2775
		2776 2777 2787 2794 2803 2807 2811 2812 2812 2818 3075 3079 3081
		3082 3083 3085 3085 3086
R10	000A	1063 1063 1064 1086 1088 1089
R11	000B	
R12	000C	192 213 311 314 338 373 623 627 629
R13	000D	
R14	000E	232 268 312 315 317 336 341 346 564 636 639 644 1123
		1125 1142 1149 1153 1155 1168 1361 1365 1370 1375 2557
R15	000F	177 191 198 317 530 621 634 678 704 817 862 1124 1126
		1143 1150 1154 1156 1169 1325 1399 1768 1793 1797 1800 1801 1824
		1827 1918 1947 1951 1957 2745 2751 2755 2758 2767 2786 2790 2792
		2806 2810 2815 2817 2838 2842
R15SAV	2A54	
R2	0002	89 93 100 108 114 145 147 148 152 154 182 183 229
		230 234 234 235 237 238 242 244 269 274 276 277 279
		301 302 391 394 395 402 404 405 406 407 409 411 412
		420 421 421 422 468 469 471 482 508 515 520 525 531
		536 547 548 549 568 576 584 588 601 609 612 653 666
		667 669 669 670 670 672 679 721 722 752 753 768 788
		796 800 803 806 807 876 877 881 971 1013 1015 1015 1016
		1027 1029 1030 1033 1037 1046 1047 1059 1060 1065 1076 1103 1107
		1119 1120 1121 1128 1138 1139 1140 1147 1148 1151 1162 1173 1174
		1338 1766 1770 1791 1795 1804 1823 1831 1917 1920 1946 1948 1963
		1968 2190 2507 2743 2750 2754 2766 2784 2788 2795 2804 2808 2813
		2819 3076 3083 3084 3086
R3	0003	95 210 210 214 218 220 231 242 269 275 275 280 281
		342 343 347 348 495 498 642 645 645 654 687 689 697
		701 710 711 711 712 712 713 715 723 732 733 734 735
		740 741 744 777 780 972 977 981 984 985 988 989 996

xI32A	1470	1068					
xIERR	148E	980	1045	1075	1081	1090	
xIEXIT	148C	1082					
zERO1	134C	975					
zERO2	135C	979					
zERO3	136C	983					