

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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1 *****
2 *$ $
3 *$ $
4 *$ FF7 AND DATA DECK OCP MUST BE AT THE SAME LEVEL. $
5 *$ $
6 *$ $
7 *****
8
9 * TO ADD AN SDR DEVICE:
10 * 1. ADD TO END OF 'SDRTAB'
11 * 2. GO TO OCP SOURCE, ADD NEW SYNC POINT TO END OF SDR SYNC'S
12 * 3. EC FF7, OCP (SO LEVELS STAY SAME)
13 * 4. ADD TO SDR LIST IN BLOCK 04

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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15 *
16 DECK 4
17 SEQ 0
18 ERAP START X'A00'
19 TREP
0001 20 XR1 EQU 1
0002 21 XR2 EQU 2
0008 22 ARR EQU 8
0080 23 SSW20 EQU X'80'
0010 24 SSW23 EQU X'10'
0008 25 SSW24 EQU X'08'
0200 26 MODEL EQU X'200'
020C 27 SBYTE4 EQU X'20C'
0216 28 LINK EQU X'216'
021A 29 PRINT EQU X'21A'
021E 30 UNPACK EQU X'21E'
0222 31 HALT EQU X'222'
022A 32 LCAD EQU X'22A'
0232 33 UDT EQU X'232'
0880 34 PRTBUP EQU X'880'
2020 35 DUMP EQU X'2020'

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0A00 FF73
0A02 00
0A03 01
0A04 0000
0A06 0A16
0A08 FFFF
0A0A C100C0
0A0D E10000
0A10 890000
0A13 511000

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0A01 38 PID DC XL2'FF73'
0A02 39 DC XL1'0'
0A03 40 DC XL1'1'
0A05 41 DC XL2'0'
0A07 42 DC AL2(RTF1)
0A09 43 DC XL2'FFFF'
0A0C 44 DC XL3'C10000'
0A0F 45 DC XL3'E10000'
0A0E 46 FLG14 EQU *-2
0A12 47 DC XL3'890000'
0A11 48 FLGDA EQU *-2
0A15 49 D51 DC XL3'511000'

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36 ***** SECTION PREFACE *****
37 *****
* PROGRAM ID
* SECTION FLAGS
* CURRENT ROUTINE #
* N/A
* FIRST ROUTINE
* ERPOP RECORDING
* DISK
* 1403 PRINTER
* DISPLAY ADAPTER

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LAST CHG:01 21 77

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

LAST CHG :03:10:76

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2 *
3 DECK 4
4 SEQ 6
5 COM THIS PREVENTS GENERATION OF OBJECT DECK
6 PAP START X'0'
7 *****
8 * BOOTSTRAP - FIRST CARD
9 *****
10 *****
11 * LOADER FOR MFCU
12 * THIS ONE CARD PROGRAM IS CONTAINED IN THE FIRST CARD OF THE
13 * DIAGNOSTIC CONTROL PROGRAM. IT IS READ INTO LOCATIONS 0-95 BY
14 * INITIAL PROGRAM LOAD. WHEN GIVEN CONTROL, THE BOOTSTRAP ROUTINE
15 * READS THE SECOND CARD OF THE DCP OBJECT DECK INTO X'200' AND
16 * BRANCHES TO IT.
17 *
18 * NOTE - THE SECOND TIER OF THIS CARD CONTAINS THE PART NUMBER AND
19 * EC LEVEL OF DCP.
20 *****
0000 0000 21 USING BOOT1,XR1
22 BOOT1 LA 0,XR1 LOAD BASE REGISTER
23 TIO BOOT1E(,XR1),X'F0' GO HALT IF MFCU ERROR OR NOT READY
24 LIO BOOT1I(,XR1),X'F5' LOAD READ ADDRESS REGISTER
25 SIO IPL,READ READ A CARD INTO LOCATIONS 512-607
26 BOOT1A TIO BOOT1A(,XR1),X'F1' LOOP UNTIL DONE
27 TIO BOOT1E(,XR1),X'F0' GO HALT IF ERROR
28 B BOOT2 GO TO BOOTSTRAP ROUTINE
29
30 BOOT1E HPL H5,HH *MFCU NOT READY OR ERROR
31 B BOOT1I(,XR1) GO TRY AGAIN
32
001D 0200 001E 33 BOOT1I DC AL2(512)
34
001F 40D7D540F4F2F4F8 003B 35 DC CL29' PN 4248230 EC 827872 L'
0027 F2F3F04040C5C340 35
002F F8F2F7F8F7F24040 35
0037 40404040D3 35
36 *

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ACTUAL VALUES ARE IN ACTUAL CARD.

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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38 *****
39 * BOOTSTRAP - SECOND CARD
40 *****
41 *
42 * THIS ONE CARD PROGRAM IS CONTAINED IN THE SECOND CARD OF THE
43 * DIAGNOSTIC CONTROL PROGRAM. IT IS READ INTO LOCATIONS 512-565
44 * BY THE IPL CARD. THIS ROUTINE READS THREE IPL FORMAT CARDS INTO
45 * LOW CORE TO BUILD ENOUGH OF THE DIAGNOSTIC LOADER TO HANDLE TEXT
46 * CARDS. THEN THE BOOTSTRAP ROUTINE BRANCHES TO THIS PORTION OF
47 * THE DIAGNOSTIC LOADER, WHICH LOADS THE REMAINDER OF THE LOADER
48 * AND DCP.
49 *
50 *****
0200 0200 51 ORG 512
52 USING BOOT2,XR1
53 USING BOOT2,XR2
54 BOOT2 LA BOOT2,XR2 LOAD BASE REGISTERS
55 BT2 LA 96(,XR1),XR1
56 J BOOT2A
57 BOOT2E HPL H5,HH *MFCU NOT READY OR ERROR
58 BOOT2A TIO BOOT2E(,XR2),X'F0' GO HALT IF MFCU NOT READY OR ERROR
59 LIO BOOT2I(,XR2),X'F5' LOAD READ LSR FOR ADDR 0000
60 SIO IPL,READ READ A CARD
61 BOOT2B TIO BOOT2B(,XR2),X'F1' LOOP UNTIL DONE
62 TIO BOOT2E(,XR2),X'F0' GO HALT IF ERROR
63 MVC 59(60,XR1),59 MOVE DATA TO CORE
64 LA 60(,XR1),XR1 INCREMENT POINTER FOR NEXT CARD
65 SLC BOOT22(1,XR2),BOOT21(,XR2) CONTINUE UNTIL 4 CARDS HANDLED
66 BNZ BOOT2A(,XR2)
67 MVI X'8FF',C' ' CLEAR PRINT FIELD
68 MVC X'8FE'(255),X'8FF' GO TO DIAGNOSTIC LOADER
69 S NEXTR
70
0205 71 BOOT21 EQU BT2+1
0239 72 BOOT22 DC IL1'3'
0238 73 BOOT23 DC AL2(0)
0200 C2 02 0200
0204 D2 01 60
0207 F2 87 03
020A F0 38 5D
020D E1 F0 0A
0210 B1 F5 38
0213 F3 F1 40
0216 E1 F1 16
0219 E1 F0 0A
021C 4C 38 38 003B
0221 D2 01 3C
0224 AF 00 39 05
0228 E0 01 0D
022B 3C 40 08FF
022F 0C FE 08FE 08FF
0235 C0 87 008B
0239 03
023A 0000

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
53				***** ROUTINE 1 *****
54				*****
55				*
0A16 01	0A16	56	RTN1 DC	XL1'1'
0A17 00	0A17	57		DC XL1'0'
0A18 0DF0	0A19	58		DC AL2(RTN2)
		59		*
		60		*****
		61		*****
0A1A C0 87 021A		62	B	PRINT PRINT SSW
0A1E 43	0A1E	63	DC	XL1'43'
0A1F 000000FF00	0A23	64	DC	XL5'FF00'
0A24 3C A8 134C		65	MVI	DSKDRV,X'A8'
0A28 C0 87 021A		66	B	PRINT PRINT
0A2C 07	0A2C	67	DC	XL1'07'
0A2D 4F	0A2D	68	DC	AL1(DSKM33-DSKM32)
0A2E 0A87	0A2F	69	DC	AL2(DSKM33)
0A30 C0 87 0222		70	B	HALT LOAD
0A34 FFFF	0A35	71	DC	XL2'FFFF'
0A36 F2 87 4F		72	J	DSKM33+1 THEN START JUMP DC'S
	0A38	73	DSKM32	EQU *-1
0A39 40D4C1D2C540E2E8	0A55	74	DC	CL29' MAKE SYSTEM PACK CONTAINING '
0A41 E2E3C5D440D7C1C3		74		
0A49 D240C3D6D5E3C1C9		74		
0A51 D5C9D5C740		74		
0A56 C5D9D9D6D940C9D5	0A70	75	DC	CL27' ERROR INFORMATION READY ON '
0A5E C6D6D9D4C1E3C9D6		75		
0A66 D540D9C5C1C4E840		75		
0A6E D6D540		75		
0A71 C4D9C9E5C540F24B	0A87	76	DSKM33	LC CL23' DRIVE 2. DEPRESS START.'
0A79 40C4C5D7D9C5E2E2		76		
0A81 40E2E3C1D9E34B		76		
0A88 C2 02 0001	0A88	77	MODELG	EQU *
		78	LA	1,XR2 SYNC PT 1
0A8C C0 87 1311	0A8B	79	ONE	EQU *-1
0A90 C0 87 0EF6		80	B	SYNOV
		81	B	SCAN
		82	*	
		83	*	PRINT HEADERS OF OBR TABLE
		84	*	SET UP COLUMN TABS
		85	*	READ FIRST HALF OF OBR IN DBUF
0A94 0C FF 2622 2722		86	MVC	DBUF-1(256),DBUF+255
		87	*	TURN OFF SFLG
0A9A C0 87 0EF6		88	B	SCAN
0A9E 0C 5F 24F8 08DF		89	MVC	PBUF+95(96),PRTBUF+95
		90	*	ROTATE TABLE DOWN UNTIL LAST ENTRY IS AT BOTTOM
0AA4 0C 01 2513 0D95		91	MVC	TEMP,OBR1
0AAA 0F 01 2513 2524		92	SLC	TEMP,DBUF+1-256
0AB0 F2 81 24		93	JZ	RTN103
0AB3 39 07 2513		94	TBF	TEMP,X'07'
0AB7 C0 90 0D05		95	BF	ERMSG
		96	*	
0ABB 0C 07 252A 2722		97	RTN102	MVC DBUF+7-256(8),DBUF+255
0AC1 0C F7 2722 271A		98	MVC	DBUF+255(256-8),DBUF+255-8
0AC7 0C FF 262A 2622		99	MVC	DBUF+7(256),DBUF-1
0ACD 0F 01 2513 239B		100	SLC	TEMP,EIGHT
0AD3 C0 01 0ABB		101	BNZ	RTN102
		102	*	
0AD7 0C 01 251A 238F	0AD7	103	RTN103	EQU * WORK FROM BOTTOM UP TO FIND OLDEST ENTRY
0ADD 3C 00 2523		104	MVC	OBRNT(2),OBRND
0AE1 35 01 251A		105	MVI	DBUF-256,0
0AES 1C 00 2513 00		106	RTN104	L OBRNT,XR1
0AEA 3B 0F 2513		107	MVC	TEMP(1),0(,XR1)
0AEE 3D 00 2513		108	SBF	TEMP,X'0F'
0AF2 F2 81 3D		109	CLI	TEMP,X'00'
0AF5 3D A0 2513		110	JE	RTN106
0AF9 F2 82 07		111	CLI	TEMP,X'A0'
		112	JL	LABEL

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0AFC 3D D0 2513		113	CLI	TEMP,X'D0'
0B00 F2 04 14		114	JNH	RTN105
0B03 3C 08 23AD		115	LABEL	OBRNT,8
0B07 0E 07 2522 2522		116	MVI	ENTADD,ENTADD
0B0D 0F 01 251A 23AD		117	RTN109	ALC ENTADD,ENTADD
0B13 C0 87 0AE1		118	SLC	OBRNT,OBRNT
		118	B	RTN104
		119	RTN105	EQU *
0B17 0D 01 251A 238D	0B17	120	CLC	OBRNT,OBRNT
0B1D F2 81 12		121	JE	HALFNT
0B20 3C 10 23AD		122	MVI	OBRNT,16
0B24 0E 07 2522 2522		123	ALC	ENTADD,ENTADD
0B2A 3A 01 2522		124	SBW	ENTADD,1
0B2E C0 87 0B0D		125	B	RTN109
		126	HALFNT	EQU *
	0B32	127	RTN106	EQU *
0B32 0E 01 251A 23AD		128	ALC	OBRNT,OBRNT
		129	*	
		130	*	OBRNT NOW CONTAIN THE ADDRESS 0 BYTES OF OLDEST ENTRY
0B38 0D 01 251A 238F		131	CLC	OBRNT,OBRNT
0B3E C0 84 0D10		132	BR	EMPTY
		133	*	CHECK FOR EMPTY TABLE COMPUTE ADDRESS IN BRTBL
0B42 0C 01 0CD5 2397		134	MVC	BYTE,ENTADD
0B48 3C 01 0CD3		135	MVI	MASK,X'01'
	0B4C	136	RTN108	EQU *
0B4C 0C 5F 08DF 24F8		137	MVC	PRTBUF+95(96),PBUF+95
0B52 0C 01 2513 23A1		138	MVC	TEMP,ZERO
0B58 35 01 251A		139	L	OBRNT,XR1
0B5C 18 02 2513 00		140	MNZ	TEMP,0(,XF1)
0B61 0F 01 2513 2513		141	ALC	TEMP,TEMP
0B67 C2 02 0D95		142	LA	BRTBL-2,XR2
0B6B 36 02 2513		143	A	TEMP,XR2
0B6F B5 02 00		144	L	0(,XR2),XR2
0B72 34 02 0BB9		145	ST	BR+3,XR2
		146	*	MOVE DEVICE # INTO HISTORY TBLLE
0B76 0E 01 2513 2513		147	ALC	TEMP,TEMP
0B7C C2 02 0DB3		148	LA	DVTBL-1,XR2
0B80 36 02 2513		149	A	TEMP,XR2
0B84 7D 89 00		150	CLI	0(,XR1),X'89'
0B87 F2 01 04		151	JNE	**7
0B8A C2 02 0D04		152	LA	DACON,XR2
0B8E 2C 03 0885 00		153	MVC	PRTBUF+5(4),0(,XR2)
0B93 3C 01 23BB		154	MVI	TABIDX,1
0B97 34 01 23B7		155	ST	CNTOPS,XR1
0B9B 0F 01 23B7 1354		156	SLC	CNTOPS,DBUF
		157	*	SAVE Q,R,SNSBYTES 0,1
0BA1 1C 03 24FC 03		158	MVC	QRSNS+3(4),3(,XR1)
0BA6 C0 87 1273		159	B	HEXHEX
0BAA C0 87 1273		160	B	HEXHEX
0BAE C0 87 12AF		161	B	CVTBIN
0BB2 C0 87 12AF		162	B	CVTBIN
0BB6 C0 87 0000		163	BR	**
		164		
		164		
		164		
		164		
		164		
0BBA 3A 20 0D90	0BBA	165	Q80	EQU * BSCA
0BBE C0 87 1273		166	SBW	DVPLG-1,X'20'
0BC2 3C 02 23BB		167	B	HEXHEX
		168	MVI	TABIDX,2
		169	*	COMPLETION CODE BACKUP AND RECONVERT
0BC6 C2 02 2623		170	LA	DBUF,XR2
0BCA 36 02 23B7		171	A	CNTOPS,XR2
0BCE 8C 00 00 24FA		172	MVC	0(1,XR2),QRSNS+1
0BD3 C0 87 11C2		173	B	HEXDEC
0BD7 C0 87 0CA2		174	B	RTN107
		175	*	
	0BDB	176	Q10	EQU *
0BDB 3A 80 0D90		177	SBW	DVPLG-1,X'80'
				5471 - CONSOLE-KEYBOARD

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
GBDF 35 01 238F		178	L	OBRND@,XR1	CHECK Q FOR PRINTER
GBE3 38 08 24P9		179	TBN	QRSNS,X'08'	
GBE7 C0 90 OCA2		180	BF	RTN107	
GBEB C0 87 1273		181	B	HEXHEX	
GBEF C0 87 OCA2		182	B	RTN107	
		183	EQU	*	1442
GBF3 3A 40 OD90	OBFB	184	SBN	DVPLG-1,X'40'	
GBF7 C0 87 OCA2		185	B	RTN107	
		186			
		187	EQU	*	5203
GBFB 3A 04 OD90		188	SBN	DVPLG-1,X'04'	
GBFF 38 20 OAOE		189	TBN	PLG14,X'20'	TEST FOR 1403 ATTACHED
GC03 F2 90 08		190	JF	P1403	
GC06 3C F1 0892		191	NVI	PRTBUF+2,C'1'	
GC0A 3C F4 0883		192	NVI	PRTBUF+3,C'4'	
GC0E 38 04 24FB		193	TBN	QRSNS+2,X'04'	CHECK FOR HAMMER ECHO CHECK
GC12 C0 90 OCA2		194	BF	RTN107	
GC16 0E 01 23B7 OAB8		195	ALC	CNTOPS,ONE	LOOK AT LOW BYTE OF LDPAR
GC1C C2 02 2623		196	LA	DBUF,XR2	CONVERT LDPAR TO A DECIMAL
GC20 36 02 23B7		197	A	CNTOPS,XR2	HAMMER #
GC24 BD 7C 00		198	CLI	0(,XR2),X'7C'	
GC27 F2 82 65		199	JL	INVALID	
GC2A 38 20 OAOE		200	TBN	PLG14,X'20'	TEST FOR 1403 ATTACHED
GC2E F2 10 39		201	JT	PT1403	
GC31 8F 00 00 23BC		202	SLC	0(,XR2),I123	
GC36 BD 16 00		203	CLI	0(,XR2),24	
GC39 F2 84 22		204	JH	S21	
GC3C BD 10 00		205	CLI	0(,XR2),16	
GC3F F2 84 14		206	JH	A107	
GC42 BD 0C 00		207	CLI	0(,XR2),12	
GC45 F2 84 06		208	JH	A119	
GC48 BD 05 00		209	CLI	0(,XR2),5	
	OC49	210	I5	EQU	*-2
		211	JNL	A107	
GC4E 8E 00 00 23BE		212	ALC	0(,XR2),I119	
GC53 F2 87 0D		213	J	DIVBY4	
GC56 8E 00 00 23BD		214	ALC	0(,XR2),I107	
GC5B F2 87 05		215	J	DIVBY4	
GC5E 8F 00 00 23C0		216	S21	SLC	0(,XR2),I21
GC63 C0 87 1199		217	DIVBY4	B	RSHIF
GC67 F2 87 1E		218	J	BOTH	
	OC6A	219	PT1403	EQU	*
		220	JE	ADD8	
GC6A F2 81 0E		221	CLI	0(,XR2),X'7E'	
GC6D BD 7E 00		222	JH	SUB126	
GC70 F2 84 10		223	ALC	0(1,XR2),I5	ADD 5
GC73 8E 00 00 0C49		224	J	BOTH	
GC78 F2 87 0D		225	ADD8	ALC	0(1,XR2),EIGHT
GC7B 8E 00 00 239B		226	J	BOTH	
GC80 F2 87 05		227	SUB126	SLC	0(1,XR2),I126
GC83 8F 00 00 23BF		228			
		229	BOTH	B	HEXDEC
GC88 C0 87 11C2		230	J	RTN107	
GC8C F2 87 13		231	INVALID	EQU	*
	OC8F	232	B	PRTPOS	
GC8F C0 87 12F4		233	MVC	0(7,XR1),INV	INVALID HAMMER #
GC93 4C 06 00 23C7		234	J	RTN107	
GC98 F2 87 07		235			
	OC9B	236	QFO	EQU	*
		237	SBN	DVPLG-1,X'08'	5424
GC9B 3A 08 OD90		238	J	RTN107	
GC9F F2 87 00		239			
	OCA2	240	PTN107	EQU	*
		241	B	PRINT	PRINT LINE
OCA2 C0 87 021A		242	DC	XL1'21'	
OCA6 21	OCA6	243	CLC	OBRND@,OBRNT@	CHECK FOR END
OCA7 0D 01 238F 251A		244	JE	RTN1X	
OCA9 F2 81 6C		245	ALC	OBRNT@,EIGHT	
OC30 0E 01 251A 239B					

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
OCB6 0D 01 238F 251A		246	CLC	OBRND@,OBRNT@	CHECK FOR END
OCBC F2 81 20		247	JE	RTN11X	
OCBF 0E 00 0CD3 0CD3		248	ALC	MASK,MASK	
OCC5 F2 01 0A		249	JNZ	TBN	
OCC8 0F 01 0CD5 0A8B		250	SLC	BYTE@,ONE	
OCCE 3C 01 0CD3		251	MVI	MASK,X'01'	
	0CD3	252	MASK	EQU	*+1
		253	TBN	TBN	*-*,*--
0CD2 38 00 0000		254	BYTE@	DS	OAL2
0CD6	0CD5	255	BYTE@	DS	OAL2
0CD6 F2 90 06		255	JF	RTN11X	
0CD9 0E 01 251A 239B		256	ALC	OBRNT@,EIGHT	
0CDF C0 87 0B4C		257	RTN11X	B	RTN108
0CE3 C5D9D9D6D940C8C9	OD00	258	MSGX	DC	CL30'ERROR HISTORY TABLE IS INVALID'
0CEB E2E3D6D9E840E3C1		258			
0CF3 C2D3C540C9E240C9		258			
0CFB D5E5C1D3C9C4		258			
0D01 40C4C140		259	DACON	DC	CL4' DA *
	OD04	260	Q20	EQU	*
	OD05	261	Q30	EQU	*
	OD05	262	Q40	EQU	*
	OD05	263	Q60	EQU	*
	OD05	264	Q70	EQU	*
	OD05	265	Q90	EQU	*
	OD05	266	QAO	EQU	*
	OD05	267	QBO	EQU	*
	OD05	268	QCO	EQU	*
	OD05	269	QDO	EQU	*
	OD05	270	ERMSG	B	PFINT
OD09 07		271	DC	XL1'07'	
OD0A 1E		272	DC	IL1'30'	
OD0B OD00		273	DC	AL2(MSGX)	
OD0D F2 87 1F		274	J	RTN11X	
		275			
	OD10	276	EMPTY	EQU	*
		277	LA	3,XR2	SYNC PT 3
OD14 3A 10 0EF5		278	SBN	SCNPLG,SPLG	
OD18 C0 87 0EF6		279	B	SCAN	
OD1C C2 02 0004		280	RTN1X	LA	4,XR2
OD20 3A 10 0EF5		281	SBN	SCNPLG,SPLG	SYNC PT 4
OD24 C0 87 0EF6		282	B	SCAN	
		283	*		END PRINT OUT OF OBR TBL
		284	*		CHECK SSW20 TO RE-INITIALIZE OBR TBL
OD28 39 80 020C		285	TBF	SBYTE4,SSW20	
OD2C F2 90 2E		286	JP	RTN111	
	OD2F	287	RTN11X	EQU	*
		288	MVI	DBUF+255,X'00'	
OD33 0C FE 2721 2722		289	MVC	DBUF+254(255),DBUF+255	
OD39 C0 87 1333		290	B	DISKIO	
OD3D 02	OD3D	291	DC	XL1'02'	WRITE
OD3E 3C 1C 134F		292	MVI	DSKSEC,X'1C'	
OD42 0C 03 2626 OD95		293	MVC	DBUF+3(4),OBR1	
OD48 C0 87 1333		294	B	DISKIO	
OD4C 02	OD4C	295	DC	XL1'02'	WRITE
		296			*****
		297	*		IF 3340 ATTACHED, REMIND CE THAT OBR,SDR PRINTED LATER *
		298			*****
		299			
OD4D C0 87 021A		300	RTN334	B	PRINT
OD51 02		301	DC	XL1'02'	PRINT --- 3340 ---
OD52 14	OD52	302	DC	AL1(MSG3-MSG3B)	
OD53 13A2	OD54	303	DC	AL2(MSG3)	
		304			
OD55 C0 87 021A		305	B	PRINT	PRINT 3340 DONE IN LATER ROUTINE
OD59 06	OD59	306	DC	XL1'06'	
OD5A 50	OD5A	307	DC	AL1(MSG4-MSG4B)	
OD5B 13F2	OD5C	308	DC	AL2(MSG4)	
	OD5D	309	RTN1X1	EQU	*
		310	*		PRINT OUT MEANINGS OF ENTRIES THAT WERE IN OBR TBL

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

OD5D 0C 01 23AF 23A4	311	MVC	SYNC#,FIVE	SYNC PT 5
OD63 3C 10 2514	312	MVI	CNT,16	
OD67 0E 01 0D91 0D91	313 RTN111	ALC	DVFLG,DVFLG	
OD6D F2 20 0C	314	JNOL	RTN112	
OD70 35 02 23AF	315	L	SYNC#,XR2	
OD74 3A 10 0EF5	316	SBN	SCNPLG,SPLG	
OD78 C0 87 0EF6	317	B	SCAN	
OD7C 0E 01 23AF 0A8B	318 RTN112	ALC	SYNC#,ONE	
OD82 0F 00 2514 0A8B	319	SLC	CNT,ONE	
OD88 C0 01 0D67	320	BNZ	RTN111	
GD8C C0 87 0216	321	B	LINK	END ROUTINE 1

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

OD90 0000	OD91 324 DVFLG	DC	XL2*0*	OBR DEVICE FLAGS	
OD92 01FF01FF	OD95 325 OBR1	DC	XL4*01FF01FF*		
	326 *	DEVICE	BIT	BYTE	SYNC PT
	327 *	5471	0	1	5
	328 *	1442	1	1	6
	329 *	BSCA	2	1	7
	330 *		3	1	8
	331 *	5424	4	1	9
	332 *	5203/1403	5	1	10
	333 *		6	1	11
	334 *		7	1	12
	335 *		8	2	13
	336 *		9	2	14
	337 *		10	2	15
	338 *		11	2	16
OD96 0RDB	OD97 339 BRTBL	DC	AL2(Q10)	5471,	KEYBOARD
OD98 0D05	OD99 340	DC	AL2(Q20)	N/A	
OD9A 0D05	OD9B 341	DC	AL2(Q30)	N/A	
OD9C 0D05	OD9D 342	DC	AL2(Q40)	N/A	
OD9E 0BFB	OD9F 343	DC	AL2(Q50)	1442	
ODA0 0D05	ODA1 344	DC	AL2(Q60)	N/A	
ODA2 0D05	ODA3 345	DC	AL2(Q70)	N/A	
ODA4 0BBA	ODA5 346	DC	AL2(Q80)	BSCA	
ODA6 0D05	ODA7 347	DC	AL2(Q90)	N/A	
ODA8 0D05	ODA9 348	DC	AL2(QA0)	N/A	
ODAA 0D05	ODAB 349	DC	AL2(QB0)	N/A	
ODAC 0D05	ODAD 350	DC	AL2(QC0)	N/A	
ODAE 0D05	ODAF 351	DC	AL2(QD0)	N/A	
ODB0 0BFB	ODB1 352	DC	AL2(QE0)	5203/1403	
ODB2 0C9B	ODB3 353	DC	AL2(QF0)	5424	
	ODB4 354 DVTBL	EQU	*		
ODB4 F5F4F7F1	ODB7 355	DC	CL4*5471*	5471	
ODB8 40404040	ODBB 356	DC	CL4*	N/A	
	ODBB 357 BLANK	EQU	*-1		
ODBC 40404040	ODBF 358	DC	CL4*	N/A	
ODC0 40404040	ODC3 359	DC	CL4*	N/A	
ODC4 F1F4F4F2	ODC7 360	DC	CL4*1442*	1442	
ODC8 40404040	ODCB 361	DC	CL4*	N/A	
ODCC 40404040	ODCF 362	DC	CL4*	N/A	
ODD0 C2E2C3C1	ODD3 363	DC	CL4*BSCA*	BSCA	
ODD4 40404040	ODD7 364	DC	CL4*	N/A	
ODD8 40404040	ODDB 365	DC	CL4*	N/A	
ODDC 40404040	ODDF 366	DC	CL4*	N/A	
ODE0 40404040	ODE3 367	DC	CL4*	N/A	
ODE4 40404040	ODE7 368	DC	CL4*	N/A	
ODE8 F5F2F0F3	ODEB 369	DC	CL4*5203*	5203	
ODEC F5F4F2F4	ODEF 370	DC	CL4*5424*	5424	

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
      372 ***** ROUTINE 2 *****
      373 *****
      374 *
ODF0 02      ODF0 375 RTN2   DC    XL1'2'   * ROUTINE #
ODF1 00      ODF1 376      DC    XL1'0'   * FLAG
ODF2 1770    ODF3 377      DC    AL2($RTN3) * NEXT ROUTINE
      378 *
      379 *****
      380 *****
ODF4 C0 87 021A      381      B      PRINT          PRINT SSW
ODF8 41      ODF8 382      DC    XL1'41'
ODF9 0000G0FF00     ODFD 383      DC    XL5'FP00'
ODFE 38 20 0A0E     384      TBN   FLG14,X'20'   1403 ATTACHED?
OE02 F2 90 04      385      JF     *+7           NO
OE05 3C E1 0EFO     386      MVI   E1,X'E1'     YES
OE09 39 20 0A14     387      TBF   D51-1,X'20'  51 PRESENT?
OE0D F2 10 04      388      JT     *+7           NO
OE10 3C 51 0EEF     389      MVI   DD51,X'51'   YES
JE14 38 20 0A11     390      TBN   FLGDA,X'20'  DA ATTACHED?
OE18 F2 90 04      391      JF     *+7           NO
OE1B 3C 89 0EF3     392      MVI   DA89,X'89'   YES
OE1F 3C A8 134C     393      MVI   DSKDRV,X'A8'
OE23 C2 02 0002     394      LA    2,XR2
      OE26 395 TWO      EQU   *-1
      OE27 C0 87 1311   396      B      SYNHOV          SYNC PT # 2
      OE28 397 SDRNXT   EQU   *
      OE2B 398      MVI   CNT,SDRLEN-SDRTBL  NUMBER OF DEVICES IN SDR TABLE
      OE2F 399      MVI   SYNC#,3
      OE33 400      LA    SDRTBL,XR2
      OE37 401      ST    SDRIDX,XR2
      JF3B 402 SDR6     L     SDRIDX,XR1
      OE3F 403      LA    UDT,XR2
      OE43 404 SDR2     CLC   0(1,XR1),0(,XR2)  SEARCH UDT FOR CODE
      OE47 405      JE    SDRPND
      OE4A 406      TBN   1(,XR2),X'10'  CHECK FOR END
      OE4D 407      JT    SDR1
      OE50 408      LA    3(,XR2),XR2
      OE53 409      B      SDR2
      410 *
      OE57 411 SDRPND   EQU   *
      412      L     SYNC#,XR2
      OE58 413      SBN   SCNPLG,SPLG
      OE5F 414      B      SCAN
      OE63 415      SBP   SCNPLG,BSPLG
      OE67 416      L     SDRIDX,XR1
      OE6B 417      CLI   0(,XR1),X'80'  CHECK FOR BSCA
      OE6E 418      JE    SDRBSC
      OE71 419      CLI   0(,XR1),X'88'
      OE74 420      JE    SDRBSC
      OE77 421      CLI   0(,XR1),X'89'  CHECK FOR DA
      OE7A 422      JE    SDRBSC
      OE7D 423 SDR5     EQU   *
      424 SDR3     B      HEXDEC
      OE81 425      SLC   TABTBL(1),ONE
      OE87 426      BNZ   SDR3
      OE8B 427      B      PRINT
      OE8F 428      DC    XL1'21'
      OE90 429      B      SCAN
      OE94 430      J     SDR4
      431 *
      OE97 432 SDRBSC   EQU   *
      433      MVI   CCNT,48
      OE9B 434 SDRBS   B      HEXDEC
      435      MVI   CNTLNG,2
      OE9F 436      ALC   CNTOPF,CCNT
      437      B      HEXDEC
      OEAD 438      B      PRINT
      OEB1 439      DC    XL1'21'

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
      440      B      SCAN
      441      MVI   TABIDX,1
      442      SLC   CCNT,TWO          CHECK FOR LAST LINE
      443      CLI   CCNT,48-26
      444      BNE   SDRBS
      OEC8 445 SDR4     EQU   *
      446      TBF   SBYTE4,SSW20
      447      JP    SDR1
      448      B      DISKIO
      OED3 449      DC    XL1'02'   WRITE
      450 SDR1     ALC   SYNC#,ONE
      451      ALC   SDRIDX,ONE
      452      SLC   CNT,ONE
      453      BNZ   SDR6
      454      B      LINK
      455
      455
      OEEE 456 SDRTBL  EQU   *          SYNC #
      457      DC    XL1'10'   5471
      OEEF 458 DD51   DC    XL1'51'   1442
      CEFO E0      OEF0 459 E1     DC    XL1'E0'   5203/1403
      OEF1 F0      OEF1 460      DC    XL1'F0'   5424
      OEF2 80      OEF2 461      DC    XL1'80'   BSCA
      OEF3 88      OEF3 462 DA89   DC    XL1'88'   BSCA 2/DA
      OEF4 40      OEF4 463      DC    XL1'40'   3741
      464
      OEP5 465 SDRLEN  EQU   *
      466
      467 *
      THIS EQU MUST AT END OF SDRTAB
      END ROUTINE 2

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
469 *****
470 * SCAN *
471 *****
472 * CONTROL CHAR
473 * ( PRINT LINE ?-BLANKS,EXCM-ASTERISK
474 * < DISK INF.
475 * CENT COUNTER INF
476 * > TAB INF.
477 * % RETURN
478 * + LINE SPACE
479 *****
0EF5 80 0EF5 48C SCNPLG DC XL1'80'
481 *
0080 482 PFLG EQU X'80' *BIT* 0 *MEANING FIRST FLAG
483 * EQU X'40' 1
0020 484 NFLG EQU X'20' 2 NON-STANDARD PACK
0010 485 SFLG EQU X'10' 3 SYNC FLAG
0008 486 ZFLG EQU X'08' 4 ZERO FLAG
0004 487 UFLG EQU X'04' 5 USED FLAG
0002 488 BSPLG EQU X'02' 6 PRINTER FOR SDR TABLES
489 * EQU X'01' 7
0EF6 490 SCAN EQU *
491 ST SCNEXT,ARR
492 LA SYNTBL-6,XR1
493 SC1 A SIX,XR1
494 A FFFF,XR2
495 BNZ SC1
496 TBN SCNPLG,SPLG TEST SYNC FLAG ON
497 JF SC3
498 TBN SCNPLG,PFLG
499 JT SC2
500 SYN1 CLC CRDNMB,3,(XR1)
501 JE SYN2
502 JH RELOAD
0F23 503 SC2 EQU *
504 B READ
505 B SYN1
506 SYN2 MZN 5,(XR1),4,(XR1)
507 MVC H24(1),5,(XR1) BRING OFFSET TOGETHER
0F34 508 L H24,XR2
509 A CBUF0,XR2
510 ST CSTR0,XR2 SET UP COLUMN START ADDRESS
511 J NEXT
0F43 512 RELOAD EQU *
513 CLI X'232',X'C1' TEST FOR DISK DCP
514 JE SC4
515 B PRINT
0F4E 516 DC XL1'87'
0F4F 517 DC IL1'17'
0F51 518 DC AL2(RLDMSG)
519 B HALT
0F57 520 DC XL2'00EA' RELOAD DATA CARDS
0F58 521 SC4 EQU *
522 SBN SCNPLG,PFLG
523 B SC2
0F70 524 RLDMSG DC CL17'RELOAD DATA CARDS'
524
0F71 525 SC3 EQU *
0F71 526 NEXT EQU *
527 LA PBUF-1,XR1
528 L CSTR0,XR2
529 NXT1 ST PEND0,XR1
530 ST CSTR0,XR2
531 CLC CSTR0,CEND0
0F88 532 CHKSW EQU **1
533 JL NXT2
0F8A 534 B READ

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
0F8E 35 02 2502 535 L CSTR0,XR2
* 0F92 BD D0 00 536 NXT2 CLI 0(,XR2),X'D0'
* 0F95 F2 81 83 537 JE HSG
* 0F98 BD 4C 00 538 CLI 0(,XR2),C'<'
* 0F9B F2 81 4C 539 JE DSK
* 0FA1 F2 81 63 540 CLI 0(,XR2),C'='
* 0FA4 BD 6E 00 541 JE CNTR
* 0FA7 F2 81 28 542 CLI 0(,XR2),C'>'
* 0FAA BD 6C 00 543 JE TAB
* 0FAD F2 81 14 544 CLI 0(,XR2),C'%'
* 0FB0 BD 4E 00 545 JE RETURN
* 0FB3 F2 81 47 546 CLI 0(,XR2),C'+'
* 0FB6 D2 01 01 547 JE LINE
* 0FB9 6C 00 00 00 548 LA 1(,XR1),XR1 UP PBUF ADDR.
* 0FBD E2 02 01 549 MVC 0(,XR1),0(,XR2) MOVE CHAR
* 0FC0 C0 87 0F79 550 LA 1(,XR2),XR2 UP PTR TO DATA CARD CHAR.
551 B NXT1
0FC4 0E 01 2502 0A8B 552 RETURN EQU *
0FCA 3B 10 0EF5 553 ALC CSTR0,ONE UP PTR TO DATA CARD CHAR.
0FCE C0 87 0300 554 SBP SCNPLG,SPLG TURN OFF SYNC FLAG
555 B *-+
556 EQU *-1 SCAN EXIT
0FD1 557 SCNEXT EQU *-1
558
0FD2 559 TAB EQU *
560 B PACK
0FD6 0C 10 2438 24A9 561 MVC TABTBL+16(17),PBUF+16
0FDC 3C 01 23BB 562 MVI TABIDX,1
0FEO 0E 01 2502 0A8B 563 INC ALC CSTR0,ONE
0FE6 C0 87 0F71 564 B NEXT
565
0FEA 566 ESK EQU *
567 B PACK
0FEE 0C 00 134F 2499 568 MVC DSKSEC(1),PBUF
569 B DISKIO
0FF4 C0 87 1333 570 DC XL1'01' READ
0FF8 01 571 B INC
572
0FFD 573 LINE EQU *
574 MNN SPCNT,PBUF
575 B INC
1007 576 CNTR EQU *
577 B PACK
100B 0C 00 23B7 2499 578 MVC CNTOPS(1),PBUF
1011 0C 00 23B9 249A 579 MVC CNTLNG(1),PBUF+1
1017 C0 87 0FEO 580 B INC
581
101B 582 HSG EQU *
583 LA PRTBUF,XR1
101F 7C 40 5F 584 MVI 95(,XR1),C' '
1022 5C 5E 5E 5F 585 MVC 94(95,XR1),95(,XR1)
1026 C2 02 2499 586 LA PBUF,XR2
102A 587 HSG1 EQU *
102A BD 6F 00 588 CLI 0(,XR2),C'?'
102D F2 81 68 589 JE SPACE
1030 BD 5A 00 590 CLI 0(,XR2),C'!'
1033 F2 81 4C 591 JE ASTER
1036 6C 00 00 00 592 MVC 0(,XR1),0(,XR2)
103A D2 01 01 593 LA 1(,XR1),XR1 MOVE CHAR TO PRTBUF
103D E2 02 01 594 LA 1(,XR2),XR2 INCR. PTR TO PRTEJF
1040 34 02 2500 595 HSGCK ST PSTR0,XR2 INCR. PTR TO PRUF
1044 0D 01 2500 24FE 596 CLC PSTR0,PEND0
104A C0 04 102A 597 BNH HSG1
104E 0E 01 2502 0A8B 598 ALC CSTR0,ONE
1054 0D 01 2502 2393 599 CLC CSTR0,CEND0
105B 600 CHKSW1 EQU **1
601 BL HSG2
105A C0 82 106E 602 MVC PBUF+95(96),PRTBUF+95
105E 0C 5F 24F8 08DF

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1064	C0 87 10A9	603	B	READ
1068	OC 5F 08DF 24F8	604	MVC	PRTBUF+95(96),PBUF+95
106E	35 02 2502	605	MSG2	L CSTR0,XR2
1072	BD 6C 00	606	CLI	0(,XR2),C'X'
1075	C0 81 0F71	607	BE	NEXT
1079	C0 87 021A	608	B	PRINT
107D	20	107D 609	SPCNT	DC XL1'20'
107E	C0 87 0F71	610	B	NEXT
		1082 611	ASTER	EQU *
1082	A8 01 02 01	612	MZN	2(,XR2),1(,XR2)
1086	7C 5C 00	613	AST1	MVI 0(,XR1),C'*
1089	D2 01 01	614	LA	1(,XR1),XR1
108C	8F 00 02 0A8B	615	SLC	2(1,XR2),ONE
1091	C0 01 1086	616	BNZ	AST1
1095	F2 87 0A	617	J	SP1
		1098 619	SPACE	EQU *
1098	A8 01 02 01	620	MZN	2(,XR2),1(,XR2)
109C	BC 00 01	621	MVI	1(,XR2),X'00'
109F	B6 01 02	622	A	2(,XR2),XR1
10A2	E2 02 03	623	SP1	LA 3(,XR2),XR2
10A5	C0 87 1040	624	B	MSGCK

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
626				*****
627	* READ *			1. READS DATA CARDS INTO PRTBUF *
628	*****			2. CHECK SEQUENCE OF DATA CARDS *
629	*			4. MOVES DATA CARD FROM PRTBUF TO CBUF *
630	*			5. RESETS CSTR0 *
631	*			6. PROVIDE A MESSAGE AND HALT TO USEP IF DATA CARDS ARE *
632	*			NOT IN ORDER *
633	*			*
634				*****
10A9 635	READ	EQU	*	
636	ST	REXT0,ARR		
637	RST	TBN SCNPLG,PFLG		
638	JF	RD1		
639	*			READ HEADER CARD
640	ZAZ	CRDNMB(4),DZERO		SET CRDNMB TO 0
641	CLI	X'232',X'C1'		TEST FOR DISK DCP
642	JNE	RD2		
643	B	LOAD		
644	DC	XL1'20'		
645	DC	XL2'DOCF'		POSITION DISK HEAD
646	J	RD4		
647	B	LOAD		
648	DC	XL1'10'		
649	RD4	CLC PRTBUF+95(4),CRDNMB		TEST FOR HEADER CARD
650	JNE	RD3		
651	RD1	EQU	*	
652	B	LOAD		
653	DC	XL1'10'		
654	RD3	EQU	*	
655	B	UNPACK		
656	DC	XL1'01'		
657	DC	AL2(PID)		
658	DC	AL2(LEVEL)		
659	CLC	PRTBUF+91(1),LEVEL		CHECK LEVEL OF OCF (DATA CARDS)
660	JNE	NSLEV		
661	AZ	CRDNMB(4),DONE		
662	CLC	CRDNMB(4),PRTBUF+95		
663	JNE	UNORD		
664	MVC	CBUF+95(96),PRTBUF+95		
665	MVC	CSTR0,CBUF0		
666	SBF	SCNPLG,PFLG		
667	B	**		
668	REXT0	EQU	*-1	
669	UNORD	B	PRINT	
670	DC	XL1'87'		
671	DC	IL1'35'		
672	DC	AL2(RMSG)		
673	B	HALT		
674	DC	XL2'00EC'		DATA CARDS NOT IN ORDER
675	B	UNORD		
676	DC	CL35'DATA CARDS NOT IN ORDER,RE-RUN ERAP'		
677	NSLEV	B	PRINT	
678	DC	XL1'87'		
679	DC	IL1'18'		
680	DC	AL2(LVLMSG)		
681	B	HALT		
682	DC	XL2'00EE'		
683	B	RST		
684	LEVEL	DC	XL2'00'	
685	LVLMSG	DC	CL17'-PROPER LEVEL OCF'	
685				
685				
10A9 34 08 1112				
10AD 38 80 0EF5				
10B1 F2 90 25				
10B4 04 30 2498 239C				
10BA 3D C1 0232				
10BE F2 01 0A				
10C1 C0 87 022A				
10C5 20	10C5	644		
10C6 DOCP	10C7	645		
10C8 F2 87 05		646		
10CB C0 87 022A		647	RD2	
10CF 10	10CF	648		
10D0 0D 03 08DF 2498		649	RD4	
10D6 F2 01 05		650		
10D9 C0 87 022A	10D9	651	RD1	
10DD 10	10DD	652		
	10DE	653		
10DE C0 87 021E		654	RD3	
10E2 01	10E2	655		
10E3 0A01	10E4	656		
10E5 115B	10E6	657		
10E7 0D 00 08DB 115B		658		
10ED F2 01 58		659		
10F0 06 30 2498 239D		660		
10F6 0D 03 2498 08DF		661		
10FC F2 01 14		662		
10FF 0C 5F 2498 08DF		663		
1105 0C 01 2502 2391		664		
110B 3B 80 0EF5		665		
110F C0 87 0000		666		
		667		
1112	668	REXT0		
1113 C0 87 021A		669	UNORD	
1117 87	1117	670		
1118 23	1118	671		
1119 1147	111A	672		
111B C0 87 0222		673		
111P 00EC	1120	674		
1121 C0 87 1113		675		
1125 C4C1E3C140C3C1D9	1147	676	RMSG	
112D C4E240D5D6E340C9		676		
1135 D540D6D9C4C5D96B		676		
113D D9C560D9E4D540C5		676		
1145 D9C1D7		676		
1148 C0 87 021A		677	NSLEV	
114C 87	114C	678		
114D 12	114D	679		
114E 116C	114F	680		
1150 C0 87 0222		681		
1154 00EE	1155	682		
1156 C0 87 10AD		683		
115A 0000	115B	684	LEVEL	
115C 60D7D9D6D7C5D940	116C	685	LVLMSG	
1164 D3C5E5C5D340F0C3		685		
116C C6		685		



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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
116D 34 08 1198
1171 35 01 2395
1175 35 02 2395
1179 98 01 00 00
117D 98 03 00 01
1181 D2 01 02
1184 E2 02 01
1187 34 01 2513
118B OD 01 2513 24FE
1191 C0 82 1179
1195 C0 87 0000
1198 704 PEXT@ EQU *-1
1199 711 RSHIPT EQU *
1199 34 08 11C1
119D C2 02 2623
11A1 36 02 23B7
11A5 C2 01 0006
11A9 AE 00 00 00
11AD F2 20 03
11B0 BA 01 00
11B3 36 01 23AA
11B7 C0 01 11A9
11Bb BB C0 00
11BE C0 87 0000
11C1 723 RSHFX@ EQU *-1
687 *****
688 * PACK * PACKS DATA IN PBUF BACK INTO PBUF FROM LEFT TO RIGHT *
689 *****
690 *
691 *****
692
693 PACK ST PEXT@,ARR
694 L PBUF@,XR1
695 L PBUF@,XR2
696 PCK1 MZN 0(,XR2),0(,XR1)
697 MNN 0(,XR2),1(,XR1)
698 LA 2(,XR1),XR1
699 LA 1(,XR2),XR2
700 ST TEMP,XR1
701 CLC TEMP,PEND@
702 BL PCK1
703 B *-
704 PEXT@ EQU *-1
705
706 *****
707 * RSHIPT * SHIFTS A BYTE 2 BINARY PLACES TO THE RIGHT *
708 *****
709 *
710 *****
711 RSHIPT EQU *
712 ST RSHFX@,ARR
713 LA DBUF,XR2
714 A CNTOPS,XR2
715 LA 6,XR1
716 RSHF1 ALC 0(1,XR2),0(,XR2)
717 JNOL RSHF2
718 SBN 0(,XR2),X'01'
719 RSHF2 A FFFF,XR1
720 BNZ RSHF1
721 SBF 0(,XR2),X'CO'
722 B *-
723 RSHFX@ EQU *-1

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
725 *****
726 * HEXDEC * CONVERTS A HEX # TO A PRINTABLE DECIMAL # IN PRTBUF *
727 ***** WITH LEADING ZEROS SUPPRESSED *
728 *
729 *
730 * LENGTH OF HEX # IS CONTAINED IN CNTLNG *
731 * LOCATION OF RIGHT BYTE POSITION OF THE HEX # IS *
732 * @ (DBUF)+CNTPOS+CNTLNG-1 *
733 * LOCATION OF PRINT POSITION (RIGHT MOST) IS *
734 * @ (PRTBUF-1) + TABTBL(TABIDX) *
735 * ON EXIT *
736 * HEX # WILL BE ZERO *
737 * CNTOPS IS INCREASED BY (CNTLNG) *
738 * TABIDX IS INCREASED BY 1 *
739 *****
739 HEXDEC EQU *
740 ST CVTX@,ARR SAVE RETURN @
741 LA LNGTBL-1,XR2
742 A CNTLNG,XR2
743 MVC MVCL(1),0(,XR2) SET LNG OF DEC #
744 * SET LOOP COUNT (CNTLNG*8)
745 LA CVTCNT,XR1
746 MVC 0(2,XR1),CNTLNG
747 ALC 0(2,XR1),0(,XR1)
748 ALC 0(2,XR1),0(,XR1)
749 ALC 0(2,XR1),0(,XR1)
750 * SET LENGTH OF HEX # INSTR.
751 MVC TEMP,CNTLNG
752 SLC TEMP,ONE
753 MVC ALCL(1),TEMP
754 MVC CLCL(1),TEMP
755 * SET XP2 TO RIGHT POS OF HEX #
756 LA DBUF,XR2
757 A CNTOPS,XR2
758 A TEMP,XR2
759 ZAZ DEC,DZERO ZERO DEC #
760 *
761 CLCL EQU **1
762 CLC 0(1,XR2),SZERO TEST FOR ZERO
763 JE HEXD0
764 HEXD1 AZ DEC,DEC DOUBLE DEC #
765 ALCL EQU **1
766 ALC 0(1,XP2),0(,XR2) SHIFT HEX NUM
767 JNOL HEXD2 TEST FOR OVERFLOW
768 AZ DEC,DONE ADD 1 TO DEC #
769 HEXD2 SLC CVTCNT,ONE TEST FOR END
770 BNZ HEXD1
771 HEXD5 ITC DEC-14(15),BLANK
772 TBN SCNFLG,ZPLG
773 BF HEXD3
774 MVI DEC,C'0'
775 HEXD3 SBF SCNFLG,ZPLG
776 * SET XR1 TO RIGHT POS OF PRINT POS.
777 B PRTPOS
778 MVCL EQU **1
779 MVC 0(1,XR1),DEC MOVE DEC # TO PRTBUF
780 ALC CNTOPS,CNTLNG
781 J CVTX
782 HEXD0 SBN SCNFLG,ZPLG
783 B HEXD5
784 LNGTBL EQU * CNTLNG
785 DC IL1'2' 1
786 DC IL1'4' 2
787 DC IL1'7' 3
788 DC IL1'9' 4
789 DC IL1'12' 5
790 DC IL1'14' 6
791 SZERO DC IL6'00'
792
11C2 34 08 12F3
11C6 C2 02 1266
11CA 36 02 23B9
11CE 2C 00 1252 00
11D3 C2 01 23B5
11D7 4C 01 00 23B9
11DC 5E 01 00 00
11E0 5E 01 00 00
11E4 5E 01 00 00
11E8 0C 01 2513 23B9
11EE 0F 01 2513 0A8B
11F4 0C 00 1221 2513
11FA 0C 00 1213 2513
1200 C2 02 2623
1204 36 02 23B7
1208 36 02 2513
120C 04 E0 2511 239C
1212 8D 00 00 1272
1217 F2 81 45
121A 06 0E 2511 2511
1220 AE 00 00 00
1224 F2 20 06
1227 06 E0 2511 239D
122D 0F 01 23B5 0A8B
1233 C0 01 121A
1237 0B 0E 2503 0DBB
123D 38 08 0EF5
1241 C0 90 1249
1245 3C F0 2511
1249 3B 08 0EF5
124D C0 87 12F4
1251 4C 00 00 2511
1256 0E 01 23B7 23B9
125C F2 87 8B
125F 3A 08 0EF5
1263 C0 87 1237
1267 02
1268 04
1269 07
126A 09
126B 0C
126C 0E
126D 000000000000
1272 791 SZERO

```

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERP LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

793 *****
794 * HEXHEX *      CONVERT HEX BYTE  TO A PRINTABLE HEX NUMBER *
795 *****
796 *
797 *****
1273 798 HEXHEX EQU *
      799          ST      CVTX0,ARR
      800          LA      DBUF,XR2
      801          A      CNTOPS,XR2
      802          B      PRTPOS
      803          A      FFFF,XR1
      804          SBF     SWITCH,X'01'          FROM MNZ
128C 805 SWITCH EQU **1
      806 HEX2     MNZ    0(,XR1),0(,XR2)
      807          SBN    0(,XR1),X'F0'
      808          CLI    0(,XR1),X'F9'
      809          JNH    HEX3
      810          SLC    0(1,XR1),X39
      811 HEX3     LA      1(,XR1),XR1
      812 X39      TBP    SWITCH,X'01'
      813          JF     CVTX1
      814          SBN    SWITCH,X'01'          FROM MZZ
      815          B      HEX2
1273 34 08 12F3
1277 C2 02 2623
127B 36 02 23B7
127F C0 87 12F4
1283 36 01 23AA
1287 3B 01 128C
128B 68 02 00 00
128F 7A F0 00
1292 7D F9 00
1295 F2 04 05
1298 4F 00 00 12A0
129D D2 01 01
12A0 39 01 128C
12A4 F2 90 3A
12A7 3A 01 128C
12AB C0 87 128B

```

```

817 *****
818 * CVTBIN *      CONVERTS A HEX BYTE TO PRINTABLE BINAPY NUMBER IN *
819 *****          PRTBUF *
820 *
821 *          LOCATION OF HEX BYTE IS @ (DBUF) + CNTOPS *
822 *
823 *          LOCATION OF PRINT POSITION (LEFT MOST POSITION) IS *
824 *          @ (PRTBUF)-1 + TABTBL(TABIDX) - 7 *
825 *
826 *          ON EXIT *
827 *          HEX BYTE WILL BE ZERO *
828 *          CNTOPS IS INCREASED BY 1 *
829 *          TABIDX IS INCREASED BY 1 *
830 *****
12AF 831 CVTBIN EQU *
      832          ST      CVTX0,ARR          SAVE EXIT @
      833          LA      DBUF,XR2          COMPUTE POSITION OF HEX BYTE
      834          A      CNTOPS,XR2
      835 *
      836          B      PRTPOS          COMPUTE POSITION OF PRINT POS.
      837          A      NEG7,XR1
      838 *
      839          MVI     CVTCNT,8          SET LOOP CNT
      840 CVTB2     MVI     0(,XR1),C'0'    SET PRINT CHAR 0, BY DEFAULT
      841          ALC    0(,XR2),0(,XR2)
      842          JNOL   CVTB1          TEST FOR BIT ON
      843          MVI     0(,XR1),C'1'    BIT ON, SET PRINT CHAR 1
      844 CVTB1     LA      1(,XR1),XR1
      845          SLC    CVTCNT,ONE
      846          BNZ    CVTB2
      847 CVTX1     EQU *
      848          MVI     0(,XR2),0
      849          ALC    CNTOPS,ONE
      850 *
12EA 851 CVTX EQU *
      852          ALC    TABIDX,ONE
      853          B      *-
12F3 854 CVTX0 EQU *-1
12F4 855 PRTPOS EQU *
      856          ST      PRTX0,ARR
      857          LA      TABTBL,XR1
      858          A      TABIDX,XR1
      859          HVC    H24(1),0(,XR1)
      860          LA      PRTBUF-1,XR1
      861          A      H24,XR1
      862          B      *-
1310 863 PRTX0 EQU *-1
      864
      864
      864
      864
1311 865 SYNHOV EQU *
      866 *          LOAD SYNC PTS FOR RTNX
      867          ST      SYNHX0,ARR
1315 868 SYN R EQU *
      869          MVI     CHKS1,X'82'
      870          MVI     CHKS2,X'82'
      871          SBN    SCNPLG,SPLG
      872          B      SCAN
      873          HVC    SYNTBL+12+83(84),CBUF+84
      874          B      READ
      875          B      *-
1332 876 SYNHX0 EQU *-1

```

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
      878
      879 *****
      880 * DISKIO *          CALLING SEQUENCE
      881 *                   B    DISKIO
      882 *                   DC   XL1'XX'  XX=01 - READ
      883 *                   XX=02 - WRITE
      884 * DISKIO *READ OR WRITE A SECTOR ON CYL 0  OF DRIVE THAT IS
      885 *                   CONTAINED IN DSKDRV, THE SECTOR NUMBER IS CONTAINED
      886 *                   IN DSKSEC.
      887 *                   *A FX (X=1-4) HALT WILL OCCUR IF DISK IS NOT READY OR ERROR
      888 *                   OCCURS ON A READ OR WRITE. TEN RETRYS ARE MADE BEFORE
      889 *                   A HALT IS GIVEN. A RESET HALT WILL RETRY THE FUNCTION.
      890 *
      891 *
      892 *****
1333 893 DISKIO  EQU  *
      894 LA    DISKIO,XR1
1333 895 USING DISKIO,XR1
      896 ST    DISKX@,(XR1),ARR  STORE ARR ADDRESS INTO DISKX@ *GC*
      897 L    DISKX@,(XR1),XR2  LOAD ARR VALUE INTO XR2 *GC*
      898 MVC  DSKFCT(1,XR1),0(,XR2) MOVE (READ/WRITE) FUN N BITS *GC*
      899 B    DISK33  BRANCH TO 3340 SECTION FOR TEST *GC*
1346 900 DSKFCT  EQU  **1
      901 SIO2  SIO  0,0          READ OR WRITE DATA
1349 902 DISKX@ DC   AL2(*--*)  SAVE CALLERS ARR VALUE
      903
      904 *****
      905 * DISK FLAG IN SEEK
      906 * BIT 0 = 0 HEAD 0 UPPER SURFACE
      907 * = 1 HEAD 1 LOWER SURFACE
      908 * BIT 1 - 6 NOT USED
      909 * BIT 7 = 0 SELECT DIRECTION TOWARD DECREASING CYL #
      910 * = 1 SELECT DIRECTION TOWARD INCREASING CYL #
      911 * DISK FLAG FOR ALL OTHER OPERATIONS
      912 * BIT 0 - 5 HOLD THE BINARY REPRESENTATION OF THE SECTOR
      913 * ID NUMBER
      914 * BIT 6 , 7 NOT USED ** MUST BE 00 **
      915 *****
134A 0000 134B 916 STATUS DC XL2'0'
134C 917 DSKDRV EQU *
134C A8 134C 918 DC XL1'A8' DA E M BIT FOR DISK
134D 00 134D 919 DSKFLG DC XL1'0' FLAG *****
134E 00 134E 920 DSKCYL DC XL1'0' CYLINDER * DISK CONTROL FIELD *
134F 00 134F 921 DSKSEC DC XL1'0' SECTOR *
1350 00 1350 922 DSKNUM DC XL1'0' * TO MOVE *****
1351 134D 1352 923 DCR DC AL2(DSKPLG) DISK CONTROL ADDRESS REG FOR RD/WRT
1353 2623 1354 924 DBUF@ DC AL2(DBUF) START ADDRESS OF DATA BUFFER
1354 925 DAR EQU *-1
      926 *
1355 F2 1355 927 HLTBL EQU * HALT CODE VOLUME DEVICE ADDR.
1356 F1 1355 928 DC XL1'F2' 2 A0
1357 F4 1356 929 DC XL1'F1' 1 A8
1358 F3 1357 930 DC XL1'F4' 4 B0
1359 40C8C1D3E34060C6 1358 931 DC XL1'F3' 3 B8
1361 E76040E77EF160F4 138A 932 DC CL50' HALT -FX- X=1-4, VOL X IS NOT READY OR ERROR ON V'
1369 6B40E5D6D340E740 932
1371 C9E240D5D6E340D9 932
1379 C5C1C4E840D6D940 932
1381 C5D9D9D6D940DED5 932
1389 40E5 932
138B D6D340E7 138E 933 DSKMSG DC CL04'OL X'
138E 934 MSG3B EQU *-1
138F 404060606040F3F3 13A2 935 MSG3 DC CL20' --- 3340 ---
1397 F4F0406060604040 935
139F 40404040 935
13A3 40404040F3F3F4F0 13A2 936 MSG4B EQU *-1
13CA 937 DC CL40' 2340 ERROR HISTORY AND OTHER ERROR D'

```

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
13AB 40C5D9D9D6D940C8 937
13B3 C9E2E3D6D9E840C1 937
13BB D5C440D6E3C8C5D9 937
13C3 40C5D9D9D6D940C4 937
13CB C1E3C140E6C9D3D3 13P2 938 MSG4 DC CL40'ATA WILL BE PRINTED BY LATER ROUTINES.
13D3 40C2C540D7D9C9D5 938
13DB E3C5C440C2E840D3 938
13E3 C1E3C5D940D9D6E4 938
13EB E3C9D5C5E24E4040 938
      C001 939 DROP XR1

```

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1405 F2 87 57
1408 20
1409 04
140A 14
140B 17
140C COA9
140E COB3
1410 CBA9
1412 C8B3
1414 00
1415 0000000
1419 00
141A C0 87 021A
141E 87
141F 33
1420 145E
1422 C0 87 0222
1426 PFOF
1428 C0 87 0216
142C E4D5C1C2D3C540E3
1434 D640C3D6D5E5C5D9
143C E340F5F4F4F440C1
1444 C4C4D9C5E2E240C9
144C D5E3D640C140F3F3
1454 F4F040C1C4C4D9C5
145C E2E24B
145P C2 01 1415
1463 0C 01 1417 134F
1469 4C 00 04 134C
146E 5C 00 03 04

```

```

941 *****
942 ***** TITLE ' DISK TYPE 3340 I/O ROUTINE *****
943 *****
944 *****
945 *****
946 *****
947 *****
948 *****
949 *****
950 *****
951 ***** SUB-ROUTINE TO CONVERT *****
952 ***** 5444 ADDRESS INTO 3340 ADDRESS *****
953 *****
954 *
955 * INPUT: DSKDRV --> IOBQB
956 * DSKCYL --> IOBCHN-2
957 * DSKSEC --> IOBCHN-1
958 * OUTPUT: DDCF FIELD CYLINDER, HEAD, RECORD NUMBER FOR 3340 SYSTEM
959 *
960 *
961 * THE FOLLOWING AREA IS SET ASIDE FOR USE AS CONSTANTS IN THE 5444
962 * CONVERSION ROUTINE.
963 *
964 *
965 J GPCS
966 HEX20 DC XL1'20'
967 FOUR DC XL1'04'
968 FORTEN DC XL1'14'
969 SVNTEN DC XL1'17'
970 TABLES EQU *
971 DC XL2'COA9' TABLE ENTRY FOR A P1 REQUEST
972 DC XL2'COB3' TABLE ENTRY FOR A R1 REQUEST
973 DC XL2'CBA9' TABLE ENTRY FOR A P2 REQUEST
974 DC XL2'C8B3' TABLE ENTRY FOR A R2 REQUEST
975 HEADWA DC XL1'00' WORK AREA
976 STARTN EQU *
977 IOBCHN DC XL1'00' BUFFER AREA FOR SUB-ROUTINE
978 IOBQB DC XL1'00' BUFFER WORK AREA
979
980 *****
981 ERRMSG B PRINT PRINT THAT ROUTINE UNABLE TO CONVERT
982 DC XL1'87' THE 5444 ADDRESS INTO A 3340 ADDRESS
983 DC IL1'51'
984 AL2(ERRMSL)
985 B HALT
986 DC XL2'PFOF'
987 B LINK
988 ERRMSL DC CLS1'UNABLE TO CONVERT 5444 ADDRESS INTO A 3340 ADDRESS.'
989
990 GPCS EQU *
991 USING STARTN, XR1
992 LA STARTN, XR1
993 MVC IOBCHN-1(2), DSKSEC
994 MVC IOBQB(1, XR1), DSKDRV
995 MVC IOBCHN(1, XR1), IOBQB(, XR1)

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```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1472 C2 02 140C
1476 78 10 03
1479 F2 90 03
147C E2 02 04
147F 78 08 03
1482 F2 10 03
1485 E2 02 02
1488 2C 00 149E 01
148D 68 00 04 00
1491 88 08 00
1494 7A 08 04
1497 F2 10 03
149A 7B 08 04
149D 7C 00 00
14A0 7D 04 01
14A3 F2 82 26
14A6 7D CB 01
14A9 C0 02 141A
14AD 4F 00 01 140B
14B2 F2 82 29
14B5 7D 00 01
14B8 F2 81 15
14BB 4E 00 00 0A8B
14C0 4F 00 01 140A
14C5 F2 82 16
14C8 C0 87 14B5
14CC 7D 00 01
14CF C0 01 141A
14D3 F2 87 0D
14D6 4E 00 00 0A8B
14DB F2 87 05
14DE 4E 00 01 140A
14E3 3C 01 1414
14E7 7D 00 02
14EA F2 81 21
14ED 78 80 02
14F0 F2 90 05
14F3 4F 00 02 1408
14F8 7D FC 02
14FB C0 84 141A
14FF 0E 00 1414 0A8B
1505 4F 00 02 1409
150A C0 01 14F8

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140C 996 USING TABLES, XR2
997 LA TABLES, XR2
998 TBN IOBCHN(, XR1), X'10' LOAD REG 2 WITH ADDRESS OF TABLE
999 JF CKFIXD Q CODE FOR SPINDLE 1?
1000 LA 4(, XR2), XR2 JUMP IF REG 2 IS 0?
1001 CKFIXD TBN IOBCHN(, XR1), X'08' BUMP TO POINT TO SECOND HALF
1002 JT NEWDRV Q CODE FOR FIXED DRIVE?
1003 LA 2(, XR2), XR2 JUMP IF FOR P1 OR P2
1004 BUMP IF FOR REMOVABLE
1005
1006 * REGISTER 2 NOW POINTS TO THE TABLE ENTRY COORESPONDING TO THE
1007 * REQUESTED 5444 DRIVE.
1008 *
1009
1010 NEWDRV MVC CYSTR(1), 1(, XR2) SET MOVE INSTRUCTION TO PICKUP START
1011 * CYLINDER OF SIMULATED AREA
1012 MZZ IOBQB(, XR1), 0(, XR2) MOVE IN THE ZONE OF OPERATION CODE
1013 TBN 0(, XR2), X'08' FOR 3340 DRIVE 2 OR 4?
1014 SBN IOBQB(, XR1), X'08' ASSUME 3340 DRIVE 2 OR 4
1015 JT CVTCTH GO START THE CONVERSION
1016 SBP IOBQB(, XR1), X'08' CORRECT A BAD ASSUMPTION
1017 CVTCTH MVI IOBCHN-3(, XR1), 0 MOVE IN START OF SIMULATION AREA
1018 EQU *-2
1019 CLI IOBCHN-2(, XR1), X'04' CHECK FOR 5444 CYL 0, 1, 2, OR 3
1020 JL CKCYLO IF LOW GO CHECK FOR CYL 0
1021 CLI IOBCHN-2(, XR1), X'0C' CHECK FOR CYLINDER 203?
1022 BNL ERMSG CYLINDER 203 OR GREATER IS INVALID
1023 SLC IOBCHN-2(1, XR1), SVNTEN NUMBER OF 44 TRACKS
1024 * POSSIBLE ON FIRST 3340 CYLINDER
1025 JM ADDBAK JUMP IF 44 CYLINDER IS ON FIRST
1026 * SIMULATED 3340 CYLINDER
1027 CKZERO CLI IOBCHN-2(, XR1), X'00' SEE IF CYLINDER WENT ZERO
1028 JE UPCYLN IF ZERO CONVERSION OF CYL IS
1029 * ALMOST DONE.
1030 ALC IOBCHN-3(1, XR1), ONE ADD ONE TO 3340 CYLINDER
1031 SLC IOBCHN-2(1, XR1), FORTEN SUBTRACT NUMBER OF 44 CYLINDERS
1032 * POSSIBLE ON NEXT 3340 CYLINDER
1033 JM ADDBAK JUMP IF RESULT WENT NEGATIVE
1034 B CKZERO LOOP BACK AND CHECK AGAIN
1035
1036 CKCYLO CLI IOBCHN-2(, XR1), X'00' IS THE REQUEST FOR CYLINDER ZERO?
1037 BNE ERMSG IF NOT FOR ZERO, ERROR
1038 J CVTSTR GO TO CONVERT SECTOR TO RECORD
1039
1040 UPCYLN ALC IOBCHN-3(1, XR1), ONE UPDATE TO NEXT 3340 CYLINDER
1041 J CVTSTR GO CONVERT SECTOR TO RECORD
1042
1043 ADDBAK ALC IOBCHN-2(1, XR1), FORTEN ADD BACK FOURTEEN WHEN RESULT
1044 * GOES MINUS.
1045
1046 CVTSTR MVI HEADWA, X'01' INITIALIZE WORK AREA WITH A 1
1047 CL1 IOBCHN-1(, XR1), X'00' REQUEST FOR A 5444 SECTOR ZERO?
1048 JE EXIT CONVERSION IS DONE
1049 TBN IOBCHN-1(, XR1), X'80' TPACK 2 OF 5444 REQUESTED?
1050 JF BUMP JUMP IF TRACK 1 WAS REQUESTED
1051 SLC IOBCHN-1(1, XR1), HEX20 MAKE TRACK 2 AND 1 CONTIGIOUS
1052
1053 BUMP CLI IOBCHN-1(, XR1), X'FC' DID SECTOR NUMBER GO MINUS?
1054 BH ERMSG ERROR IF SECTOR IS MINUS
1055 ALC HEADWA(1), ONE ADD ONE TO RECORD NUMBER
1056 SLC IOBCHN-1(1, XR1), FOUR DECREMENT SECTOR COUNT
1057 BNZ BUMP LOOP BACK IF NOT ZERO
1058
1059
1060

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DATE 29AUG75 07NOV75 04MAR76 21JAN77  
 EC NO. 827804 827805 571871 571989

PROG ID FF7-3 DATE 29AUG75 07NOV75 04MAR76 21JAN77  
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PROG ID FF7-3  
 PAGE 11A

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
150E	4C 00 02 1414	1059	EXIT	MVC IORCHN-1(1,XR1),HEADWA MOVE RECORD COUN TO IOB
1513	0C 00 16FD 1415	1060		MVC DDCF+2(1),IOBCHN-3 MOVE CYLINDER NUMBER
1519	0C 00 16FF 1416	1061		MVC DDCF+4(1),IOBCHN-2 MOVE HEAD NUMBER
151F	0C 00 1700 1417	1062		MVC DDCF+5(1),IOBCHN-1 MOVE RECORD NUMBER
1063				*****
1064				* END OF 5444 TO 3340 SIMULATION CONVERSION ROUTINE *
1065				*****
1066				
1066				
1066				
1525	0C 00 157E 1346	1067		MVC RDWRT+1(1),DSKFT MOVE DISK FUNCTION READ/WRITE INTO SIO*GC*
152B	0E 00 157B 171B	1068		ALC RDWRT+1(1),DRV32 INSERT DRIVE NUMBER INTO SIO *GC*
1531	C1 CA 1531	1069		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
1535	31 CE 16F2	1070		LIO LDCF,X'CE' LOAD DDCR WITH ADDRESS OF DDCF *GC*
1539	31 CC 16F4	1071		LIO LDDF,X'CC' LOAD DDR WITH ADDRESS OF DDDF *GC*
153D	F3 C8 00	1072		SIO 0,X'C8' SEEK COMMAND PRIMARY TRACK *GC*
1540	C1 C9 1540	1073		TIO *,X'C9' SEEK BUSY (WAIT) *GC*
1544	C1 CA 1544	1074		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
1548	C1 C8 15C4	1075		TIO DKER9,X'C8' NOT READY / UNIT CHECK AFTER SEEK CMD *GC*
154C	0C 09 1718 1704	1076		MVC DDCZ(10),DDCFE
1552	0C 01 1717 171A	1077		MVC DDCZ-1(2),DDZL
1558	31 CE 16F6	1078		LIO LDCX,X'CE' LOAD DDCR WITH ADDRESS OF DDCX (DDCF) *GC*
155C	31 CC 16F4	1079		LIO LDDF,X'CC' LOAD DDR WITH ADDRESS OF DDDF *GC*
1560	F3 C9 01	1080	SIO33	SIO X'01',X'C9' RD HA & RO EVEN COMMAND *GC*
1563	C1 CA 1563	1081		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
1567	C1 C8 15B2	1082		TIO DKER2,X'C8' NOT READY/UNIT CHECK ??? *GC*
1083				
1083				
156B	38 02 1705	1084		TBN DDDF,X'02' CHECK FOR DEFECTIVE PRIMARY TRACK *GC*
156F	F2 10 1A	1085		JT PRIDEF JUMP TO ALTERNATE TRACK *GC*
1086				
1086				
1572	31 CE 16F2	1087	LIO33	EQU *
1576	31 CC 16F8	1088		LIO LDCF,X'CE' LOAD DDCR WITH ADDRESS OF DDCF *GC*
157A	F3 C9 00	1089		LIO LBUF,X'CC' LOAD DDR WITH ADDRESS OF DBUF *GC*
157D	C1 CA 157D	1090	RDWRT	SIO 0,X'C9' RD/WRT KEY DATA (C9/CA) *GC*
1581	C1 C8 15BB	1091		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
1585	35 02 1349	1092		TIO DKER4,X'C8' NOT READY/UNIT CHECK *GC*
1589	E0 87 01	1093		L DISKX0,XR2 SET-UP XR2 FOR RETURN TO CALLER *GC*
1094				B 1,(XR2) RETURN TO CALLER *GC*
1095				
158C	3C 01 1705	1096	PRIDEF	EQU *
1590	3C 01 16FB	1097		MVI DDDF,X'01' SET-UP FLAG BYTE FOR ALTERNATE *GC*
1594	C1 CA 1594	1098		MVI DDCF,X'01' SET-UP FLAG BYTE FOR ALTERNATE *GC*
1598	31 CE 16F4	1099		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
159C	F3 C8 00	1100		LIO LDDF,X'CE' LOAD DDCR WITH ADDRESS OF DDDF *GC*
159F	C1 C9 159F	1101		SIO 0,X'C8' SEEK COMMAND ON ALTERNATE *GC*
15A3	C1 CA 15A3	1102		TIO *,X'C9' SEEK BUSY ??? (WAIT) *GC*
15A7	C1 C8 15C4	1103		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
15AB	C0 87 1560	1104		TIO DKER9,X'C8' NOT READY / UNIT CHECK AFTER SEEK CMD *GC*
1105				B SIO33 GO TO RD HA & RO ALTERNATE *GC*
1106				
1106				
15AF	F2 87 21	1107	DKNR	J PRTNR * PRINT NOT READY / UNIT CHECK *GC*
1108				
1108				
15B2	0C 13 16A0 16B4	1109	DKER2	MVC PD31(20),PD35 * MOVE AFTER READ HA & RO *GC*
15B8	F2 87 18	1110		J PRTNR * NOT READY / UNIT CHECK *GC*
1111				
1111				
15BB	0C 13 16A0 16C8	1112	DKER4	MVC PD31(20),PD43 * MOVE AFTER READ RD/WRT CMD *GC*
15C1	F2 87 0F	1113		J PRTNR * NOT READY / UNIT CHECK *GC*
1114				
1114				
15C4	0C 13 16A0 16DC	1115	DKER9	MVC PD31(20),PD46 * MOVE AFTER SEEK COMMAND *GC*
15CA	F2 87 06	1116		J PRTNR * NOT READY / UNIT CHECK *GC*
1117				
1117				

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
15CD	0C 13 16A0 16P0	1118	DKERA	MVC PD31(20),PD48 * MOVE AFTER READ DIAG CMD *GC*
1119				
1119				
15D3	C0 87 021A	1120	PRTNR	B PRINT * PRINT THAT UNIT *GC*
15D7	87	15D7	1121	DC XL1'87' * NOT READY / UNIT CHECK OCCURRED *GC*
15D8	3A	15D8	1122	DC AL1(PD31-PD30) * DRIVE *GC*
15D9	16A0	15DA	1123	DC AL2(PD31) * IS *GC*
15DB	3C 40 16A0	1124		MVI PD31,X'40' * PLACE " " *GC*
15DF	0C 12 169F 16A0	1125		MVC PD31-1(19),PD31 * BLANK PD31 WORK AREA *GC*
15E5	30 CD 134B	1126		SNS STATUS,X'CD' SENSE STATUS BYTES 0,1 *GC*
15E9	C0 87 021E	1127		B UNPACK * UNPACK *GC*
15ED	02	15ED	1128	DC XL1'02' * STATUS *GC*
15EE	134B	15EF	1129	DC AL2(STATUS) * BYTES *GC*
15F0	1649	15F1	1130	DC AL2(STATOT) * 0,1 *GC*
15F2	C0 87 021A	1131		B PRINT * PRINT *GC*
15F6	82	15F6	1132	DC XL1'82' * STATUS *GC*
15F7	1A	15F7	1133	DC AL1(STATOT-STATST) * BYTES *GC*
15F8	1649	15F9	1134	DC AL2(STATOT) * 0,1 *GC*
15FA	C1 CA 15FA	1135		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
15FE	31 CC 16FA	1136		LIO LSNS,X'CC' LOAD DDR WITH ADDRESS OF DSNS *GC*
1602	F3 C9 07	1137		SIO 7,X'C9' RD DIAG BYTES *GC*
1605	C1 CA 1605	1138		TIO *,X'CA' ATTACHMENT BUSY (WAIT) *GC*
1609	C1 C8 15CD	1139		TIO DKERA,X'C8' NOT READY / UNIT CHECK AFTER READ DIAG CMD *GC*
160D	C0 87 021E	1140		B UNPACK * UNPACK *GC*
1611	18	1611	1141	DC XL1'24' * READ DIAG *GC*
1612	173F	1613	1142	DC AL2(DSHSE) * BYTES *GC*
1614	176F	1615	1143	DC AL2(PSNS) * 0-23 *GC*
1616	C0 87 021A	1144		B PRINT * PRINT HEADING FOR *GC*
161A	83	161A	1145	DC XL1'83' * READ DIAG *GC*
161B	1D	161B	1146	DC AL1(RDDGE-RDDGS) * BYTES *GC*
161C	1666	161D	1147	DC AL2(RDDGE) * 0-23 *GC*
161E	C0 87 021A	1148		B PRINT * PRINT *GC*
1622	82	1622	1149	DC XL1'82' * READ DIAG *GC*
1623	30	1623	1150	DC XL1'48' * BYTES *GC*
1624	176F	1625	1151	DC AL2(PSNS) * 0-23 *GC*
1626	C0 87 0222	1152		B HALT *GC*
162A	FF0F	162B	1153	DC XL2'FF0F' *GC*
162C	C0 87 0216	1154		B LINK
1155				
1155				
162F	1156	162F	1156	STATST EQU *-1 *GC*
1630	40E2E3C1E3E4E240	1649	1157	STATOT DC CL26' STATUS BYTES 0,1 ARE XXXX' *GC*
1638	C2E8E3C5E240F06B	1157		
1640	F140C1D9C540E7E7	1157		
1648	E7E7	1157		
164A	40D9C5C1C440C4C9	1649	1158	RDDGS EQU *-1 *GC*
1652	C1C740E2E3C1E3E4	1666	1159	RDDGE DC CL29' READ DIAG STATUS BYTES ARE ' *GC*
165A	E240C2E8E3C5E240	1159		
1662	C1D9C54040	1159		
1666	1160	1666	1160	PD30 EQU *-1 *GC*
1667	40C4C9E2D240C4D9	1674	1161	DC CL14' DISK DRIVE 2' *GC*
166F	C9E5C54040F2	1161		
1675	40D5D6E340D9C5C1	168C	1162	DC CL24' NOT READY / UNIT CHECK ' *GC*
167D	C4E8406140E4D5C9	1162		
1685	E340C3C8C5C3D240	1162		
168D	4040404040404040	16A0	1163	PD31 DC CL20' *GC*
1695	4040404040404040	1163		
169D	40404040	1163		
16A1	40C1C6E3C5D940D9	16B4	1164	PD35 DC CL20' AFTER READ HA & RO.' *GC*
16A9	C5C1C440C8C14050	1164		
16B1	40D9F04B	1164		
16B5	40C1C6E3C5D940D9	16C8	1165	PD43 DC CL20' AFTER RD/WRT DATA .' *GC*
16BD	C461E6D9E340C4C1	1165		
16C5	E3C1404B	1165		
16C9	40C1C6E3C5D940E2	16DC	1166	PD46 DC CL20' AFTER SEEK COMMAND.' *GC*
16D1	C5C5D240C3D6D4D4	1166		
16D9	C1D5C44B	1166		

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
16DD 40C1C6E3C5D940D9 16F0 1167 PD48 DC CI20' AFTER READ DIAG CMD' *GC*
16E5 C5C1C440C4C9C1C7 1167
16ED 40C3D4C4 1167
1168
1168
16F1 16FB 16F2 1169 LDCF DC AL2 (DDCF) ADDRESS LEFT-MOST BYTE OF DDCF *GC*
16F3 1705 16F4 1170 LDDF DC AL2 (DDDF) ADDRESS LEFT-MOST BYTE OF DDDF *GC*
16F5 170F 16F6 1171 LDCX DC AL2 (DDCX) ADDRESS LEFT-MOST BYTE OF DDCX (DDCF) *GC*
16F7 2623 16F8 1172 LBUF DC AL2 (DBUF) ADDRESS LEFT-MOST BYTE OF LBUF *GC*
16F9 1728 16FA 1173 LSNS DC AL2 (DSNS) ADDRESS LEFT-MOST BYTE OF DSNS *GC*
1174 *****READ/WRITE KEY-DATA***** *GC*
1175 * DDCF * P * CC * HH * R * KL * DL * N * DISK DRIVE *GC*
1176 *****CONTROL FIELD***** *GC*
16FB 1177 DDCF EQU *
16FB 00 16FB 1178 DC XL1'0' FLAG R W *GC*
16FC 0000 16FD 1179 DC XL2'00' CYLINDER E R *GC*
16FE 0000 16FF 1180 DC XL2'00' HEAD ADDRESS A I *GC*
1700 00 1700 1181 DC XL1'0' RECORD D T *GC*
1701 00 1701 1182 DC XL1'0' KEY LENGTH E *GC*
1702 0000 1703 1183 DC XL2'00' DATA LENGTH CONTROL *GC*
1704 00 1704 1184 DC XL1'0' COUNT FIELD *GC*
1704 1185 DDCFE EQU *-1 *GC*
1186 *****READ HA & RO ***** *GC*
1705 0000000000000000 170E 1187 DDDF EQU * *GC*
170D 0000 170E 1188 DC XL10'0' * DISK DRIVE DATA FIELD FOR READ HA & RO *GC*
1189 ***** *GC*
170F 00 170F 1190 DDCX EQU * * DISK DRIVE *GC*
1710 0000 170F 1191 DC XL1'0' FLAG C *GC*
1712 0000 1711 1192 DC XL2'00' CYLINDER O *GC*
1714 00 1713 1193 DC XL2'00' HEAD ADDRESS N F *GC*
1715 00 1714 1194 DC XL1'0' RECORD T I *GC*
1716 0000 1715 1195 DC XL1'0' KEY LENGTH R E *GC*
1718 00 1717 1196 DC XL2'00' DATA LENGTH O L *GC*
1718 1197 DC XL1'0' COUNT L D *GC*
1718 1198 DDCZ EQU *-1 * FOR READ HA & RO *GC*
1719 0008 171A 1199 DDZL DC XL2'0008' **DATA LENGTH** FOR READ HA & RO *GC*
1200 ***** *GC*
171B C8 171B 1201 DRV32 DC XL1'C8' * DISK DRIVE ADDRESS BITS DRIVE 2 *GC*
171C 0000000000000000 1725 1202 DDCFB DC XL10'0000000000000000' * INITIAL VALUE FOR DDCF *GC*
1724 0000 1202
1726 170A 1727 1203 AREC# DC AL2(DDDF+5) * ADDRESS FOR ALTERNATE RECORD # USED *GC*
1204 ***** *GC*
1205
1205
1205
1205
1728 1206 DSNS EQU * *GC*
173F 1207 DSNS DS XL24 *GC*
1740 176F 1208 PSNS DS XL48 *GC*
1209 ***** END OF DISK I/O FOR 3340 ***** *GC*

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
1211 ***** *
1212 *
1213 * ROUTINE 3 - PRINT 3340 USAGE AND ERROR SUMMARY TABLE *
1214 *
1215 ***** *
1216 *
1217 * ROUTINE PREFACE *
1218 *
1770 03 1770 1219 $RTN3 DC XL1'03' ROUTINE NUMBER
1771 00 1771 1220 DC XL1'00' ROUTINE FLAGS
1772 1B0E 1773 1221 DC AL2($RTN4) ADDRESS OF NEXT ROUTINE
1222 *
1223 -----
1224 * ROUTINE INITIALIZATION *
1225 *
1226 * MVI $IND,0 RESET ALL PROGRAM INDICATORS *
1227 *
1778 C0 87 1D2D 1228 $R5 B $BEGIN PERFORM COMMON INITIALIZATION
1229 *
177C 0C 01 218C 21A9 1230 MVC $CYL(2), $P209 INITIALIZE 3340 CYLINDER ADDRESS
1782 0C 01 218E 21A6 1231 MVC $HD(2), $P1 INITIALIZE 3340 HEAD ADDRESS
1788 3C 00 218F 1232 MVI $PTR,0 INITIALIZE LOG RECORD POINTER
1233 *
178C C0 87 1DD5 1234 B $IO READ FIRST LOG RECORD FROM 3340
1235 *
1790 C2 01 2201 1236 LA $PBUF, $XR1 PRINT BUFFER ADDRESS TO INDEX REG 1
1237 *
1238 -----
1239 * PRINT SUMMARY TABLE TITLE AND INPUT DEVICE IDENTIFIER *
1240 *
1794 4C 23 23 20C2 1241 MVC 35(36, $XR1), $H04N BUILD
1799 4C 15 39 20EE 1242 MVC 57(22, $XR1), $H06N TITLE
179E 4C 00 39 2189 1243 MVC 57(1, $XR1), $SDRVID LINE
1244 *
17A3 C0 87 021A 1245 B $SPRINT PRINT
17A7 42 17A7 1246 DC XL1'42' TITLE
17A8 3A 17A8 1247 DC IL1'58' LINE
17A9 223A 17AA 1248 DC AL2($PBUF+57)
17AB FF00 17AC 1249 DC AL2($HLT00)
1250 *
1251 -----
1252 * PRINT SUMMARY TABLE HEADING LINES *
1253 *
17AD 7C 5C 68 1254 MVI 104(, $XR1), C' * BUILD FIRST
17B0 5C 67 67 68 1255 MVC 103(104, $XR1), 104(, $XR1) LINE OF SUMMARY TABLE
1256 *
17B4 C0 87 021A 1257 B $SPRINT PRINT FIRST
17B8 01 17B8 1258 DC XL1'01' LINE OF SUMMARY TABLE
17B9 69 17B9 1259 DC IL1'105'
17BA 2269 17BB 1260 DC AL2($PBUF+104)
1261 *
17BC 7C 40 67 1262 MVI 103(, $XR1), C' CLEAR
17BF 5C 65 66 67 1263 MVC 102(102, $XR1), 103(, $XR1) PRINT BUFFER
1264 *
1265 MVI 6(, $XR1), C' * BUILD
1266 MVI 15(, $XR1), C' * SECOND
1267 MVI 24(, $XR1), C' * LINE OF
1268 MVI 50(, $XR1), C' * SUMMARY
1269 MVI 63(, $XR1), C' * TABLE
1270 MVI 82(, $XR1), C' *
1271 MVI 92(, $XR1), C' *
1272 MVC 21(5, $XR1), $H07N
1273 MVC 44(16, $XR1), $H08N
1274 MVC 58(4, $XR1), $H09+3
1275 MVC 74(4, $XR1), $H10N
1276 MVC 89(5, $XR1), $H11N
1277 MVC 100(5, $XR1), $H11N
1278 *

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
17F6	C0 87 021A		1279	B \$PRINT
17FA	01	17FA	1280	DC XL1'01'
17FB	69	17FB	1281	DC IL1'105'
17FC	2269	17FD	1282	DC AL2(\$PBUF+104)
			1283 *	
17FE	4C 02 04 2114		1284	MVC 4(3,\$XR1), \$M12N
1803	4C 05 0D 211A		1285	MVC 13(6,\$XR1), \$M13N
1808	4C 05 16 2120		1286	MVC 22(6,\$XR1), \$M14N
180D	4C 16 30 2137		1287	MVC 48(23,\$XR1), \$M15N
1812	4C 05 3B 2103		1288	MVC 59(6,\$XR1), \$M08N
1817	4C 05 4B 2103		1289	MVC 75(6,\$XR1), \$M08N
181C	4C 04 59 2108		1290	MVC 89(5,\$XR1), \$M09N
1821	4C 08 66 2140		1291	MVC 102(9,\$XR1), \$M16N
			1292 *	
1826	C0 87 021A		1293	B \$PRINT
182A	01	182A	1294	DC XL1'01'
182B	69	182B	1295	DC IL1'105'
182C	2269	182D	1296	DC AL2(\$PBUF+104)
			1297 *	
182E	5C 02 04 05		1298	MVC 4(3,\$XR1), 5(,\$XR1)
1832	5C 05 0D 0E		1299	MVC 13(6,\$XR1), 14(,\$XR1)
1836	4C 05 16 2146		1300	MVC 22(6,\$XR1), \$M17N
183B	4C 09 23 2156		1301	MVC 35(10,\$XR1), \$M18N
1840	4C 09 30 2156		1302	MVC 48(10,\$XR1), \$M18N
1845	4C 09 3D 2156		1303	MVC 61(10,\$XR1), \$M18N
184A	4C 0F 50 2156		1304	MVC 80(16,\$XR1), \$M18N
184F	4C 06 5A 215D		1305	MVC 90(7,\$XR1), \$M19N
1854	5C 08 66 67		1306	MVC 102(9,\$XR1), 103(,\$XR1)
1858	4C 03 63 2161		1307	MVC 99(4,\$XR1), \$M20N
			1308 *	
185D	C0 87 021A		1309	B \$PRINT
1861	01	1861	1310	DC XL1'01'
1862	69	1862	1311	DC IL1'105'
1863	2269	1864	1312	DC AL2(\$PBUF+104)
			1313 *	
1865	5C 66 67 68		1314	MVC 103(103,\$XR1), 104(,\$XR1)
			1315 *	
1869	C0 87 021A		1316	B \$PRINT
186D	01	186D	1317	DC XL1'01'
186E	69	186E	1318	DC IL1'105'
186F	2269	1870	1319	DC AL2(\$PBUF+104)
			1320 *	
1871	3C F1 2193		1321	MVI \$DRV,C'1'
			1322 *	
			1323 *	
			1324 *	PRINT SUMMARY TABLE SPACE LINES
			1325 *	
1875	7C 40 67		1326	\$R5A MVI 103(,\$XR1), C' '
1878	5C 65 66 67		1327	MVC 102(102,\$XR1), 103(,\$XR1)
			1328 *	
187C	7C 5C 06		1329	MVI 6(,\$XR1), C'*
187F	7C 5C 0F		1330	MVI 15(,\$XR1), C'*
1882	7C 5C 18		1331	MVI 24(,\$XR1), C'*
1885	7C 5C 25		1332	MVI 37(,\$XR1), C'*
1888	7C 5C 32		1333	MVI 50(,\$XR1), C'*
188D	7C 5C 3F		1334	MVI 63(,\$XR1), C'*
188E	7C 5C 52		1335	MVI 82(,\$XR1), C'*
1891	7C 5C 5C		1336	MVI 92(,\$XR1), C'*
			1337 *	
1894	C0 87 021A		1338	B \$PRINT
1898	01	1898	1339	DC XL1'01'
1899	69	1899	1340	DC IL1'105'
189A	2269	189B	1341	DC AL2(\$PBUF+104)
			1342 *	
			1343 *	
			1344 *	BEGIN / END SUMMARY PRINTOUTS
			1345 *	
189C	4C 00 03 2193		1346	MVC 3(1,\$XR1), \$DRV

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
			1347 *	
18A1	3D F2 2193		1348	CLI \$DRV,C'2'
18A5	F2 04 10		1349	JNH \$R5B
			1350 *	
18A8	5C 66 67 68		1351	MVC 103(103,\$XR1), 104(,\$XR1)
			1352 *	
18AC	C0 87 021A		1353	B \$PRINT
18B0	06	18B0	1354	DC XL1'06'
18B1	69	18B1	1355	DC IL1'105'
18B2	2269	18B3	1356	DC AL2(\$PBUF+104)
			1357 *	
18B4	C0 87 1778		1358	B \$R5
			1359 *	
			1360 *	
			1361 *	LOCATE AN UNUSED LOG ENTRY FIELD
			1362 *	
18B8	3C 00 218F		1363	\$R5B MVI \$PTR,0
			1364 *	
18BC	C0 87 1DD5		1365	\$R5B1 B \$IO
			1366 *	
18C0	3D 00 21C1		1367	CLI \$REC,0
18C4	F2 81 12		1368	JE \$R5C
			1369 *	
18C7	0E 00 218F 21A6		1370	ALC \$PTR(1), \$P1
			1371 *	
18CD	3D BF 218F		1372	CLI \$PTR, 191
18D1	C0 82 18BC		1373	BL \$R5B1
			1374 *	
18D5	3C 00 21CF		1375	MVI \$PTR,0
			1376 *	
			1377 *	
			1378 *	LOCATE OLDEST LOG ENTRY
			1379 *	
18D9	3C 00 2198		1380	\$R5C MVI \$CTR,0
			1381 *	
18DD	C0 87 1DD5		1382	\$R5C1 B \$IO
			1383 *	
18E1	3D 00 21C1		1384	CLI \$REC,0
18E5	F2 01 30		1385	JNE \$R5C3
			1386 *	
18E8	0E 00 218F 21A6		1387	ALC \$PTR(1), \$P1
18EE	0E 00 2198 21A6		1388	ALC \$CTR(1), \$P1
			1389 *	
18F4	3D BF 218F		1390	CLI \$PTR, 191
18F8	F2 82 04		1391	JL \$R5C2
			1392 *	
18FB	3C 00 218F		1393	MVI \$PTR,0
			1394 *	
18FF	3D BF 2198		1395	\$R5C2 CLI \$CTR, 191
1903	C0 82 18DD		1396	BL \$R5C1
			1397 *	
1907	4C 05 0D 2167		1398	MVC 13(6,\$XR1), \$M21N
			1399 *	
190C	C0 87 021A		1400	B \$PRINT
1910	01	1910	1401	DC XL1'01'
1911	69	1911	1402	DC IL1'105'
1912	2269	1913	1403	DC AL2(\$PBUF+104)
			1404 *	
1914	C0 87 1AF4		1405	B \$R5N
			1406 *	
1918	0C 00 2194 218F		1407	\$R5C3 MVI \$PTRF(1), \$PTR
			1408 *	
			1409 *	
			1410 *	CHECK FOR NEW VOLUME IDENTIFIERS
			1411 *	
191E	0C 00 2195 218F		1412	\$R5D MVI \$PTRX(1), \$PTR
			1413 *	
1924	4C 05 0D 21C6		1414	FVC 13(6,\$XR1), \$REC+5

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1415 *				
1929	OC 00 218F 2194	1416	MVC	\$PTR(1), \$PTRF POINT TO OLDEST LOG ENTRY
1417 *				
192F	OD 00 218F 2195	1418	\$R5D1 CLC	\$PTR(1), \$PTRX BRANCH IF
1935	F2 81 23	1419	JE	\$R5E NEW VOLUME ID
1420 *				
1938	C0 87 1DD5	1421	B	\$IO READ LOG ENTRY
1422 *				
193C	4D 05 0D 21C6	1423	CLC	13(6, \$XR1), \$REC+5 BRANCH IF VOLUME
1941	C0 81 1AB8	1424	BE	\$R5F WAS PREVIOUSLY PROCESSED
1425 *				
1945	0E 00 218F 21A6	1426	ALC	\$PTR(1), \$P1 ADVANCE LOG ENTRY POINTER
1427 *				
194B	3D BF 218F	1428	CLI	\$PTR, 191 BRANCH IF NOT
194F	C0 82 192F	1429	BL	\$R5D1 YET END OF LOG AREA
1430 *				
1953	3C 00 218F	1431	MVI	\$PTR, 0 WRAP BACK TO FIRST LOG ENTRY
1957	C0 87 192F	1432	B	\$R5D1 GO TO CHECK NEXT LOG ENTRY
1433 *				
1434 *				
1435 *				
1436 *				----- COMPILE AND PRINT SUMMARY DATA LINE
195B	7C F0 64	1437	\$R5E MVI	100(, \$XR1), C'0' INITIALIZE
195E	5C 03 63 64	1438	MVC	99(4, \$XR1), 100(, \$XR1) ALL SUMMARY
1962	5C 04 59 64	1439	MVC	89(5, \$XR1), 100(, \$XR1) LINE COUNTERS
1966	5C 03 50 64	1440	MVC	80(4, \$XR1), 100(, \$XR1) TO ZEROS
196A	5C 03 4A 50	1441	MVC	74(4, \$XR1), 80(, \$XR1)
196E	5C 03 44 50	1442	MVC	68(4, \$XR1), 80(, \$XR1)
1972	5C 09 3D 50	1443	MVC	61(10, \$XR1), 80(, \$XR1)
1976	5C 16 30 4A	1444	MVC	48(23, \$XR1), 74(, \$XR1)
197A	5C 03 15 50	1445	MVC	21(4, \$XR1), 80(, \$XR1)
1446 *				
197E	C0 87 1DD5	1447	B	\$IO READ LOG ENTRY
1982	3C 00 219E	1448	MVI	\$RDCNT, 0 CLEAR
1986	0C 04 219D 219E	1449	MVC	\$RDCNT-1(5), \$RDCNT READ AND SEEK
198C	0C 03 21A2 219E	1450	MVC	\$SKCNT(4), \$RDCNT USAGE COUNTERS
1451 *				
1992	0E 05 219E 21CC	1452	\$R5E1 ALC	\$RDCNT(6), \$REC+1' UPDATE READ AND
1998	0E 03 21A2 21D0	1453	ALC	\$SKCNT(4), \$REC+15 SEEK USAGE COUNTERS
1454 *				
199E	3B 0F 21D8	1455	SBF	\$REC+23, X'0F' CLEAR MSG BITS IN SNS BYTE 7
1456 *				
19A2	D2 02 15	1457	LA	21(, \$XR1), \$XR2 POINT TO 'FMT 0' COUNTER
1458 *				
19AC	3D 10 21D8	1459	CLI	\$REC+23, X'10' CHECK LOGGED SENSE BYTE 7
19A9	F2 82 37	1460	JL	\$R5E4 BRANCH IF SNS FORMAT 0
19AC	F2 84 10	1461	JH	\$R5E2 BRANCH IF NOT SNS FORMAT 1
1462 *				
19AF	D2 02 2A	1463	LA	42(, \$XR1), \$XR2 POINT TO 'EQUIP CK' COUNTER
1464 *				
19B2	38 01 21D1	1465	TBN	\$REC+16, \$BIT7 BRANCH IF NOT
19B6	F2 90 20	1466	JF	\$R5E3 SEEK CHECK
1467 *				
19B9	D2 02 37	1468	LA	55(, \$XR1), \$XR2 POINT TO 'SEEK CK' COUNTER
19BC	F2 87 1A	1469	J	\$R5E3 GO TO INCREMENT COUNTER
1470 *				
19BF	D2 02 44	1471	\$R5E2 LA	68(, \$XR1), \$XR2 POINT TO 'CORR DATA CK' COUNTER
1472 *				
19C2	3D 50 21D8	1473	CLI	\$REC+23, X'50' CHECK LOGGED SENSE BYTE 7
19C6	F2 81 1A	1474	JE	\$R5E4 BRANCH IF SNS FORMAT 5
19C9	F2 84 1C	1475	JH	\$R5E5 BRANCH IF SNS FORMAT 6
1476 *				
19CC	D2 02 1D	1477	LA	29(, \$XR1), \$XR2 POINT TO 'EQUIP CK' COUNTER
1478 *				
19CF	3D 40 21D8	1479	CLI	\$REC+23, X'40' CHECK LOGGED SNS BYTE 7
19D3	F2 01 03	1480	JNE	\$R5E3 BRANCH IF NOT SNS FORMAT 4
1481 *				
19D6	D2 02 4A	1482	LA	74(, \$XR1), \$XR2 POINT TO 'DATA CK' COUNTER

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1483 *				
19D9	38 80 21D2	1484	\$R5E3 TBN	\$REC+17, \$BIT0 CHECKED LOGGED SNS BYTE 1
19DD	F2 90 03	1485	JF	\$R5E4 BRANCH IF NOT PERMANENT ERROR
1486 *				
19E0	E2 02 06	1487	LA	6(, \$XR2), \$XR2 ADVANCE POINTER TO 'PERM' COUNTER
1488 *				
19E3	86 30 00 21AD	1489	\$R5E4 AZ	0(4, \$XR2), \$D1(1) INCREMENT ERROR COUNTER
1490 *				
19E8	0E 00 218F 21A6	1491	\$R5E5 ALC	\$PTR(1), \$P1 ADVANCE LOG ENTRY POINTER
1492 *				
19EE	3D BF 218F	1493	CLI	\$PTR, 191 BRANCH IF NOT
19F2	F2 82 04	1494	JL	\$R5E6 YET END OF LOG AREA
1495 *				
19F5	3C 00 218F	1496	MVI	\$PTR, 0 WRAP BACK TO FIRST LOG ENTRY
1497 *				
19F9	0D 00 218F 2194	1498	\$R5E6 CLC	\$PTR(1), \$PTRF BRANCH IF ALL LOG
19FF	F2 81 19	1499	JE	\$R5E7 ENTRIES HAVE BEEN CHECKED
1500 *				
1A02	C0 87 1DD5	1501	B	\$IO READ NEXT LOG ENTRY
1502 *				
1A06	3D 00 21C1	1503	CLI	\$REC, 0 BRANCH IF
1A0A	C0 81 19E8	1504	BE	\$R5E5 UNUSED ENTRY
1505 *				
1A0E	4D 05 0D 21C6	1506	CLC	13(6, \$XR1), \$REC+5 BRANCH IF ENTRY CONTAINS
1A13	C0 01 19E8	1507	BNE	\$R5E5 A DIFFERENT VOLUME ID
1508 *				
1A17	C0 87 1992	1509	B	\$R5E1 GO TO UPDATE SUMMARY COUNTERS
1510 *				
1A1B	3C 0F 2428	1511	\$R5E7 EQU	* SETUP TABLE FOR OUTPUT
1512				
1A1F	0C 01 23BB 23A1	1513	MVI	TABTABL, 15
1A25	3C 04 23B9	1514	MVC	TABIDX(2), ZERO
1A29	0C 01 23B7 23A1	1515	MVI	CNTLNG, X'04'
1A2F	34 01 1A6A	1516	MVC	CNTOPS(2), ZERO
1A33	34 02 1A6E	1517	ST	\$SAVR1+3, XR1
1A37	0C 03 2626 21A2	1518	ST	\$SAVR2+3, XR2
1A3D	C0 87 11C2	1519	MVC	DBUF+3(4), \$SKCNT
1A41	0C 04 1B08 088B	1520	B	HEXDEC
1521			MVC	SAVSEK(5), PRIBUF+11
1522				
1A47	3C 06 23B9	1523	MVI	CNTLNG, X'06'
1A4B	0C 01 23BB 23A1	1524	MVC	TABIDX(2), ZERO
1A51	0C 01 23B7 23A1	1525	MVC	CNTOPS(2), ZERO
1A57	0C 05 2628 219E	1526	MVC	DBUF+5(6), \$RDCNT
1A5D	C0 87 11C2	1527	B	HEXDEC
1A61	0C 04 1B0D 0888	1528	MVC	SAVRD(5), PRIBUF+8
1529				
1A67	C2 01 0000	1529	\$SAVR1 LA	**+, XR1
1A6B	C2 02 0000	1530	\$SAVR2 LA	**+, XR2
1A6F	4C 04 59 1B08	1531	MVC	89(5, XR1), SAVSEK
1A74	4C 04 64 1B0D	1532	MVC	100(5, XR1), SAVRD
1A79	7D 40 59	1533	CLI	89(, XR1), X'40'
1A7C	F2 01 03	1534	JNE	**6
1A7F	7C F0 59	1535	MVI	89(, XR1), X'F0'
1536 *				
1A82	7D 40 64	1537	CLI	100(, XR1), X'40'
1A85	F2 01 03	1538	JNE	**6
1A88	7C F0 64	1539	MVI	100(, XR1), X'F0'
1540 *				
1541 *				
1542 *				
1543 *				
1544 *				
1545 *				
1546 *				
1547 *				
1548				
1A8B	C0 87 1AB3	1548	B	\$R5E9 SKIP THIS FOR DEBUG
1A8F	0F 03 21A2 21B2	1549	SLC	\$SKCNT(4), \$KILO CONVERT SEEK
1A95	F2 82 09	1550	JM	\$R5E8 USAGE COUNT TO

NOTE THAT THE FIRST 15 LOCATIONS OF PRIBUF FIRST CONTAIN DECIMAL VALUE FOR THE SEEK COUNT AND THEN IT WILL CONTAIN THE READ VALUE--THUS THE MVC INSTRUCTIONS MAY BE USED FOR THE DIVIDE.



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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1A98	46 40 59 21AD	1551	AZ		89(5,\$XR1),SD1(1) DECIMAL AND MOV..
1ASD	C0 87 1A1B	1552	B		\$R5E7 TO PRINT BUFFER
		1553	*		
1AA1	0F 05 219E 21B8	1554	\$R5E8	SLC	\$RDCNT(6),\$MEG CONVERT READ
1AA7	F2 82 09	1555	JM		\$R5E9 USAGE COUNT TO
1AAA	46 40 64 21AD	1556	AZ		100(5,\$XR1),SD1(1) DECIMAL AND MOVE
1AAF	C0 87 1AA1	1557	B		\$R5E8 TO PRINT BUFFER
		1558	*		
1AB3	C0 87 021A	1559	\$R5E9	B	\$PRINT PRINT
1AB7	01	1560	DC		XL1'01' SUMMARY LINE
1AB8	69	1561	DC		IL1'105'
1AB9	2269	1562	DC		AL2(\$PBUF+104)
		1563	*		
		1564	*		
		1565	*		SEARCH FOR NEXT VOLUME ID TO BE PROCESSED
		1566	*		
1ABB	0C 00 218F 2195	1567	\$R5F	MVC	\$PTR(1),\$PTRX RESTORE LOG ENTRY POINTER
		1568	*		
1AC1	0E 00 218F 21A6	1569	\$R5F1	ALC	\$PTR(1),\$P1 ADVANCE LOG ENTRY POINTER
		1570	*		
1AC7	3D BF 218F	1571	CLI		\$PTR,191 BRANCH IF NOT
1ACB	F2 92 04	1572	JL		\$R5F2 YET END OF LOG AREA
		1573	*		
1ACE	3C 00 218F	1574	MVI		\$PTR,0 WRAP BACK TO FIRST LOG ENTRY
		1575	*		
1AD2	0D 00 218F 2194	1576	\$R5F2	CLC	\$PTR(1),\$PTRF BRANCH IF ALL LOG
1AD8	F2 81 19	1577	JE		\$R5N ENTRIES HAVE BEEN CHECKED
		1578	*		
1ADB	C0 87 1DD5	1579	B		\$IO READ NEXT LOG ENTRY
		1580	*		
1ADF	3D 00 21C1	1581	CLI		\$REC,0 BRANCH IF
1AE3	C0 81 1AC1	1582	BE		\$R5F1 UNUSED ENTRY
		1583	*		
1AE7	4D 05 0D 21C6	1584	CLC		13(6,\$XR1),\$REC+5 BRANCH IF ENTRY
1AEC	C0 81 1AC1	1585	BE		\$R5F1 CONTAINS SAME VOLUME ID
		1586	*		
1AFO	C0 87 191E	1587	B		\$R5D GO TO CHECK IF NEW VOLUME ID
		1588	*		
		1589	*		
		1590	*		PREPARE TO PRINT SUMMARY FOR NEXT DRIVE ID
		1591	*		
1AF4	JE 00 218E 21A6	1592	\$R5N	ALC	\$HD(1),\$P1 ADVANCE HEAD ADDRESS
1AFA	06 00 2193 21AD	1593	AZ		\$DRV(1),SD1(1) ADVANCE DRIVE IDENTIFIER
		1594	*		
1B00	C0 87 1875	1595	B		\$R5A GO TO COMPLETE SUMMARY TABLE
		1596	*		
1B04	0000000000	1B08	1597	SAVSEK	DC XL5'00'
1B09	0000000000	1B0D	1598	SAVRD	DC XL5'00'

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		1600	*		*****
		1601	*		
		1602	*		ROUTINE 4 - PRINT 3340 ERROR HISTORY TABLE
		1603	*		
		1604	*		*****
		1605	*		
		1606	*		ROUTINE PREFACE
		1607	*		
1B0E	04	1B0E	1608	\$PTN4	DC XL1'04' ROUTINE NUMBER
1B0F	00	1B0F	1609	DC	XL1'00' ROUTINE FLAGS
1B10	FFFF	1B11	1610	DC	XL2'FFFF' LAST ROUTINE
		1611	*		
		1612	*		-----
		1613	*		ROUTINE INITIALIZATION
		1614	*		
1B12	3C 00 2188			MVI	\$IND,0 RESET ALL PROGRAM INDICATORS
		1615	*		
1B16	C0 87 1D2D			\$R6	B \$BEGIN PERFORM COMMON INITIALIZATION
		1617	*		
1B1A	0C 01 218C 21A9			MVC	\$CYL(2),\$SP209 INITIALIZE 3340 CYLINDER ADDRESS
1B20	0C 01 218E 21A6			MVC	\$HD(2),\$P1 INITIALIZE 3340 HEAD ADDRESS
1B26	3C 00 218F			MVI	\$PTR,0 INITIALIZE LOG RECORD POINTER
		1621	*		
1B2A	C0 87 1DD5			B	\$IO READ FIRST LOG RECORD FROM 3340
		1622	*		
1B2E	C2 01 2201			LA	\$PBUF,\$XR1 PRINT BUFFER ADDRESS TO INDEX REG 1
		1623	*		
		1624	*		
		1625	*		
		1626	*		
		1627	*		-----
		1628	*		PRINT HISTORY TABLE TITLE AND INPUT DRIVE IDENTIFIER
		1629	*		
		1630	*		
1B32	4C 15 15 20D8			MVC	2(22,\$XR1),\$M05N BUILD
1B37	4C 15 2B 20EE			MVC	43(22,\$XR1),\$M06N TITLE
1B3C	4C 00 2B 2189			MVC	43(1,\$XR1),\$DRVID LINE
		1632	*		
		1633	*		
1B41	C0 87 021A			B	\$PRINT PRINT
1B45	42	1B45	1635	DC	XL1'42' TITLE
1B46	2C	1B46	1636	DC	IL1'44' LINE
1B47	222C	1B48	1637	DC	AL2(\$PBUF+43)
1B49	FF00	1B4A	1638	DC	AL2(\$HLT00)
		1639	*		
		1640	*		-----
		1641	*		PRINT HISTORY TABLE HEADING LINES
		1642	*		
1B4B	7C 5C 5D			MVI	93(,\$XR1),C'*** BUILD FIRST
1B4E	5C 5C 5C 5D			MVC	92(93,\$XR1),93(,\$XR1) LINE OF HISTORY TABLE
		1644	*		
		1645	*		
1B52	C0 87 021A			B	\$PRINT PRINT FIRST
1B56	01	1B56	1647	DC	XL1'01' LINE OF HISTORY TABLE
1B57	5E	1B57	1648	DC	IL1'94'
1B58	225E	1B59	1649	DC	AL2(\$PBUF+93)
		1650	*		
1B5A	7C 40 5C			MVI	92(,\$XR1),C' ' CLEAR
1B5D	5C 5A 5B 5C			MVC	91(91,\$XR1),92(,\$XR1) PRINT BUFFER
		1652	*		
		1653	*		
1B61	7C 5C 06			MVI	6(,\$XR1),C'*** BUILD
1B64	7C 5C 0F			MVI	15(,\$XR1),C'*** SECOND
1B67	7C 5C 1A			MVI	26(,\$XR1),C'*** LINE OF
1B6A	7C 5C 25			MVI	37(,\$XR1),C'*** HISTORY TABLE
		1657	*		
		1658	*		
1B6D	C0 87 021A			B	\$PRINT PRINT SECOND
1B71	01	1B71	1660	DC	XL1'01' LINE OF HISTORY TABLE
1B72	5E	1B72	1661	DC	IL1'94'
1B73	225E	1B74	1662	DC	AL2(\$PBUF+93)
		1663	*		
		1664	*		
1B75	4C 02 04 2114			MVC	4(3,\$XR1),\$M12N BUILD
1B7A	4C 05 0D 211A			MVC	13(5,\$XR1),\$M13N THIRD
1B7F	4C 03 16 216B			MVC	22(4,\$XR1),\$M22N LINE OF
1B84	4C 03 21 216F			MVC	33(4,\$XR1),\$M23N HISTORY

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1B89	4C 1A 4E 2069	1668	MVC	78(27,\$XR1), \$M02N
		1669 *		TABLE
1B8E	C0 87 021A	1670	B	\$PRINT
1B92	01	1671	DC	XL1'01'
1B93	5E	1672	DC	IL1'94'
1B94	225E	1673	DC	AL2(\$PBUF+93)
		1674 *		
1B96	5C 02 04 05	1675	MVC	4(3,\$XR1), 5(\$XR1)
1B9A	5C 05 0D 0E	1676	MVC	13(6,\$XR1), 14(\$XR1)
1B9E	4C 07 18 217F	1677	MVC	24(8,\$XR1), \$M25N
1BA3	4C 07 23 2187	1678	MVC	35(8,\$XR1), \$M26N
1BA8	4C 34 5B 209E	1679	MVC	91(53,\$XR1), \$M03N
		1680 *		
12AD	C0 87 021A	1681	B	\$PRINT
1BB1	01	1682	DC	XL1'01'
1BB2	5E	1683	DC	IL1'94'
1BB3	225E	1684	DC	AL2(\$PBUF+93)
		1685 *		
1BB5	5C 5B 5C 5D	1686	MVC	92(92,\$XR1), 93(\$XR1)
		1687 *		BUILD LAST HEADING LINE
1BB9	C0 87 021A	1688	B	\$PRINT
1BBD	01	1689	DC	XL1'01'
1BBE	5E	1690	DC	IL1'94'
1BBF	225E	1691	DC	AL2(\$PBUF+93)
		1692 *		
1BC1	3C F1 2193	1693	MVI	\$DRV,C'1'
		1694 *		INITIALIZE DRIVE IDENTIFIER
		1695 *		
		1696 *		PRINT HISTORY TABLE SPACE LINES
		1697 *		
1BC5	7C 40 5C	1698 \$R6A	MVI	92(\$XR1), C'1'
1BC8	5C 5A 5B 5C	1699	MVC	91(91,\$XR1), 92(\$XR1)
		1700 *		CLEAR PRINT BUFFER
1BCC	7C 5C 06	1701	MVI	6(\$XR1), C'*
1BCF	7C 5C 0F	1702	MVI	15(\$XR1), C'*
1BD2	7C 5C 1A	1703	MVI	26(\$XR1), C'*
1BD5	7C 5C 25	1704	MVI	37(\$XR1), C'*
		1705 *		
1BD8	C0 87 021A	1706	B	\$PRINT
1BDC	01	1707	DC	XL1'01'
1BDD	5E	1708	DC	IL1'94'
1BDE	225E	1709	DC	AL2(\$PBUF+93)
		1710 *		
		1711 *		
		1712 *		BEGIN / END HISTORY PRINTOUTS
		1713 *		
1BE0	4C 00 03 2193	1714	MVC	3(1,\$XR1), \$DRV
		1715 *		MOVE DRIVE ID TO PRINT BUFFER
1BE5	3D F2 2193	1716	CLI	\$DRV,C'2'
1BE9	F2 04 10	1717	JNH	\$R6B
		1718 *		CONTINUE PRINTOUT IF DRIVE 4 HISTORY HAS NOT YET BEEN PRINTED
1BEC	5C 5B 5C 5D	1719	MVC	92(92,\$XR1), 93(\$XR1)
		1720 *		BUILD LAST LINE OF HISTORY TABLE
1BF0	C0 87 021A	1721	B	\$PRINT
1BF4	06	1722	DC	XL1'06'
1BF5	5E	1723	DC	IL1'94'
1BF6	225E	1724	DC	AL2(\$PBUF+93)
		1725 *		
1BF8	C0 87 1B16	1726	B	\$R6
		1727 *		GO CHECK FOR MORE INPUT DRIVES
		1728 *		
		1729 *		LOCATE AN UNUSED LOG ENTRY FIELD
		1730 *		
1BFC	3C 00 218F	1731 \$R6B	MVI	\$PTR,0
		1732 *		POINT TO FIRST LOG ENTRY FIELD
1C30	C0 87 1DD5	1733 \$R6B1	B	\$IO
		1734 *		READ LOG ENTRY
1C04	3D 00 21C1	1735	CLI	\$REC,0
				BRANCH IF

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1C08	F2 81 12	1736	JE	\$R6C
		1737 *		ENTRY IS UNUSED
1C0B	0E 00 218F 21A6	1738	ALC	\$PTR(1), \$P1
		1739 *		ADVANCE LOG ENTRY POINTER
1C11	3D BF 218F	1740	CLI	\$PTR, 191
1C15	C0 82 1C00	1741	BL	\$R6B1
		1742 *		BRANCH IF NOT YET END OF LOG AREA
1C19	3C 00 218F	1743	MVI	\$PTR,0
		1744 *		ASSUME LOG AREA IS FULL
		1745 *		
		1746 *		LOCATE OLDEST LOG ENTRY
		1747 *		
1C1D	3C 00 2198	1748 \$R6C	MVI	\$CTR,0
		1749 *		INITIALIZE LOG ENTRY COUNTER
1C21	C0 87 1DD5	1750 \$R6C1	B	\$IO
		1751 *		READ LOG ENTRY
1C25	3D 00 21C1	1752	CLI	\$REC,0
1C29	F2 01 30	1753	JNE	\$R6C3
		1754 *		BRANCH IF ENPTY IS USED
1C2C	0E 00 218F 21A6	1755	ALC	\$PTR(1), \$P1
1C32	0E 00 2198 21A6	1756	ALC	\$CTR(1), \$P1
		1757 *		ADVANCE LOG ENTRY POINTER ADVANCE LOG ENTRY COUNTER
1C38	3D BF 218F	1758	CLI	\$PTR, 191
1C3C	F2 82 04	1759	JL	\$R6C2
		1760 *		BRANCH IF NOT YET END OF LOG AREA
1C3F	3C 00 218F	1761	MVI	\$PTR,0
		1762 *		WRAP BACK TO FIRST LOG ENTRY
1C43	3D BF 2198	1763 \$R6C2	CLI	\$CTR, 191
1C47	C0 82 1C21	1764	BL	\$R6C1
		1765 *		GO TO CHECK NEXT LOG IF ALL ENTRIES HAVE NOT YET BEEN CHECKED
1C4B	4C 05 0D 2167	1766	MVC	13(6,\$XR1), \$M21N
		1767 *		BUILD 'NO LOG' MESSAGE
1C50	C0 87 021A	1768	B	\$PRINT
1C54	01	1769	DC	XL1'01'
1C55	5E	1770	DC	IL1'94'
1C56	225E	1771	DC	AL2(\$PBUF+93)
		1772 *		
1C58	C0 87 1DD0	1773	B	\$R6N
		1774 *		GO TO PROCESS DATA FOR NEXT DRIVE
1C5C	0C 00 2194 218F	1775 \$R6C3	MVC	\$PTRF(1), \$PTR
		1776 *		SAVE POINTER TO OLDEST LOG ENTRY
		1777 *		
		1778 *		FORMAT AND PRINT LOG ENTRY
		1779 *		
1C62	3D 60 21D8	1780 \$R6D	CLI	\$REC+23,X'60'
1C66	C0 81 1CE3	1781	BE	\$R6E
		1782 *		BRANCH IF ONLY USAGE DATA IN LOG ENTRY
1C6A	4C 05 0D 21C6	1783	MVC	13(6,\$XR1), \$REC+5
		1784 *		MOVE VOLUME ID TO PRINT BUFFER
1C6F	4C 07 18 2177	1785	MVC	24(8,\$XR1), \$M24N
1C74	4C 07 23 2177	1786	MVC	35(8,\$XR1), \$M24N
		1787 *		INITIALIZE DATE AND TIME FIELDS IN PRINT BUFFER
1C79	3D 00 21EA	1788	CLI	\$REC+41,0
1C7D	F2 81 0F	1789	JE	\$R6D1
		1790 *		BRANCH IF NO DATE WAS RECORDED
1C80	4C 01 12 21EB	1791	MVC	18(2,\$XR1), \$REC+42
1C85	4C 01 15 21ED	1792	MVC	21(2,\$XR1), \$REC+44
1C8A	4C 01 18 21EF	1793	MVC	24(2,\$XR1), \$REC+46
		1794 *		MOVE DATE TO PRINT BUFFER
1C8F	3D 00 21F0	1795 \$R6D1	CLI	\$REC+47,0
1C93	F2 81 0F	1796	JE	\$R6D2
		1797 *		BRANCH IF NO TIME WAS RECORDED
1C96	4C 01 1D 21F1	1798	MVC	29(2,\$XR1), \$REC+48
1C9B	4C 01 20 21F3	1799	MVC	32(2,\$XR1), \$REC+50
1CA0	4C 01 23 21F5	1800	MVC	35(2,\$XR1), \$REC+52
		1801 *		MOVE TIME TO PRINT BUFFER
1CA5	C0 87 021E	1802 \$R6D2	B	\$UNPK
1CA9	04	1803	DC	IL1'4'
				UNPACK FOUR SENSE

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1CAA	21D4	1CAB	1804	DC	AL2(\$REC+19)
1CAC	222F	1CAD	1805	DC	AL2(\$PBUF+46)
			1806 *		
1CAE	C0 87 021E		1807	B	\$UNPK
1CB2	04	1CB2	1808	DC	IL1'4'
1CB3	21D8	1CB4	1809	DC	AL2(\$REC+23)
1CB5	2238	1CB6	1810	DC	AL2(\$PBUF+55)
			1811 *		
1CB7	C0 87 021E		1812	B	\$UNPK
1CB8	04	1CB8	1813	DC	IL1'4'
1CB9	21DC	1CB9	1814	DC	AL2(\$REC+27)
1CBE	2241	1CBF	1815	DC	AL2(\$PBUF+64)
			1816 *		
1CC0	C0 87 021E		1817	B	\$UNPK
1CC4	04	1CC4	1818	DC	IL1'4'
1CC5	21E0	1CC6	1819	DC	AL2(\$REC+31)
1CC7	224A	1CC8	1820	DC	AL2(\$PBUF+73)
			1821 *		
1CC9	C0 87 021E		1822	B	\$UNPK
1CCD	04	1CCD	1823	DC	IL1'4'
1CCE	21E4	1CCF	1824	DC	AL2(\$REC+35)
1CD0	2253	1CD1	1825	DC	AL2(\$PBUF+82)
			1826 *		
1CD2	C0 87 021E		1827	B	\$UNPK
1CD6	04	1CD6	1828	DC	IL1'4'
1CD7	21E8	1CD8	1829	DC	AL2(\$REC+39)
1CD9	225C	1CDA	1830	DC	AL2(\$PBUF+91)
			1831 *		
1CDB	C0 87 021A		1832	B	\$PRINT
1CDF	01	1CDF	1833	DC	XL1'01'
1CE0	5E	1CE0	1834	DC	IL1'94'
1CE1	225E	1CE2	1835	DC	AL2(\$PBUF+93)
			1836 *		
			1837 *		
			1838 *		SEARCH FOR NEXT LOG ENTRY TO BE PROCESSED
			1839 *		
1CE3	0E 00 218F 21A6	1840	\$R6E	ALC	\$PTR(1), \$P1
		1841	*		ADVANCE LOG ENTRY POINTER
1CE9	3D BF 218F	1842		CLI	\$PTR, 191
1CED	F2 82 04	1843		JL	\$R6E1
		1844	*		BRANCH IF NOT YET END OF LOG AREA
1CF0	3C 00 218F	1845		MVI	\$PTR, 0
		1846	*		WRAP BACK TO FIRST LOG ENTRY
1CF4	0D 00 218F 2194	1847	\$R6E1	CLC	\$PTR(1), \$PTR
1CFA	F2 81 10	1848		JE	\$R6N
		1849	*		BRANCH IF ALL LOG ENTRIES HAVE BEEN PROCESSED
1CFD	C0 87 1DD5	1850		B	\$IO
		1851	*		READ NEXT LOG ENTRY
1D01	3D 00 21C1	1852		CLI	\$REC, 0
1D05	C0 81 1CE3	1853		BE	\$R6E
		1854	*		BRANCH IF UNUSED ENTRY
1D09	C0 87 1C62	1855		B	\$R6D
		1856	*		GO TO FORMAT AND PRINT LOG ENTRY
		1857	*		
		1858	*		CLEAR LOG AREA IF REQUIRED
		1859	*		
1D0D	3A 08 2188	1860	\$R6N	SBN	\$IND, \$CLEAR
		1861	*		SET 'CLEAR LOG' INDICATOR
1D11	38 80 020C	1862		TBN	\$SBY4, \$SSW20
1D15	C0 90 1DD5	1863		BF	\$IO
		1864	*		CLEAR LOG AREA IF SENSE SWITCH 20 IS OFF
1D19	3B 08 2188	1865		SBF	\$IND, \$CLEAR
		1866	*		RESET 'CLEAR LOG' INDICATOR
		1867	*		
		1868	*		PREPARE TO PRINT HISTORY FOR NEXT DRIVE ID
		1869	*		
1D1D	0E 00 218E 21A6	1870		ALC	\$HD(1), \$P1
1D23	06 00 2193 21AD	1871		AZ	\$DRV(1), \$D1(1)
					ADVANCE HEAD ADDRESS
					ADVANCE DRIVE IDENTIFIER

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
					1872 *
					1873 B \$R6A
					1874 *

GO TO COMPLETE HISTORY TABLE

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

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1876 *****
1877 *
1878 *      ROUTINES 3 AND 4 - COMMON INITIALIZATION PROCEDURES
1879 *
1880 *****
1881 *
1882 $BEGIN ST      $BGNX+3,$ARR      SAVE RETURN ADDRESS
1883 *
1884 MVI $NN,0      CLEAR
1885 MVC $NN-1(9),$NN      DDCP AREA
1886 *
1887 LA $UDT-3,$XR1      POINT TO SECTION UDT
1888 *
1889 $BGN01 LA      3(,$XR1),$XR1      LOCATE
1890 CLI      0(,$XR1),X'C1'      3340 UDT ENTRY
1891 BNE $BGN01
1892 *
1893 TBN      1(,$XR1),$BIT2      FND ROUTINE IF 3340
1894 BF $LINK      NOT DEFINED IN DCP UDT
1895 *
1896 $BGN02 TBF $SBYT2,$SSW11+$SSW12+$SSW13+$SSW14      SKIP IF ANY SNS
1897 JF $BGN03      SW 11 THRU 14 ON
1898 *
1899 SBN $SBYT2,$SSW12      SET SNS SW 12 (DEFAULT TO DRV 2)
1900 *
1901 $BGN03 TBN $SBYT2,$SSW11      BRANCH IF DRIVE 1 NOT
1902 TBF $IND,$DRV1      SELECTED OR IF DATA FROM
1903 JF $BGN04      DRV 1 HAS ALREADY BEEN PRINTED
1904 *
1905 SBN $IND,$DRV1      SET 'DRV 1 USED' INDICATOR
1906 *
1907 MVI $DRVID,C'1'      SETUP DRIVE IDENTIFIER,
1908 MVI $DRVAD,X'CO'      DRIVE ADDRESS, AND ERROR
1909 MVI $CKMSK,X'81'      SENSE BYTE MASK FOR DRIVE 1
1910 *
1911 J $BGNX      RETURN TO CALLING ROUTINE
1912 *
1913 $BGN04 TBN $SBYT2,$SSW12      BRANCH IF DRIVE 2 NOT
1914 TBF $IND,$DRV2      SELECTED OR IF DATA FROM
1915 JF $BGN05      DRV 2 HAS ALREADY BEEN PRINTED
1916 *
1917 SBN $IND,$DRV2      SET 'DRV 2 USED' INDICATOR
1918 *
1919 MVI $DRVID,C'2'      SETUP DRIVE IDENTIFIER,
1920 MVI $DRVAD,X'CB'      DRIVE ADDRESS, AND ERROR
1921 MVI $CKMSK,X'41'      SENSE BYTE MASK FOR DRIVE 2
1922 *
1923 J $BGNX      RETURN TO CALLING ROUTINE
1924 *
1925 $BGN05 TBN $SBYT2,$SSW13      BRANCH IF DRIVE 3 NOT
1926 TBF $IND,$DRV3      SELECTED OR IF DATA FROM
1927 JF $BGN06      DRV 3 HAS ALREADY BEEN PRINTED
1928 *
1929 SBN $IND,$DRV3      SET 'DRV 3 USED' INDICATOR
1930 *
1931 MVI $DRVID,C'3'      SETUP DRIVE IDENTIFIER,
1932 MVI $DRVAD,X'DO'      DRIVE ADDRESS, AND ERROR
1933 MVI $CKMSK,X'21'      SENSE BYTE MASK FOR DRIVE 3
1934 *
1935 J $BGNX      RETURN TO CALLING ROUTINE
1936 *
1937 $BGN06 TBN $SBYT2,$SSW14      END ROUTINE IF DRV 4 NOT
1938 TBF $IND,$DRV4      SELECTED OR IF DATA FROM
1939 BF $LINK      DRV 4 HAS ALREADY BEEN PRINTED
1940 *
1941 SBN $IND,$DRV4      SET 'DRV 4 USED' INDICATOR
1942 *
1943 MVI $DRVID,C'4'      SETUP DRIVE IDENTIFIER,

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1DC9 3C D8 218A      1944 MVI $DRVAD,X'D8'
1DCD 3C 11 2192      1945 MVI $CKMSK,X'11'
1DD1 C0 87 0000      1946 *
1947 $BGNX P      **
1948 *

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DRIVE ADDRESS, AND ERROR
SENSE BYTE MASK FOR DRIVE 4
RETURN TO CALLING ROUTINE

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1950	*			*****
1951	*			
1952	*			ROUTINES 5 AND 6 - COMMON 3340 I/O SUBROUTINES
1953	*			
1954	*			*****
1955	*			
1956	*			READ OR CLEAR 3340 LOG ENTRIES
1957	*			
1DD5 34 08 1EC4		1958	\$IO ST	\$IOX+3,\$ARR SAVE RETURN ADDRESS
1DD9 34 01 1EC0		1959	ST	\$IOX1+3,\$XR1 SAVE INDEX REG 1
1DDD 3C 0A 2196		1960	*	
1DE1 0D 01 218C 226C		1961	MVI	\$RRETRY,10 INITIALIZE ERROR RETRY COUNT
1DE7 F2 01 0D		1962	*	
1DEA 0D 01 218E 226E		1963	CLC	\$CYL(2),\$CC BRANCH IF ACCESS
1DF0 F2 81 42		1964	JNE	\$RECAL NOT YET AT REQUIRED CYLINDER
1DF3 3C 00 226F		1965	*	
1DF7 3C 00 2190		1966	CLC	\$HD(2),\$SH BRANCH IF ACCESS
1DFB 3C 01 2191		1967	JE	\$RDWR ALREADY AT REQUIRED LOCATION
1DFE C0 87 1EC5		1968	*	
1E03 0C 01 226C 218C		1969	MVI	\$RR,0 RESET RECORD NUMBER
1E09 0C 01 226E 218E		1970	*	
1E0F 3C 00 2190		1971	\$RECAL MVI	\$Q,0 SETUP Q AND R BYTES
1E13 3C 00 2191		1972	MVI	\$R,1 FOR RECALIBRA1' COMMAND
1E17 C0 87 1EC5		1973	*	
1E1B 3C 01 2190		1974	B	\$XEQ GO TO EXECUTE RECALIBRATE COMMAND
1E1F 3C 01 2191		1975	*	
1E23 C0 87 1EC5		1976	MVC	\$CC(2),\$CYL MOVE CYLINDER AND
1E27 0C 03 226E 2290		1977	MVC	\$HH(2),\$HD HEAD VALUES TO DDCP
1E2D 38 02 226A		1978	*	
1E31 C0 10 1E0F		1979	\$SEEK MVI	\$Q,0 SETUP Q AND R
1E35 0C 01 226C 218C		1980	MVI	\$R,0 BYTES FOR SEEK COMMAND
1E3B 0C 01 226E 218E		1981	*	
1E41 0C 02 2272 21A3		1982	B	\$XEQ GO TO EXECUTE SEEK COMMAND
1E47 38 08 2188		1983	*	
1E4B F2 10 4D		1984	\$RDHA MVI	\$Q,1 SETUP Q AND R BYTES FOR
1E4E 3C 04 21A3		1985	MVI	\$R,1 READ HA (EVEN) COMMAND
1E52 0C 00 21A4 218F		1986	*	
1E58 0E 00 21A4 21A7		1987	B	\$XEQ GO TO EXECUTE READ HA COMMAND
1E5E 0E 01 21A4 21A4		1988	*	
1E64 C0 20 1E5E		1989	MVC	\$HH(4),\$DDDF+4 MOVE RECORD 0 CCHH TO DDCP
1E68 0D 00 21A3 226F		1990	*	
1E6E F2 81 16		1991	TBN	\$PF,\$BIT6 GO TO SEEK TO ASSIGNED
1E71 0C 00 226F 21A3		1992	BT	\$SEEK ALTERNATE IF DEFECTIVE TRACK
1E77 3C 00 2273		1993	*	
1E7B 3C 01 2190		1994	\$RDWR MVC	\$CC(2),\$CYL MOVE CYLINDER AND
1E7F 3C 00 2191		1995	MVC	\$HH(2),\$HD HEAD VALUES TO DDCP
1E83 C0 87 1EC5		1996	*	
		1997	MVC	\$DL(3),\$P256 MOVE KL AND DL TO DDCP
		1998	*	
		1999	TBN	\$IND,\$CLEAR GO TO CLEAR LOG AREA
		2000	JT	\$RREP IF 'CLEAR' INDICATOR IS ON
		2001	*	
		2002	\$RDKD MVI	\$RDWK,4 DEVELOPE
		2003	MVC	\$RDWK+1(1),\$PTR RECORD NUMBER
		2004	ALC	\$RDWK+1(1),\$P5 FROM LOG AREA POINTER
		2005	\$RDKD1 ALC	\$RDWK+1(2),\$RDWK+1
		2006	BNOL	\$RDKD1
		2007	*	
		2008	CLC	\$RDWK(1),\$RR BRANCH IF REQUIRED
		2009	JE	\$RDKD2 RECORD IS ALREADY IN MAIN STORE
		2010	*	
		2011	MVC	\$RR(1),\$RDWK MOVE RECORD NUMBER TO DDCP
		2012	MVI	\$NN,0 SETUP NN VALUE TO READ ONE RECORD
		2013	*	
		2014	MVI	\$Q,X'01' SETUP Q AND R BYTES
		2015	MVI	\$R,X'00' FOR READ KEY-DATA COMMAND
		2016	*	
		2017	B	\$XEQ GO TO EXECUTE READ KEY-DATA COMMAND

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
2018	*			
2019	\$RDKD2 LA	\$DDDF,\$XR1		LOCATE REQUIRED
2020	MVI	\$RDWK,0		LOG ENTRY VIA OFFSET
2021	A	\$RDWK+1,\$XR1		DEVELOPED FROM LOG ENTRY POINTER
2022	*			
2023	MVC	\$RECN(64),63(,\$XR1)		GET REQUIRED LOG ENTRY
2024	*			
2025	J	\$IOX1		RETURN TO CALLING ROUTINE
2026	*			
2027	\$RREP MVI	\$RR,1		SETUP RR AND NN VALUES
2028	MVI	\$NN,47		IN DDCF TO WRITE RECORDS 1 THRU 48
2029	*			
2030	MVI	\$DDDF+255,0		CLEAR
2031	MVC	\$DDDF+254(255),\$DDDF+255		DDDF AREA
2032	*			
2033	MVI	\$Q,X'02'		SETUP Q AND R BYTES
2034	MVI	\$R,X'03'		FOR WRITE REPEAT COMMAND
2035	*			
2036	B	\$XEQ		GO TO EXECUTE WRITE REPEAT COMMAND
2037	*			
2038	SBP	\$IND,\$CLEAR		RESET 'CLEAR LOG' INDICATOR
2039	*			
2040	\$IOX1 LA	*-,\$XR1		RESTORE INDEX REG 1
2041	\$IOX B	*-*		RETURN TO CALLING ROUTINE
2042	*			
2043	*			-----
2044	*			COMMON 3340 I/O COMMAND EXECUTION SUBROUTINE
2045	*			
2046	\$XEQ ST	\$XEQX+3,\$ARR		SAVE RETURN ADDRESS
2047	*			
2048	B	\$TEST		CHECK FOR USER INTERVENTION
2049	*			
2050	MVC	\$SIO+1(1),\$DRVAD		SETUP
2051	ALC	\$SIO+1(1),\$Q		Q AND R BYTES
2052	MVC	\$SIO+2(1),\$R		IN SIO INSTRUCTION
2053	*			
2054	SNS	\$SNS+1,X'C5'		SENSE ATTACHMENT STATUS
2055	*			
2056	MVC	*+7(1),\$CKNSK		GO TO ERROR
2057	TBF	\$SNS,*-*		HANDLING SUBROUTINE IF
2058	BF	\$ERR		ADAPTER OR UNIT CHECK
2059	*			
2060	LIO	\$DDCR,X'C6'		LOAD DDCR
2061	LIO	\$DDDR,X'C4'		AND DDDR
2062	*			
2063	\$SIO SIO	*-*,*-*		EXECUTE 3340 I/O COMMAND
2064	*			
2065	MVC	\$TIO+1(1),\$DRVAD		BUILD 'SEEK BUSY'
2066	SBN	\$TIO+1,\$BIT7		TIO INSTRUCTION
2067	*			
2068	TIO	*,X'C2'		LOOP ON 'ATTACHMENT BUSY'
2069	*			
2070	\$TIO TIO	*,*-*		LOOP ON 'SEEK BUSY'
2071	*			
2072	SNS	\$SNS+1,X'C5'		SENSE ATTACHMENT STATUS
2073	*			
2074	MVC	*+7(1),\$CKNSK		GO TO ERROR
2075	TBF	\$SNS,*-*		HANDLING SUBROUTINE IF
2076	BF	\$ERR		ADAPTER OR UNIT CHECK
2077	*			
2078	\$XEQX B	*-*		RETURN TO CALLING ROUTINE
2079	*			
2080	*			-----
2081	*			3340 ERROR HANDLING SUBROUTINE
2082	*			
2083	\$ERP ST	\$ERRX+3,\$ARR		SAVE RETURN ADDRESS
2084	*			
2085	TBN	\$SNS+1,\$BIT7		BRANCH IF NOT

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE	ADDR STMT SOURCE STATEMENT	ADDR STMT SOURCE STATEMENT
1F2C F2 90 1A	2086 JF \$UCK ADAPTER CHECK CONDITION	
2087 *		
1F2F 3C 00 228B	2088 \$ACK MVI \$\$SNS+23,0 BUILD	
1F33 0C 14 228A 228B	2089 HVC \$\$SNS+22(21),\$\$SNS+23 FORMAT 3	
1F39 31 C7 218A	2090 LIO \$\$SNS23,X'C7' READ DIAG	
1F3D 30 C7 2277	2091 SNS \$\$SNS+3,X'C7' SENSE BYTES	
1F41 3C 30 227B	2092 MVI \$\$SNS+7,X'30'	
2093 *		
1F45 C0 87 1PC4	2094 B \$ERRP GO TO PRINT ERROR MESSAGE AND HALT	
2095 *		
1F49 0C 00 1F58 218A	2096 \$UCK HVC \$\$SNSIO+1(1),\$DRVAD BUILD 'READ DIAG	
1F4F 3A 01 1F58	2097 SBN \$\$SNSIO+1,\$BIT7 SENSE DATA' COMMAND	
2098 *		
1F53 31 C4 21C0	2099 LIO \$\$SNSDR,X'C4' LOAD DDDR	
2100 *		
1F57 F3 00 07	2101 \$\$SNSIO SIO X'07',*-* READ DIAGNOSTIC SENSE DATA	
2102 *		
1F5A C1 C2 1F5A	2103 TIO *,X'C2' LOOP ON ATTACHMENT BUSY	
2104 *		
1F5E 0F 00 2196 21A6	2105 SLC \$RETRY(1),\$P1 DECREMENT RETRY COUNTER AND GO TO	
1F64 C0 81 1PC4	2106 BZ \$ERRP ERR PRINT AND HALT IF LAST RETRY	
2107 *		
1F68 3B 0F 227B	2108 \$ERP SBF \$\$SNS+7,X'0F' RESET MSG B'TS IN SENSE BYTE 7	
2109 *		
1F6C 3D 50 227B	2110 CLI \$\$SNS+7,X'50' BRANCH IF	
1F70 C0 81 1F8A	2111 BE \$ECC CORRECTABLE DATA CHECK	
2112 *		
1F74 3C 00 2273	2113 MVI \$NN,0 CLEAR	
1F78 0C 08 2272 2273	2114 HVC \$NN-1(9),\$NN DDCP AREA	
2115 *		
1F7E 3D 40 227B	2116 CLI \$\$SNS+7,X'40' BRANCH IF	
1F82 C0 81 1E35	2117 BE \$RDWR DATA CHECK	
2118 *		
1F86 C0 87 1DF7	2119 B \$RECAL GO TO RECALIBRATE AGAIN	
2120 *		
1F8A 0E 01 2285 21BE	2121 \$ECC ALC \$\$SNS+17(2),\$DDDR DEVELOPE	
1F90 0F 01 2285 2287	2122 SLC \$\$SNS+17(2),\$SNS+19 ADDRESS OF	
1F96 35 01 2285	2123 L \$\$SNS+17,\$XR1 FIRST ERROR BYTE	
2124 *		
1F9A 3C 18 2197	2125 MVI \$BITCT,24 INITIALIZE ERROR BIT COUNTER	
2126 *		
1F9E 0E 02 228A 228A	2127 \$ECC01 ALC \$\$SNS+22(3),\$SNS+22 EXCLUSIVE OR	
1FA4 F2 20 05	2128 JNOL \$ECC02 ERROR PATTERN	
1FA7 4E 00 00 21A8	2129 ALC 0(1,\$XR1),\$X80 WITH ERROR BYTES	
1FAC 5E 02 02 02	2130 \$ECC02 ALC 2(3,\$XR1),2(,\$XR1)	
1FB0 F2 20 03	2131 JNOL \$ECC03	
1FB3 7A 01 02	2132 SBN 2(,\$XR1),\$BIT7	
1FB6 0F 00 2197 21A6	2133 \$ECC03 SLC \$BITCT(1),\$P1	
1FBC C0 01 1F9E	2134 BNZ \$ECC01	
2135 *		
1FC0 C0 87 0000	2136 \$ERRX B *-* RETURN TO CALLING ROUTINE	
2137 *		
2138 *		
2139 *		
2140 *		
1FC4 C0 87 021A	2141 \$ERRP B \$SPRINT UNRECOVERABLE 3340 ERROR - PRINT ERR MESSAGE AND HALT	
1FC8 92	1FC8 2142 DC XL1'92' SPACE PRINTER 2 LINES	
2143 *		
1FC9 0C 00 203F 2189	2144 HVC \$M01+4(1),\$DRVAD MOVE DRIVE ID TO ERROR MESSAGE	
2145 *		
1FCF C0 87 021A	2146 B \$SPRINT PRINT ERROR MESSAGE	
1FD3 C2	1FD3 2147 DC XL1'C2'	
1FD4 14	1FD4 2148 DC AL1(\$M01N-\$M01+1)	
1FD5 204E	1FD6 2149 DC AL2(\$M01N)	
1FD7 FFF6	1FD8 2150 DC AL2(\$HLTP6)	
2151 *		
1FD9 C0 87 021A	2152 B \$SPRINT PRINT	
1FDD 81	1FDD 2153 DC XL1'81' 'READ DIAG SNS DATA'	

ERR LOC OBJECT CODE	ADDR STMT SOURCE STATEMENT	ADDR STMT SOURCE STATEMENT
1FDE 1B	1FDE 2154 DC AL1(\$M02N-\$M02+1)	
1PDF 2069	1FEO 2155 DC AL2(\$M02N)	
2156 *		
1FE1 C0 87 021A	2157 B \$SPRINT PPINT	
1FE5 81	1FE5 2158 DC XL1'81'	
1FE6 35	1FE6 2159 DC AL1(\$M03N-\$M03+1)	
1FE7 209E	1FE8 2160 DC AL2(\$M03N)	
2161 *		
1FE9 3C 40 2237	2162 MVI \$PBUF+54,C' ' CLEAR	
1FED 0C 35 2236 2237	2163 MVC \$PBUF+53(54),\$PBUF+54 PRINT \$UFFEP	
2164 *		
1FF3 C0 87 021E	2165 B \$UNPK UNPACK	
1FF7 04	DC IL1'4' FOUR SENSE	
1FF8 2277	1FF9 2167 DC AL2(\$SNS+3) BYTES TO	
1FFA 2208	1FFB 2168 DC AL2(\$PBUF+7) PRINT BUFFER	
2169 *		
1FPC C0 87 021E	2170 B \$UNPK UNPACK	
2000 04	DC IL1'4' FOUR SENSE	
2001 227B	2002 2172 DC AL2(\$SNS+7) BYTES TO	
2003 2211	2004 2173 DC AL2(\$PBUF+16) PRINT BUFFER	
2174 *		
2005 C0 87 021E	2175 B \$UNPK UNPACK	
2009 04	DC IL1'4' FOUR SENSE	
200A 227F	200B 2177 DC AL2(\$SNS+11) BYTES TO	
200C 221A	200D 2178 DC AL2(\$PBUF+25) PRINT BUFFER	
2179 *		
200E C0 87 021E	2180 B \$UNPK UNPACK	
2012 04	DC IL1'4' FOUR SENSE	
2013 2283	2014 2182 DC AL2(\$SNS+15) BYTES TO	
2015 2223	2016 2183 DC AL2(\$PBUF+34) PRINT BUFFER	
2184 *		
2017 C0 87 021E	2185 B \$UNPK UNPACK	
201B 04	DC IL1'4' FOUR SENSE	
201C 2287	201D 2187 DC AL2(\$SNS+19) BYTES TO	
201E 222C	201F 2188 DC AL2(\$PBUF+43) PRINT BUFFER	
2189 *		
2020 C0 87 021E	2190 B \$UNPK UNPACK	
2024 04	DC IL1'4' FOUR SENSE	
2025 228B	2026 2192 DC AL2(\$SNS+23) BYTES TO	
2027 2235	2028 2193 DC AL2(\$PBUF+52) PRINT BUFFER	
2194 *		
2029 C0 87 021A	2195 B \$SPRINT PRINT SENSE BYTES	
202D 86	202D 2196 DC XL1'86'	
202E 35	202E 2197 DC IL1'53'	
202F 2235	2030 2198 DC AL2(\$PBUF+52)	
2199 *		
2031 C0 87 0222	2200 B \$HALT ERROR HALT P6	
2035 FFF6	2036 2201 DC AL2(\$HLTP6)	
2202 *		
2037 C0 87 1DD1	2203 B \$BGX GO TO RESTART ROUTINE	
2204 *		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		2206	*		*****
		2207	*		
		2208	*		ROUTINES 5 AND 6 - PRINT MESSAGES
		2209	*		
		2210	*		*****
		2211	*		
203B	C4D9E54CE740D5D6	203B	2212	\$M01	EQU *
2043	E340D9C4E840D6D9	204E	2213	\$M01N	DC CL20'DRV X NOT RDY OR ERR'
204B	40C5D9D9		2213		
			2214	*	
204F	D9C5C1C440C4C9C1	204F	2215	\$M02	ZQN *
2057	C7D5D6E2E3C9C340	2069	2216	\$M02N	DC CL27'READ DIAGNOSTIC SENSE DATA'
205F	E2C5D5E2C540C4C1		2216		
2067	E3C140		2216		
			2217	*	
206A	F0F060606060F0F3	206A	2218	\$M03	EQU *
2072	40F0F460606060F0	2084	2219	DC	CL27'00----03 04----07 08----11 '
207A	F740F0F860606060		2219		
2082	F1F140		2219		
2085	F1F260606060F1F5	209E	2220	\$M03N	DC CL26'12----15 16----19 20----23'
208D	40F1F660606060F1		2220		
2095	F940F2F060606060		2220		
209D	F2F3		2220		
			2221	*	
209F	60606040F3F3F4F0	209F	2222	\$M04	EQU *
20A7	40E4E2C1C7C540C1	20C2	2223	\$M04N	DC CL36'--- 3340 USAGE AND ERROR LOG SUMMARY'
20AF	D5C440C5D9D9D6D9		2223		
20B7	40D3D6C740E2E4D4		2223		
20BF	D4C1D9E8		2223		
			2224	*	
20C3	60606040F3F3F4F0	20C3	2225	\$M05	EQU *
20CB	40C5D9D9D6D940C8	20D8	2226	\$M05N	DC CL22'--- 3340 ERROR HISTORY'
20D3	C9E2E3D6D9E8		2226		
			2227	*	
20D9	4060606040C4C1E3	20D9	2228	\$M06	EQU *
20E1	C140C6D9D6D440C4	20EE	2229	\$M06N	DC CL22' --- DATA FROM DRIVE X'
20F9	D9C9E5C540E7		2229		
			2230	*	
20EF	C6D4E340F0	20EF	2231	\$M07	EQU *
		20F3	2232	\$M07N	DC CL5'GMT 0'
			2233	*	
20F4	C5D8E4C9D7D4C5D5	20F4	2234	\$M08	EQU *
20FC	E340C3C8C5C3D2E2	2103	2235	\$M08N	DC CL16'EQUIPMENT CHECKS'
			2235		
			2236	*	
2104	E2C5C5D2E2	2104	2237	\$M09	EQU *
		2108	2238	\$M09N	DC CL5'SEEKS'
			2239	*	
2109	C4C1E3C1	2109	2240	\$M10	EQU *
		210C	2241	\$M10N	DC CL4'DATA'
			2242	*	
210D	E3D6E3C1D3	210D	2243	\$M11	EQU *
		2111	2244	\$M11N	DC CL5'TOTAL'
			2245	*	
2112	C4D9E5	2112	2246	\$M12	EQU *
		2114	2247	\$M12N	DC CL3'DRV'
			2248	*	
2115	E5D6D3E4D4C5	2115	2249	\$M13	EQU *
		211A	2250	\$M13N	DC CL6'VOLUME'
			2251	*	
211B	60E4E2C5D960	211B	2252	\$M14	EQU *
		2120	2253	\$M14N	DC CL6'-USER-'

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		2254	*		
		2121	2255	\$M15	EQU *
		2137	2256	\$M15N	DC CL23'ATTACHMENT * SUB-SYSTEM'
		2129	2256		
		2131	2256		
			2257	*	
		2138	2258	\$M16	EQU *
		2140	2259	\$M16N	DC CL9'MEGABYTES'
			2259		
			2260	*	
		2141	2261	\$M17	EQU *
		2146	2262	\$M17N	DC CL6'ERRORS'
			2263	*	
		2147	2264	\$M18	EQU *
		2156	2265	\$M18N	DC CL16'CORR TEMP PERH'
		214P	2265		
			2266	*	
		2157	2267	\$M19	EQU *
		215D	2268	\$M19N	DC CL7'-X1000-
			2269	*	
		215E	2270	\$M20	EQU *
		2161	2271	\$M20N	DC CL4'READ'
			2272	*	
		2162	2273	\$M21	EQU *
		2167	2274	\$M21N	DC CL6'NO LOG'
			2275	*	
		2168	2276	\$M22	EQU *
		216B	2277	\$M22N	DC CL4'DATE'
			2278	*	
		216C	2279	\$M23	EQU *
		216F	2280	\$M23N	DC CL4'TIME'
			2281	*	
		2170	2282	\$M24	EQU *
		2177	2283	\$M24N	DC CL8'00.00.00'
			2284	*	
		2178	2285	\$M25	EQU *
		217F	2286	\$M25N	DC CL8'HH.DD.YY'
			2287	*	
		2180	2288	\$M26	EQU *
		2187	2289	\$M26N	DC CL8'HH.MM.SS'
			2290	*	

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		2292		*****
		2293	*	*
		2294	*	ROUTINES 5 AND 6 - CONSTANTS AND RESERVED STORAGE AREAS
		2295	*	*
		2296		*****
		2297	*	*
2188		2188	2298	\$IND DS XL1 PROGRAM INDICATORS
			2299	*
2189		2189	2300	\$DRVID DS CL1 INPUT DRIVE IDENTIFIER
218A		218A	2301	\$DRVAD DS XL1 INPUT DRIVE ADDRESS
			2302	*
218B		218C	2303	\$CYL DS XL2 CURRENT CYLINDER ADDRESS
218D		218E	2304	\$HD DS XL2 CURRENT HEAD ADDRESS
218F		218F	2305	\$PTR DS XL1 CURRENT LOG ENTRY POINTER
			2306	*
2190		2190	2307	\$Q DS XL1 SIO 'Q' BYTE
2191		2191	2308	\$R DS XL1 SIO 'R' BYTE
			2309	*
2192		2192	2310	\$CKMSK DS XL1 ATTACHMENT SENSE BYTE ERROR MASK
			2311	*
2193		2193	2312	\$DRV DS XL1 DRIVE IDENTIFIER (TABLE PRINTOUT)
			2313	*
2194		2194	2314	\$PTRP DS XL1 POINTER TO FIRST (OLDEST) LOG ENTRY
2195		2195	2315	\$PTRX DS XL1 CURRENT POINTER TEMP STORAGE
			2316	*
2196		2196	2317	\$RETRY DS XL1 EPROR RETRY COUNTER
2197		2197	2318	\$BITCT DS XL1 ECC BIT COUNTER
2198		2198	2319	\$CTR DS XL1 GENERAL PURPOSE COUNTER
			2320	*
2199		219E	2321	\$RDCNT DS XL6 READ USAGE COUNTER
219F		21A2	2322	\$SKCNT DS XL4 SEEK USAGE COUNTER
			2323	*
21A3		21A3	2324	\$RDWK EQU * READ SUBROUTINE
		21A4	2325	DS XL2 WORK AREA
			2326	*
21A5 0001		21A6	2327	\$P1 DC IL2'1'
21A7 05		21A7	2328	\$P5 DC IL1'5'
21A8 00D1		21A9	2329	\$P209 DC IL2'209'
21AA 000100		21AC	2330	\$P256 DC IL3'256'
21AD F1		21AD	2331	\$D1 DC CL1'1'
21AE 80		21AE	2332	\$X80 DC XL1'80'
21AF 000003E8		21B2	2333	\$KILO DC IL4'1000'
21B3 000000F4240		21B8	2334	\$MEG DC XL6'000000F4240'
21B9 0002		21BA	2335	\$SNS23 DC XL2'0002'
			2336	*
21BB 226A		21BC	2337	\$DDCF DC AL2(\$DDCF) DDCF ADDRESS (INITIAL DDCR)
21BD 228C		21BE	2338	\$DDDR DC AL2(\$DDDF) DDDF ADDRESS (INITIAL DDDR)
21BF 2274		21C0	2339	\$SNSDR DC AL2(\$SNS) DDDF ADDRESS FOR READ DIAG SNS
			2340	*
21C1		21C1	2341	\$REC EQU * LOG ENTRY
		2200	2342	\$RECN DS XL64 FROM SYSTEM ERROR LOG
			2343	*
2201		2201	2344	\$PBUF EQU * PRINT BUFFER
		2269	2345	DS XL105
			2346	*
226A		226A	2347	\$DDCF EQU * DISK DRIVE CONTROL FIELD
226B		226A	2348	\$PF DS XL1 FLAG BYTE
226D		226C	2349	\$CC DS XL2 CYLINDER ADDRESS
226F		226E	2350	\$HH DS XL2 HEAD ADDRESS
2270		226F	2351	\$RR DS XL1 RECORD NUMBER
2271		2270	2352	\$KL DS XL1 KEY LENGTH
2273		2272	2353	\$DL DS XL2 DATA LENGTH
		2273	2354	\$NN DS XL1 RECORD COUNT
			2355	*
2274		2274	2356	\$SNS EQU * SENSE DATA FIELD
		228B	2357	DS XL24
			2358	*
		228C	2359	\$DDDF EQU * READ / WRITE DATA FIELD

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
228C		238B	2360	DS XL256
			2361	*



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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
2396	2522	2397	2431	ENTAD@ DC AL2(ENTADD)
2398	0010	2399	2432	SIXTEN DC IL2'16'
239A	0008	239B	2433	EIGHT DC IL2'8'
239C	F0	239C	2434	DZERO DC DL1'0'
239D	F1	239D	2435	DONE DC DL1'1'
239E	00000000	23A1	2436	ZERO DC XL4'0'
23A2	00	23A2	2437	CCNT DC XL1'0'
23A3	0005	23A4	2438	FIVE DC IL2'5'
23A5	0006	23A6	2439	SIX DC IL2'6'
23A7	000E	23A8	2440	XOE DC XL2'000E'
23A9	FF	23A9	2441	DC XL1'FF'
23AA	FFF9	23AA	2442	FFFF EQU *
23AC	0008	23AB	2443	NEG7 DC IL2'-7'
23AE	0000	23AD	2444	OBRTYP DC XL2'8'
		23AF	2445	SYNC# DC XL2'0'
			2446	* H24 IS ALWAYS X'00XX'
23B0	0000	23B1	2447	H24 DC XL2'0'
23B2	0000	23B3	2448	DSKOPF DC XL2'0'
23B4	0000	23B5	2449	CVTCNT DC XL2'0'
23B6	0000	23B7	2450	CNTOPF DC XL2'0'
23B8	0000	23B9	2451	CNTLNG DC XL2'0'
23BA	0000	23BB	2452	TABIDX DC XL2'0'
23BC	7B	23BC	2453	I123 DC IL1'123'
23BD	6B	23BD	2454	I107 DC IL1'107'
23BE	77	23BE	2455	I119 DC IL1'119'
23BF	7E	23BF	2456	I126 DC IL1'126'
23C0	15	23C0	2457	I21 DC IL1'21'
23C1	C9D5E5C1D3C9C4	23C7	2458	INV DC CL7'INVALID'
		23C8	2459	SYNTBL EQU *
23C8	F0F0F0F1F0F0	23CD	2460	DC DL6'000100' RTN1 SYNC PT CARD 1 COL 0
23CE	F0F0F5F7F0F0	23D3	2461	DC DL6'005700' RTN2 SYN PT
23D4		2427	2462	DS 14XL6 CARD #, COL #
		2428	2463	TABTBL EQU *
2428		2438	2464	DS 17XL1 CNT,TAB1,TAB2,...,TAB16
		2439	2465	CBUF EQU *
2439		2498	2466	DS 96XL1 CONTROL CARD BUFFER
		2498	2467	CRDNMB EQU CBUF+95
		2499	2468	PBUF EQU *
2499		24F8	2469	DS 96XL1 CONTROL RECORD BUFFER
		24F9	2470	QRSNS EQU *
24F9		24FC	2471	DS XL4
24FD		24FE	2472	PEND@ DS AL2
24FF		2500	2473	PSTR@ DS AL2
2501		2502	2474	CSTR@ DS AL2
2503		2508	2475	DS XL6 * NOTE THAT THIS DS MUST CHANGE
2509		250A	2476	PROG# DS XL2 * IF THE LENGTH OF DEC CHANGES
250B		250B	2477	PROGC DS XL1 * BECAUSE LENGTH OF DEC EQUALS
250C		2511	2478	PROGI DS XL6 * PROG*-PROGC+PROGI+THIS DS
2512		2511	2479	DEC DS ODL15
2512		2513	2480	TEMP DS XL2
2514		2514	2481	CNT DS XL1
2515		2514	2482	CNTN DS OXL1
2515		2516	2483	SVCSTR DS AL2
2517		2518	2484	SDRIDX DS AL2
2519		251A	2485	OBRNT@ DS AL2
251B		2522	2486	ENTADD DS XL8
		2523	2487	END EQU *
2523		2622	2488	DS XL256
		2623	2489	DBUF EQU *
2623		2722	2490	DS XL256
		2523	2491	PTBUF EQU DBUF-256
		2523	2492	PCHBUF EQU DBUF-256
		25A3	2493	RDBUF EQU DBUF-256+X'80'
2714			2494	ORG DBUF+241
2714		2713	2495	HACH# DS OCL5
271A			2496	ORG DBUF+247
271A		2719	2497	STRDAT DS OCL6
2720			2498	ORG DBUF+253

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		2363		*****
		2364	*	*
		2365	*	ROUTINES 5 AND 6 - SYMBOL DEFINITIONS
		2366	*	*
		2367	*	*****
		2368	*	*
		2369	*	LOCAL STORE REGISTERS
		2370	*	*
0001	2371	\$XR1	EQU	X'01' INDEX REGISTER 1
0002	2372	\$XR2	EQU	X'02' INDEX REGISTER 2
0008	2373	\$ARR	EQU	X'08' ADDRESS RECALL REGISTER
		2374	*	*
		2375	*	-----
		2376	*	SECTION SENSE SWITCHES
		2377	*	*
0040	2378	\$SSW11	EQU	X'40' LOG DATA ON DRIVE 1
0020	2379	\$SSW12	EQU	X'20' LOG DATA ON DRIVE 2
0010	2380	\$SSW13	EQU	X'10' LOG DATA ON DRIVE 3
0008	2381	\$SSW14	EQU	X'08' LOG DATA ON DRIVE 4
0080	2382	\$SSW20	EQU	X'80' CLEAR LOG AFTER PRINT (IF OFF)
		2383	*	*
		2384	*	-----
		2385	*	MESSAGE / HALT IDENTIFIERS
		2386	*	*
FF00	2387	\$HLT00	EQU	X'FF00' NO HALT
FFF6	2388	\$HLTf6	EQU	X'FFF6' 3340 NOT READY OR ERROR
		2389	*	*
		2390	*	-----
		2391	*	PROGRAM INDICATORS (\$IND)
		2392	*	*
0080	2393	\$DRV1	EQU	X'80' DRIVE 1 INPUT USED
0040	2394	\$DRV2	EQU	X'40' DRIVE 2 INPUT USED
0020	2395	\$DRV3	EQU	X'20' DRIVE 3 INPUT USED
0010	2396	\$DRV4	EQU	X'10' DRIVE 4 INPUT USED
0008	2397	\$CLEAR	EQU	X'08' CLEAR ERROR LOG
		2398	*	*
		2399	*	-----
		2400	*	BIT POSITION SYMBOLS
		2401	*	*
0080	2402	\$BIT0	EQU	X'80'
0020	2403	\$BIT2	EQU	X'20'
0002	2404	\$BIT6	EQU	X'02'
0001	2405	\$BIT7	EQU	X'01'
		2406	*	*
		2407	*	-----
		2408	*	DCP SECTION REFERENCE TABLE
		2409	*	*
020A	2410	\$SBYT2	EQU	X'020A' SECTION SENSE SWITCHES 10-17
020C	2411	\$SBYT4	EQU	X'020C' SECTION SENSE SWITCHES 20-27
		2412	*	*
0212	2413	\$TEST	EQU	X'0212' CHECK CE CONSOLE SWITCHES
0216	2414	\$LINK	EQU	X'0216' LINK TO NEXT ROUTINE OR SECTION
021A	2415	\$PRINT	EQU	X'021A' PRINT A MESSAGE
021E	2416	\$UNPK	EQU	X'021E' UNPACK DATA - HEX TO EBCDIC
0222	2417	\$HALT	EQU	X'0222' HALT AND DISPLAY HALT IDENTIFIER
		2418	*	*
0A0A	2419	\$UDT	EQU	X'0A0A' SECTION UDT ADDRESS
		2420	*	*
		2421	**	**
		2422	*	CONSTANTS
		2423	*	*
		2424	*	*
		2425	*	*
		2426	OBRST@	DC AL2 (DBUF-256+8)
		2427	OBRND@	DC AL2 (DBUF+256-8)
		2428	CBUF@	DC AL2 (CBUF)
		2429	CEND@	DC AL2 (CBUF+88)
		2430	PBUF@	DC AL2 (PBUF)
238C	252B			
238E	271B			
2390	2439			
2392	2491			
2394	2499			

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2720		271F	2499	NEWDAT	DS OCL6
2720		2725	2500		DS CL6
			2501	*	
		FFFF	2502		END

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
\$ACK	A	004	1F2F	2088	
\$ARR	C	001	0008	2373	1882 1958 2046 2083
\$BGIN	A	004	1D2D	1882	1228 1617
\$BGNX	A	004	1DD1	1947	1882* 1911 1923 1935 2203
\$BGN01	A	003	1D3F	1889	1891
\$BGN02	A	004	1D50	1896	
\$BGN03	A	004	1D5B	1901	1897
\$BGN04	A	004	1D79	1913	1903
\$BGN05	A	004	1D97	1925	1915
\$BGN06	A	004	1DB5	1937	1927
\$BITCT	A	001	2197	2318	2125* 2133*
\$BIT0	C	001	0080	2402	1484
\$BIT2	C	001	0020	2403	1893
\$BIT6	C	001	0002	2404	1991
\$BIT7	C	001	0001	2405	1465 2066 2085 2097 2132
\$CC	A	002	226C	2349	1963 1976* 1994*
\$CKMSK	A	001	2192	2310	1909* 1921* 1933* 1945* 2056 2074
\$CLEAR	C	001	0008	2397	1860 1865 1999 2038
\$CTR	A	001	2198	2319	1380* 1388* 1395 1748* 1756* 1763
\$CYL	A	002	218C	2303	1230* 1619* 1963 1976 1994
\$DDCF	A	001	226A	2347	2337
\$DDCR	A	002	21BC	2337	2060
\$DDDF	A	001	228C	2359	1989 2019 2030* 2031 2031* 2338
\$DDDR	A	002	21BE	2338	2061 2121
\$DL	A	002	2272	2353	1997*
\$DRV	A	001	2193	2312	1321* 1346 1348 1593* 1693* 1714 1716 1871*
\$DRVAD	A	001	218A	2301	1908* 1920* 1932* 1944* 2050 2065 2096
\$DRVID	A	001	2189	2300	1243 1632 1907* 1919* 1931* 1943* 2144
\$DRV1	C	001	0080	2393	1902 1905
\$DRV2	C	001	0040	2394	1914 1917
\$DRV3	C	001	0020	2395	1926 1929
\$DRV4	C	001	0010	2396	1938 1941
\$D1	A	001	21AD	2331	1489 1551 1556 1593 1871
\$ECC	A	006	1F8A	2121	2111
\$ECC01	A	006	1F9E	2127	2134
\$ECC02	A	004	1FAC	2130	2128
\$ECC03	A	006	1FB6	2133	2131
\$ERP	A	004	1F68	2108	
\$ERR	A	004	1F24	2083	2058 2076
\$ERRP	A	004	1FC4	2141	2094 2106
\$ERRX	A	004	1FC0	2136	2083*
\$FF	A	001	226A	2348	1991
\$HALT	C	001	0222	2417	2200
\$HD	A	002	218E	2304	1231* 1592* 1620* 1870* 1966 1977 1995
\$HH	A	002	226E	2350	1966 1977* 1989* 1995*
\$HLTF6	C	001	FFF6	2388	2150 2201
\$HLT00	C	001	FF00	2387	1249 1638
\$IND	A	001	2188	2298	1226* 1615* 1860* 1865* 1902 1905* 1914 1917* 1926 1928* 1938 1941*
\$IO	A	004	1DD5	1958	1234 1365 1382 1421 1447 1501 1579 1623 1733 1750 1850 1863
\$IOX	A	004	1EC1	2041	1958*
\$ICX1	A	004	1EBD	2040	1959* 2025
\$KILO	A	004	21B2	2333	1549
\$KL	A	001	2270	2352	
\$LINK	C	001	0216	2414	1894 1939
\$MEG	A	006	21BB	2334	1554
\$M01	A	001	203B	2212	2144* 2148
\$M01N	A	020	204E	2213	2148 2149
\$M02	A	001	204F	2215	2154
\$M02N	A	027	2069	2216	1668 2154 2155
\$M03	A	001	206A	2218	2159
\$M03N	A	026	209E	2220	1679 2159 2160
\$M04	A	001	209F	2222	
\$M04N	A	036	20C2	2223	1241
\$M05	A	001	20C3	2225	
\$M05N	A	022	20E7	2226	1630

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CROSS-REFERENCE

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
\$M06	A	001	20D9	2228	
\$M06N	A	022	20EE	2229	1242 1631
\$M07	A	001	20EF	2231	
\$M07N	A	005	20F3	2232	1272
\$M08	A	001	20F4	2234	
\$M08N	A	016	2103	2235	1273 1288 1289
\$M09	A	001	2104	2237	1274
\$M09N	A	005	2108	2238	1290
\$M10	A	001	2109	2240	
\$M10N	A	004	210C	2241	1275
\$M11	A	001	210D	2243	
\$M11N	A	005	2111	2244	1276 1277
\$M12	A	001	2112	2246	
\$M12N	A	003	2114	2247	1284 1664
\$M13	A	001	2115	2249	
\$M13N	A	006	211A	2250	1285 1665
\$M14	A	001	211B	2252	
\$M14N	A	006	2120	2253	1286
\$M15	A	001	2121	2255	
\$M15N	A	023	2137	2256	1287
\$M16	A	001	2138	2258	
\$M16N	A	009	2140	2259	1291
\$M17	A	001	2141	2261	
\$M17N	A	006	2146	2262	1300
\$M18	A	001	2147	2264	
\$M18N	A	016	2156	2265	1301 1302 1303 1304
\$M19	A	001	2157	2267	
\$M19N	A	007	215D	2268	1305
\$M20	A	001	215E	2270	
\$M20N	A	004	2161	2271	1307
\$M21	A	001	2162	2273	
\$M21N	A	006	2167	2274	1398 1766
\$M22	A	001	2168	2276	
\$M22N	A	004	216B	2277	1666
\$M23	A	001	216C	2279	
\$M23N	A	004	216F	2280	1667
\$M24	A	001	2170	2282	
\$M24N	A	008	2177	2283	1785 1786
\$M25	A	001	2178	2285	
\$M25N	A	008	217F	2286	1677
\$M26	A	001	2180	2288	
\$M26N	A	008	2187	2289	1678
\$NN	A	001	2273	2354	1884* 1885 1885* 2012* 2028* 2113* 2114 2114*
\$PBUP	A	001	2201	2344	1236 1248 1260 1282 1296 1312 1319 1341 1356 1403 1562 1625 1637 1649 1662 1673 1684 1691 1709 1724 1771 1805 1810 1815 1820 1825 1830 1835 2162* 2163 2163* 2168 2173 2176 2183 2188 2193 2198 1245 1257 1279 1293 1309 1316 1338 1353 1400 1559 1634 1646 1659 1670 1681 1688 1706 1721 1768 1832 2141 2146 2152 2157 2195 1232* 1363* 1370* 1372 1375* 1387* 1390 1393* 1407 1412 1416* 1418 1426* 1428 1431* 1491* 1493 1496* 1498 1567* 1569* 1571 1574* 1576 1621* 1731* 1738* 1740 1743* 1755* 1758 1761* 1775 1840* 1842 1845* 1847 2003 1407* 1416 1498 1576 1775* 1847 1412* 1418 1567 1231 1370 1387 1388 1426 1491 1569 1592 1620 1738 1755 1756 1840 1870 2105 2133 1230 1619 1997 2004 1971* 1979* 1984* 2014* 2033* 2051 1972* 1980* 1985* 2015* 2034* 2052 1448* 1449 1449* 1450 1452* 1525 1554*

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
\$PDKD1	A	006	1E5E	2005	2006
\$PDKD2	A	004	1E87	2019	2009
\$PDWK	A	001	21A3	2324	2002* 2003* 2004* 2005 2005* 2008 2011 2020* 2021
\$PDWP	A	006	1E35	1994	1967 2117
\$REC	A	001	21C1	2341	1367 1384 1414 1423 1452 1453 1455* 1459 1465 1473 1479 1484 1503 1506 1581 1584 1735 1752 1780 1783 1788 1791 1792 1793 1795 1798 1799 1800 1804 1809 1814 1819 1824 1829 1852
\$RECAL	A	004	1DP7	1971	1964 2119
\$RECN	A	064	2200	2342	2023*
\$PETRY	A	001	2196	2317	1961* 2105*
\$RR	A	001	226F	2351	1969* 2008 2011* 2027*
\$RTN3	A	001	1770	1219	0377
\$RTN4	A	001	1B0E	1608	1221
\$R5	A	004	1778	1228	1358
\$R5A	A	003	1875	1326	1595
\$R5B	A	004	18B8	1363	1349
\$R5B1	A	004	18BC	1365	1373
\$R5C	A	004	18D9	1380	1368
\$R5C1	A	004	18DD	1382	1396
\$R5C2	A	004	18FP	1395	1391
\$R5C3	A	006	1918	1407	1385
\$R5D	A	006	191E	1412	1587
\$R5D1	A	006	192F	1418	1429 1432
\$R5E	A	003	195B	1437	1419
\$R5E1	A	006	1992	1452	1509
\$R5E2	A	003	19BF	1471	1461
\$R5E3	A	004	19D9	1484	1466 1469 1480
\$R5E4	A	005	19E3	1489	1460 1474 1485
\$R5E5	A	006	19E8	1491	1475 1504 1507
\$R5E6	A	006	19F9	1498	1494
\$R5E7	A	001	1A1B	1511	1499 1552
\$R5E8	A	006	1AA1	1554	1550 1557
\$R5E9	A	004	1AB3	1559	1548 1555
\$R5F	A	006	1ABB	1567	1424
\$R5F1	A	006	1AC1	1569	1582 1585
\$R5F2	A	006	1AD2	1576	1572
\$R5N	A	006	1AF4	1592	1405 1577
\$R6	A	004	1B16	1617	1726
\$R6A	A	003	1BC5	1698	1873
\$R6B	A	004	1BFC	1731	1717
\$R6B1	A	004	1C00	1733	1741
\$R6C	A	004	1C1D	1748	1736
\$R6C1	A	004	1C21	1750	1764
\$R6C2	A	004	1C43	1763	1759
\$R6C3	A	006	1C5C	1775	1753
\$R6D	A	004	1C62	1780	1855
\$R6D1	A	004	1C8F	1795	1789
\$R6D2	A	004	1CA5	1802	1796
\$R6E	A	006	1CE3	1840	1781 1853
\$R6E1	A	006	1CF4	1847	1843
\$R6N	A	004	1D0D	1860	1773 1848
\$SAVR1	A	004	1A67	1529	1516*
\$SAVR2	A	004	1A6B	1530	1517*
\$SBYT2	C	001	020A	2410	1896 1899* 1901 1913 1925 1937
\$SBYT4	C	001	020C	2411	1862
\$SEEK	A	004	1E0F	1979	1992
\$SIO	A	003	1EF9	2063	2050* 2051* 2052*
\$SKCNT	A	004	21A2	2322	1450* 1453* 1518 1549*
\$SNS	A	001	2274	2356	2054* 2057 2072* 2075 2085 2088* 2089 2089* 2091* 2092* 2108* 2110 2116 2121* 2122 2122* 2123 2127 2127* 2167 2172 2177 2182 2187 2192 2339
\$SNSDR	A	002	21C0	2339	2059
\$SNSIO	A	003	1F57	2101	2096* 2097*
\$SNS23	A	002	21BA	2335	2090
\$SSW11	C	001	0040	2378	1896 1901
\$SSW12	C	001	0020	2379	1896 1899 1913

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CROSS-REFERENCE

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SSW13	C	001	0010	2380	1896 1925
SSW14	C	001	0008	2381	1896 1937
SSW20	C	001	0080	2382	1862
\$TEST	C	001	0212	2413	2048
\$TIO	A	004	1F0A	2070	2065* 2066*
\$UCK	A	006	1F49	2096	2086
\$UDT	C	001	0A0A	2419	1887
\$UNPK	C	001	021E	2416	1802 1807 1812 1817 1822 1827 2165 2170 2175 2180 2185 2190
\$WRREP	A	004	1E9B	2027	2000
\$XEQ	A	004	1EC5	2046	1974 1982 1987 2017 2036
\$XEQX	A	004	1F20	2078	2046*
\$XR1	C	001	0001	2371	1236* 1241 1242 1243 1254 1255 1262 1263 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1284 1285 1286 1287 1288 1289 1290 1291 1298 1299 1300 1301 1302 1303 1304 1305 1306 1307 1314 1314 1326 1327 1327 1329 1330 1331 1332 1333 1334 1335 1336 1346 1351 1351 1398 1414 1423 1437 1438 1438 1439 1439 1440 1440 1441 1441 1442 1442 1443 1443 1444 1444 1445 1445 1457 1463 1468 1471 1477 1482 1506 1551 1554 1625* 1630 1631 1632 1643 1644 1644 1651 1652 1652 1654 1655 1656 1657 1664 1665 1666 1667 1668 1675 1675 1676 1676 1677 1678 1679 1686 1686 1698 1699 1699 1701 1702 1703 1704 1714 1714 1719 1719 1766 1783 1785 1786 1791 1792 1793 1798 1799 1800 1887* 1889 1889* 1890 1893 1959 2019* 2021* 2023 2040* 2123* 2129 2130 2130 2132 1457* 1463* 1468* 1471* 1477* 1482* 1487 1487* 1489
\$XR2	C	001	0002	2372	1457* 1463* 1468* 1471* 1477* 1482* 1487 1487* 1489
\$X80	A	001	21AE	2332	2129
\$ZERO	A	006	1272	0791	0762
ADDBAK	A	005	14DE	1043	1025 1033
ADDB	A	005	0C7B	0225	0220
ALCL	A	001	1221	0765	0753*
AREC*	A	002	1727	1203	
ARR	C	001	0008	0022	0491 0636 0693 0712 0740 0799 0832 0956 0867 0896
ASTER	A	001	1082	0611	0591
AST1	A	003	1086	0613	0616
A107	A	005	0C56	0214	0206 0211
A119	A	005	0C4E	0212	0208
BLANK	A	001	0DBB	0357	0771
BOTH	A	004	0C88	0229	0218 0224 0226
BR@	A	004	0BB6	0163	0145*
BRTBL	A	002	0D97	0339	0142
BSPLG	C	001	0002	0488	0415
BUMP	A	003	14F8	1053	1050 1057
BYTE@	A	002	0CD5	0254	0134* 0250*
CBUF	A	001	2439	2465	0664* 0873 2428 2429 2467
CBUF@	A	002	2391	2428	0509 0665
CCNT	A	001	23A2	2437	0433* 0436 0442* 0443
CFND@	A	002	2393	2429	0531 0599
CHKSW	A	001	0F88	0532	0870*
CHKSW1	A	001	105B	0600	0869*
CKCYLO	A	003	14CC	1036	1020
CKFIXD	A	003	147F	1001	0999
CKZERO	A	003	14B5	1027	1034
CLCL	A	001	1213	0761	0754*
CNT	A	001	2514	2481	0312* 0319* 0398* 0452*
CNTLNG	A	002	23B9	2451	0435* 0579* 0742 0746 0751 0780 1514* 1522*
CNTN	A	001	2514	2482	
CNTOPS	A	002	23B7	2450	0155* 0156* 0171 0195* 0197 0436* 0578* 0714 0757 0780* 0801 0834 0849* 1515* 1524*
CNTR	A	001	1007	0576	0541
CRDNMB	A	001	2498	2467	050J 0640* 0649 0661* 0662
CSTR@	A	002	2502	2474	0510* 0528 0530* 0531 0535 0554* 0563* 0598* 0599 0605 0665*
CVTBIN	A	001	12AF	0831	0161 0162
CVTB1	A	003	12D4	0844	0842
CVTB2	A	003	12C7	0840	0846
CVTCNT	A	002	23B5	2449	0745 0769* 0839* 0845*
CVTCTH	A	003	149D	1017	1015

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
CVTSTR	A	004	14E3	1046	1038 1041
CVTX	A	001	12EA	0851	0781
CVTX@	A	001	12F3	0854	0740* 0799* 0832*
CVTX1	A	001	12E1	0847	0813
CYSTRT	A	001	149E	1018	1010*
DACON	A	004	0D04	0259	0152
DAR	A	001	1354	0925	
DA89	A	001	0EF3	0462	0392*
DEUF	A	001	2623	2489	0086 0086* 0092 0097 0097* 0098 0098* 0099 0099* 0105* 0170 0196 0288* 0289 0289* 0293* 0713 0756 0800 0833 0924 1172 1518* 1525* 2426 2427 2491 2492 2493 2494 2496 2498 0156
DBUF@	A	002	1354	0924	
DCR	A	002	1352	0923	
DDCF	A	001	16FB	1177	0948* 1060* 1061* 1062* 1098* 1169
DDCF@	A	010	1725	1202	0945
DDCF@	A	001	1704	1185	0945* 1076
DDCX	A	001	170P	1190	1171
DDCF	A	001	1718	1198	1076* 1077*
DDDF	A	001	1705	1187	1084 1097* 1170 1203
DDZL	A	002	171A	1199	1077
DD51	A	001	0EEP	0458	0389*
DEC	A	015	2511	2479	0759* 0764 0764* 0768* 0771* 0774* 0779
DISKIO	A	001	1333	0893	0290 0294 0448 0569 0894 0895
DISKX@	A	002	1349	0902	0896* 0897 1093
DISK33	A	006	13F3	0945	0899
DIVBY4	A	004	0C63	0217	0213 0215
DKERA	A	006	15CD	1118	1139
DKER2	A	006	15B2	1109	1082
DKER4	A	006	15BB	1112	1092
DKER9	A	006	15C4	1115	1075 1104
DKNR	A	003	15AF	1107	0947
DONE	A	001	239D	2435	0661 0768
DRV32	A	001	171B	1201	1068
DSK	A	001	0FEA	0566	0539
DSKCYL	A	001	134E	0920	
DSKDRV	A	001	134C	0917	0065* 0393* 0994
DSKFCT	A	001	1346	0900	0898* 1067
DSKFLG	A	001	134D	0919	0923
DSKMSG	A	004	138E	0933	
DSKM32	A	001	0A38	0073	0068
DSKM33	A	023	0A87	0076	0068 0069 0072
DSKNUM	A	001	1350	0922	
DSKOPS	A	002	23B3	2448	
DSKSEC	A	001	134F	0921	0292* 0568* 0993
DSNS	A	001	1728	1206	1173
DSNSE	A	024	173F	1207	1142
DJMP	C	001	2020	0035	
DVFLG	A	002	0D91	0324	0166* 0177* 0184* 0188* 0237* 0313 0313*
DVTBL	A	001	0DB4	0354	0146
DZERO	A	001	239C	2434	0640 0759
D51	A	003	0A15	0049	0387
EIGHT	A	002	239B	2433	0100 0225 0245 0256
EMPTY	A	001	0D10	0276	0132
END	A	001	2523	2487	
ENTADD@	A	002	2397	2431	0134
ENTADD	A	008	2522	2486	0116 0116* 0123 0123* 0124* 2431
ERAP	A	001	0A00	0018	
ERMSG	A	004	0D05	0270	0095
ERRMSG	A	004	141A	0981	1022 1037 1054
ERRMSL	A	051	145E	0988	0984
EXIT	A	005	150E	1059	1043
E1	A	001	0EFO	0459	0386*
FFFF	A	001	23AA	2442	0494 0719 0803
FPLG	C	001	0080	0482	0498 0522 0637 0666
FIVE	A	002	23A4	2438	0311
FLGDA	A	001	0A11	0048	0390

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CROSS-REFERENCE

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FLG14	A	001	0A0E	0046	0189 0200 0384
FORTEN	A	001	140A	0968	1031 1043
FOUR	A	001	1409	0967	1056
GPCS	A	001	145F	0990	0965
HALFNT	A	001	0B32	0126	0121
HALT	C	001	0222	0031	0070 0519 0673 0681 0985 1152
HEADWA	A	001	1414	0975	1046* 1055* 1059
HEXDEC	A	001	11C2	0739	0173 0229 0424 0434 0437 1519 1526
HEXD0	A	004	125F	0782	0763
HEXD1	A	006	121A	0764	0770
HEXD2	A	006	122D	0769	0767
HEXD3	A	004	1249	0775	0773
HEXD5	A	006	1237	0771	0783
HEXHEX	A	001	1273	0798	0159 0160 0167 0181
HEX2	A	004	128B	0806	0815
HEX20	A	001	1408	0966	1051
HEX3	A	003	129D	0811	0809
HLTTBL	A	001	1355	0927	
H24	A	002	23B1	2447	0507* 0508 0859* 0861
INC	A	006	0FE0	0563	0571 0575 0580
INV	A	007	23C7	2458	0233
INVALID	A	001	0C9F	0231	0199
IOBCHN	A	004	1418	0977	0993* 0995* 0998 1001 1017* 1019 1021 1023* 1027 1030* 1031* 1036 1040* 1043* 1047 1049 1051* 1053 1056* 1059* 1060 1061 1062
IOBQB	A	001	1419	0978	0994* 0995 1012* 1014* 1016*
I107	A	001	23BD	2454	0214
I119	A	001	23BE	2455	0212
I123	A	001	23BC	2453	0202
I126	A	001	23BF	2456	0227
I21	A	001	23C0	2457	0216
I5	A	001	0C49	0210	0223
LABEL	A	004	0B03	0115	0112
LBUF	A	002	16F8	1172	1089
LDCF	A	002	16F2	1169	1070 1088
LDCX	A	002	16F6	1171	1078
LDDF	A	002	16F4	1170	1071 1079 1100
LEVEL	A	002	115B	0684	0658 0659
LINE	A	001	0FFD	0573	0547
LINK	C	001	0216	0028	0321 0454 0987 1154
LIC33	A	001	1572	1087	
LNGTBL	A	001	1267	0784	0741
LOAD	C	001	022A	0032	0643 0647 0652
LSNS	A	002	16FA	1173	1136
LVLMSG	A	017	116C	0685	0680
MACH#	A	005	2713	2495	
MASK	A	001	0CD3	0252	0135* 0248 0248* 0251*
MODEL	C	001	0200	0026	
MODELG	A	001	0A88	0077	
MSG	A	001	101B	0582	0537
MSGCK	A	004	1040	0595	0624
MSGX	A	030	0D00	0258	0273
MSG1	A	001	102A	0587	0597
MSG2	A	004	106E	0505	0601
MSG3	A	020	13A2	0935	0302 0303
MSG3B	A	001	138E	0934	0302
MSG4	A	040	13F2	0938	0307 0308
MSG4B	A	001	13A2	0936	0307
MVCL	A	001	1252	0778	0743*
NEG7	A	002	23AB	2443	0837
NEWDAT	A	006	271F	2499	
NEWDRV	A	005	1488	1010	1002
NEXT	A	001	0F71	0526	0511 0564 0607 0610
NFLG	C	001	0020	0484	
NSLEV	A	004	1148	0677	0660
NXT1	A	004	0F79	0529	0551
NXT2	A	003	0F92	0536	0533

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
OBRND@	A	002	238F	2427	010* 0131 0178 0243 0246
OBRNT@	A	002	251A	2485	0104* 0106 0117* 0120 0128* 0131 0139 0243 0245* 0246 0256*
OBRST@	A	002	238D	2426	0120
GBRTYP	A	002	23AD	2444	0115* 0117 0122* 0128
OBR1	A	004	0D95	0325	0091 0293
ONE	A	001	0A9B	0079	0195 0250 0318 0319 0425 0450 0451 0452 0554 0563 0598 0615
PACK	A	004	116D	0693	0752 0769 0845 0849 0852 1030 1040 1055
PBUF	A	001	2499	2468	0560 0567 0577
PBUF@	A	002	2395	2430	0089* 0137 0527 0561 0568 0574 0578 0579 0586 0602* 0604 2430
PCHBUF	A	001	2523	2492	0694 0695
PCK1	A	004	1179	0696	0702
PD30	A	001	1666	1160	1122
PD31	A	020	16A0	1163	1109* 1112* 1115* 1118* 1122 1123 1124* 1125 1125*
PD35	A	020	16B4	1164	1109
PD43	A	020	16C8	1165	1112
PD46	A	020	16DC	1166	1115
PD48	A	020	16F0	1167	1118
PEND@	A	002	24FE	2472	0529* 0596 0701
PEXT@	A	001	1198	0704	0693*
PID	A	002	0A01	0038	0657
PRIDEF	A	001	158C	1396	1085
PRINT	C	001	021A	0029	0062 0066 0241 0270 0300 0305 0381 0427 0438 0515 0608 0669 0677 0981 1120 1131 1144 1148
PROG#	A	002	250A	2476	
PROGC	A	001	250B	2477	
PROGI	A	006	2511	2478	
PRTBUF	C	001	0880	0034	0089 0137* 0155* 0191* 0192* 0583 0602 0604* 0649 0659 0662 0664
PRTN#	A	004	15D3	1120	0860 1520 1527
PRTPOS	A	001	12F4	0855	1107 1110 1113 1116
PRTX@	A	001	1310	0863	0232 0777 0802 0836
PSNS	A	048	176F	1208	0856*
ESTR@	A	002	2500	2473	1143 1151
PTBUF	A	001	2523	2491	0595* 0596
PT1403	A	001	0C6A	0219	0201
P1403	A	004	0C0E	0193	0190
QA0	A	001	0D05	0266	0348
QB0	A	001	0D05	0267	0319
QC0	A	001	0D05	0268	0350
QD0	A	001	0D05	0269	0351
QE0	A	001	0BFB	0187	0352
QF0	A	001	0C9B	0236	0353
QRSNS	A	001	24F9	2470	0158* 0172 0179 0193
Q10	A	001	0BDB	0176	0339
Q20	A	001	0D05	0260	0340
Q30	A	001	0D05	0261	0341
Q40	A	001	0D05	0262	0342
Q50	A	001	0BFB	0183	0343
Q60	A	001	0D05	0263	0344
Q70	A	001	0D05	0264	0345
Q80	A	001	0BBA	0165	0346
Q90	A	001	0D05	0265	0347
RDBUF	A	001	25A3	2493	
RDDGE	A	029	1666	1159	1146 1147
RDDGS	A	001	1649	1158	1146
RDWRT	A	003	157A	1090	1067* 1068*
RD1	A	001	10D9	0651	0638
RD2	A	004	10CB	0647	0642
RD3	A	001	10DE	0654	0650
RD4	A	006	10D0	0649	0646
READ	A	001	10A9	0635	0504 0534 0603 0874
RELOAD	A	001	0F43	0512	0502
RETURN	A	001	0FC4	0553	0545
REXT@	A	001	1112	0668	0636*
RLDMSG	A	017	0F70	0524	0518

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CROSS-REFERENCE

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
RMSG	A	035	1147	0676	0672
RSHFX@	A	001	11C1	0723	0712*
ESHF1	A	004	11A9	0716	0720
LSHF2	A	004	11B3	0719	0717
RSHIFT	A	001	1199	0711	0217
RST	A	004	10AD	0637	0683
RTN1	A	001	0A16	0056	0042
RTN1X	A	004	0D1C	0280	0244
RTN1XX	A	001	0D2F	0287	0274
RTN1X1	A	001	0D5D	0309	0286
RTN102	A	006	0ABB	0097	0101
RTN103	A	001	0AD7	0103	0093
RTN104	A	004	0AE1	0106	0118
RTN105	A	001	0B17	0119	0114
RTN106	A	001	0B32	0127	0110
RTN107	A	001	0CA2	0240	0174 0180 0182 0185 0194 0230 0234 0238
RTN108	A	001	0B4C	0136	0257
RTN109	A	006	0B0D	0117	0125
RTN11X	A	004	0CDF	0257	0247 0255
RTN111	A	006	0D67	0313	0320
RTN112	A	006	0D7C	0318	0314
RTN2	A	001	0DF0	0375	0058
RTN334	A	004	0D4D	0300	
SAVRD	A	005	1B0D	1598	1527* 1532
SAVSEK	A	005	1B08	1597	1520* 1531
SBYTE4	C	001	020C	0027	0285 0446
SCAN	A	001	0EF6	0490	0081 0088 0279 0282 0317 0414 0429 0440 0872
SCNEXT	A	001	0FD1	0557	0491*
SCNFLG	A	001	0EF5	0480	0278* 0281* 0316* 0413* 0415* 0496 0498 0522* 0555* 0637 0666* 0772 0775* 0782* 0871*
SC1	A	004	0EFE	0493	0495
SC2	A	001	0F23	0503	0499 0523
SC3	A	001	0F71	0525	0497
SC4	A	001	0F58	0521	0514
SDRBS	A	004	0E9B	0434	0444
SDRBSC	A	001	0E97	0432	0418 0420 0422
SDRFND	A	001	0E57	0411	0405
SDRIDX	A	002	2518	2484	0401* 0402 0416 0451*
SDRLEN	A	001	0EF5	0465	0398
SDRNXT	A	001	0E2B	0397	
SDRTBL	A	001	0EEE	0456	0398 0400
SDR1	A	006	0ED4	0450	0407 0447
SDR2	A	004	0E43	0404	0409
SDR3	A	004	0E7D	0424	0426
SDR4	A	001	0EC8	0445	0430
SDR5	A	001	0E7D	0423	
SDR6	A	004	0E3B	0402	0453
SFLG	C	001	0010	0485	0278 0281 0316 0413 0496 0555 0871
SIO2	A	003	1345	0901	
SIO33	A	003	1560	1080	1105
SIX	A	002	23A6	2439	0493
SIXTEN	A	002	2399	2432	
SFACE	A	001	1098	0619	0589
SPCNT	A	001	107D	0609	0574*
SP1	A	003	10A2	0623	0617
SSW20	C	001	0080	0023	0285 0446
SSW23	C	001	0010	0024	
SSW24	C	001	0008	0025	
STARTN	A	001	1415	0976	0991 0992
STATOT	A	026	1649	1157	1130 1133 1134
STATST	A	001	162F	1156	1133
STATUS	A	002	134B	0915	0946* 1126* 1129
STRDAT	A	006	2719	2497	
SUB126	A	005	0C83	0227	0222
SVCSTR	A	002	2516	2483	
SVNTEN	A	001	140B	0969	1023

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SWITCH	A	001	128C	0805	0804* 0812 0814*
SYNC#	A	002	23AF	2445	0311* 0315 0318* 0399* 0412 0450*
SYNMOV	A	001	1311	0865	0080 0396
SYNMX@	A	001	1332	0876	0867*
SYNR	A	001	1315	0868	
SYNIBL	A	001	23C8	2459	0492 0873*
SYN1	A	005	0F18	0500	0505
SYN2	A	004	0F2B	0506	0501
S21	A	005	0C5E	0216	0204
TAB	A	001	0FD2	0559	0543
TABIDX	A	002	23BB	2452	0154* 0168* 0441* 0562* 0852* 0858 1513* 1523*
TABLES	A	001	140C	0970	0996 0997
TABTBL	A	001	2428	2463	0425* 0561* 0857 1512*
TBN	A	004	0CD2	0253	0249
TEMP	A	002	2513	2480	0091* 0092* 0094 0100* 0107* 0108* 0109 0111 0113 0138* 0140* 0141 0141* 0143 0147 0147* 0149 0700* 0701 0751* 0752* 0753 0754 0758
TWO	A	001	0E26	0395	0442
UDT	C	001	0232	0033	0403
UFLG	C	001	0004	0487	
UNORD	A	004	1113	0669	0663 0675
UNPACK	C	001	021E	0030	0655 1127 1140
UPCYLN	A	005	14D6	1040	1028
XR1	C	001	0001	0020	0106* 0107 0139* 0140 0150 0155 0158 0178* 0233 0402* 0404 0416* 0417 0419 0421 0492* 0493* 0500 0506 0506 0507 0527* 0529 0548 0548* 0549 0583* 0584 0585 0585 0592 0593 0593* 0613 0614 0614* 0622* 0624* 0696 0697 0698 0698* 0700 0715* 0719* 0745* 0746 0747 0747 0748 0748 0749 0749 0779 0803* 0806 0807 0808 0810 0811 0811* 0837* 0840 0843 0844 0844* 0857* 0858* 0859 0860* 0861* 0894* 0895 0896 0897 0898 0939 0991 0992* 0994 0995 0995 0998 1001 1012 1011* 1016 1017 1019 1021 1023 1027 1030 1031 1036 1040 1043 1047 1049 1051 1053 1056 1059 1516 1529* 1531 1532 1533 1535 1537 1539
XR2	C	001	0002	0021	0078* 0142* 0143* 0144 0144* 0145 0148* 0149* 0152* 0153 0170* 0171* 0172 0196* 0197* 0198 0202 0203 0205 0207 0209 0212 0214 0216 0221 0223 0225 0227 0277* 0280* 0315* 0394* 0400* 0401 0403* 0404 0406 0408 0408* 0412* 0494* 0508* 0509* 0510 0528* 0530 0535* 0536 0538 0540 0542 0544 0546 0549 0550 0550* 0586* 0588 0590 0592 0594 0594* 0595 0605* 0606 0612 0612 0615 0620 0620 0621 0622 0623 0623* 0695* 0696 0697 0699 0699* 0713* 0714* 0716 0716 0721 0741* 0742* 0743 0756* 0757* 0758* 0762 0766 0766 0800* 0801* 0806 0833* 0834* 0841 0841 0848 0897* 0898 0996 0997* 1000 1000* 1003 1003* 1010 1012 1013 1093* 1094 1517 1530*
XOE	A	002	23A8	2440	
X39	A	004	12A0	0812	0810
ZERO	A	004	23A1	2436	0138 1513 1515 1523 1524
ZFLG	C	001	0008	0486	0772 0775 0782

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

OBJECT CARD LISTING

THE CHARACTER INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SH.FT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

CL 1 THROUJGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THPOUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GBD PN 42 48240 EC 571989 DISK ERROR RECOR DING ANALYSIS 84@84@

T+-Y:"7< & B/\$ ""@D :D HU ED & D C-C /OHEEO |@ |H-LL<BG /Y GLDGOH\*BH?"@Y) |E (E RRUFPF730001 T+-@T+@BG /QEM;C 0-H/ -C&HC'GP KI B (-DTZTQBH:, &# =+A +'-HSQCS C?P 2D %) 2KQ "HAB" H DH< LLYPPF730023

T+-Z50).E&+.Y8>| E5DCPO\*|K&<|O5;| A2)PI5\*) 1)XR5\_V 2)PF5\_XM0;|I5\_N 6\*PA1+ / 5\_N 1(X I9\*F 5KHFF730002 T+-: /1BZOH\*|PE- AA&E+ B+1ALHBH#D 6 S+J( HV ?HG.T7 A T.2-E# /OHE/1D |<BG SH :TD C?P /O@ 2,UPPF730024

T+-D0&|I.&<LE5'X E8>I 8>|A6;|.0-H \*BGD1G /O#6C|@ WHS\*S0H\*+ -1-I|- H700AIJ<(V&@AIJK VI|H -O<PF730003 T+-=RH'XE4'SA1DC DQ;|AE<|A6\*LS0-D UWCMBIEH4 KL=( H V -4AI&HTU"EBB<B GDHU5 SMB?) @-? C?NO @H<PF730025

T+-,-K69A2MLOI (A&OGIKYXH-37I2H XF-3"ISYWH-@AIJK TW@ AB,%< KMEH8@ @ BMT(EDVF/O IJK +0@ "LYPPF730004 T+-"M |HAL.5H |H AQ#5> |H&H.5% |H AE.5+ |HAJ'HA 00 "" CS -G /O'9C-D V -D.+1 +\*BG C /1D JT4PPF730026

T+-KWIJ<' BML@YD |E VD"HBA37&IJ| 2AA&@BB+\_C-\*VHSM SCODVFS+\_OH\*H8&4 AIJYTT-HADT:OH:4 +A2M ;E8PF730005 T+ / |\$E06IC-U@LO AH#%+ KMBBY? /O' 1OH\*JS&0 D4@UW\*B GD3<A0H\*|B -CDG4 UW\*BGC=C /1E\_C T\_2& =.QPPF730027

T+-/HSMS+-DVH%& GB04+ KMEH:4 ( KM EH8" / 4&C D<5K+ P| D<401-B(@U= 0 AIJ<TYLMAIJYQ SM L 8 J/HFF730006 T+ /AHW&0 H#UUW%& GC=CB &S -DA-PE9 ;P&HBIIW\*\$JC2-OS 'O-C2-M1% "" 4-D AB-HA ( HV "" 4AIE U"% JZ\*FPF730028

T+->\* KMLIJ|B -6 N(-HVD\*ME C&BB#U + KMLIJ|B -63(-H VD76I |HAA<HBC&E % OSE COAH\*"4 K+ 7COD ED%PF730007 T+ /BEAA DC-DV -D .CEDV S+L0HK&S-1 -I|-H7@BGDHU<POT -I|-5 SMB?00 OHD 1\*\*BG /Y-OH\*|\*E- A -D M DFF730029

T+-?PH\*LNACI|O C0H\*K\*@BGDX| /|H ?OH\*K,@BG :H 6 EOH\*K\*30BH\*?B SQ T(-HT\_80 BL:OH\* JO% ) RMPF730008 T+ /C -E0 4-DATO BBY? JEF&Y"HD D B \$0 \$QA >HB @B GDD 4BADK+H +'-H 6IE&OII-TXC7A T. 2 6Y 3HMPF730030

T+-OK/02S+Y (UCM AH8@8BBL90I <Y%B GDX| /02S+U (U<B GC&H:A 6E+B HC?H EPC31BHHA' SC+ & U=@ PJ&FF730009 T+ /C#0H\*BHSC&3"H GA\*BG SY&C&H72K Q@-DEOH\*BH/C /OH ; &YADN\*( TSDN? 2 N-P<BKCH94 ( 2K Q& @ 7\*QPPF730031

T+-1(U 2SC-DT\_0D .0-HWH3QBH#; '- C 2-WM8H Y+@/ 9T0 H#2'F C2/BH'D C 2/AK'C C2/ E'A&C 2 -- N\*QPPF730010 T+ /D6@-DHCE@UW T -C DV S+J+@ +\*B G C /OHE/2<JJ@B G SH #<BGDJ|DO;| A&<|A6\*LS&(P084C I5M 92MPPF730032

T+-2HT- H\*\*2/06 + T?-HGAQ@ B| OH\*JW-HGG?HAC,5 = |HDDH8 1I@Y\* (T- H9?2/00| T?@ M1-PPF730011 T+ /E15\_XD1)V,6\*M -6;LNE<PRO) - /OH E/1HJ\$<BG SH %&B GDH4 FCP6)SP1)V 4@PV1) ( @|P( - JWCM ;Q&FPF730033

T+-3C/1GB@Y\*LOH\* K'DOP B|G@Y\*G+-- (U|HG <BG /Y/C&D TT2ME@YE%<DVFS+ \$CEDTT2MF@YD-C- <400 2HDPF730012 T+ /P% K+N(6HTVR- A BQ 0 A4-DEB-H A ( DVD04AIJ<U"XB BDPX /O ( -JO\*H BIS<6 S+7C-D AD8 "" LBMPF730034

TD&3N4"HAB-@AC(M HS30AC (<B ..... 2&UPPF730013 T+ /GX&S C>-D (-D TD% ADEW#0 C /O ( -K@&HBDWQ6 S+ 9. KM-CB K+5L D H#V; & P-D EB A "" 2 8PPF730035

T+-4&@Z PC-DVFS+ \$OH\*.L<PR6)\$RE<T IB>|O6; / 8@GB4@N 2;I 2)PV0) |I1DC DOMC /OHEA18( |H GG@H 18MPPF730014 T+ /HSC DVD2+9COD VDO@.C "KHKKLC KD2HLO-HWH3QBH#\* 6 SHLA+ VDK+\*T& DX.2-HMPCSMJ1JP > "" 18&FPF730036

T+-5. - C+ / +\*B GC?SB - D+ / +\*B GC?Q9- H<@Z >| XH-3=I2DXH%BGD3< B|A0LL0OCISQ(V\*B GD3< 70MPPF730015 T+ /I) |H-A-\$-IJD TX&@AH#HHS@ AD/Y .CSHCC\$%8B #50I KKL30IJD#B #50H\* K'DO BHJC-DT\_2+ 9@Y\* ;TQPPF730037

T+-6F %BG /YBEA+ SOH\*BF-R&D"H< K+ ?H:6@DBMHC-D(U66 J@S <(6HT, 3Y&C?P /O#6C-DT,0D.CO VE Y #B PF730016 T+ /HQS3YHC?P /1H 7 -&GBE0+ ( -K@&HBIS<6 S+ 70H\*K'QAH:Y# JH <E H G,0 G79 |H DAM@ -HQPFF730038

T+-7AS@ ACO- /OH O "" A"OG"B'|(A&4 EC&M.@04EC&M.>-4 EC&M(A&4EC&M.=02 \$'-L7@MA &DA &DA &D 1I\*PPF730017 T+ /L KY(HA LU ADY32UCY: JH<OH\* KS3&HD?|B SQT(-H T\_@BGD?&6 K+,| - T\_P30 H8 C2H ( @&E 5 HFF730039

T+-7@&DC1'|L2&DA &DA &DCB8%|A&DA &DA &DA &DA &DA &DA &DC5&?C3'-L 2' H E7C /OHE&E |@ #SUPF730018 T+ /<+4-DACODT\_ED .0 DK1#0 8AH#\* HS08AH#%HS&BG 4BA<E0-DUHC0AH#% \* B+1 <HABG&E K+ 10H\* HS0FF730040

T+-87 C--B-\*2U & @8&#0+K HE|HEAC1 JC>@8H YJ@Z D|HU +@32YD43B - BOH\* LDLOGIJ&@ 2+?0-H +\*TE #SYPPF730019 T+ /I 4BA<2|HH &O32BC8--D #50H\* +'-1LIB\*UT\*BGDHX /O 0-DL<7&HEXM BEWO DOC /1|3@0 "" OHUPF730041

T+-92 SHQ(EDVFKH B TI\_ @YD(>A A@/BD8-HCOH\*+&3M BH:@:D #50H\*+\*T% BC?M5 KMQ-Q @YD 7-Q- NQMPF730020 T+ /+D BY "" A ( (IS|2@-L3&<TA4=( 'Q<\$IQDCX-?E-'F\_ 9)\$LE+) 2;I 5)\$ T&(XE0\*LYE(\$PE<P R6)Q OQHPPF730042

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

T+-: |H&HG6I |H AF%BGD\*H| B&YBY? "E9'0H\*BPSG /O# 6@Y\*1|C TY%BGD\*H @ S+9C-DT\_2+S0H\* JO% "R\$YPPF730021

T+-@Y/OHEH\*BGC?Q @ K+@CO TY-8W|JQ TY% ACZ%9- H<@Z EOH\*L<OH+ K+?BY% + KMQBY%| BMMBY? "" &8 NA PF730022

T+-@T+@BG /QEM;C 0-H/ -C&HC'GP KI B (-DTZTQBH:, &# =+A +'-HSQCS C?P 2D %) 2KQ "HAB" H DH< LLYPPF730023

T+-: /1BZOH\*|PE- AA&E+ B+1ALHBH#D 6 S+J( HV ?HG.T7 A T.2-E# /OHE/1D |<BG SH :TD C?P /O@ 2,UPPF730024

T+-=RH'XE4'SA1DC DQ;|AE<|A6\*LS0-D UWCMBIEH4 KL=( H V -4AI&HTU"EBB<B GDHU5 SMB?) @-? C?NO @H<PF730025

T+-"M |HAL.5H |H AQ#5> |H&H.5% |H AE.5+ |HAJ'HA 00 "" CS -G /O'9C-D V -D.+1 +\*BG C /1D JT4PPF730026

T+ / |\$E06IC-U@LO AH#%+ KMBBY? /O' 1OH\*JS&0 D4@UW\*B GD3<A0H\*|B -CDG4 UW\*BGC=C /1E\_C T\_2& =.QPPF730027

T+ /AHW&0 H#UUW%& GC=CB &S -DA-PE9 ;P&HBIIW\*\$JC2-OS 'O-C2-M1% "" 4-D AB-HA ( HV "" 4AIE U"% JZ\*FPF730028

T+ /BEAA DC-DV -D .CEDV S+L0HK&S-1 -I|-H7@BGDHU<POT -I|-5 SMB?00 OHD 1\*\*BG /Y-OH\*|\*E- A -D M DFF730029

T+ /C -E0 4-DATO BBY? JEF&Y"HD D B \$0 \$QA >HB @B GDD 4BADK+H +'-H 6IE&OII-TXC7A T. 2 6Y 3HMPF730030

T+ /C#0H\*BHSC&3"H GA\*BG SY&C&H72K Q@-DEOH\*BH/C /OH ; &YADN\*( TSDN? 2 N-P<BKCH94 ( 2K Q& @ 7\*QPPF730031

T+ /D6@-DHCE@UW T -C DV S+J+@ +\*B G C /OHE/2<JJ@B G SH #<BGDJ|DO;| A&<|A6\*LS&(P084C I5M 92MPPF730032

T+ /E15\_XD1)V,6\*M -6;LNE<PRO) - /OH E/1HJ\$<BG SH %&B GDH4 FCP6)SP1)V 4@PV1) ( @|P( - JWCM ;Q&FPF730033

T+ /P% K+N(6HTVR- A BQ 0 A4-DEB-H A ( DVD04AIJ<U"XB BDPX /O ( -JO\*H BIS<6 S+7C-D AD8 "" LBMPF730034

T+ /GX&S C>-D (-D TD% ADEW#0 C /O ( -K@&HBDWQ6 S+ 9. KM-CB K+5L D H#V; & P-D EB A "" 2 8PPF730035

T+ /HSC DVD2+9COD VDO@.C "KHKKLC KD2HLO-HWH3QBH#\* 6 SHLA+ VDK+\*T& DX.2-HMPCSMJ1JP > "" 18&FPF730036

T+ /I) |H-A-\$-IJD TX&@AH#HHS@ AD/Y .CSHCC\$%8B #50I KKL30IJD#B #50H\* K'DO BHJC-DT\_2+ 9@Y\* ;TQPPF730037

T+ /HQS3YHC?P /1H 7 -&GBE0+ ( -K@&HBIS<6 S+ 70H\*K'QAH:Y# JH <E H G,0 G79 |H DAM@ -HQPFF730038

T+ /L KY(HA LU ADY32UCY: JH<OH\* KS3&HD?|B SQT(-H T\_@BGD?&6 K+,| - T\_P30 H8 C2H ( @&E 5 HFF730039

T+ /<+4-DACODT\_ED .0 DK1#0 8AH#\* HS08AH#%HS&BG 4BA<E0-DUHC0AH#% \* B+1 <HABG&E K+ 10H\* HS0FF730040

T+ /I 4BA<2|HH &O32BC8--D #50H\* +'-1LIB\*UT\*BGDHX /O 0-DL<7&HEXM BEWO DOC /1|3@0 "" OHUPF730041

T+ /+D BY "" A ( (IS|2@-L3&<TA4=( 'Q<\$IQDCX-?E-'F\_ 9)\$LE+) 2;I 5)\$ T&(XE0\*LYE(\$PE<P R6)Q OQHPPF730042

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/+6MCO5MVCV5_	94A QFA-E1131A	QFA-EDA EDA EDA	E1131A 1)XR5_V	2<XS8'SR:DCA5+J	5><*, FF730043	T+/U<-S@I /T30	HRT /17N1E /O-H	A< 8 HQ@/Z-8 HR-	/ZT6"HQ"2--G@ BF	11S@/W<BBF(5<A@4	/R@ 6DDPF730065
T+/1:2<PRE<PR6)S	R@<LA8@E 9%XL44C	B1MCP6*YN8@PDE<	YE(1A8@PRE(XO9+1	I5*PSK4A C UPAA*	V<<4 R#4PF730044	T+/VG/OHE OUSE*B	GP?E< BFMHQ@< BF	NHQ'<A@4/1-0 HQ@	/V 4 HQ@/V-HAH@B	GG)N(A@4/1%BAF,*	+ BD KS FF730066
T+/E5D4?A2A0?1	O="HGN2 DEA- D*B	32HXHXC	<B G /DG<1J;OH*BH?@	1OH*BE>LNO*.L1MC	T5U 6H@PF730045	T+/WBT2FW1S@/T@B	BPK@@ BF1OH*R.73	OREOCQ6J*AEVUP (	EREOCKVA* 4J@P U	'ME00<DZ* 1N@OH*	)5L0 JL8PF730067
T+/J00*\$N9*PR84C	5'1L4E<GD1(XE8>I	2)PT5UCAE1131A	0*LD6*PS8U?B J@	NC DME1(1L DD41	*'< 5A0FF730046	T+/W' BF;C E/XKF	;C </YSP;C-M/XSG	<C-</YSG@+0@/6(H	BEL4@H)T2-T-2/AC	K SY8 K@J@Z -4-H	7@Y* 91<FF730068
T+/K,ACHBE 18D 1	2U 1S -J8B 12D 1	S -H% AK; O- A B	8B A:B L2D (#B J	@ A*A G2-SR'20G	'/E 0Q8PF730047	T+/X@F_HBJC5@H)T	2-J,2/A3K /4@BG	Q@-DC4-IH+H /4?H	E =H@YQO BF_C-	/T2FW1S@/T'HRA@O	HQ@)S#PF730069
T+/LWFU@ J@.@YH	Z-E A@YD\$L- BY_	1 DMB?HBE%BG@.N	' G J@E@Y*(L-	BY?2/ON+ DMBTO	A@E@ @S FF730048	T+/Y3C@ /T2FM@YD	ROH*)5L4 H*G -JX	YLE@H(H*\$ JXYOH*	RUTO1IB-< K+*H:D	@AB+9C DT_2+/( D	EET@ NH FF730070
T+/M/-@ B@YD;/H	B@Z ELO BE /' "	/A@E@C- ME D.LO	BE X JL8L BEA@	< A\$'EAM< A\$'EAQ	< A* N*<FF730049	T+/Z> /Z>C <WISF	SOH*JO-ODFO-HS30	PH#U< K+*H:D< K+	7H:D<AKQYHR# /1G	BC @S@C@SHO-D <H	B 1Q0PF730071
T+/N* A@PC N;1(	FC- N;1*\$O*YN<LG	+E?H13A\$4@@- O*U	NE<GHEMLA2APDC U	PPA*DC DPE1*E<*8	O' TD 6/7PF730050	T+/DZL JRF0/<AP@	\$CP5 O-HA 7300P5	R1HA 730R<BGF,<	1 2FSH\$.2--VF@EU	/,*BGF/X1AKF;HST	2--U MQUPF730072
T+/OP3A\$4@@UA0*Y	NQ@GHE\$H8 /*E@/	E<*8O@TG<E?T32@C	A2/N'0*-N>3MBD4X	-/OD@ J*E1 DO=@G	HERE MR8PF730051	T+/,UJUAUHE7 /1D	/OH*BF-EZHWU< BF	1HRM+ BF1HEQ'22F	1@YHD1 /T04 HQ@	/V1HAF*BGG)H' BG	A@HD J.-PF730073
T+/PK*80'11H <G	IER"A2/OTO*-N1<B	GEOC2/2D<D1E-E,L	2/1-<D1E-E%T2/0@	<D1E-E_32/OQ<D1E	-E? 9A*PF730052	T+/%-P%E(A@4/1%B	AP%G /1U;C- /TSP	WA- /U2F_OH*Q)@	..... D 1"	"1 /S<BGGK4< KP	<HEU KD@PF730074
T+/Q(OH*BFY*ED	@EA@-CAHOX1E-<<4	LK@BG /8BD4%OK*B	G /DBF/RI0*YN=TG	<E?,32@-A2/QE0*-	N3* 12<FF730053	T+/_E@ D/TSPW1	/T@BGG)PB KHALAM	NH(/<EK%-#UO H2P	IOH*BFUH%HS3" G1	*PN1*PE7 /OHE N@	SPX0 N9@PF730075
T+/RH/OH;FA"*E"	/OHE-14OR%BG /D	B(A) ?OH*BH?@1OH*	BEUCS8@G*9+I O>T	T1;I @P?1@GP1MC	X9=*; 4FF730054	T+/>N@E1*OV_*-EO	F-EO1-EOE-E@V0H*	BF-E;HV9< -@/ED0	ECKDEL <OHO_< 2D	/S40ELSAZOH*BF-E	;HV8 2K4PF730076
T+/@C94CR1*GD@<L	IO*) 8>1A@=LSE<	Y8@PSE<GR1MA E<L	IB_I 1(XI9*N @1I	5)S@E(XE0*LY@FE	9(H R9YFF730055	T+/?@P HDANO@CE@9	<A1-/40GH2FGLCJ	\$HI# /OHE N8SPV1	\$PE7 /OHE N8SPT3	1HR(@@E1*OV_*-EO	F-EO 0@%PF730077
T+/@E=2; ( O@TEO'I	EDA EDA EDA EDA	EDA EDA EDA O*S	T1)V 6*PA1DCHOMA	E@ (XOK4CA1>1E6MC	R1FD 2EQPF730056	T+/O.C71*FX1*I*B	G /YAPSI;L CHR<	*@SFL@-@@PE_*P*B	G /YFPSI;OH*\$ETO	HQ" /17N1E /O-H	AD-8 NIHPF730078
T+/\$99_XTE<LA8@E	K4CA1>1E6MCS1*P	K@<105(LA5*J.E<G	F8@PRE(XE0*J 1<X	A14CC5<@O=1*EE0@	WH1* P@JPF730057	T+/1F BF1HEQ'22F	10HH* CO HQ@@ BF	QOH*)5L4 H*G2 L	+ BF1HEQ+ BFQHEQ	'?2F1@YHD1 /T36	"HR- = %PF730079
T.J*XH	.....	.....	.....	.....	P1 FF730058	T+/2A0HH*HMOECKE	XOH*BF-E;HV# /14	(C /VBP110 /6<B	AG+(<A@4/1U@GPBE	7L *THP* BGDBYD	1L D :A<FF730080
T+/@D 0 \$CTO HQT	/14_C D/TB?ZC D	/TSPW1 /T@BGG)P	B KHALB<TH<I<ELU	-#UO +KPIOH*BFUH	:HTY KKUPF730059	T+/2@DSG,L DNH;5	< J-/#34 H-C2-E'	< J4/@MOAHBG3L D	TH-P /OH;ABGHHS*	/OH;ABGQHT /OH	:ABD */*PF730081
T+/@V"0A@PF/*R6)	YOH*BF-EZHWV@EF)	*RORX-EOP-EO1-E0	Q-E02-E0"-E1K-E1	*L @NH1(<C20/ 40	C+SD #Q*PF730060	T+/377BIAOH*BG-E	/8BIH0H*BG-E/9BI	LOH*BG-E/:BI*OH*	BF-E;HV8+ BF1HEQ	'?2F1@YHD1 /T04	HQ@ \$YMPF730082
T+/@-A40CKSD<L J	RHJE<AP@/D*BG /Y	A@KIZL HDHJJ<A@4	/FUO@ESD-LAQOHL)	<AL%/ 40EK2DCL J	RHE- @EDPF730061	T+/42HRL2-JC /17	N1@ /O*BAG+1 /11	S+--/SCS -3 UA7	N+0-/S 8 HQ@/Z-Q	HR<,*BGF@H4BA7	H1 RTUPF730083
T+/@/SL /WHMC /OH	E OUSENOBA N*A@4	+L MOHHR<BK</NUO	I<BEOL U'HNR<C5	/NUOPOSE)P /WR40	CQ2D P@<PF730062	T+/5_HX<<BBI2HX1	B @YG4-DC-*D 0 D	)17-- *B@ /Q9; H	H@Z D+S BBT/ -Y	9-BPH@Z L+Y /SC3	1HQU *HQPF730084
T+/@SQ*BG /YA@KI	ZPFRX@<BG /YA@KI	Z11D/U71 R51VRW)	@P R@P '@PA/@PBN	@PCI@PC*@PEI@PE@	/OH 3/<PF730063	T+/6Y1< /ST2AHR.	2/5-8H H@+H /S1H	@D3Z HQ-@@SFI <-	/ST1AHR.2/3Y8D H	H+K /S1H@ED3Y-HQ-	@@2D :S0PF730085
T+/@TJF-EZHWV< <	/U372HR12AAA*RW)	YOH*BF-RZHWX /1)	81 /T@BGG)H' BG	A@YDKC- /T2FW1S@	/T@ Q3YFF730064	T+/7TSL3@HQY@HKF	K@Y*** -BBTU@HQT	U HO+ /SC34HQU	@6BFH1AD/U%BC	4BA#D( D;OC0HHRQ	( KD 1I FF730086



FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/8;TBI%@-D(CED /TSI>@YEB! S\$30	HR @ KFJOH*;1E0	AHW0/T OAHWE/TTC	HR @ BFJOH*;1L0	AHR	2HQFF730087
T+/9R  D/U*BGG%M < 2I>HZ 8 SID0A	;C00AHW0/T OAHWE	/T-0BHXH/,C-HHQT	2DD4@ABFTC /ZBF	(C-	@FF730088
T+/:MH%E/Z08AH%E /Z< -GV9( BPTHW"	2-JQ< BI?HE<@ BI	3  D/UCO HRG /1#	E0-DSTCO HE<6 KF	UGC@	79QFF730089
T+/# H- "AY*S  D S\$30?HX<@ B+.C 8	TSS+.  H/UCOCHRG	/1#E+0-/S<HA C	/0 ( --H@BG /H	< A8	8EHFF730090
T+/@H=SFHC- ;=SF EC ;=2FJ<<MS)E0	G>Y/UTU HXL UA@	U<*Q/?CGDHS#3	< A@.HQY: J@.0*H	-A%D ;,	MFF730091
T+/'E A@H<<MS)E0	G1U/UTU HXL UA@	UOH* C@HG@<8 KI	5@Z E  SS00MHYY	SS3GGH\$Y012I7 C	S;@ Q38FF730092
T+/= /1"DC -OBP H+-D-OCGDH*C3	A0/'ECO /VSPWOHD	-1C% HX%MBI#0HD	-ST0 HX<<BB12HX<	'&BH	\$80FF730093
T+/#;@BAGTP /17	7C-DS/KP=CODS/KH	G(8DS/LOQHR** SH	HHY,2H N+ /,VB	B --.2H (: &H  BF	PH@Q 7H0FF730094
T+/"60 D-X%BG C	/OH@U-0 HC@/S*B	G /,BEBA+""\$ /OH	E-J%-E*BG /DA(KB	; D S(005HTQS(@B	G /8 L0QFF730095
T+S 1ABI7H-T /OH	;ARI#H/G /OH;ABI	"H/, /OH;ABHCHS	/OH;ABHGHS3 /OH	;ABH.HTP /OH@/TM	S(* #SHFF730096
T+SA%/OHS""\$ /17	J1(XV@+) 5) \$T@ (X	D:DC06NCE6) XR1*G	DE<LI0*-N5>.T2*(	8*PN8*N 1<GT0MC	O@F 41UFF730097
T+SBXQFA-@  ( @ J	-QFA-@ ) @ /-QFA	-@-E @-I-QFA-@-N	@-R-QFA-@-V @?A	-QFA-@?(-QFA @"	4@D KAHFF730098
T+SCS9+.A1@N 0) P	DE<PR6) \$K@ (1014C	S9(LM0) XYQFA-E	3' A 1) XR5_V 2<X	S8*\$R:DA-QFA 1<G	TOM #/EPP730099
T+SD) 1_X05DCD6*X	V1MCX1_LTE CE6+L	I5*LE5; ( 0@TE0.	S8%PE4>.D0; A8*\$	T0)  D6;PV5_1U5<N	-9+H 5HQFF730100
T+SEQ1)V-0; TO*	H5<PN84A*E+.U0WC	S:+.T1) LM1*-A0>T	T1; .E6) X06; .C5_X	REDCT1) LP@DCP1) X	HQ+* N8<PP730101
T.SFG@-C0@PCR1*G	D5)R 4*\$G1<GT1;	I5<P0@D?0@D?0@ (L	MK@LDK=TY2</.5(J	.8>H	R.0FF730102
TF2G DE (D &C	1- =- 1EU	SIDHYOS)			9 UFF730103
T+S PIK%XF2@9IID	UNKMS A B C1	A& F #""U	B	;6_7~/PI5;P	A4@U )/QFF730104
TCB L1 C0@ G0@ C	0*~0@				49MFF730105
E""*E7*=-DC"PH\$	= "7M6F	C	F% ASC R A	SO Q	13510608730 41377"Y@FF730106

----- LAST PAGE -----

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
2 *
3 DECK 1
4 SEQ 0
0000 5 FE1 START 0
0A00 6 TREP
7 ORG X'0A00'
8
9 *****
10 * SYSTEM/3 CPU MODULE FOR SYSTEM TEST
11 *****
12 * SECTION PREFACE
13 *
0A00 FE12 0A01 14 DC XL2'FE12' PPROGRAM ID
0A02 80 0A02 15 DC XL1'80' SECTION FLAGS
0A03 01 0A03 16 DC XL1'01' ROUTINE NO.
0A04 0000 0A05 17 DC XL2'00' RESERVED
0A06 0A0A 0A07 18 DC AL2(TST01) ADDRESS OF FIRST ROUTINE PREFIX
0A08 FFFF 0A09 19 DC XL2'FFFF' FILLER
20 *
21 *****
22 * ROUTINE PREFACE
23 *
0A0A 01 0A0A 24 TST01 DC XL1'01' ROUTINE NUMBER
0A0B 00 0A0B 25 DC XL1'00' ROUTINE FLAGS
0A0C FFFF 0A0D 26 DC XL2'FFFF'
27 *
28 *****

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LAST CHG 03:07:77

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
30 TST01A B TEST
31 TBN CPU,X'80'
32 JF TST01B
33 L ERRINT,IARO
34 MVI BRANCH+1,X'80'
35 SIO 0,0
36 L ADRY,P1IAR
37 L ADRZ,P2IAR
38 DPY L ADRX,P2IAR
39 DPZ APL 0
40 J DP2
41
0A36 C0 87 0222
0A3A FE32 0A3B 42 DPX B HALT
43 DC XL2'FE32'
44 *
45
46 DP2 SIO X'04',X'0'
47 L INTRPT,IARO
48 L ADRA,P1IAR
49 L ADRB,P1IAR
50 L ADRC,P2IAR
51 DPA L ADRB,P2IAR
52 DPC APL 0
53 BRANCH B DPC
54
55 B HALT
56 DC XL2'FE31'
57 *
58
59 DPB MVI BRANCH+1,X'87'
60
0A64 61 TST01B EQU *
62
63 A L CORSIZ,1
64 L CORSIZ,2
65 CLI CORSIZ,X'FF'
66 JNE B
67 L ZERO,1
68 L ZERO,2
69 B A NEG128,1
70 A NEG128,2
71 JZ TSTCOR
72 CLC 127(128, XR2), 127(, XR1)
73 B EXIT
74 B
75 TSTCOR CLI CORSIZ-2,X'00'
76 BE TEST2
77 *****
78 * CHECK ADDR. TRANSLATE TABLE REGS
79 *****
0A9A 0C 01 0AB1 0EF5
0AA0 3C 00 0AB3
0AA4 3C 00 0AAF
0AA8 0C 01 0ABB 01B1
0AAE 3F 00 0000
0AB2 3E 00 0F75
0AB6 0D 01 0F75 0000
0ABC F2 81 06
0ABF C0 87 0222
0AC3 FE20
0AC5 0E 00 0AAF 0F06
0ACB 0E 00 0AB3 0F06
0AD1 3D 10 0AAF
0AD5 C0 01 0AAE
0AD9 0E 01 0AB1 0F0A
0ADP 0D 01 0ABB 0EF5
0AE5 C0 81 0AA0
0AE9 C0 87 0E59
30 TST01A B TEST
31 TBN CPU,X'80'
32 JF TST01B
33 L ERRINT,IARO
34 MVI BRANCH+1,X'80'
35 SIO 0,0
36 L ADRY,P1IAR
37 L ADRZ,P2IAR
38 DPY L ADRX,P2IAR
39 DPZ APL 0
40 J DP2
41
0A36 C0 87 0222
0A3A FE32 0A3B 42 DPX B HALT
43 DC XL2'FE32'
44 *
45
46 DP2 SIO X'04',X'0'
47 L INTRPT,IARO
48 L ADRA,P1IAR
49 L ADRB,P1IAR
50 L ADRC,P2IAR
51 DPA L ADRB,P2IAR
52 DPC APL 0
53 BRANCH B DPC
54
55 B HALT
56 DC XL2'FE31'
57 *
58
59 DPB MVI BRANCH+1,X'87'
60
0A64 61 TST01B EQU *
62
63 A L CORSIZ,1
64 L CORSIZ,2
65 CLI CORSIZ,X'FF'
66 JNE B
67 L ZERO,1
68 L ZERO,2
69 B A NEG128,1
70 A NEG128,2
71 JZ TSTCOR
72 CLC 127(128, XR2), 127(, XR1)
73 B EXIT
74 B
75 TSTCOR CLI CORSIZ-2,X'00'
76 BE TEST2
77 *****
78 * CHECK ADDR. TRANSLATE TABLE REGS
79 *****
80 TSTATT MVC LATT1+3(2),AXFF
81 ZQODE MVI STATT1+1,X'00'
82 MVI LATT1+1,X'00'
83 MVC CATT+5(2),LATT1+3
84 LATT1 LCP *-*,*-*
85 STATT1 SCP KROW,*-*
86 CATT CLC KROW(2),*-*
87 JE GUUDE
88 B HALT
89 DC XL2'FE20'
90 GUUDE ALC LATT1+1(1),ONE
91 ALC STATT1+1(1),ONE
92 CLI LATT1+1,X'10'
93 BNE LATT1
94 ALC LATT1+3(2),TWO
95 CLC CATT+5(2),AXFF
96 BE ZQODE
97 B EXIT

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TEST FOR VALID DCP ENTRY IN DATA SW
TEST FOR DUAL PROGRAM FEATURE
BYPASS IF NOT PRESENT
LOAD INTERRUPT IAR FOR ERROR
SET BRANCH INST. TO NOP
DISABLE DUAL PGM. & INTERPT KEY
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL
TO NEXT TEST
GO HALT -CC32- BECAUSE APL INSTR
CAUSED PROGRAM ADVANCE WHEN NOT
ENABLED.
ENABLE DUAL PGM.
LOAD INTERRUPT LEVEL 0 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL
GO TO HALT -OC31- BECAUSE APL DID
NOT CAUSE AN ADVANCE WHEN DUAL
PROGRAM WAS ENABLED.
SET BRANCH TO UNCONDITIONAL
LOAD CORE SIZE IN XR1
& XR2
.CHECK IF CPU HAS 64K OF CORE.
IF NOT, CONTINUE NOPALLY. IF
YES, ENTER X'0000' IN XR1
& XR2
.SUBTRACT 128 BY ADDING X'FF80'
.SUBTRACT 128 BY ADDING X'FF80'
-IF ALL CORE TESTED, END TEST.
IF NOT, CHECK PARITY OF 128
BYTES AND CHECK WITH SUPERVISOR
BEFORE CHECKING NEXT 128 BYTES.
.CHECK IF CPU IS MOD C
IF NOT, SKIP TRANSLATE.
PUT DATA ADDR. IN CHECK INSTR. ALSO
LOAD A COUPLE ATT PEGS.
STORE 'EM
DATA STILL THE SAME ?
ATT REG ERROR OR LOAD/STORE CPU INST
RUCTION ERROR ON Q CODES 00 - 0F
ADD 1 TO Q CODE
'' '' ''
DONE ALL 16 Q CODES ?
ADD TO USE 0'S DATA NEXT
DONE THE 0'S YET ?

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FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
98 *****
99 * LOAD ATT, MOVE INST. TO UPPER CORE, EXEC INST. BACK TO LOW CORE
100 *****
0AED C2 02 0ED5 101 MOVUP LA ATHICO, XR2 LOAD ATT ADDR. TABLE ADDR. POINTER
0AF1 3C 00 0AF6 102 MVI LDMOV+1, X'00' LOAD 1ST Q CODE
0AF5 BF 00 00 103 LDMOV LCP 0(, XR2), *-* LOAD AN ATT
0AF8 0E 00 0AF6 0F06 104 ALC LDMOV+1(1), ONE ADD 1 TO Q CODE
0AFE 3D 10 0AF6 105 CLI LDMOV+1, X'10' DONE 16 PAIR ?
0B02 C0 01 0AF5 106 BNE LDMOV
0B06 F4 30 40 107 CCP X'40', CPMR SET EB CYCLE ON FOR PROPER MOVF
0B09 0C 06 0B1E 0B9D 108 MVC W(7), C+2 MOVE INST UP
0B0F 0C 05 0B24 0EA7 109 MVC W+6(6), UPHLT+5 TO HI CORE THEN
0B15 F4 30 70 110 CCF X'70', CPMR SET EA, EB, I CYCLE ON TO EXEC.
0B18 C0 87 0222 111 B HALT HALT IF CCP DID NOT
0B1C FE87 112 DC XL2'FE87' GO TO HI CORE
0B1E 00 113 W DC XL1'00'
114 *****
115 *****
116 * CHECK MEMORY USING ATT'S
117 *****
0B1F C0 87 0B55 118 ATTS B ATTLOD LOAD ATT'S FOR
0B23 0000 119 DC XL2'0000' LO CORE
0B25 35 01 0203 120 L CORSIZ, XR1 LOAD CORE SIZE
0B29 3D FF 0203 121 CLI CORSIZ, X'FF' CORE SIZE 64K OR MORE ?
0B2D F2 01 04 122 JNE DO64A
0B30 35 01 0F27 123 L ZERO, XR1
0B34 C0 87 0B89 124 DO64A B ACCESS ACCESS STORAGE 00-64K.
125 *****
0B38 C0 87 0B55 126 B ATTLOD SET ATT'S FOR HI CORE
0B3C 0020 127 DC XL2'0020'
0B3E 35 01 0EFC 128 L ETHOU, XR1 SET UP FOR 96K
0B42 3D 02 0201 129 CLI CORSIZ-2, X'02' 96K ?
0B46 F2 81 04 130 JE DO64B JUMP IF 128K (OR MORE)
0B49 35 01 0EFE 131 L FTHOU, XR1 SET UP FOR 80K SYSTEM.
0B4D C0 87 0B89 132 DO64B B ACCESS ACCESS 64-80K OR 64- 96K
0B51 C0 87 0BAE 133 B TFST2 CONTINUE WITH REST OF TESTS
134 *****
135 *****
136 * LOAD ATT'S SUBROUTINE (000K - 128K)
137 * SAMPLE LINKAGE :
138 * B ATTLOD
139 * DC XL2'0000' FOR LO CORE OR XL2'0020' FOR HI CORE
140 *
141 *****
0B55 36 08 0F06 142 ATTLOD A ONE, CARR
0B59 34 08 0B70 143 ST HIAD+3, CARR SET THE ADD INSTR.
0B5D 36 08 0F06 144 A ONE, CARR
0B61 34 08 0B88 145 ST LEXIT+3, CARR SET THE RETURN ADDR.
0B65 C2 02 0EB5 146 LA ATLOCO, XR2 LOAD ATT ADDR. TABLE ADDR. POINTER
0B69 3C 00 0B72 147 MVI LODATT+1, X'00' LOAD 1ST Q CODE
0B6D 36 02 0000 148 HIAD A *-*, XR2 ADD PARAMETER FOR UPPER OR LOWER
0B71 BF 00 00 149 LODATT LCP 0(, XR2), *-* LOAD AN ATT
0B74 0E 00 0B72 0F06 150 ALC LODATT+1(1), ONE ADD 1 TO Q CODE
0B7A E2 02 02 151 LA 2(, XR2), XR2 ADD 2 TO TABLE POINTER
0B7D 3D 10 0B72 152 CLI LODATT+1, X'10' DONE 16 PAIR ?
0B81 C0 01 0B71 153 BNE LODATT
0B85 C0 87 0000 154 LEXIT B *-* RETURN
155 *****
156 *****
157 * ACCESS *
158 *****
159 *
160 * SAMPLE LINKAGE :
161 * B ACCESS CAUSE STORAGE FROM XX TO XX TO BE ACCESSED
162 *
163 *****
0B89 34 08 0BAD 164 ACCESS ST ACCEXT+3, CARR SET THE RETURN ADDR.
0B8D 36 01 0F04 165 ATTLOP A NEG128, XR1 DECREMENT XR1

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0B91 F2 81 12 166 JZ ACCE
0B94 F4 30 60 167 CCP X'60', CPMR TRANSLATE
0B97 5D 7F 7F 7F 168 CLC 127(128, XR1), 127(, XR1) ACCESS 128 BYTES.
0B9B F4 30 00 169 CCP X'00', CPMR STOP TRANSLATE
0B9E C0 07 0E59 170 BC EXIT, X'07'
0BA2 C0 87 0B8D 171 B ATTLOP
0BA6 C0 87 0E59 172 ACCE B EXIT GO TO SUPERVISOR
173 *****
0BAA C0 87 0000 174 ACCEXT B *-* RETURN
175 *****
0BAE 176 TEST2 EQU *
177 MVI TSTFLD, 0 SET TEST FIELD TO ZERO
178 TBN TSTFLD, X'FF' TEST ALL BITS FOR ON
179 JF **9 BYPASS HALT IF ALL OFF
180 B HALT TO HALT IF ANY TEST ON
0B3E 181 DC XL2'FE01' HALT ID
182 *****
0BBF 39 FF 0F2C 183 TBF TSTFLD, X'FF' TEST ALL BITS FOR OFF
0BC3 F2 10 06 184 JT **9 BYPASS HALT IF ALL OFF
0BC6 C0 87 0222 185 B HALT TO HALT IF ANY ON
0ECA FE02 186 DC XL2'FE02' HALT ID
187 *****
0BCC 3C FF 0F2C 188 MVI TSTFLD, X'FF' SET TEST FIELD TO 'FF'
0BD0 39 FF 0F2C 189 TBF TSTFLD, X'FF' TEST ALL BITS FOR OFF
0BD4 C0 90 0BDE 190 BF **10 BYPASS HALT IF ALL ON
0BD8 C0 87 0222 191 B HALT TO HALT IF ANY TEST OFF
0BDC FE03 192 DC XL2'FE03' HALT ID
193 *****
0BDE 38 FF 0F2C 194 TBN TSTFLD, X'FF' TEST ALL BITS FOR ON
0BE2 F2 10 06 195 JT **9 BYPASS HALT IF ALL ON
0BE5 C0 87 0222 196 B HALT TO HALT IF ANY TEST OFF
0BE9 FE04 197 DC XL2'FE04' HALT ID
198 *****
0BEB 3C 00 0F2C 199 MVI TSTFLD, 0 SET TEST FIELD TO ZERO
0BEF 3A FF 0F2C 200 SBF TSTFLD, X'FF' SET ALL BITS ON
0BF3 38 FF 0F2C 201 TBN TSTFLD, X'FF' TEST ALL BITS FOR ON
0BF7 C0 10 0C01 202 BT **10 BYPASS HALT IF ALL ON
0BFB C0 87 0222 203 B HALT TO HALT IF ANY TEST OFF
0BFF FE05 204 DC XL2'FE05' HALT ID
205 *****
0C01 3C FF 0F2C 206 MVI TSTFLD, X'FF' SET TEST FIELD TO ALL BITS
0C05 3B FF 0F2C 207 SBF TSTFLD, X'FF' SET ALL BITS OFF
0C09 39 FF 0F2C 208 TBF TSTFLD, X'FF' TEST ALL BITS FOR OFF
0C0D C0 10 0C17 209 BT **10 BYPASS HALT IF ALL OFF
0C11 C0 87 0222 210 B HALT TO HALT IF ANY TEST ON
0C15 FE06 211 DC XL2'FE06' HALT ID
212 *****
0C17 3C 00 0F2C 213 MVI TSTFLD, 0 SET TEST FIELD TO ZERO
0C1B 3A 00 0F2C 214 SEN TSTFLD, 0 SET NO BITS ON
0C1F 3D 00 0F2C 215 CLI TSTFLD, 0 TEST FOR NO CHANGE
0C23 F2 81 06 216 JE **9 JUMP OVER HALT IF OK
0C26 C0 87 0222 217 B HALT TO HALT IF ANY TEST ON
0C2A FE07 218 DC XL2'FE07' HALT ID
0C2C 3C FF 0F2C 219 MVI TSTFLD, X'FF' SET ON ALL BITS IN TEST FIELD
0C30 3B 00 0F2C 220 SBF TSTFLD, 0 SET NO BITS OFF
0C34 3D FF 0F2C 221 CLI TSTFLD, X'FF' TEST FOR NO CHANGE
0C38 F2 81 06 222 JE **9 JUMP OVER HALT IF OK
0C3B C0 87 0222 223 B HALT TO HALT IF ANY TEST OFF
0C3F FE08 224 DC XL2'FE08' HALT ID
0C41 C0 87 0E59 225 B EXIT TO SUPERVISOR
226 *****
0C45 04 20 0F35 0F14 227 ZAZ WORK+9(3), UNITS(1) ZERO THE WORK AREA
0C4B 06 20 0F35 0E28 228 AZ WORK+9(3), DEONE(1) ADD DECIMAL ONE
0C51 07 20 0F35 0E28 229 SZ WORK+9(3), DEONE(1) SUBTRACT DECIMAL ONE
0C57 3C F6 0F2C 230 MVI WORK, X'F6' SET WORK AREA TO F6
0C5B 04 00 0F2C 0F0D 231 ZAZ WORK(1), UNITS-7(1) ZERO & ADD DEC. 3
0C61 3D F3 0F2C 232 CLI WORK, X'F3' CHECK FOR DEC 3.
0C65 C0 81 0C6F 233 BE **10 BYPASS HALT IF OK

```

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
0C69	C0 87 0222		234	B HALT	TO HALT IF NOT EQUAL TO F3
0C6D	FE09	0C6E	235	DC XL2'FE09'	HALT ID
			236		
0C6F	3C D0 0F34		237	MVI WORK+8,X'D0'	
0C73	0C 07 0F33 0F34		238	MVC WORK+7(8),WORK+8	
0C79	06 08 0F34 0F13		239	AZ WORK+8(9),UNITS-1(9)	
0C7F	0D 08 0F34 0F13		240	CLC WORK+8(9),UNITS-1	
0C85	F2 81 06		241	JE **9	
0C88	C0 87 0222		242	B HALT	
0C8C	FE0A	0C8D	243	DC XL2'FE0A'	HALT ID
			244		
0C8E	35 01 0F23		245	L XFF,XR1	SET XR1 TO FF
0C92	35 02 0F27		246	L ZERO,XR2	SET XR2 TO 00
0C96	34 01 0F2D		247	ST WORK+1,XR1	STORE BOTH
0C9A	34 02 0F2F		248	ST WORK+3,XR2	IN WORK AREA
0C9E	0D 01 0F2D 0F23		249	CLC WORK+1(2),XFF	CHECK VALUE FROM XR1
0CA4	F2 81 06		250	JE **9	JUMP OVER HALT IF OK
0CA7	C0 87 0222		251	B HALT	TO HALT IF NOT OK
0CAB	FE0B	0CAC	252	DC XL2'FE0B'	HALT ID
0CAD	0D 01 0F2F 0F27		253	CLC WORK+3(2),ZERO	CHECK VALUE FROM XR2
0CB3	F2 81 06		254	JE **9	JUMP OVER HALT IF OK
0CB6	C0 87 0222		255	B HALT	TO HALT IF NOT OK
0CBA	FE0C	0CBB	256	DC XL2'FE0C'	HALT ID
			257		
0CBC	35 01 0F18		258	L WORK5,XR1	LOAD ADDRESS OF WORK+5 IN XR1
0CC0	7C FD 00		259	MVI1 MVI 0(,XR1),X'FD'	MOVE INEADATE WITH INDEXING
			260		
0CC3	3D FD 0F31		261	CLI WORK+5,X'FD'	CHECK RESULT
0CC7	F2 81 06		262	JE **9	JUMP OVER HALT IF OK
0CCA	C0 87 0222		263	B HALT	TO HALT IF NOT OK
0CCE	FE0D	0CCF	264	DC XL2'FE0D'	HALT ID
			265		
0CD0	35 02 0F18		266	L WORK5,XR2	LOAD ADDRESS OF WORK+5 IN XR2
0CD4	BC AA 00		267	MVI2 MVI 0(,XR2),X'AA'	MOVE INEADATE WITH INDEXING
			268		
0CD7	3D AA 0F31		269	CLI WORK+5,X'AA'	CHECK RESULT
0CDB	F2 81 06		270	JE **9	JUMP OVER HALT IF OK
0CDE	C0 87 0222		271	B HALT	TO HALT IF NOT OK
0CE2	FE0E	0CE3	272	DC XL2'FE0E'	HALT ID
			273		
0CE4	C2 01 0000		274	LA 0,XR1	LOAD ZERO IN XR1
0CE8	34 01 0F2D		275	ST WORK+1,XR1	STORF
0CEC	0D 01 0F2D 0F27		276	CLC WORK+1(2),ZERO	COMPARE
0CF2	F2 81 06		277	JE **9	JUMP OVER HALT IF OK
0CF5	C0 87 0222		278	B HALT	TO HALT IF NOT OK
0CF9	FE0F	0CFA	279	DC XL2'FE0F'	HALT ID
			280		
0CFB	C2 01 0000		281	LA 0,XR1	ZERO XR1
0CFE	D2 01 02		282	LOAD1 LA 2(,XR1),XR1	STEP BY 2
0D02	34 01 0F08		283	ST REGSAV,XR1	SAVE
0D06	0D 01 0F08 0F02		284	CLC REGSAV(2),MINUS2	COMPARE
0D0C	C0 01 0CFE		285	BNE LOAD1	LOOP TILL EQUAL TO 00FE
			286		
0D10	C2 02 0000		287	LA 0,XR2	ZERO XR2
0D14	E2 02 02		288	LOAD2 LA 2(,XR2),XR2	STEP BY 2
0D17	34 02 0F08		289	ST REGSAV,XR2	SAVE
0D1B	0D 01 0F08 0F02		290	CLC REGSAV(2),MINUS2	COMPARE
0D21	C0 01 0D14		291	BNE LOAD2	LOOP TILL EQUAL TO 00FE
0D25	C0 87 CE59		292	B EXIT	
			293		
			294		
0D29	3C 0F 0F2C		295	MVI WORK,X'0F'	SET WORK AREA
0D2D	3C 0F 0F2D		296	MVI WORK+1,X'F0'	
0D31	08 00 0F2C 0F2D		297	MZZ WORK,WORK+1	MOVE ZONE TO ZONE
0D37	3D FF 0F2C		298	CLI WORK,X'FF'	CHECK MOVE
0D3B	F2 81 06		299	JE **9	JUMP OVER HALT IF OK
0D3E	C0 87 0222		300	B HALT	TO HALT IF ERROR
0D42	FE10	0D43	301	DC XL2'FE10'	HALT

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
			302		
0D44	08 01 0F2C 0F2D		303	MZN WORK,WORK+1	MOVE NUMERIC TO ZONE
0D4A	3D 0F 0F2C		304	CLI WORK,X'0F'	CHECK MOVE
0D4E	F2 81 06		305	JE **9	JUMP OVER HALT IF OK
0D51	C0 87 0222		306	B HALT	TO HALT IF ERROR
0D55	FE11	0D56	307	DC XL2'FE11'	HALT ID
			308		
0D57	08 03 0F2C 0F2D		309	MNN WORK,WORK+1	MOVE NUMERIC TO NUMERIC
0D5D	3D 00 0F2C		310	CLI WORK,X'00'	CHECK MOVE
0D61	F2 81 06		311	JE **9	JUMP OVER HALT IF OK
0D64	C0 87 0222		312	B HALT	TO HALT IF ERROR
0D68	FE12	0D69	313	DC XL2'FE12'	HALT ID
			314		
0D6A	08 02 0F2C 0F2D		315	MNZ WORK,WORK+1	MOVE ZONE TO NUMERIC
0D70	3D 0F 0F2C		316	CLI WORK,X'0F'	CHECK MOVE
0D74	F2 81 06		317	JE **9	JUMP OVER HALT IF OK
0D77	C0 87 0222		318	B HALT	TO HALT IF ERROR
0D7B	FE13	0D7C	319	DC XL2'FE13'	HALT ID
0D7D	0C 01 0F08 0F23		320	MVC REGSAV(2),XFF	SET SAVE AREA
0D83	C2 01 0F2C		321	LA WORK,XR1	LOAD ADDRESS OF WORK IN XR1
0D87	D2 02 00		322	LA 0(,XR1),XR2	PUT XR1 IN XR2
0D8A	34 02 0F08		323	ST REGSAV,XR2	SAVE XR2
0D8E	0D 01 0F08 0F16		324	CLC REGSAV(2),WORK0	CHECK RESULT
0D94	F2 81 06		325	JE **9	JUMP OVER HALT IF OK
0D97	C0 87 0222		326	B HALT	TO HALT IF ERROR
0D9B	FE14	0D9C	327	DC XL2'FE14'	HALT ID
			328		
0D9D	0C 01 0F08 0F23		329	MVC REGSAV(2),XFF	SET SAVE AREA
0DA3	C2 02 0F2C		330	LA WORK,XR2	LOAD ADDRESS OF WORK IN XR2
0DA7	E2 01 00		331	LA 0(,XR2),XR1	PUT XR2 IN XR1
0DAA	34 01 0F08		332	ST REGSAV,XR1	SAVE XR1
0DAE	0D 01 0F08 0F16		333	CLC REGSAV(2),WORK0	CHECK RESULT
0DB4	F2 81 06		334	JE **9	JUMP OVER HALT IF OK
0DB7	C0 87 0222		335	B HALT	TO HALT IF ERROR
0DBB	FE15	0DBC	336	DC XL2'FE15'	HALT ID
			337		
0DBD	F2 88 00		338	JOZ **3	RESET DECIMAL OVERFLOW
0DC0	3C D9 0F2C		339	MVI WORK,X'D9'	SET WORK TO MINUS DECIMAL 9
0DC4	06 00 0F2C 0F1D		340	AZ WORK(1),XD9(1)	ADD MINUS DEC. 9 TO WORK
0DCA	F2 88 06		341	JOZ **9	JUMP OVER HALT IF DECIMAL OVER FLOW
0DCD	C0 87 0222		342	B HALT	TO HALT IF ERROR
0DD1	FE16	0DD2	343	DC XL2'FE16'	HALT ID
			344		
0DD3	3C D9 0F2C		345	MVI WORK,X'D9'	SET WORK TO MINUS DECIMAL 9
0DD7	06 00 0F2C 0F1D		346	AZ WORK(1),XD9(1)	ADD MINUS DEC. 9 TO WORK
0DDD	C0 88 0DE7		347	BOZ **10	BRANCH OVER HALT IF DECIMAL OVERFLOW
0DE1	C0 87 0222		348	B HALT	TO HALT IF ERROR
0DE5	FE17	0DE6	349	DC XL2'FE17'	HALT ID
			350		
0DE7	C0 08 0DF1		351	BNOZ **10	BRANCH OVER HALT IF NO OVERFLOW
0DEB	C0 87 0222		352	B HALT	TO HALT IF ERROR
0DEF	FE18	0DF0	353	DC XL2'FE18'	HALT ID
			354		
0DF1	F2 08 06		355	JNOZ **9	JUMP OVER HALT IF NO OVERFLOW
0DF4	C0 87 0222		356	B HALT	TO HALT IF ERROR
0DF8	FE19	0DF9	357	DC XL2'FE19'	HALT ID
			358		
0DFA	0C 01 0F2D 0F1C		359	MVC WORK+1(2),X2020	SET WORK TO HEX-2020-
0E00	0A 01 0F2D 0F1F		360	ED WORK+1(2),XE1F0	EDIT
0E06	0D 01 0F2D 0F21		361	CLC WORK+1(2),XF1F0	CHECK RESULT
0E0C	F2 81 06		362	JE **9	JUMP OVER HALT IF OK
0E0F	C0 87 0222		363	B HALT	TO HALT IF ERROR
0E13	FE1A	0E14	364	DC XL2'FE1A'	HALT ID
			365		
0E15	3C F0 0F4C		366	MVI WORK+32,C'0'	SET A NUMERIC VALUE AT END OF FLD
0E19	0F 1F 0F4B 0F4B		367	SLC WORK+31(32),WORK+31	ZERO WORK
0E1F	3C FF 0F75		368	MVI WORK+73,X'FF'	
0E23	0C 1D 0F74 0F75		369	MVC WORK+72(30),WORK+73	COMPARE FIELD



FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
A	A	004	0	0063	
ACCE	A	004	0:46	0172	0166
ACCESS	A	004	0B89	0164	0124 0132
ACCEXT	A	004	0BAA	0174	0164*
ADRA	A	002	0EA9	0419	0048
ADRB	A	002	0EAB	0420	0049 0051
ADRC	A	002	0EAD	0421	0050
ADRX	A	002	0EAF	0422	0038
ADRY	A	002	0EB1	0423	0036
ADRZ	A	002	0EB3	0424	0037
ARF	C	001	0008	0488	0371 0383
ATHICO	A	002	0ED5	0442	0101
ATLOCO	A	002	0EB5	0425	0146
ATTLOD	A	004	0B55	0142	0118 0126
ATTLOP	A	004	0B87	0165	0171
ATTS	A	004	0B.F	0118	
ATTO1	C	001	0000	0489	
AXFF	A	002	0EF5	0457	0080 0095
B	A	004	0A7B	0069	0066 0074
BADINT	A	002	0EF7	0460	0391 0406
BR	A	004	0E65	0386	0383*
BRANCH	A	004	0A56	0053	0034* 0059*
C	A	003	0E9B	0169	0108
CARR	C	001	0008	0490	0142* 0143 0144* 0145 0164
CATT	A	006	0AB6	0086	0083* 0095
CORSIZ	C	001	0203	0491	0063 0064 0065 0075 0120 0121 0129
CPMR	C	001	0030	0492	0107 0110 0167 0169
CPU	C	001	0204	0493	0031
DEONE	A	001	0EF8	0461	0228 0229
DO64A	A	004	0B34	0124	0122
DO64B	A	004	0B4D	0132	0130
DPA	A	004	0A4F	0651	0419
DPB	A	004	0A60	0059	0420
DPC	A	003	0A53	0052	0053 0421
DPX	A	004	0A36	0042	0422
DPY	A	004	0A2C	0038	0423
DPZ	A	003	0A30	0039	0424
DP2	A	003	0A3C	0046	0040
ENHICO	A	002	0EF3	0457	
ENLOCO	A	002	0ED3	0440	
ENTRY	C	001	0A0A	0494	0385
ERRINT	A	002	0EFA	0462	0033
ETHOU	A	002	0EFC	0463	0128
EXIT	A	004	0E59	0383	0073 0097 0170 0172 0225 0292 0381
FE1	A	001	0000	0005	
FTHOU	A	002	0EFE	0464	0131
GUUDE	A	006	0AC5	0090	0087
HALT	C	001	0222	0495	0042 0055 0068 0111 0180 0185 0191 0196 0203 0210 0217 0223 0234 0242 0251 0255 0263 0271 0278 0300 0306 0312 0318 0326 0335 0342 0348 0352 0356 0363 0374 0378 0411 0416
HIAD	A	004	0B6D	0148	0143*
IARO	C	001	0080	0496	0033* 0047*
INTERR	A	004	0E91	0406	0395 0398 0414 0462
INTOK	A	004	0E69	0388	0465
INTRPT	A	002	0F00	0465	0047
KROW	A	074	0F75	0486	0085 0086
LATT1	A	004	0AAE	0084	0080* 0082* 0083 0090* 0092 0093 0094*
LDMOV	A	003	0AF5	0103	0102* 0104* 0105 0106
LEXIT	A	004	0B85	0154	0145*
LOAD1	A	003	0CFP	0282	0285
LOAD2	A	003	0D14	0288	0291
LODATT	A	003	0B71	0149	0147* 0150* 0152 0153
MINUS2	A	002	0F02	0466	0284 0290
MOVUP	A	004	0AED	0101	
MVI1	A	003	0CC0	0259	
MVI2	A	003	0CD4	0267	

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PROG ID FE1-2  
PAGE 5A

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
NEG128	A	002	0F04	0467	0069 0070 0165
NEWLD	A	003	0E83	0400	0397
NOOOP	A	004	0E78	0395	
ONE	A	002	0F06	0468	0090 0091 0104 0142 0144 0150
P1IAR	C	001	0020	0497	0036* 0048* 0049*
P1SAV	A	002	0F29	0483	0388* 0402
P2IAR	C	001	0040	0498	0037* 0038* 0050* 0051*
P2SAV	A	002	0F2B	0484	0389* 0403
REGSAV	A	002	0F08	0469	0283* 0284 0289* 0290 0320* 0323* 0324 0329* 0332* 0333
RESETT	A	003	0E95	0409	0405
SETARR	A	004	0E98	0411	0460
STATT1	A	004	0AB2	0085	0081* 0091*
TEST	C	001	0212	0499	0030
TEST2	A	001	0BAE	0176	0076 0133
TSTAT1	A	006	0A9A	0080	
TSTCOR	A	004	0A92	0075	0071
TSTFLD	A	001	0F2C	0500	0177* 0178 0183 0188* 0189 0194 0199* 0200* 0201 0206* 0207* 0208 0213* 0214* 0215 0219* 0220* 0221
TST01	A	001	0A0A	0024	0018
TST01A	A	004	0A0E	0030	0382 0503
TST01B	A	001	0A64	0061	0032
TWO	A	002	0F0A	0470	0094
UNCND	A	004	0E7C	0397	
UNITS	A	010	0F14	0471	0227 0231 0239 0240
UPHLT	A	004	0EA2	0416	0109
W	A	001	0B1E	0113	0108* 0109*
WORK	A	001	0F2C	0485	0227* 0228* 0229* 0230* 0231* 0232 0237* 0238 0238* 0239* 0240 0247* 0248* 0249 0253 0261 0269 0275* 0276 0295* 0296* 0297 0297* 0298 0303 0303* 0304 0309 0309* 0310 0315 0315* 0316 0321 0330 0339* 0340* 0345* 0346* 0359* 0360* 0361 0366* 0367 0367* 0368* 0369 0369* 0370* 0371* 0372 0372 0376 0472 0473 0474 0500
WORK0	A	002	0F16	0472	0324 0333
WORK31	A	002	0F1A	0474	0376
WORK5	A	002	0F18	0473	0258 0266
XD9	A	001	0F1D	0476	0340 0346
XE1F0	A	002	0F1F	0477	0360
XFF	A	002	0F23	0479	0245 0249 0320 0329 0370
XFFZ	A	002	0F25	0480	0459
XF1F0	A	002	0F21	0478	0361
XR1	C	001	0001	0501	0072 0120* 0123* 0128* 0131* 0165* 0168 0168 0245* 0247 0258* 0259 0274* 0275 0281* 0282 0282* 0283 0321* 0322 0331* 0332
XR2	C	001	0002	0502	0072 0101* 0103 0146* 0148* 0149 0151 0151* 0246* 0248 0266* 0267 0287* 0288 0288* 0289 0322* 0323 0330* 0331
X2020	A	002	0F1C	0475	0359
ZERO	A	002	0F27	0481	0067 0068 0123 0246 0253 0276
ZQODE	A	004	0AA0	0081	0096

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0



FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE      ADDR SIMI SOURCE STATEMENT
2 *
3     DECK 4
4     SEC 6
5     COM          THIS PREVENTS GENERATION OF OBJECT DECK
6 PAF  START X'0'
7 *****
8 *          BOOTSTRAP - FIRST CARD *
9 *****
10 *****
11 *  LOADER FOR MFCU *
12 *  THIS ONE CARD PROGRAM IS CONTAINED IN THE FIRST CARD OF THE *
13 *  DIAGNOSTIC CONTROL PROGRAM. IT IS READ INTO LOCATIONS 0-95 BY *
14 *  INITIAL PROGRAM LOAD. WHEN GIVEN CONTROL, THE BOOTSTRAP ROUTINE *
15 *  READS THE SECOND CARD OF THE DCP OBJECT DECK INTO X'200' AND *
16 *  BRANCHES TO IT. *
17 *
18 *  NOTE - THE SECOND TIER OF THIS CARD CONTAINS THE PART NUMBER AND *
19 *  EC LEVEL OF DCP. *
20 *****
0000 0000 21 USING BCCT1,XR1
22 BOOT1 IA 0,XR1          LOAD BASE REGISTER
23     TIO BCCT1E(,XR1),X'F0' GC HALT IF MFCU ERROR OR NOT READY
24     LIO BCCT11(,XR1),X'F5' LOAD READ ADDRESS REGISTER
25     SIC IPL,READ        READ A CARD INTO LOCATIONS 512-607
26 BOOT1A TIO BCCT1A(,XR1),X'F1' LOOP UNTIL DONE
27     TIC BCCT1E(,XR1),X'F0' GC HALT IF ERROR
28     E     BCCT2          GC TO BOOTSTRAP ROUTINE
29
0017 F0 3B 5D          30 BCCT1E HPI H5,HH          *MFCU NOT READY OR ERROR
001A D0 87 00          31     E     BCCT1(,XR1) GC TRY AGAIN
32
001D 0200          001E 33 BOOT11 DC AL2(512)
34
001F 40D7D540F4F2F4F8 003B 35     DC CL29' PW 4248230 EC XXXXXX I'
0027 F2F3F04040C5C340 35
002F E7E7E7E7E7E74040 35
0037 40404040D3 35
36 *          ACTUAL VALUES ARE IN ACTUAL CARD.

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LAST CHG 01:27:77

ERR LOC OBJECT CODE ADDR SIMI SOURCE STATEMENT

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38 *****
39 *          BCCTSTRAP - SECOND CARD *
40 *****
41 *
42 *  THIS ONE CARD PROGRAM IS CONTAINED IN THE SECOND CARD OF THE *
43 *  DIAGNOSTIC CONTROL PROGRAM. IT IS READ INTO LOCATIONS 512-565 *
44 *  BY THE IPL CARD. THIS ROUTINE READS THREE IPL FORMAT CARDS INTO *
45 *  LOW CORE TO BUILD ENOUGH OF THE DIAGNOSTIC LOADER TO HANDLE TEXT *
46 *  CARDS. THEN THE BOOTSTRAP ROUTINE BRANCHES TO THIS PORTION OF *
47 *  THE DIAGNOSTIC LOADER, WHICH LOADS THE REMAINDER OF THE LOADER *
48 *  AND DCP. *
49 *
50 *****
51     ORG 512
52     USING BOOT2,XR1
53     USING BCCT2,XR2
54 BOOT2 LA BOOT2,XR2          LOAD BASE REGISTERS
55 ET2 IA 96(,XR1),XR1
56     J     BCCT2A
57 BOOT2E HPI H5,HH          *MFCU NOT READY OR ERROR
58 BCCT2A TIC BCCT2E(,XR2),X'F0' GC HALT IF MFCU NOT READY OR ERROR
59     TIC BCCT23(,XR2),X'F5' LOAD READ LSR FOR ADDR 0000
60     SIO IPL,READ        READ A CARD
61 BCCT2E TIO BCCT2E(,XR2),X'F1' LOOP UNTIL DONE
62     TIO BCCT2E(,XR2),X'F0' GC HALT IF ERROR
63     MVC 59(60,XR1),59 MOVE DATA TO CORE
64     IA 60(,XR1),XR1 INCREMENT PCOUNTER FOR NEXT CARD
65     SLC BCCT22(1,XR2),BOOT21(,XR2) CONTINUE UNTIL 4 CARDS HANDLED
66     FNZ BCCT2A(,XR2)
67     MVI X'8FF',C' CLEAR PRINT FIELD
68     MVC X'8FE'(255),X'8FF'
69     E     NEXTR          GO TO DIAGNOSTIC LOADER
70
0200 0200 71 BCCT21 EQU BT2+1
0200 0200 72 BCCT22 DC I11'3'
0239 03 023B 73 BOOT23 DC AL2(0)
023A 0000

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
0060                      75      CFG      X'60'
76 *****
77 *                      76      *****
78 *                      77      *
79 *                      78      *
80 *                      79      *
81 * A ONE CARD BOOTSTRAP READS THIS LOADER INTO CORE AND BRANCHES TO
82 * IT. THE DIAGNOSTIC LOADER THEN LOADS THE CONTROL PROGRAM,
83 * INCLUDING ITS SECTION REFERENCE TABLE. AFTER DCP IS LOADED, THIS
84 * MODULE THEN TRANSFORMS ITSELF INTO A SECTION LOADER BY ALTERING A
85 * BRANCH ADDRESS. OBJECT CARDS RECOGNIZED BY BOTH PHASES INCLUDE
86 *
87 *      TEXT
88 *      REPLACE
89 *      COMMENT
90 *      SENSE SWITCH
91 *      EBC
92 *
93 * THE DCP LOADER PORTION ALSO RECOGNIZES THE FOLLOWING CARDS--
94 *      CPE
95 *      UMT
96 *      CEAIN IMAGE CONTROL AND IMAGE CARDS
97 *
98 * OTHER CARDS ARE IGNORED.
99 *****
100
101 *
102 ** SUBROUTINE TO READ ONE CARD.
103 *
005C 104      USING CDREAD-4, XR2
105 CDREAD LA      CDREAD-4, XR2      LOAD LASE ADDRESS
0064 C2 01 0880 106 LA      INPUT, XR1      SET
0067 107 AINPUT EQU      *-1
108 ST      CDEXIT+3(, XR2), ARR      SET UP RETURN ADDRESS
109 TIC      ERR(, XR2), X'F0'      GC HALT IF MFCU NOT READY OR ERROR
110 DOLIO LIC      AINPUT(, XR2), X'F5'      LOAD LSP TO START LOADING AT X'880'
111 SIC      NCRM, READ      READ A CARD - NORMAL MODE
112 BUSY TIC      BUSY(, XR2), X'F1'      LOOP UNTIL READ DONE
113 SNS      STATUS(, XR2), X'F3'      GO HALT IF FEED OR READ CHECK
114 TEF      STATUS(, XR2), X'86'
115 CDEXIT BT      *-
116 ERR      HPI      H5, HB      *MFCU NOT READY OR ERROR
117 E      DOLIC(, XR2)      GO TRY START I/C
118
0087 0001 119 B1      DC      XL2'0001'
0089 FFPC 120 NEG4 DC      XL2'FFFC'
121
122
008B C0 87 0060 123 NEXTP B      CDREAD      GO READ A CARD
008F 7D E3 00 124 RED      CLI      0(, XR1), C'T'      BRANCH IF THIS IS TEXT CARD
0092 F2 81 06 125 JE      LOOP
0095 7D C5 00 126 CLI      0(, XR1), C'E'      BRANCH IF NOT END CARD
0098 F2 01 71 127 JNE      CKREP
009B 7D D0 01 128 ICCP CLI      1(, XR1), X'D0'      REPLACE ALL HEX 'D0' BYTES WITH '2A'
009E F2 01 03 129 JNE      *-+6
00A1 7C 2A C1 130 MVI      1(, XR1), X'2A'
00A4 D2 01 01 131 LA      1(, XR1), XR1
00A7 B4 01 01 132 ST      IDWORK(, XR2), XR1
00AA BD D8 01 133 CLI      IDWORK(, XR2), X'D8'
00AD E0 82 3F 134 BL      LOOP(, XR2)
00B0 C2 01 08D7 135 LA      INFUT+87, XR1
00B4 C2 02 005C 136 LA      CDREAD-4, XR2      INITIALIZE POINTERS
00B8 EC 01 7A 137 MVI      LABEL+2(, XR2), 1
00BB BC 00 67 138 LENGTH MVI      S1+1(, XR2), 0      INITIALIZE LENGTH OF ADD FIELD
00BE AC 00 6B 67 139 CMICOP MVC      S2+1(1, XR2), S1+1(, XR2)
00C2 5E 00 01 01 140 S1      ALC      1(*-*, XR1), 1(, XR1)      SHIFT CFF HIGH ORDER 2 BITS
00C6 5E 00 01 01 141 S2      ALC      1(*-*, XR1), 1(, XR1)
00CA AF 00 67 2C 142 ALC      S1+1(1, XR2), N1(, XR2)      PREPARE TO OPERATE ON NEXT BYTE

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
00CE BD 04 67 143      CLI      S1+1(, XR2), 4      CONTINUE UNTIL 4 BYTES COMPRESSED
00D1 E0 01 62 144      BNE      CHLOOF(, XR2)
00D4 5C 02 00 00 145 LABEL MVC      *-*(3, XR1), 0(, XR1)      MOVE 3 COMPRESSED BYTES TO TEMPORARY
00D8 AE 00 7A 68 146      ALC      LABEL+2(1, XR2), S1+2(, XR2)
00DC E6 01 2E 147      A      NEG4(, XR2), XR1      DECREMENT BY 4
00DF BD 17 7A 148      CLI      LABEL+2(, XR2), 23
00E2 E0 82 5F 149      EI      LENGTH(, XR2)      CONTINUE UNTIL CARD DONE
00E5 7D C5 01 150 *      XR1 = X'87F' AT THIS POINT
00E8 F2 81 21 151      CLI      1(, XR1), C'E'      IF THIS IS END CARD, GO ON
152      JE      CKREP
153
00EB 9C 02 A3 1A 154      MVC      MCVE+3(3, XR2), 26(, XR1)      SET UP TO MOVE TEXT DATA TO CORE
00EF 9C 00 A4 18 155 LPTONE MVC      MCVE+4(1, XR2), 24(, XR1)
00F3 D2 01 1B 156      LA      27(, XR1), XR1
00F6 BD 20 A2 157      CLI      MCVE+2(, XR2), X'20'      SEE IF TOO BIG FOR 8K
158
159 *      ADDRESS OF NEXT INSTRUCTION MUST NOT CHANGE. IF IT DOES, THE
160 *      REFERENCE TO IT WILL NOT WORK WITH THE 1442 CB OTHER CARD
161 *      LOADERS.
162
00F9 F2 07 05 163 TOMU JC      10HUCH, X'07'      'JNL 10HUCH' PATCHED IN IF 8K DEFINED
00FC 1C 00 0000 00 164 MCVE MVC      *-*(*, XR1), *-*(, XR1)      INSTRUCTION TO MOVE TEXT DATA
0101 165 TCHUCH EQU      *
166      B      X'108'      SEVEN BYTES
0105 000000 167      DC      XL3'0'      OF FILLER.
168
169 *      IF FIRST 5 CARDS OF DCP ARE USED AS A LOADER, ADDR IN END
170 *      CARD WILL BE BRANCHED TO FROM HERE.
171 *      LCADEF REQUIREMENTS-- FROM X'60' TO X'10F' AND
172 *      X'88C' - 8DF AS BUFFER.
173 *      SPACE
174 *      THE NEXT INSTRUCTION BELOW MUST STAY AT X'108'
175 *      IN ORDER TO REMAIN COMPATIBLE WITH 1442 LOADER ETC.
176
177      B      NEXTP
178      L      INFUT+2, XR1      (NOTE -- ADDRESS OF THIS INSTRUCTION
179      B      0(, XR1)      IS THE SAME AS THAT OF CKREP)
180
181 *      THE ABOVE 3 INSTRUCTIONS ARE OVERLAYED DURING NORMAL DCP LOADING.
182 *      FIRST THE CLEAR CORE ROUTINE OVERLAYS THEM. THEN THE REST OF THE
183 *      LOADER OVERLAYS THAT ROUTINE.
184 *      IF THESE FIRST 5 CARDS ARE USED AS A GENERAL LOADER, THESE LAST TWO
185 *      INSTRUCTIONS CAUSE A BRANCH TO THE END CARD ADDRESS, WHEN END CARD
186 *      IS READ
187
188
189 **      ALL ABOVE INSTRUCTIONS ARE CONTAINED IN IPL FORMAT BOOTSTRAP
190 **      CARDS AT THE BEGINNING OF THE DCP OBJECT DECK. THE CODE IS CAPABLE
191 **      OF HANDLING TEXT AND END CARDS AND IS USED TO GET THE REMAINDER OF
192 **      THE DCP LOADER INTO CORE.
193
194 *
195 *****
196      ECOM      BEGIN GENERATING TEXT CARDS
197      ORG      *-11
198
199 *      THE FOLLOWING IS A ROUTINE TO CLEAR CORE FROM 8K DOWN TO ITSELF.
200 *      IT IS CONTAINED IN THE FIRST TEXT CARD OF DCP, AND IS EXECUTED
201 *      AS SOON AS IT IS MOVED TO CORE.
202
203 CLROR MVI      X'1FFF', C' '      CLEAR UPPER 256 BYTES OF
204      MVC      X'1FFF'(255), X'1FFF'      FIRST 8K WITH BLANKS
205 ZRO      MVC      X'1FFF'(256), X'1FFF'      CLEAR NEXT 256 BYTE SEGMENT
206      SLC      ZRO+3(2), NUM256      POINT TO NEXT 256 BYTE SEGMENT DOWN
207      CLI      ZRC+2, X'01'      CONTINUE UNTIL READY FOR 100-1FF
208      BE      ZRO

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR SYMT SOURCE STATEMENT
0126 0C CD 01FF 1FFF 209 HVC X'1FFF' (X200-ENDCLR), X'1FFF' CLEAR REST OF THIS SEGMENT
012C C0 87 008E 210 B NEXTR RE-ENTER LOADER
0130 0100 0131 211 NUB256 DC XL2'0100'

ERR LOC OBJECT CODE ADDR SYMT SOURCE STATEMENT
018C 7D 6B 01 270 CLI 1(,XR1),C', ' CHECK FOR MORE ENTRIES
018F D2 01 03 271 LA 3(,XR1),XR1 POINT TO NEXT NUMBER
0192 C0 81 017B 272 BE CHKSSO CONTINUE UNTIL CARD DONE
0196 C0 87 008E 273 E NEXTR WHEN DCNE, GO READ NEXT CARD
019A 7D C5 00 274 CHKEND CLI 0(,XR1),C'E' GO READ NEXT CARD IF NOT END
019D E0 01 2F 275 ENE NEXTR(,XR2)

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0A00 307 CRG X'A00'
308 \* THESE INSTRUCTIONS AND CONSTANTS ARE USED ONLY BY THE DCP LOADER.
309 \* THE UNIQUE SECTIONS OF THE SECTION LOADER ARE LOADED INTO THE
310 \* LOADER AREA, X'000' - X'1FF'.

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0A01 F2 01 0A 374 JNE FTFDC COLUMN 4 IS NOT BLANK
0A04 3C 00 025F 375 MVI UTAB+45,X'0' IF BLANK - CLEAR UDT TABLE FOR ALL
0A08 0C 2C 025E 025F 376 MVC UTAB+44(45),UTAB+45 NEW ENTRIES

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR IOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OBA0	3C FF 0878	442	MVI	LPINAG+120,X'FF'	SET FLAG FOR 120 CHAP CHAIN
OBA4	F2 87 46	443	NOCHG	J	ENTER LCCF TO LOAD CHAIN CARDS.
OBA7	7D C5 00	444			
OEAA	CO 81 0BB8	445	CKEND	CLI	0(,XR1),C'E'
OBAE	FO 3B 6F	446	BE	ISEND	IF END CARD CONTINUE
OBB1	FO 6F 03	447	HPL	H0,HH	UNDEFINED CARD ENCOUNTERED IN DCP
OEE4	CO 87 008E	448	HPI	H1,H0	SECONDARY HALT -- INVALID OR BLANK CARD
OBB8	3D A0 0232	449	B	NEYTR	TO GET NEXT RECORD
OEEC	F2 01 0A	450	ISEND	EQU	*
OBEF	FO 3B 6F	451	HGO	CLI	UTAB,X'A0'
OBC2	FO 6F 5D	452	JNE	LDRCK	IF THIS IS DEFINED AS DISK, HALT H0
OEC5	CO 87 0BB8	453	HPL	H0,HH	H0 HALT FOR INVALID RECORD
OBC9	C2 91 0154	454	HPI	H5,H0	SECONDARY HALT FOR UDT LOADER WRONG AT END CARD
OBCD	34 01 0116	455	B	HGO	*
OED1	CO 87 0E86	456	LDROR	EQU	*
OBD5	CO 87 0226	457			
OED9	30	458	LA	CKCOM,XR1	CONNECT REST OF LOADER
OBDA	09AF	459	ST	CKCCH+3,XR1	
OEDC	0800	460	B	BEGIN	GO BEGIN DCF
OBDE	0E 00 0BDD 0A06	461			
OEE4	0F 00 0A0E 0399	462	CKCTR	B	PACK
OBEA	EO 04 2F	463	DC	IL1'48'	PACK THIS PRINT IMAGE DATA CARD
OEEF	CO 87 0060	464	DC	AL2(INPUT+47)	INTO PROPER LOCATION
OEF1	CO 87 0BD5	465	IMGADR	DC	IL2'800'
OEF5	E2E2E6	466	ALC	IMGADR(1),N24	ADJUST FCINTER FOR NEXT CARD
OBF8	0889	467	SIC	CHCTR(1),ONE	INCREMENT CARD COUNTER
		468	BNH	NEXTR(,XR2)	GC READ NEXT CARD IF IMAGE COMPLETE
		469	EDCD	B	GC READ NEXT IMAGE CARD AND RETURN
		470	B	OKCTR	GO BACK AND PROCESS THE CARD
		471	SSWD	DC	CI3'SSW'
		472	INADR1	DC	AL2(INPUT+9)
		473			
		474			
		475			
		476			
0880	477 INPUT EQU	X'880'			
005F	478 STATUS EQU	CDREAD-1			
005E	479 LDWCRK EQU	CDREAD-3			
0249	480 UDT1 EQU	X'249'			LAST BYTE OF 8TH UDT ENTRY
0261	481 UDT2 EQU	X'261'			LAST BYTE OF 16TH UDT ENTRY
0040	482 IPL EQU	X'40'			MFCU CCNTROL CODE - IPL MODE
0000	483 NORM EQU	X'0'			MFCU CCNTROL CODE - NORMAL MODE
00F1	484 READ EQU	X'F1'			MFCU READ Q CODE

ERR IOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0200		486	CRG	X'200'	
		487			*****
		488			SECTION REFERENCE TABLE
		489			*****
		490			
		491			THE DATA IN THIS TABLE PROVIDES THE DIAGNOSTIC SECTION/CONTROL
		492			PROGRAM INTERFACE. IT IS LOADED BY THESE METHODS--
		493			
		494			CONTROL PROGRAM EXECUTION
		495			CONTROL PROGRAM ASSEMBLY
		496			UDT CARDS
		497			
		498			*****
		499			
		500			
		501	**	SRT DATA	
		502			
0200 00		503	SHOD	DC	XL1'0'
0201 00		504		DC	XL1'0'
0202 0000		505	SIZE	DC	XL2'0'
0204 00		506	CFU	DC	XL1'0'
0205 00		507		DC	XL1'0'
0206 0000		508	PGCKR	DC	XL2'0'
		509			
0208 00		510	IBASE	EQU	*
0209 00		511	SEYTE0	DC	XL1'0'
020A 00		512	SBYTE1	DC	XL1'0'
020B 00		513	SBYTE2	DC	XL1'0'
020C 00		514	SBYTE3	DC	XL1'0'
020D 00		515	SBYTE4	DC	XL1'0'
020E 00000000		516	SEYTE5	DC	XL1'0'
		517	RFFX	DC	XI4'0'
		518			
		519			
		520	**	ASSEMBLED TRANSFER TABLE	
		521			
0212 35 10 0531		522	TEST	L	TR1,IAR
0216 35 10 0783		523	LINK	L	TR2,IAR
021A 35 10 02CA		524	PRINT	L	TR3,IAR
021E 35 10 067A		525	UNPACK	L	TR4,IAR
0222 35 10 0785		526	HALT	L	TR5,IAR
0226 35 10 0231		527	PACK	L	TR6,IAR
022A 35 10 0556		528	LCAD	L	TR7,IAR
022E 05AF	022F	529	LMSG	DC	AL2(LMSG)
0230 03B4	0231	530	ITR6	DC	AL2(EPACK)
		531			
		532	**	UNIT DEFINITION TABLE	
		533			
		534	UTAB	EQU	*
0232 0000000000000000	0267	535		DC	XL54'00'
023A 0000000000000000		535			18 X 3 = 54 USABLE UDT ENTRIES
0242 0000000000000000		535			
024A 0000000000000000		535			
0252 0000000000000000		535			
025A 0000000000000000		535			
0262 000000000000		535			
0268 0010	0269	536		DC	XL2'0010'
					SIGNALS LAST ENTRY (NOT USABLE ITSELF)

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
538 *****
539 * LOAD ***** LOAD *
540 *****
541 *
542 * SUBROUTINE TO LOAD PROGRAMS OR DATA RECORDS FROM THE LOADING
543 * DEVICE. ENTRY TO THIS SUBROUTINE IS MADE AS FOLLOWS--
544 *
545 *      B      ICAD      WHERE LCAD IS EQUATED TO X'22A'
546 *      *DC    XI'FLAGS'
547 *      **DC   XL2'DXXX'      XXX - PROGRAM ID (OR DISK ADDR)
548 *
549 *      FLAG BIT ON
550 *      NONE - NORMAL TERMINATION
551 *      0 - HE HALT, LCAD XXX, HA HALT AND GIVE XXX
552 *      CONTROL
553 *      1 - ABNORMAL TERMINATION
554 *      IF BIT 3 - - - 2 - READ FIRST RECORD OF XXX INTO X'880' AND
555 *      IS CN WITH RETURN CONTROL
556 *      2,4, JR 5, . . . 3 - READ NEXT SEQUENTIAL RECORD INTO X'880'
557 *      THEN PARM AND RETURN CONTROL
558 *      IS DISK - - - 4 - LCAD XXX AND GIVE XXX CONTROL
559 *      ADDR NOT - - - 5 - LCAD XXX AND RETURN CONTROL
560 *      PGM ID. 6 - SEEK TO VTOC AND RETURN CONTROL
561 *      *NOTE FLAG BYTE, NOT MORE THAN ONE BIT CAN BE SET ON
562 *      A CALL TO THE LCAD ROUTINE IN DCP
563 *      **NOTE PROGRAM ID IS ONLY INCLUDED IF BIT 0,2,4, OR 5
564 *      IS ON
565 *
566 *****
0208 567 USING IBASE, XR2
00FD 568 F0 EQU X'FD'
00FA 569 F1 EQU X'FA'
00F1 570 F4 EQU X'F1'
026A 34 02 02A2 571 RLOAD ST ICDEM+7, XR2 SAVE XR2
026E C2 02 0208 572 LA LBASE, XR2
0272 E4 08 9E 573 ST R1DA+3(, XR2), ARR SET UP RETURN ADDRESS
0275 C0 87 7E9F 574 B DPFIX RETURN DPP TO PROG LVL1
0279 B5 01 9E 575 RTNFIX L R1DA+3(, XR2), XR1 POINT AT FLAGS
027C 8E 01 9E C359 576 AIC R1DA+3(2, XR2), ONE ADJUST RETURN @
027D 577 LCNE EQU *-4
578 MVC LTABLE+1(3), 2(, XR1) MOVE FLAG AND DXXX PARAMETER
0286 79 24 00 579 TBF 0(, XR1), BIT2+BIT5 IF 2 OF 5 CN, THEN BUMP RTN ADR
0289 F2 10 05 580 JT NOBMP .. TO MISS PARAMETERS
028C 8E 01 9E 033B 581 ALC R1DA+3(2, XR2), TWO ADJUST RETURN @
0291 78 10 00 582 NOBMP TBN 0(, XR1), BIT3 TEST 'READ ONE RECORD' BIT
0294 F2 90 10 583 JF ID1
0297 C0 87 0000 584 B *-* GO TO LCADER TO READ A RECORD
029A 585 ENTRY1 EQU *-1
586 LODEN LA *-*, XR1 RESTORE REGISTERS (THIS CODE MUST
029F C2 02 0000 587 LA *-*, XR2 FOLLOW BRANCH TO LOADER, ENTRY1)
02A3 C0 87 0000 588 R1DA E *-*
02A7 589 LD1 EQU *
590 TBF 0(, XR1), BIT2+BIT4+BIT5+BIT6 FLAG BIT 2,4,5, OR 6 ON?
02AA F2 90 81 591 JF LE2 IF ANY ON, GO ENTER LCADER
592
02AD BA 80 C3 593 SEN R1FLGS(, XR2), BIT0 SET ERROR BIT IF ABNORMAL
02B0 78 40 00 594 TBN 0(, XR1), BIT1 TERMINATION
02B3 F2 10 11 595 JT PMSG
02B6 BB 80 C3 596 SEF R1FLGS(, XR2), BIT0 OTHERWISE, TURN IT OFF
02B9 B8 40 00 597 TBN SEYTE0(, XR2), SSW01 LOOP CN ROUTINE IF SSW 01 IS ON
02BC C0 10 0539 598 BT INK1A
02C0 B8 80 00 599 TBN SEYTE0(, XR2), SSW00 LOOP CN SECTION IF SSW00 SET
02C3 C0 10 0000 600 FIZERO BT 0
02C7 C0 87 05D2 601 PMSG B RPRINT PRINT SECTION TERMINATE MSG
02CA 602 ITR3 EQU *-1
02CB C7 02CB 603 R1FLGS DC XL1'C7'
02CC 12 02CC 604 DC IL1'18'
02CD 05A1 02CE 605 DC AL2(TMSG)

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
02CF F000 02D0 606 DC XI2'F00'
02D1 B8 01 00 607 TBN SBYTE0(, XR2), SSW07 BYPASS HALT IF SSW07 ON
02D4 F2 10 06 608 JT RLD2
02D7 F0 3B 7C 609 H1TF HFL HE, HH HALT TO INDICATE SECTION COMPLETED
02DA E0 87 0A 610 B TEST(, XR2) GO CHECK DATA SWITCHES
02DD B8 40 01 611 RLD2 TBN SEYTE1(, XR2), SSW09 IF SSW09 IS ON,
02E0 F2 10 04 612 JT LE1 THEN DON'T CLR SECT. SWITCHES
02E3 AF 03 05 05 613 SLC SBYTE5(4, XR2), SBYTE5(, XR2) CLEAR SECTION SSW
02E4 614 THREE EQU *-3
615 LE1 TBN 0(, XR1), BIT0 FLAG BIT 0 ON
616 JT LE2 IF ON
02E7 78 80 00 617 XREP1 LA IBASE, XR2
02EA F2 10 41 618 B TEST(, XR2) FOR -HD- HALT
02ED C2 02 0208 619 LX1 LA DIABLE-1, XR1 INSTRUCTION MAY BE ALTERED
02F1 E0 87 0A 620 EQU *-1
02F4 C2 01 01ED 621 TBN 0(, XR1), BIT7 FOR CARD SYS (J LE2) ....
02F8 78 01 00 622 LY2 EQU * .. THIS REFERS TO PREVIOUS INSTRUCTION
02FB F2 90 0D 623 JF CHKFA
02FE 6E 0C 02 75 624 ALC 2(1, XR1), LCNE(, XR2)
0302 78 0F 02 625 TBN 2(, XR1), X'0F'
0305 F2 90 16 626 JF MOVID
0308 7B 0F 02 627 SEF 2(, XR1), X'0F'
030B BD F1 EF 628 CHKFA CLI FTR(, XR2), F4
030E F2 01 09 629 JNE STEP
0311 F0 3E 6C 630 HLTC1 HPL HC, HH
0314 E0 87 0A 631 E TEST(, XR2)
0317 BC FD EF 632 MVI FTR(, XR2), F0
031A AF 00 EF EC 633 STEP SLC FTR(1, XR2), THREE(, XR2)
031E B5 01 EF 634 MOVID L FTR(, XR2), XR1
0321 6D 01 02 EE 635 CLC 2(2, XR1), PTZERO+3(, XR2)
0325 C0 81 0311 636 BE HLTC1
0329 1C 02 01FF 02 637 *VC FTABLE+1(3), 2(, XR1)
032E C0 87 0000 638 LE2 B *-*
0331 639 ENTRY2 EQU *-1
640 E LCDEM

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FFP4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFP4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	SYMT	SOURCE STATEMENT
		0000	642	HZZ EQU 00
		0001	643	HZN EQU 01
		0002	644	HNZ EQU 02
		0003	645	HNN EQU 03
0336	00	0336	646	CTR DC X11'0'
0337	FFFF	0338	647	NEG1 DC XL2'FFFF'
0339	00	0339	648	DC X11'00'
033A	0002	033B	649	TWC DC IL2'2'
		650	*	
033C	34 08 0362	651	CHEK ST CHEKX@,ARR	
0340	C0 87 03A0	652	B SAVREG	
0344	35 02 0402	653	L ARRSV,XR2	
0348	C2 01 0336	654	LA CTR,XR1	
		0336	655	USING CTR,XR1
		656	ALC ARRSV(2,XR1),FIVE(,XR1)	
034C	5E 01 CC BD	657	MVC CTR(1,XR1),00(,XR2)	
0350	6C 00 00 00	658	MVC DEST1(2,XR1),4(,XR2)	
0354	6C 01 4C 04	659	MVC DEST2(2,XR1),4(,XR2)	
0358	6C 01 A5 04	660	L 2(,XR2),XR2	
035C	E5 02 02	661	B **	
035F	C0 87 0000	0362	662 CHEKX@ EQU *-1	
		0362	663 TEMP EQU *-1	

SPARE BYTE NOT USED, MUST BE  
LOCATED HERE TO GENERATE  
THE CONSTANT FIVE

SAVE REGISTERS  
PICK UP RETURN @  
LOAD BASE @  
AJUST RETURN @  
MOVE LENGTH BYTE  
MOVE TO @  
MOVE TO @  
PICK UP FROM @

ERR LOC	OBJECT CODE	ADDR	SYMT	SOURCE STATEMENT
		665	*	*****
		666	*	UNPACK ***** UNPACK *
		667	*	*****
		668	*	*
		669	*	SUBROUTINE TO CONVERT PACKED HEXADECIMAL DATA TO PRINTABLE
		670	*	EBCDIC. TWO PRINT CHARACTERS, 0-F, RESULT FROM EACH SOURCE BYTE.
		671	*	LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS--
		672	*	*
		673	*	B UNPACK WHERE UNPACK IS EQUATED TO X'21E'
		674	*	DC X11'LENGTH OF HEX FIELD IN BYTES'
		675	*	DC AL2(FROM ADDRESS -RIGHTMOST BYTE-)
		676	*	DC AL2(TC ADDRESS -RIGHTMOST BYTE-)
		677	*	*
		678	*	*****
		679	BUNPK	ST ARRSV,ARR
		680	B	CHEK
		681	UNPK1	MVI MVX1(,XR1),HNN DC NUMERIC
		682	UNPK2	MVI TEMP1(0,XR1),0(,XR2)
		036F	683	MVX1 EQU *-3
		684	SBN	TEMP1(,XR1),X'FO' SET FOR 0-9
		685	CLI	TEMP1(,XR1),X'FA' CHECK FOR A-F
		686	JL	UNPK3
		687	SLC	TEMP1(1,XR1),X39(,XR1) SUBSTRACT X'39' IF A-F
		688	UNPK3	MVI *-*,0
		0380	689	TEMP1 EQU *-3
		0382	690	DEST1 EQU *-1
		691	ALC	DEST1(2,XR1),NEG1(,XR1) DECREMENT TO ADDRESS
		692	CLI	MVX1(,XR1),HNN CHECK FOR ZONE DONE
		0389	693	X39 EQU *-1
		694	JE	UNPK4
		695	MVI	MVX1(,XR1),HNN DO ZONE
		696	B	UNPK2(,XR1)
		697	UNPK4	A NEG1(,XR1),XR2 DECREMENT FROM @
		698	ALC	CTR(1,XR1),NEG1-1(,XR1) DECREMENT LENGTH & CHECK FOR 0
		0399	699	CNE EQU *-1
		700	BNZ	UNPK1(,XR1) NO
		701	B	IDREG(,XR1) YES
		702	*	*
		703	SAVREG	ST SR1+3,ARR SAVE RETURN @
		704	ST	IDREG+3,XR1 SAVE XR1
		705	ST	SR2+3,XR2 XR2
		706	B	RTEST CHECK DATA SWITCHES
		707	SR1	E *-*

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
709 *****
710 * PACK ***** PACK *
711 *****
712 *
713 * SUBROUTINE TO CONVERT EBCDIC DIGITS 0-F TO PACKED HEXADECIMAL
714 * DATA. LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS--
715 *
716 *      B      PACK
717 *      DC     XL1'LENGTH'
718 *      DC     AL2(FROM  ADDRESS -RIGHTMOST BYTE-)
719 *      DC     AL2(TC   ADDRESS -RIGHTMOST BYTE-)
720 *****
03B4 34 08 0402  721 RPACK ST  ARESAV,ARR
03B8 C0 87 033C  722      B      CHEK
03BC 78 01 00    723      TEN   CTR(,XR1),X'01'      CHECK FOR ODD LENGTH
03BF F2 90 05    724      JF     FK1                    OKAY IF EVEN LENGTH
03C2 4F 00 00 0399 725      SLC   CTR(,XR1),ONE        SUBTRACT 1 IF ODD LENGTH
03C7 7C 03 A3    726 PK1  MVI   MVX2(,XR1),MNN      DO NUMERIC
03CA 6C 00 2C 00  727 PK2  MVC   TEMP(,XR1),O(1,XR2)  PACK BYTE INTO HIGH HALF BYTE
03CE 7D F0 2C    728      CLI   TEMP(,XR1),X'F0'     CHECK FOR 0-9
03D1 F2 02 04    729      JNL   PK3                    JUMP IF 0-9
03D4 5E 00 2C E5  730      ALC   TEMP(1,XR1),NINE(,XR1)  ADJUST FOR A-F
03D8 18 00 0000 2C 731 PK3  MVX   *-*(0),TEMP(,XR1)        MOVE HALF BYTE TO @
03D9 732 MVX2 EQU *-4
03DE 733 DEST2 EQU *-2
734      A      NEG1(,XR1),XR2      DECREMENT FROM @
735      CLI   MVX2(,XR1),MZN      CHECK FOR ZONE DONE
736      JF     FK4                    JUMP IF DONE
737      MVI   MVX2(,XR1),MZN      DO ZONE
738      B      FK2(,Xb1)
739 PK4  ALC   DEST2(2,XR1),NEG1(,XR1)  DECREMENT TO @
740      SLC   CTR(1,XR1),TNC(,XR1)  CHECK FOR END
03F3 741 FIVE EQU *-1
742      BNZ   FK1(,XR1)            IF NOT DO NEXT BYTE
743 IDREG LA   *-*,XR1             RESTORE XR1
744 SB2  LA   *-*,XR2
745      B      *-*
0402 746 ARRSV EQU *-1

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
748 *****
749 * TEST ***** TEST *
750 *****
751 *
752 * SUBROUTINE USED TO READ CONSOLE SWITCHES AND TEST FOR VALIDITY
753 * POSITIONS. ONCE ONE OF THE FOLLOWING VALIDITY CONDITIONS IS
754 * ENCOUNTERED, ENTRIES ARE ACCEPTED UNTIL THE VALIDITY SWITCH IS
755 * CHANGED.
756 *
757 *      FOYX - TURN OFF SSW XX.
758 *      F1XX - TURN ON SSW XX.
759 *      F2XX - GO TO ROUTINE XX.
760 *      EFXI - TERMINATE SECTION.
761 *      DXXO EXECUTE ALL PROGRAMS FOR DEVICE XX -DISK-.
762 *      DXXI - EXECUTE SECTION XXI
763 *
764 *****
0403 765 TBASE EQU *
0403 766 SETO DC   XL1'CO'
0409 767      DC   XL6'402010080402'  . ALL TOGETHER
040A 768      DC   XL1'01'
040C 769 DATSW DC   XL2'0'          . READIN AREA FOR DATA SWITCHES
0403 770      USING SETO,XR1
040E 771 TCNE EQU *-1
040C 772 XREF5 EQU DATSW
040D 773 XREF4 EQU *
774 SETSW ST   VXR1+3,XR1
775      LA   SETO,XR1
776      ST   SETSW(,XR1),ARR
777      MNN   CHKSS1+3(,XR1),DATSW(,XR1)  FORM CORRECT BIT PATTERN
041B 778 NINE EQU *-1
779      SBF   CHKSS1+3(,XR1),X'F8'      TO SET A BIT ON IN
780 CHKSS1 MVC   CHKSS2+1(1,XR1),*-*(,XR1)  SBYTE0 THRC BYTES
781      ALC   DATSW(,XR1),DATSW(,XR1)
782      MNN   CHKSS2+2(,XR1),DATSW(,XR1)
783      LA   SBYTE0,XR1
042F 784 MCDIFY EQU *
785 CHKSS2 SBN *-*(,XR1),*-*
786      SBF   MCDIFY,X'01'
787 VXR1 LA   *-*,XR1
788      B      *-*
043D 789 SETSW EQU *-1
0001 790      DROP XR1
040E 791      USING DATSW-1,XR2
792 RTEST ST   TEXT1+3,XR2
793      LA   DATSW-1,XR2
794      ST   TEXT1+3(,XR2),XR1
795      ST   TESTE+3(,XR2),ARR
796      B      TESTED
797 TSTCVL J   TEXT1
798      CLI   DATSW-1(,XR2),X'ED'
799      JH   TEST1
800      TBN   DATSW-1(,XR2),X'DO'
801      JY   TEST1          FOR CARD SYS ( JT 0 )
045E 802 TSIDSK ZQU *-1
803 TEXT1 LA   *-*,XR1
804 TEXT1 LA   *-*,XR2
805 TESTE B    *-*
046B 806      DC   XL1'00'
046C 807 TEST1 EQU *
808
809 HLTA MVI   THLT+2(,XR2),HP
810      J    THLT
811
812 TEST2 CLI   THLT+2(,XR2),HP
813      JE   TEST3
814 HLTB MVI   THLT+2(,XR2),HP
815      J    THLT

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
047E	BC 6E 78	047D	816	T3 EQU *-1
0481	F0 3B 00		817	TEST3 NVI THLT+2(,XR2),HU
			818	THLT HPI *-*,HH HALT -HF- OF -BU- FOR SWITCH ENTRY
			819	
0484	B0 00 01		820	SNS DATSWS(,XR2),X'0' READ DATA SWITCHES
		0489	821	TSICRD EQU **2
0487	B8 D0 00		822	TBN DATSWS-1(,XR2),X'D0' FOR CARD SYS ( J TEST7 )
048A	B9 20 00		823	TBF DATSWS-1(,XR2),X'20'
048D	F2 90 23		824	JF TEST7
			825	
			826	* D FOUND IN LEFTMOST SWITCH SC ZERO TABLE
0490	C2 01 01FA		827	LA FIAG-3,XR1 FCINT AT TABLE
0494	3C FD 02F7		828	MVI PTR,F0
0498	5F 0E 02 02		829	SLC 02(12,XR1),02(,XR1)
049C	B4 01 97		830	ST LADDF(,XR2),XR1
049F	C2 01 0000		831	TEST5A LA *-*,XR1 LOAD DISK LOAD TABLE POINTER
		04A2	832	DADR EQU *-1
04A3	6C 02 02 01		833	TEST6 MVC 2(3,XR1),DATSWS(,XR2) MOVE DATA TO DISK LOAD TABLE
04A7	79 0F 02		834	TBF 2(,XR1),X'0F' CHECK FOR DEXO
04AA	F2 10 03		835	JT TEST6A
04AD	7B 01 00		836	SEF 0(,XR1),X'01' TURN BIT7 OFF
		04B0	837	TEST6A EQU *
04B0	E0 87 67		838	B TEST2(,XR2) GO ALLOW NEXT ENTRY
04B3	ED EE 00		839	TEST7 CLI DATSWS-1(,XR2),X'EE'
04B6	F2 01 08		840	JNE TEST7A
04B9	8C 01 5F 0556		841	MVC TESTE+3(2,XR2),ITR7
04BE	E0 87 67		842	B TEST2(,XR2) GO ALLOW NEXT ENTRY
		04C1	843	TEST7A EQU *
04C1	BD F1 00		844	CLI DATSWS-1(,XR2),X'F1'
04C4	F2 81 09		845	JE TEST8
04C7	BD F0 00		846	CLI DATSWS-1(,XR2),X'F0'
04CA	F2 01 15		847	JNE TEST11
04CD	BA 01 24		848	SEN MODIFY(,XR2),X'01' CHANGE TO SET BITS OFF
04D0	ED 30 01		849	TEST8 CLI DATSWS(,XR2),X'30' MAKE SURF SSW NUM IS 00-2F
04D3	F2 82 06		850	JL TEST9
04D6	F0 3E 76		851	HLTD HPL H2,HH *ERRCK-SSW # HIGHER THAN X-2F- *INVALID RTN SELECT OPTION
			852	* CR
04D9	E0 87 67		853	B TEST2(,XR2) GO ALLOW NEXT ENTRY
		04DC	854	TEST9 EQU *
04DC	E0 87 02		855	B SETSSW(,XR2)
04DF	E0 87 67		856	B TEST2(,XR2) GO ALLOW NEXT ENTRY
04E2	ED F2 00		857	TEST11 CLI DATSWS-1(,XR2),X'F2'
04E5	E0 01 54		858	PNE TESTIT(,XR2)
04E8	35 01 0A07		859	L FRTN,XR1 START CHECKING WITH FIRST ROUTINE
04EC	1C 00 0A03 00		860	MVC RNUM(1),0(,XR1) LOAD CURRENT RTN NUM WITH FIRST ONE
04F1	1D 00 0A03 00		861	TEST12 CLC RNUM(1),0(,XR1) IS THIS RTN PREFIX CORRECT
04F6	F2 81 06		862	JE TEST14 YES - BRANCH
04F9	F0 3E 57		863	TEST13 HPL H3,HH *RTN NUMBER OUT OF SEQUENCE
04FC	E0 87 67		864	B TEST2(,XR2) GO ALLOW ENTRY AGAIN
04FF	9D 00 01 00		865	TEST14 CLC DATSWS(1,XR2),0(,XR1) BRANCH IF THIS IS SELECTED
0503	F2 81 12		866	JE TEST16 ROUTINE
0506	7D FF 02		867	CLI 2(,XR1),X'FF' CHECK FOR LAST ROUTINE INDICATION
0509	C0 81 04D6		868	EE HLTD YES, BRANCH TO ERROR HALT
050D	2E 00 0A03 03		869	ALC RNUM(1),TONE(,XR2) INCREMENT ROUTINE NUMBER
0512	75 01 03		870	L 3(,XR1),XR1 LOAD ADDRESS OF NEXT RTN PREFIX
0515	E0 87 E6		871	B TEST12(,XR2) GO CHECK THIS RTN NUM
0518	1C 03 0211 03		872	TEST16 MVC RPF(4),3(,XR1) SAVE ROUTINE PREFIX
051D	D2 01 04		873	LA 4(,XR1),XR1 LOAD ADDRESS OF FIRST INSTRUCTION
0520	B4 01 5F		874	ST TESTE+3(,XR2),XR1 IN SUBROUTINE EXIT
0523	34 01 058F		875	ST LNK6+3,XR1 SET UP LINK EXIT IN CASE LOOPING
0527	E0 87 67		876	B TEST2(,XR2) GO ALLOW NEXT ENTRY
		0002	877	DRCF XR2

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
			879	*****
			880	* LINK ***** LINK *
			881	*****
			882	*
			883	* SUBROUTINE TO PROVIDE ROUTINE TO ROUTINE AND SECTION TO SECTION *
			884	* LINKAGE. THE CONTRCL PROGRAM USES THE ROUTINE PREFIX AS AN *
			885	* INTERFACE BETWEEN DIAGNOSTIC SECTION AND CONTRCL PROGRAM. *
			886	*
			887	*****
			888	
052A	34 01 058E		889	RLINK ST LNK5+3,XR1 SAVE XR1
			890	
052E	C0 81 043E		891	LNK1 R RTEST
		0531	892	ITR1 EQU *-1 GO CHECK DATA SWITCHES
0532	38 40 0208		893	TBN SBYTE0,SSW01 PROVIDE ICODE ON ROUTINE IF SSW01 ON
0536	F2 90 0E		894	JF LNK2
0539	3D 01 0A03		895	LNK1A CLI RNUM,X'01' IF FIRST RTN BEING RUN, GO TO
053D	C0 81 0000		896	BE 0 PROGRAM RESTART
0541	F2 87 44		897	J LNK5
			898	
0544	3D FF 0210		899	LNK2 CLI RPF(1),X'FF' IS THIS LAST ROUTINE
0548	F2 01 0D		900	JNE LNK3 NO, GO ON TO CHECK FURTHER
			901	
054B	38 80 0208		902	TBN SBYTE0,SSW00 TEST FOR ICODE ON SECTION
054F	C0 10 0000		903	BT 0 YES, GO RESTART PROGRAM
0553	C0 87 026A		904	B RLOAD NO, GO LOAD NEXT SECTION
		0556	905	ITR7 EQU *-1
		0557	906	DC XL1'0'
			907	
0558	35 01 0211		908	LNK3 L RPF(1),XR1 SET UP TO GO TO NEXT ROUTINE
055C	0E 00 0A03 0399		909	ALC RNUM(1),ONE INCREMENT ROUTINE NUMBER AND
0562	1D 00 0A03 00		910	CIC RNUM(1),0(,XR1) CHECK AGAINST RTN PREFIX
0567	F2 81 07		911	JL INF4
056A	F0 3E 57		912	HLTE HPL H3,HH *RTN NUM IN RTN PREFIX OUT OF ORDER
056D	C0 87 052E		913	B LNK1 GO CHECK FOR DATA SWITCH VERIFICATION
			914	*
			915	
0571	1C 03 0211 03		916	LNK4 MVC RPF(4),3(,XR1) SET UP CURRENT ROUTINE PREFIX
0576	38 20 0208		917	TBN SBYTE0,SSW02 CHECK FOR BYPASS MANUAL INTERV RTNS
057A	78 80 01		918	TBN 1(,XR1),BIT0 CHK RTN PREFIX MANUAL INTERV FLAG
057D	C0 10 0544		919	BT LNK2 SKIP ROUTINE IF BOTH CONDITIONS TRUE
			920	
0581	D2 01 04		921	LA 4(,XR1),XR1
0584	34 01 058F		922	ST LNK6+3,XR1
0588	C2 01 0000		923	LNK5 LA *-*,XR1
058C	C0 87 0000		924	LNK6 B *-*
			925	



FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
927 \*\*\*\*\*
928 \* PRINT \*\*\*\*\* PRINT \*
929 \*\*\*\*\* PRINT \*
930 \* LINKAGE TO PRINT IS AS FOLLOWS--
931 \*
932 \* B PRINT WHERE PRINT IS EQUATED TO 1304
933 \* DC XL1'FLAGS'
934 \* 1\*DC IL1'LENGTH -MAXIMUM OF 91--
935 \* 1\*DC AL2(ADDRESS OF LAST CHARACTER OF PRINT FIELD)
936 \* 2,1\*DC XL2'MESSAGE IDENTIFICATION'

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
989 MVC NSPACE(1, XR2), 0(, XR1) LOAD SPACE COUNTER
990 SEF NSPACE(, XR2), X'F8' LIMIT TO SEVEN
991 MVI PRT6+1, 96 SET UP COUNT FOR CONSOLE I/O
992
993 \* IBN 0(, XR1), BIT3 BRANCH IF THIS IS SPACE ONLY OP
994 \* JT FRT7
995 \* TEN 0(, XR1), BIT2 SKIP SETUP IF DATA FIELD READY
996 \* JI PRT6A
997 \* B FRTM DUMMY COMMAND TO MAKE SURE NO BUSY
998 \* DC XL2'E000'

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	
06D5	C0 87 0711	1057	F	FRTN		
06D9	E001	06EA 1058	SPAPRT	DC	XL2'E001'	
06DB	C0 87 06CE	1059	B	FRT7		
		1060				
06DF	OC 84 08FF 0900	1061	PREXIT	HVC	LPDATA+131(133),LPDATA+132 CLEAR PRINT BUF DOWN TO	
		1062	*		X'87E' FOR PTR SYSTEM TEST	
06E5	35 01 0710	1063	L	PRINT+3,XR1	ADJUST EXIT ADDR TO MISS	
06E9	D2 02 00	1064	LA	0(,XR1),XR2		
06EC	78 40 00	1065	TBN	0(,XR1),BIT1	PARAMETER LIST	
06EF	F2 90 03	1066	JF	FRT6		
06F2	E2 02 02	1067	LA	2(,XR2),XR2		
06F5	79 30 00	1068	PRT8	TBF	0(,XR1),X'30'	
06F8	F2 90 03	1069	JF	FRT9		
06FB	E2 02 03	1070	LA	3(,XR2),XR2		
06FE	E2 02 01	1071	PRT9	LA	1(,XR2),XR2	
0701	34 02 0710	1072	ST	FRINTE+3,XR2		
		1073				
0705	C2 01 0000	1074	PRT1	LA	**-,XR1	
0709	C2 02 0000	1075	PRT2	IA	**-,XR2	
070D	C0 87 0000	1076	PRINTE	B	**-	
		1077				
		1078	**			
		1079	**		STANDARD INPUT/OUTPUT SUBROUTINE USED BY THE PRINT ROUTINE.	
		1080	**		THIS SUBROUTINE SUPPORTS THE 5203/1403 PRINTER AND THE ALTERNATE	
		1081	**		OUTPUT DEVICE UNDER CONTROL OF SENSE SWITCH 05. CODING FOR	
		1082	**		ALTERNATE PRINTERS FOLLOWS THIS SUBROUTINE. THE LOADER SELECTS	
		1083	**		THE PRINTER SUBROUTINE.	
		1084	**			
		1085	**			
		0711	1086	USING	FRTN,XR2	
0711	C2 02 0711	1087	PRIN	IA	FRTN,XR2	
0715	E4 08 70	1088	ST	PRTNE+3(,XR2),ARR	SET UP COMMAND AND LOAD BASE	
		0719	1089	ZONE	EQU	**1
			1090	L	FRTNE+3(,XF2),XR1	
0718	B5 01 70	1091	HVC	PRIO+2(2,XR2),1(,XR1)		
071B	9C 01 5E 01	1092	ALC	PRTNE+3(2,XR2),TWO	ADJUST RETURN ADDRESS	
071F	8E 01 70 033B	1093	PRIN1	B	TEST	
0724	C0 87 0212	1094	TBN	PTAGS,BITO	CHECK DATA SWITCHES	
0728	38 80 05D1	1095	JF	PRTN2	GO EXIT IF SW TO BYPASS THIS TYPE	
072C	E2 90 07	1096	TEF	SEYTE0,SSW03	CP FEINTOUT IS TURNED ON	
072F	39 10 0208	1097	J	PI90		
0733	F2 87 04	1098	PRTN2	TBF	SEYTE0,SSW04	
0736	39 08 0208	1099	PT90	BF	PREXIT	
073A	C0 90 06DF	1100				
		1101	TEF	SEYTE0,SSW05	IF SSW 05 ON	
073E	39 04 0208	1102	JF	ALTPRT	PRINT ON ALTERNATE.	
0742	F2 90 41	1103	NOALT	TBN	IF SSW05 IS ON,	
0745	38 04 0208	1104	BT	ERTEXT	DCN'T PRINT ON 1403.	
0749	C0 10 0776	1105	J	PRIN		
074D	F2 87 0E	1106				
0750	0000	0751	1107	HSTAT	DC	XL2'0'
		00E6	1108	LPBUSY	EQU	X'E6'
		00E0	1109	LPNRDY	EQU	X'E0'
0752	0800	0753	1110	FR1	DC	AL2(LPIMAG)
0754	087C	0755	1111	FR2	DC	AL2(LPDATA)
0756	7070	0757	1112	PR4	DC	XL2'7070'
		1113	*			FORMS LENGTH = 112 SC EIP WILL RUN
		1114				IN SPACING UP TO REAL PRINTOUT
0758	F0 3B 7D	1115	LPERR2	HPI	H6,HH	*PRINTER NOT READY OR ERRCR
075B	E0 87 13	1116	B	PRTN1(,XR2)		
075E	E1 E0 47	1117	PRIN	TIC	LPERR2(,XR2),LPNRDY	GO HALT IF NOT READY OR ERROR
0761	B1 E0 46	1118	LIC	FR4(,XR2),X'E0'	LCAD PCRS LENGTH	
0764	B1 E4 42	1119	LIO	FR1(,XR2),X'E4'	LCAD PRINTER LSRS AND PRINT A	
0767	B1 E6 44	1120	LIO	FR2(,XR2),X'E6'	LINE	
076A	BB 08 5D	1121	SEF	FRSIC+1(,XR2),X'08'	SET UP IC PRINT ON LEFT CARRIAGE	
076D	F3 00 00	1122	FRSIO	SIO	**-,**-	
0770	E1 E6 5F	1123	BSYLP	TIC	BSYLP(,XR2),LPBUSY	WAIT FOR BUSY TO DROP
0773	E1 E0 47	1124	TIC	LPERR2(,XR2),LPNRDY	GO HALT IF ANY ERROR	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	
0776	C2 02 05B1	1125	ERTEXT	IA	FR3,XF2	
077A	35 01 0710	1126	L	PRINT+3,XR1	RESTORE XR2	
077E	C0 87 0000	1127	FRTNE	B	**-	RESTORE PARAMETER POINTER
		1128				EXIT SUBROUTINE
0782	052A	0783	1129	ITR2	DC	AL2(RLINK)
0784	0990	0785	1130	ITR5	DC	AL2(RHALT)
		1131				
0786	C2 01 078D	0786	1132	ALTPRT	EQU	*
078A	F2 87 06	1133	LA	ALTPRT+7,XR1	SET UP INDEX REG FOR ALT PRINTER	
		1134	J	**5	GET TO THE START OF THE ALT PRINTER	
		1135	*		ALTERNATE PRINTER DEVICE CCDE BEGINS HERE	
		1136	*****		*****	
		1137	*		5471 AS PRIMARY ALTERNATE	
		1138	*****		*****	
		1139				
0711	1140	0711	1140	USING	FRTN,XR2	
078D	1141	078D	1141	FRTNA	EQU	*
		1142				
078D	F0 3B 5F	1143	HPI	H9,HH	*KEYCARD PRINTER ERROR	
0790	E0 87 13	1144	E	FRTN1(,XF2)		
0793	2E 00 06C3 08	1145	PTCIO	ALC	PRT6+1(1),ZONE(,XR2)	ADJUST LENGTH OF PRINT
0798	3B 80 06C3	1146	SEF	PRT6+1,X'80'	LIMIT NUMBER OF CHARACTERS TO 127	
079C	BC 81 B5	1147	MVI	CIC2X+2(,XR2),X'81'	SET UP TO DC PRINT	
079F	BD E0 5D	1148	CLI	FRSIO+1(,XR2),X'E0'	CHANGE TO CARRIAGE RETURN IF SPACE	
07A2	F2 01 18	1149	JNE	CIO1	ONLY	
07A5	BD 00 5E	1150	CLI	FRSIC+2(,XR2),0	SKIP CARR RETURN IF SPACE 0	
07A8	E0 81 65	1151	EE	ERTEXT(,XR2)		
07AB	3D 02 05CE	1152	CLI	NSPACE,2	LIMIT NUM SPACES TO 2	
07AF	F2 82 04	1153	J1	**7		
07E2	3C 02 05CE	1154	MVI	NSPACE,2		
07E6	3C 00 06C3	1155	MVI	PRT6+1,0		
07EA	BC 41 B5	1156	MVI	CIC2X+2(,XR2),X'41'		
07ED	C2 01 0880	1157	CIO1	LA	X'880',XR1	POINT XR1 AT PRINT FIELD
07C1	71 18 01	1158	CIO1B	LIO	1(,XR1),X'18'	LCAD CHARACTER TO BE PRINTED
07C4	F3 18 00	1159	CIO2X	SIO	**-,X'18'	ISSUE COMMAND TO 5471
07C7	B0 19 40	1160	SWS	CICSTS(,XR2),X'19'	HALT IF ERRCR	
07CA	B9 03 40	1161	TBF	CIOSTS(,XR2),X'03'		
07CD	E0 90 7C	1162	BF	C'OHLT(,XR2)		
07D0	7C 40 00	1163	MVI	0(,XR1),C'	CLEAR OUT THIS CHARACTER	
07D3	D2 01 01	1164	LA	1(,XR1),XR1	INCREMENT PRINT FIELD POINTER	
07D6	2F 00 06C3 08	1165	SLC	PRT6+1(1),ZONE(,XR2)		
07DB	E0 02 80	1166	BNI	CIC1E(,XR2)	CONTINUE UNTIL WHOLE LINE PRINTED	
07DE	E0 87 65	1167	B	ERTEXT(,XR2)		
		1168				
0751	1169	0751	1169	CICSTS	EQU	HSTAT
07E0	1170	07E0	1170	LAST	EQU	**1
07EA	1171	07EA	1171	CIO1A	EQU	ALTPRT+CIC1E-PRINA
078D	1172	078D	1172	CICHLT	EQU	FRTNA
07BD	1173	07BD	1173	CIO2	EQU	ALTPRT+CIO2X-PRINA
		1174				
0750	1175	0750	1175	ORG	X'FFFF'-X'800'*	IF FLAGGED, X'800' BEING OVERLAYED
		1176				
0800	1177	0800	1177	ORG	X'800'	
		0800	1178	IFINAG	EQU	*
0800	F1F2F3F4F5F6	0805	1179	DC	XL6'F1F2F3F4F5F6'	
0806	F7F8F9F0F7B7C	0808	1180	DC	XL6'F7F8F9F0F7B7C'	
080C	61E2E3E4E5E6	0811	1181	DC	XL6'61E2E3E4E5E6'	
0812	E7E8E9506B6C	0817	1182	DC	XL6'E7E8E9506B6C'	
0818	D1D2D3D4D5D6	081D	1183	DC	XL6'D1D2D3D4D5D6'	
081E	D7D8D9605B5C	0823	1184	DC	XL6'D7D8D9605B5C'	
0824	C1C2C3C4C5C6	0829	1185	DC	XL6'C1C2C3C4C5C6'	
082A	C7C8C94E4B7D	082F	1186	DC	XL6'C7C8C94E4B7D'	
		1187	*			
0830	0000000000000000	0877	1188	DC	XL72'0'	TO FILL CUT IMAGE IN CASE UCS IS MOUNTED
0838	0000000000000000	1188				BUT IMAGE IS 48. (120-48=72)
0840	0000000000000000	1188				
0848	0000000000000000	1188				
0850	0000000000000000	1188				

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0858	0000000000000000	1188		
0860	0000000000000000	1188		
0868	0000000000000000	1188		
0870	0000000000000000	1188		
		1189		
		1190	**	
		1191	**	THE FOLLOWING INSTRUCTIONS COMPLETE THE SECTION LOADER BY
		1192	**	HANDLING END CARDS. IT IS IN AN AREA THAT IS READ INTO BY
		1193	**	THE DISK LCADEF.
0A03		1194	CRG	X'A03'
		1195	ENUM	EQU *
087F		1196	CRG	X'87F'
		1197	X87F	EQU *
		1198	USING	X87F, XR1
0900		1199	ORG	X'900'
0900 40		1200	DC	C11'
		1201	ENDRTN	EQU *
0901 0C 16 0016 097A		1202	MVC	22(23), RESTRT+2
0907 38 80 0A02		1203	TEN	SPFIGS, BIT0
090B F2 10 3E		1204	JT	IDEND
090E C2 02 0A0A		1205	LA	SPUDT, XR2
0912 C2 01 0232		1206	UFIND1	LA UTAB, XR1
0916 6D 00 00 00		1207	UFIND2	CIC 0(1, XR1), 0(, XR2)
091A F2 01 18		1208	JNE	UFIND4
091D 9C 00 02 02		1209	MVC	2(1, XR2), 2(, XR1)
0921 98 03 01 01		1210	MNN	1(, XR2), 1(, XR1)
0925 BA 20 01		1211	SEN	1(, XR2), BIT2
0928 B8 10 01		1212	UFIND3	TBN 1(, XR2), BIT3
092B E2 02 03		1213	LA	3(, XR2), XR2
092E C0 90 0912		1214	BF	UFIND1
0932 F2 87 17		1215	J	IDEND
0935 78 10 01		1216	UFIND4	TBN 1(, XR1), BIT3
0938 D2 01 03		1217	LA	3(, XR1), XR1
093B C0 90 0916		1218	BF	UFIND2
093F B9 40 01		1219	TBF	1(, XR2), BIT1
0942 F2 10 03		1220	JT	**6
0945 F0 3B 03		1221	HPI	H1, HH
0948 C0 87 0928		1222	B	UFIND3
094C C0 87 021A		1223	LDEND	B PRINT
0950 47	0950	1224	DC	X11'47'
0951 0E	0951	1225	DC	IL1'14'
0952 05AF	0953	1226	DC	AL2(LMSG)
0954 FF00	0955	1227	DC	XL2'FF00'
		1228		
0956 39 01 0208		1229	TBF	SBYTE0, SSW07
095A 39 08 01FD		1230	TBF	FLAG, BIT4
095E F2 90 03		1231	JF	**06
0961 F0 3E 3F		1232	HPL	HA, HH
		1233	**	
		1234	**	THE FOLLOWING FIVE INSTRUCTIONS ARE STORED AT LOCATION ZERO
		1235	**	(0000) AFTER LOADING OF EACH SECTION IS COMPLETED TO PROVIDE
		1236	**	A PROGRAM RESTART (SYSTEM RESET/START).
		1237		
0964 C2 02 0A03	0A03	1238	USING	RNUM, XR2
0968 B5 01 04		1239	LA	RNUM, XR2
096B 9C 00 00 00		1240	L	4(, XR2), XR1
096F 1C 03 0211 03		1241	MVC	RNUM(1, XR2), 0(, XR1)
0974 C0 87 0212		1242	MVC	RFFX(4), 3(, XR1)
0978 D0 87 04		1243	B	TEST
097B 0000000000	097F	1244	RESTRT	B 4(, XR1)
		1245	DC	XL5'0'

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
FFFF		1247	CRG	X'FFFF'-X'980'+* IF FLAGGED, CODE IS OVERLAYING ITSELF
0980		1248	ORG	X'980'
		1249	*	***** HALT MUST START AT X'980' *****
		1250		
		1251	*****	*****
		1252	* HALT	***** HALT *
		1253	*****	*****
		1254	*	*
		1255	*	SUBROUTINE USED TO PROVIDE A COMMON HALT FUNCTION. ENTRY TO THIS *
		1256	*	ROUTINE IS ACCOMPLISHED BY BRANCHING-- *
		1257	*	*
		1258	B	HALT WHERE HALT IS EQUATED TO 1312 *
		1259	DC	XL2'0UXX' HEX EBCDIC IDENTIFIER *
		1260	*	*
		1261	*	NORMALLY, ONLY A HALT WITH CODE 'IX' WILL OCCUR. BUT WHEN THE *
		1262	*	SYSTEM TEST IS RUNNING, HALT 'UU' WILL PRECEED HALT 'X' TO *
		1263	*	IDENTIFY THE DEVICE IN ERROR. *
		1264	*	*
		1265	*	UU - UNIT IDENTIFICATION *
		1266	*	XX - INDEX NUMBER *
		1267	*	*
		1268	*	IF THE INDEX NUMBER IS 01-9F, THE HALT WILL OCCUR UNLESS SENSE *
		1269	*	SWITCH 06 IS ON. HALTS WITH INDICES A0-CF ARE PERFORMED ONLY *
		1270	*	WHEN NCN-ERRCR PRINTOUTS ARE BEING BYPASSED -SSW 04-. HALTS *
		1271	*	DO-FF ARE ALWAYS PERFORMED. *
		1272	*****	*****
		0980 1273	USING	HITAB, XR2
		0980 1274	HITAB	EQU *
0980 6F0376571E5D		0985 1275	DC	XL6'6F0376571E5D' TABLE OF HALTS 0-F
0986 7D077F5F3F79		098B 1276	DC	XL6'7D077F5F3F79'
098C 6C737C3C		098F 1277	DC	XL4'6C737C3C'
		1278		
0990 34 08 0402		1279	RHALT	ST ARRSV, ARR
0994 C0 87 03A0		1280	B	SAVREG
0998 C2 02 098C		1281	IA	HITAB, XR2
099C 35 01 0402		1282	L	ARRSV, XR1
09A0 0E 01 0402 033B		1283	ALC	ARRSV(2), TWO
09A6 7D A0 01		1284	CLI	1(, XR1), X'A0'
09A9 F2 82 10		1285	JL	HALT2
09AC 7D CF 01		1286	CLI	1(, XR1), X'CF'
09AF F2 84 11		1287	JH	HALT3
09B2 38 08 0208		1288	TBN	SBYTE0, SSW04
09B6 F2 90 3E		1289	JF	HEXIT
09B9 F2 87 07		1290	J	HALT3
09BC 38 02 0208		1291	HALT2	TBN SBYTE0, SSW06
09C0 F2 10 31		1292	JT	HEXIT
		1293		
09C3 98 02 61 00		1294	HALT3	HNZ LHL1+3(, XR2), 0(, XR1) SET UP TO LOAD CODES FOR 1ST HALT
09C7 98 03 65 00		1295	MNN	LHL1A+3(, XR2), 0(, XR1)
09CB 98 02 6C 01		1296	HNZ	LHL2+3(, XR2), 1(, XR1) SET UP FOR SECOND HALT
09CF 98 03 70 01		1297	MNN	LHL2A+3(, XR2), 1(, XR1)
09E3 3D FF 0A00		1298	CLI	X'A00', X'FF' PERFORM FIRST HALT ONLY IF SYSTEM TEST.
09D7 39 C0 0A01		1299	TBF	X'A01', X'C0' (ACTUALLY PGMS FFO, 1, 2, 3)
09DB F2 96 0E		1300	JC	LHL2, X'96' JUMP FALSE OR HIGH CR LC
09DE AC 00 67 00		1301	LHLT1	MVC HALTA+1(1, XR2), *(, XR2) LOAD FIRST HALT
09E2 AC 00 68 00		1302	LHLT1A	MVC HALTA+2(1, XR2), *(, XR2)
09E6 F0 00 00		1303	HALTA	HPL *-*, *-*
09E9 AC 00 72 00		1304	LHLT2	MVC HALTB+1(1, XR2), *(, XR2) LOAD SECOND HALT
09ED AC 00 73 00		1305	LHLT2A	MVC HALTB+2(1, XR2), *(, XR2)
09F1 F0 00 00		1306	HALTB	HPL *-*, *-*
09F4 C0 87 043E		1307	HEXIT	B RTEST
09F8 C0 87 03F7		1308	B	LDREG
		1309	*****	*****
		1310	*	TRANSFER TABLE CONSTANTS *****
		1311	*****	*****
		0531 1312	TR1	EQU ITR1
		0783 1313	TR2	EQU ITR2
		02CA 1314	TR3	EQU ITR3

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
067A	1315	TR4	EQU	ITR4	
0785	1316	TR5	EQU	ITR5	
0231	1317	TR6	EQU	ITR6	
0556	1318	TR7	EQU	ITR7	

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
FFF4			ORG	X'FFFF'-X'A00' **	IF FLAGGED, X'A00' BEING OVERLAYED
			1321	*****	
			1322	* XREF	*****
			1323	*****	
1FEE			1324	ORG	X'1FEE'
1FEE	0000	1FEF	1325	DC	XL2'0000'
			1326	*	USED TO PASS DISK ADDR OF 'PC0' TO '143'
			1327		FOR THE CE TO CHANGE UET AND CPU
1FF0	C0 87 0E86		1328	B	BEGIN
			1329	*	IN CORE AT IPL TIME, AND THEN START
			1330	*	AT THIS ADDRESS TO GET A NEW PRINT
			1331	*	OUT OF THE SYSTEM DATA. THIS ADDRESS
			1332	*	SHOULD NOT BE CHANGED, SINCE OTHER RELEASE
			1333	*	DOCUMENTATION TELL THE CE TO USE THIS
			1334	*	ADDRESS.
1FF4	0000	1FF5	1334	DC	XL2'0000'
1FF6	040C	1FF7	1335	DC	AL2(XREF5)
1FF8	040D	1FF9	1336	DC	AL2(XREF4)
1FFA	0E86	1FFB	1337	DC	AL2(XREF3)
1FFC	1318	1FFD	1338	DC	AL2(XREF2)
1FFE	02ED	1FFF	1339	DC	AL2(XREF1)
			1340		ADDRESS TO LINK FROM DCP CALLED PROGRAMS
			1341	ORG	ALTPRT+X'700'
			1342		LOCATION FOR SSW VALUE
			1343	*****	SUPERIN TO SET SSW
			1344	* EQUATES	ICADPR BRANCH @ WHEN DCP JS LOADED
			1345	*****	LOADPR BRANCH @ WHEN LOADING DCP
0010	1346	IAR	EQU	X'10'	ICADPR RETURN IF NOT IN VTCC
0008	1347	ARR	EQU	X'08'	THIS CRG TIED TO ORG AT END OF ROUTINE
0004	1348	PSR	EQU	X'04'	
0020	1349	F1IAR	EQU	X'20'	
0081	1350	F7IAR	EQU	X'81'	
0001	1351	IR1	EQU	1	
0002	1352	IR2	EQU	2	
087C	1353	LPDATA	EQU	X'87C'	
0880	1354	ELINE	EQU	X'880'	
0A00	1355	SPT	EQU	X'A00'	
0A01	1356	FROGID	EQU	X'A01'	
0A02	1357	SPELGS	EQU	X'A02'	
0A07	1358	FRTN	EQU	X'A07'	
0A0A	1359	SFUDT	EQU	X'A0A'	
0018	1360	SIOI	EQU	X'18'	
0879	1361	CRFLG	EQU	X'0879'	FLAG SAYS 32XX MICRO LOADED OK
			1362		
			1363	**	COMMON SENSE SWITCHES
			1364		
0080	1365	SSW00	EQU	X'80'	LCOF ON SECTION
0040	1366	SSW01	EQU	X'40'	LCOF ON ROUTINE
0C20	1367	SSW02	EQU	X'20'	BYPASS MANUAL INTERV RTNS
0010	1368	SSW03	EQU	X'10'	BYPASS ERROR PRINT
0008	1369	SSW04	EQU	X'08'	BYPASS MCM-ERROR PRINT
0004	1370	SSW05	EQU	X'04'	USE MFCU AS PRINT DEVICE
0002	1371	SSW06	EQU	X'02'	HALT ON ERROR
0001	1372	SSW07	EQU	X'01'	LICKETY SPLIT
0080	1373	SSW08	EQU	X'80'	USE 5203 RIGHT CARRIAGE
0C40	1374	SSW09	EQU	X'40'	INHIBIT SECT. SSW CLEARING
0020	1375	SSW0A	EQU	X'20'	
0010	1376	SSW0B	EQU	X'10'	
0008	1377	SSW0C	EQU	X'08'	
0004	1378	SSW0D	EQU	X'04'	
0002	1379	SSW0E	EQU	X'02'	
0001	1380	SSW0F	EQU	X'01'	
0001	1381	SSW2F	EQU	X'01'	
			1382		
0080	1383	BIT0	EQU	X'80'	
0040	1384	BIT1	EQU	X'40'	
0020	1385	BIT2	EQU	X'20'	
0010	1386	BIT3	EQU	X'10'	
0008	1387	BIT4	EQU	X'08'	

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	SMT	SOURCE STATEMENT
0004	1388	BIT5	EQU	X'04'
0002	1389	BIT6	EQU	X'02'
0001	1390	BIT7	EQU	X'01'
		1391		
006F	1392	H0	EQU	X'6F'
0003	1393	H1	EQU	X'03'
0076	1394	H2	EQU	X'76'
0057	1395	H3	EQU	X'57'
001E	1396	H4	EQU	X'1E'
005D	1397	H5	EQU	X'5D'
007D	1398	H6	EQU	X'7D'
0007	1399	H7	EQU	X'07'
007F	1400	H8	EQU	X'7F'
005F	1401	H9	EQU	X'5F'
003F	1402	HA	EQU	X'3F'
0079	1403	HE	EQU	X'79'
006C	1404	HC	EQU	X'6C'
0073	1405	HD	EQU	X'73'
007C	1406	HE	EQU	X'7C'
003C	1407	HF	EQU	X'3C'
003B	1408	HH	EQU	X'3B'
0068	1409	HL	EQU	X'68'
006E	1410	HU	EQU	X'6E'
003E	1411	HP	EQU	X'3E'
		1412		
01FD	1413	FLAG	EQU	X'1FD'
01FE	1414	DTABLE	EQU	X'1FE'

TABLE OF HALT CODES - 0-F & H

HALT DISPLAY CODE -5-

HALT DISPLAY CODE -L-  
HALT DISPLAY CODE -U-  
HALT DISPLAY CODE -P-

ERR LOC OBJECT CODE ADDR SMT SOURCE STATEMENT

				1416 ** THE FOLLOWING INSTRUCTIONS ARE PERFORMED AFTER INITIAL DCP
				1417 ** LOADING ONLY. THEY ARE OVERLAID BY THE FBCGFAN SECTIONS.
0E86	1418	XREF3	EQU	*
0E86	1419	BEGIN	EQU	*
	1420	NVC	16(17),GOLOAD+16	STORE A FBCGFAN FSTART AT 0000
	1421	E	FIXMCE	
0E90	1422	BEGINA	EQU	*
	1423			
	1424	*****		
	1425	*		
	1426	PRINT	CPU AND UDT	INFCPPATIC
	1427	*		
	1428	*		
	1429	*****		
	1430			
	1431	E	PRINT	SPACE PRINTER
0E94	1432	DC	XL1'11'	
0E95	1433	NVC	LINE1-16(1),SHOD	PUT MODEL ID IN PRINTOUT
0E9B	1434	HVI	CTR,X'0'	
0E9F	1435	CLI	SIZE-2,X'01'	SEE IF SIZE IS GREATER THEN 64K 04
0EA3	1436	JL	TRY64	IF NCT GC TC TRY64 04
	1437			
	1437			
	1437			
	1438			
	1438			
	1438			
	1439	NVC	TEMPA(1),SIZE-2	THIS LOOP SETS UP FOR GREATER THAN 04
	1440	*		64K BY MOVING SIZE-2 TO TEMPA 04
	1441	HVI	CTR,16	START WITH 64K (16X4=64) 04
0EAC	1442	LCCPSZ	AIC	CTR(1),X04
0EB0	1443	SLC	TEMPA(1),ONE	ADD 16K (4X4=16) 04
0EB6	1444	BNZ	LOCFSZ	SUB 16K FROM STORAGE SIZE IN TEMPA04
0EBC	1445	J	DCSZ	QUIT WHEN ZERO 04
0EC0	1446	TRY64	CLI	SIZE-1,X'FF'
0EC3	1447	JNE	NOT64	
0EC7	1448	HVI	CTR,16	
0ECA	1449	J	DCSZ	
0ECE	1450	NOT64	BNZ	CTR,SIZE-1
0ED1	1451			PUT CODE SIZE IN PRINTOUT
	1452	DCSZ	ZAZ	LINE1-1(3),DFOUR-1(1)
0ED7	1453	FINDSZ	AZ	LINE1-1(3),DFOUR(2)
0EDD	1454	SLC	CTR(1),ONE	
0EE3	1455	BNZ	FINDSZ	
0EE9	1456	*	SET UP CPU OPTICNS IF ANY.	
	1457	NVC	LINE1A(16),LINE1A+1	CLEAR OPTICNS IN LINE FOR 1FF0 ENTRY
0EED	1458	NVC	OPBUF(1),CPU	PUT CPU OPTICNS IN WORK AREA
0EF3	1459	HVI	POP+1,X'87'	ASSUME NO OPTICNS, THUS NO OPT PRINT
0EF9	1460	LA	LINE1A-15,XR2	PCINT AT PRINT LINE WHERE OPTS GO
0EFF	1461	LA	CPT1AE,IF1	PCINT AT CPT NUMBERS.
0F01	1462	OFLOOP	ALC	OPBUF(1),OPBUF
0F05	1463	BNOL	NOTOP	SHIFT LEFT 1
0F0B	1464	NVC	0(1,XR2),C(,XR1)	JUMP IF NO OPTICNS BIT
0F0F	1465	LA	2(,XR2),XR2	MOVE CPT NUMBER INTO; LINE
0F13	1466	HVI	POP+1,X'07'	RUMP TO NEXT LINE POSITION
0F16	1467	NCTCF	EQU	CAUSE NO-OF JUNE FOR PRINTING
	1468	LA	1(,XR1),XR1	
0F1A	1469	CLI	0(,XR1),C'Q'	BUMP TO NEXT OPTICN NUMBER IN TAB
0F1D	1470	JE	POP	IF 'Q' IS A 'Q', QUIT
0F20	1471	B	CELCOE	
0F23	1472	JC	NOPOP,*--	DO ALL 8
0F27	1473	B	PRINT	JUMP TO REGULAR ONLY OR FALL TO OPT
0F2A	1474	DC	XL1'02'	PRINT CPU LINE WITH OPTIONS
0F2E	1475	DC	XL1'59'	
0F2F	1476	DC	AL2(LINE1A)	
0F30	1477	J	WASPOP	
0F32				

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OF35	C0 87 021A	1478	NOPOP	EQU	*
OF39	01	1479		B	PRINT
OF3A	17	1480		DC	XL1'01'
OF3B	1189	1481		DC	IL1'23'
		1482		DC	AL2(LINE1)
		1483			
OF3D	C0 87 021A	1484	WASPOP	EQU	*
OF41	01	1485		B	PRINT
OF42	33	1486		DC	XL1'01'
OF43	124F	1487		DC	IL1'51'
OF45	C0 87 021A	1488		DC	AL2(DASH)
OF49	01	1489		B	PRINT
OF4A	33	1490		DC	XL1'01'
OF4B	11E1	1491		DC	IL1'51'
OF4D	C0 87 021A	1492		DC	AL2(LINE2)
OF51	01	1493		B	PRINT
OF52	33	1494		DC	XL1'01'
OF53	124F	1495		DC	IL1'51'
		1496		DC	AL2(DASH)
		1497			
OF55	C2 01 0232	1498		LA	UTAB, XR1
OF59	3C 01 1161	1499		HVI	FLAGS, 1
OF5D	7D 00 00	1500	UDTLP	CLI	0(, XR1), X'0'
OF60	F2 81 8E	1501		JE	NCUNIT
OF63	34 01 0F6D	1502		SI	UADDR, XR1
OF67	C0 87 021E	1503		B	UNPACK
OF6B	01	1504		DC	IL1'1'
OF6C	0000	1505	UADDR	DC	AL2(*-*)
OF6E	0883	1506		DC	AL2(ELINE+3)
OF70	C2 02 0884	1507		LA	ELINE+4, XR2
OF74	BC 60 00	1508		HVI	0(, XR2), C'-'
OF77	0C 01 115D 0399	1509		HVC	MASK(2), ONE
OF7D	3C 00 115E	1510		HVI	CENUM, 0
OF81	0C 00 0F8E 115C	1511	UDTLP1	HVC	CHK1+1(1), MASK-1
OF87	0C 00 0F91 115D	1512		HVC	CHK2+1(1), MASK
OF8D	79 00 01	1513	CHK1	TBF	1(, XR1), *-*
OF90	79 00 02	1514	CHK2	TBF	2(, XR1), *-*
OF93	F2 10 16	1515		JT	NEXTOP
OF96	8C 00 01 115E	1516		HVC	1(1, XR2), CENUM
OF9B	BA F0 01	1517		SEN	1(, XR2), X'F0'
OF9E	BD FA 01	1518		CLI	1(, XR2), X'FA'
OFA1	F2 82 05	1519		JL	*+8
OFA4	8E 00 01 1155	1520		ALC	1(1, XR2), XC7
OFA9	E2 02 01	1521		LA	1(, XR2), XR2
OFAC	0E 01 115D 115D	1522	NEXTOP	ALC	MASK(2), MASK
OFB2	0E 00 115E 0399	1523		ALC	CENUM(1), ONE
OFB8	3D 0C 115E	1524		CLI	OPNUM, X'0C'
OFBC	C0 82 0F81	1525		BL	UDTLP1
		1526			
OFCD	3D 01 1161	1527		CLI	FLAGS, 1
OFD0	F2 01 0C	1528		JNE	CKPTR
OFD3	8C 05 09 116B	1529		HVC	9(6, XR2), LDR
OFD7	3C 02 1161	1530		HVI	FLAGS, 2
OFD8	F2 87 10	1531		J	PRUDT
		1532			
OFD3	3D 02 1161	1533	CKPTR	CLI	FLAGS, 2
OFD7	F2 01 09	1534		JNE	PRUDT
OFDA	8C 06 0A 1172	1535		HVC	10(7, XR2), PRNTR
OFDF	3C 00 1161	1536		HVI	FLAGS, 0
		1537			
OFE3	0C 19 11FB 089A	1538	PRUDT	HVC	LINE3(26), ELINE+26
OFE9	C0 87 021A	1539		B	PRINT
OFED	01	1540		DC	XL1'01'
OFEF	1A	1541		DC	IL1'26'
OFEF	11FB	1542		DC	AL2(LINE3)
		1543			
OFF1	78 10 01	1544	NCUNIT	TBN	1(, XR1), X'10'

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OFF4	D2 01 03	1545		LA	3(, XR1), XR1
OFF7	C0 90 0F5D	1546		EF	UDTLP
		1547			
		1548			*****
		1549			*
		1550		DO	MISCELLANECUS DCP PRINTOUTS
		1551			*
		1552			*
		1553			*****
		1554			*
OFFB	C0 87 021A	1555		E	PRINT SPACE PRINTER
OFFF	11	1556		DC	XL1'11'
1000	C0 87 021A	1557		E	PRINT
1004	05	1004 1558		DC	IL1'05'
1005	21	1005 1559		DC	IL1'33'
1006	121C	1007 1560		DC	AL2(LINE4) 'DCP IS LOADED'
1008	C0 87 12E5	1561		B	CHKID TEST FOR TAPE ON SYSTEM
100C	70	100C 1562		DC	XL1'70'
100D	F2 01 27	1563		JNE	TST07 JUMP IF IT IS NOT
		1564			
1010	C0 87 12E5	1565		B	CHKID TEST FOR 5444 ON SYSTEM
1014	A0	1014 1566		DC	XL1'A0'
1015	F2 01 1F	1567		JNE	TST07 JUMP IF IT IS NOT
		1568			
1018	C2 01 0232	1569		LA	UTAB, XR1 FCINT AT X'232'
101C	7D A0 00	1570		CLI	0(, XR1), X'A0' IF 5444, PRINT TAPE MESSAGE
101F	F2 01 15	1571		JNE	TST07
		1572			
1022	C0 87 12BF	1573	XB	B	PTX PRINT LINE OF '-'
1026	C0 87 021A	1574		B	PRINT PRINT MESSAGE TO DUMP TAPE ERROR ST.
102A	01	102A 1575		DC	XL1'01'
102B	3C	102B 1576		DC	IL1'60'
102C	128A	102D 1577		DC	AL2(XM1)
102E	C0 87 12BF	1578		B	PTX PRINT LINE OF '-'
1032	C0 87 021A	1579		B	PRINT SPACE 4
1036	14	1036 1580		DC	XL1'14'

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1582 *****
1583 *
1584 *      CHECK FOR MODEL G
1585 *
1586 *****
1587
1037 1588 ISTI07 EQU *
1589      CLI S*CL,C'G'      TEST FOR RUNNING ON MODEL 'G'
1590      BNE DCHA           BRANCH IF NOT
1591      CLI UTAB,X'40'     TEST FOR LOADING FROM 3741
1592      JE FD6C           IF TRUE GO SET UP FOR LOADING
1593      TBN UTAB+1,X'80'   TEST FOR LOADING FROM DISK
1594      BF DOHA           IF NOT, HALT HA
1595
1596 *****
1597 *
1598 *      LOAD AND EXECUTE ANY PROGRAMS WHICH MUST BE
1599 *
1600 *      RUN AT DCP LOAD TIME
1601 *
1602 *      FD6 - RUNS ON ALL MODEL G SYSTEMS
1603 *
1604 *****
1605
104E 1606 ISAO LA X'0232',XR1 SET-UP XR1 ADDRESS FOR UTAB TABLE *GC*
1052 1607 CLI 0(,XR1),X'A0' SEE IF DISK IS A 5444 *GC*
1055 1608 JNE ISA1 JUMP IF NOT A 5444 DISK *GC*
1058 1609 MVI DKFLAG,X'A0' IDENTIFY IT A 5444 DISK *GC*
1610
105C 1611 ISA1 B SEARCH GO GET DISK ADDR OF PROGRAMS *GC*
1612
1060 1613 TBN SRFLAG,BIT2 SEE IF FD6 FOUND ON DISK
1064 1614 JF FD6RTN IF NOT, DON'T RUN
1615 *****
1616 *      TEST UDT TABLE FOR DISK FILE 3340 OR DISK FILE 5444
1617 *****
1618      CLI DKFLAG,X'A0' SEE IF DISK IS A 5444
1619      JE FD6D JUMP IF IS
1620      MVC FD6@ (2),CCHH2@ MOVE IN ADDRESS OF 3340 CCHRR (FD6)
1074 1621 FD6D EQU *
1622 *****
1623      HVC X'1FF5' (2),FD6ADR SET UP FOR FD6 TO COME BACK
1624      SBN SBYTES,SSW2F SET ON SSW 2F TO SHOW FD6 TO LINK BACK
1625      B LOAD LOAD AND RUN LSR TESTS
1082 1626 FLG1 DC XL1'08'
1083 1627 FD6@ DC XL2'DFD6' DISK ADDRESS FILLED IN BY 'SEARCH' RTN
1085 1628 FD6ADR DC AL2(FD6RTN)
1087 1629 FD6RTN EQU * RETURN HERE FROM FD6
1630      MVC 16 (17),GOLCAD+16 STORE A PROGRAM RESTART AT 0000
108D 1631 ISTFD6 MVI X'1FD',X'10' RESET FLAG BIT FOR LOAD RTN
1091 1632 B DCHA

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1634 *****
1635 *****
1636 *
1637 *      S E A R C H      SEARCH VTCCS FOR FD6,143,FCO AND INSERT
1638 *                      DISK ADDRESSES IN 'B LOAD'
1639 *****
1640
1641 SEARCH ST SFX+3,ARR
1642      MVI FLG1,X'18' SET BRANCH TO LOAD FLAG BITS
1643      MVI X'1FEE',0 SET TO ZERO AS FLAG
1644      MVI SRFLAG,0 SET FLAG TO ZERO (SUPPORT INSTR AT '1FPO')
1645      B LOAD SEEK TO VTCC AND CHECK FOR PROGRAM 143
10A9 1646 DC XL1'02'
1647      IA X'880',XR1 LOAD XR1 AS POINTER TO VTCC RECORD
1648
1649 READRC B LOAD TO READ NEXT RECORD INTO X'880'
10E2 1650 DC XL1'10'
1651      CL 0(,XR1),X'FF' TEST FOR END OF VTCC
1652      BE NE2 JUMP IF YES
1653      CL 0(,XR1),0 TEST FOR END OF VTCC
1654      BE NE2 JUMP IF YES
1655      CLC 2(3,XR1),ACTKON TEST FOR AN ACTIVE VTCC ENTRY
1656      ENE NE2 JUMP IF NOT 'ACT'
1657
1658      CLI UTAB,X'C1' CHANGE DISPLACEMENT OF ID IN VTCC
1659      JE ISWIN ENTRY IF THIS IS 5444.
1660      MVI HVCID+4,IDS444 IF 3340, LEAVE DISPLACEMENT AS IS
10D5 1661 ISWIN EQU *
1662      MVCID HVC VTID(3),ID3340(,XR1) MOVE ID INTO TEMP AREA
1663
1664 TRYFD6 CLC VTID(3),FD6KON LOOK FOR ID OF FD6 *GCDP
1665      TRYOUT JNE
1666      MVC FD6@ (2),VTAD(,XR1) MOVE IN DISK ADDR OF FD6 (5444)
1667      MVC CCHH2(5),VT33(,XR1) MOVE IN CCHRR ADDR FROM VTCC (3340)
1668      SBN SRFLAG,BIT2 INDICATE FD6 FOUND
10F1 1669 TRYOUT EQU *
1670      TBN SRFLAG,BIT2 SEE IF FOUND YET
1671      READRC GO LOAD 143 ETC
1672      SRI B RETURN TO CALLER SECTION
0007 1673 IDS444 EQU 7 DISPLACEMENT OF ID IN 5444 VTCC
0006 1674 ID3340 EQU 6 DISPLACEMENT OF ID IN 3340 VTCC
0004 1675 VTAD EQU 4 LOCATION IN VTCC OF 5444 ADDRESS
0002 1676 VT33 EQU 14 LOCATION IN VTCC OF 3340 ADDRESS CCHRR *GC*
10FD 1677 EKFLAG DC XL1'FF'
10FE 1678 SRFLAG DC XL1'00' BIT 0 - 143
1679 * BIT 1 - FCO
1680 * BIT 2 - FD6
1681
1682 FE2 TBN SRFLAG,BIT2 DID FD6 GET IN
1683      JT DCHO
1684      MVC IDLOST(3),FD6KON MOVE 'FD6' INTO MESSAGE
1685      B PRINT
1110 1686 DC XL1'02'
1111 1687 DC XL1'30' PROGRAM XXX NOT FOUND ON DISK
1113 1688 DC AL2(NCTFND)
1114 1689 EOB0 EQU *
1690      B PRINT
1118 1691 DC XL1'17' SPACE 7 TIMES
1692      HPL H0,HH NO HALT TO SHOW PGH'S MISSING
1693      HPL H4,H0 SECONDARY H' T SAYS PGH'S MISSING
1694
111F 1695 B SRI RETURN TO CALLER

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1123	38 01 0208	1697	DOHA	TBN SEYTE0,SSW07
1127	F2 10 03	1698	JT	GCLOAD
		1699		
		1700		*****
		1701	*	H H AAAAAAAAAA
		1702	*	H H A A
		1703	*	H H A A
		1704	*	HHHHHHHHH AAAAAAAAAA
		1705	*	H H A A
		1706	*	H H A A
		1707	*	H H A A
		1708		*****
		1709		
112A	F0 3B 3F	1710	HLTG	HPI HA,HH DCP LOADING COMPLETE
		112D 1711	GCLOAD	ECU * *
112D	C0 87 0212	1712	B	TEST CHECK DATA SWITCHES
1131	C0 87 02ED	1713	B	XREP1 GO LCAD SECTION
		0002 1714	DRCF	XF2
		1715		*****
		1716	*	
		1717	*	STORAGE EC'S FCR DCP
		1718	*	
		1719		*****
		1720		
1135	00	1135 1721	TEMPA	DC XL1'00'
1136	04	1136 1722	X04	DC XL1'04'
1137	0800	1138 1723	TWOK	DC XL2'0800'
1139	000000	113B 1724	VIID	DC XL3'000000' TEMP STORAGE FOR ID FROM VTOC
113C	0000000000	1140 1725	CCHHO	DC XL5'0000000000' CYL HED REC FCR 143 (3340)
1141	0000000000	1145 1726	CCHH1	DC XL5'0000000000' CYL HED REC FCR FCO
1146	0000000000	114A 1727	CCHH2	DC XL5'0000000000' CYL HED REC FCR FD6
114B	1140	114C 1728	CCHH0@	DC AL2(CCHHO)
114D	1145	114E 1729	CCHH1@	DC AL2(CCHH1)
114F	114A	1150 1730	CCHH2@	DC AL2(CCHH2)
1151	0100	1152 1731	X100	DC XL2'100'
1153	0008	1154 1732	FRIV	DC XL2'0008' PRIVILEGE MODE ONLY
1155	C7	1155 1733	XC7	DC XL1'C7'
1156	F2 87 29	1734	J	J TEST7-TESTCD-1
1159	F2 87 33	1735	J1	J IZ2-LX2
115C	0000	115D 1736	HASK	DC XL2'0'
115E	00	115E 1737	CFNUM	DC XL1'0'
115F	F0F4	1160 1738	DFCUR	DC DL2'4'
1161	00	1161 1739	FLAGS	DC XL1'0'
1162	0000	1163 1740	X0000	DC XL2'0000'
1164	01E0	1165 1741	D0480	DC IL2'480'

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		1743		*****
		1744	*	PRINTOUTS *****
		1745		*****
		1746		
1166	D3D6C1C4C5D9	116E 1747	LDR	DC CL6'LCADER'
116C	D7D9C9D5E3C5D9	1172 1748	PRNTR	DC CL7'PRINTER'
1173	D4D6C4C5D340E74B	1189 1749	LINE1	DC CL23'MODEL X. STORAGE XXK'
117B	4040E2E3C6E9C1C7			
1183	C54040E7E7E7D2			
118A	404040C3D7E440D6	11AD 1750	LINE1A	DC CL36' CPU OPTIONS ARE X *   TOGETHER
1192	D7E3C9D6D5E240C1			
119A	D9C54040E7404040			
11A2	4040404040404040			
11AA	40404040			
11AE	40	11AE 1751		
11AF	E4D5C9E340C4C5C6	11C4 1752	DC	CL1' ' DC CL22'UNIT DEFINITION TABLE '
11B7	C9D5C9E3C9D6D540			
11BF	E3C1C2E3C540			
11C5	4B4B4B4B40D4E4E2	11E1 1753	LINE2	DC CL29'.... MUST BE CORRECT -VERIFY-'
11CD	E340C2C540C3D6D9			
11D5	D9C5C3E34060E5C5			
11DD	D9C9C6E860			
11E2	4040404040404040	11FB 1754	LINE3	DC CL26' ' *
11EA	4040404040404040			
11F2	4040404040404040			
11FA	4040			
11FC	4040404040404040	121C 1755	LINE4	DC CL33' DCP IS LOADED'
1204	4040404040404040			
120C	40404040C4C3D740			
1214	C9E240D3D6C1C4C5			
121C	C4			
121D	4040404040404040	1232 1756	DC	CL22' '
1225	4040404040404040			
122D	40404040404040			
1233	6060606060606060	124F 1757	DASH	DC 29CL1'-'
123B	6060606060606060			
1243	6060606060606060			
124B	6060606060			
1250	C4E4D4D740E3C1D7	127D 1758	DC	CL46'DUMP TAPE ERROR STATISTICS BEFORE RUNNING DISK'
1258	C540C5D9D9D6D940			
1260	E2E3C1E3C9E2E3C9			
1268	C3E240C2C5C6D6E9			
1270	C540D9E4D5D5C9D5			
1278	C740C4C9E2E2			
127E	40C4C9C1C7D5D6E2	128A 1759	XM1	DC CL13' DIAGNOSTICS-'
1286	E3C9C3E260			
128B	E7D9E6C7E9C1D440	1295 1760	IDLOST	DC CL11'PROGRAM XXI' ----   MUST BE TOGETHER
1293	E7E7E7			
1296	40D5D6E340C6D6E4	12A8 1761	NCTFND	DC CL19' NCT FOUND ON DISK ' ----
129E	E5C440E6E540C4C9			
12A6	E2D240			
12A9	F1F2F3F4F5F6F7F8	12A9 1762	OPTTAB	EQU * TABLE FOR CPU OPTIONS
12B1	DB	12B1 1763	EC	CL19'12345678Q' Q SIGNALS END
12B2	00			
12B3	F1F4F3	12B2 1764	OPBUF	DC XI1'00'
12E6	C6C3F0	12B5 1765	HICIDR	DC CI03'1:3'
12B9	C1C3E3	12B8 1766	HICDAT	DC CI03'FC0'
12BC	C6C4F6	12B9 1767	ACTKON	DC CI03'ACT'
		12BE 1768	ED6KON	DC CL03'FD6'
		1769		
		1770		*****
		1771	*	SUBROUTINE TO PRINT -----
		1772		*****
		1773		
12BF	34 08 12E3	1774	PTX	SI PTX2+3,ABB
12C3	3C 02 12E4	1775		MVI CNT,2
12C7	3C 60 08BC	1776	XZ1	MVI X'880'+60,C'-'
12CB	0C 3A 08BB 08BC	1777		MVC X'880'+59(59),X'880'+60



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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
12D1	C0 87 021A	1778	B	PRINT
12D5	21	1779	DC	XL1'21'
12D6	0F 00 12E4 0399	1780	SIC	CNT,CNE
12DC	C0 01 12C7	1781	BNZ	XZ1
12E0	C0 87 0000	1782	FIX2	E
12E4	00	1783	CNT	DC IL1'0'
		1784		
		1785		*****
		1786	*	CHECK IF PASSED ID IS IN UDT ( SUBROUTINE )
		1787		*****
		1788		
12E5	34 08 1317	1789	CHKID	EQU *
12E9	34 01 1313	1790	ST	CHKID+3,ARF
12ED	35 01 1317	1791	ST	CHKSR1+3,XR1
12F1	0E 01 1317 0399	1792	L	CHKID+3,XR1
12F7	1C 00 1301 00	1793	ALC	CHKID+3(2),CNE
12FC	C2 01 0232	1794	MVC	SID(1),0(,XR1)
1300	7D 00 00	1795	LA	UTAB,XR1
		1796	ITCHKL	CLI 0(,XR1),0
		1797	SID	EQU *-2
		1798	JE	CHKSR1
1303	F2 81 0A	1799	TBN	1(,XR1),X'10'
1306	78 10 01	1800	LA	3(,XR1),XR1
1309	D2 01 03	1801	BF	ITCHKL
130C	C0 90 1300	1802	CHKSR1	LA *-*,XR1
1310	C2 01 0000	1803	CHKID	B *-*
1314	C0 87 0000			

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		1805		*****
		1806	*	
		1807	*	
		1808	*	-- O V E R L A Y S --
		1809	*	PERFORM VARIOUS OVERLAYS AND SET UP VARIOUS
		1810	*	
		1811	*	LINKAGES NECESSARY BASED ON MODEL AND PRINTERS
		1812	*	
		1813	*	ATTACHED FOR PROPER FUNCTIONING OF DCP
		1814	*	
		1815	*	THIS SUBROUTINE IS EXECUTED ONLY ONCE-- WHEN THE
		1816	*	FIRST COMMENT (*) CARD IS ENCOUNTERED OR WHEN
		1817	*	DCP'S END (E) CARD IS READ.
		1818	*	
		1819		*****
		1820		
1318	34 08 13DF	1821	XREF2	EQU *
		1822	FIXMOB	ST IEXIT+3,ARF
		1823		
		1824	CLI	X'880',C'*
		1825	JE	TRYCPU
		1826	CLI	X'880',C'E'
		1827	ENE	IVMCB
		1828	TRYCPU	CLI X'200',X'00' IF A CPU CARD PROCESSED, THEN DO FIXMOB
		1829	ENE	TSTUUT -HO- HALT * CARD FOUND BEFORE CPU/UDT CARDS
		1830	HOH	HPI H0,BH
		1831	HPL	H2,H0 SECONDARY HALT. * COMMENT OR END FOUND BUT NO CPU
		1832	B	IVMOB
		1833	TSTUUT	ZQU *
		1834	CLI	UTAB,0 IF NO UDT CARD THEN HALT
		1835	BE	HOH
		1836	CNCEXX	EC IVMCB,X'07' DC THIS ROUTINE ONLY ONCE
		1837	HVI	CNCEXX+1,X'87'
		1838		
		1839	MVC	ENTRY1(2),X'1FD'
		1840	MVC	ENTRY2(2),X'1FF' MOVE ENTRIES POINTS 8 INTO LOAD RTN
		1841	MVC	TSTOVL+2(3),TSTINS+2
		1842	TBN	UTAB+1,X'80' IS THIS A DISK SYSTEM
		1843	JT	DSKSYS
		1844	MVC	IX2-1(3),J1+2
		1845	HVI	TSTDSK,0
		1846	MVC	TSTCRD(3),J+2
		1847	SIC	DTABLE+1(4),DTABLE+1 CLEAR CARD LOADER FLAGS.
		1848	J	NCTD NO DTABLE CLEAR ON CARD SYS
		1849	DSKSYS	EQU *
		1850	SIC	DTABLE+1(6),DTABLE+1 CLEAR DTABLE FOR DISK SYS
		1851	NCTD	CLI SHCC,C'E' TEST FOR MODEL E
		1852	JNE	CKCIC JUNE IF NOT
		1853	*	
		1854	*	OLD MOVE OF CRT OVERLAY WAS HERE
		1855	J	IVMOB
		1856	CKCIC	EQU *
		1857	ST	SAVE1+3,XR1 SAVE XR1
		1858	B	CHKID
		1859	DC	XL1'10' ALT. PRINT RTN. WITH 5471 MODULE
		1860	JNE	TR5424 JUNE IF NOT 5471
		1861	J	SAVE1 IF 5471, THEN NO MORE CHECKING
		1862	TR5424	B CHKID CHECK FOR A 5424 ATTACHED
		1863	EC	XL1'F0' 5424 DEVICE CODE
		1864	JNE	TR3741 GO TO CHECK NEXT DEVICE
		1865	MVC	FRTRN+59(60),DBALT+59 OVERLAY ALT. CODE WITH 5424 CODE
		1866	J	SAVE1 EXIT THIS ROUTINE
		1867	TR3741	B CHKID CHECK FOR A 3741 ATTACHED
		1868	DC	XL1'40' 3741 DEVICE CODE
		1869	JNE	TR1442 GO CHECK NEXT DEVICE
		1870	MVC	FRTRN+66(67),DBALT+66 OVERLAY ALT. CODE WITH 3741 CODE
		1871	J	SAVE1 EXIT THIS ROUTINE
		1872	TR1442	E CHKID CHECK FOR A 1442 ATTACHED

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
13C4 51	13C4 1873	DC	XL1'51'
13C5 F2 01 09	1874	JNE	HHHALT
13C8 0C 4B 07D8 18D3	1875	BVC	FRINA+75(76),PHALT+75
13CE F2 87 03	1876	J	SAVE1
13D1 F0 3B 3B	1877	HHHALT	HPL HH,HH
13D4 C2 01 0000	1878	SAVE1	LA *-*,XR1
	13D8 1879	LVHCB	ECU *
13D8 C0 87 0212	1880	B	TEST
13DC C0 87 0000	1881	LEXT	B *-*
	1882		
	1883	USING	DAISWS-1,XR2
13E0 B0 00 01	1884	ISTINS	SNS DAISWS(,XR2),0

ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
			1442 DEVICE CODE
			GO HALT IF NO ALT. FOUND
			CVERLAY ALT. CODE WITH 1442 CODE
			EXIT THIS ROUTINE
			HALT TO INDICATE NO ALT. FOUND
			RESTORE XR1

DATE	29AUG75	07NOV75	19MAR76	03JUN76	11FEB77
EC NO.	827804	827805	827872	571871	387010

PROG ID	FFF-4	DATE	29AUG75	07NOV75	19MAR76	03JUN76	11FEB77
PAGE	19	EC NO.	827804	827805	827872	571871	387010

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1887				*****
1888	*			5424 ALTERNATE CCDE *
1889				*****
FD5A 1688		1890	ORG	X'FFFF'-X'1688'+* IF FLAGGED, OVER LAY PROBLEM
		1891	CRG	X'1688'
		0711 1892	USING	PRTN, XR2
		1688 1893	USING	MHLT2, XR1
		1894	HPL	H9, HH *MFCU NOT READY OR ERROR
		1895	B	FRTN1(, XR2)
		1896	AL5424 CLI	PRSI0+1(, XR2), X'E0' GC EXIT IF THIS WAS SPACE OPERATION
		1897	BE	PRTEXT(, XR2)
		1898	SNS	MSTAT(, XR2), X'F3' READ MFCU STATUS
		1899	TBN	MSTAT-1(, XR2), X'10' IF NC CAPD IN SEC WAIT STATION,
		1900	JT	DCIT ISSUE FEED COMMAND.
		1901	TIO	MHLT2(, XR1), X'F8' TEST FOR MFCU NOT READY
		1902	SIC	X'0', X'F8' GIVE WITH THE FEED COMMAND
		1903	BSYLP0 TIO	BSYLE0(, XR1), X'F1' TEST UNTIL NOT BUSY
		1904	DCIT TIO	MHLT2(, XR1), X'F8' GO HALT IF MFCU NOT READY
		1905	LIO	FR1(, XR2), X'F4' LOAD MFCU PRINT ADDRESS REGISTER
		1906	SIO	X'A4', X'FC' PRINT ON MFCU CARD
		1907	BSYLP1 SNS	MSTAT(, XR2), X'F3' WAIT FOR BUSY TO DROP
		1908	TEN	MSTAT-1(, XR2), X'40' TEST FOR BUSY
		1909	BT	BSYLE1(, XR1)
		1910	TIC	MHLT2(, XR1), X'F8' GO HALT IF ANY ERRORS
		1911	MVC	LPDATA+131(132), LPDATA+132 BLANK PRINT BUFFER
		1912	B	PRTEXT(, XR2) RESTORE XR2 AND RETURN
		1913		*****
		1914	*	3741 ALTERNATE CCDE *
		1915		*****
FF3B 1768		1916	ORG	X'FFFF'-X'1768'+* IF FLAGGED, OVER LAY PROBLEM
		1917	ORG	X'1768'
		0711 1918	USING	PRTN, XR2
		1768 1919	USING	DHALT, XR1
		1920	DHALT HPL	H9, HH *3741 NOT READY OR ERROR
		1921	B	PRTN1(, XR2) RETURN TO TRY AGAIN
		1922	LIC	FUNCSH(, XR1), X'41' LCAD FUNCTION REG
		1923	RITREC CLI	PRSI0+1(, XR2), X'E0' IS THIS A SPACE OPERATION
		1924	BE	PRTEXT(, XR2) RETURN IF IT IS
		1925	XFRSNS SNS	XFRLIN(, XR1), X'43' SENSE THE TRANSFER LINES
		1926	TEN	XFRLIN-1(, XR1), X'04' TEST FOR 3741 ON-LINE BIT ON
		1927	BF	DHALT(, XR1) GO HALT IF 3741 NOT ON-LINE
		1928	TEN	XFRLIN-1(, XR1), X'01' TEST FOR WRITE BIT ON
		1929	BF	XFRSNS(, XR1) LOOP IF WRITE BIT NOT ON
		1930	SIC	X'08', X'43' NORMAL RESPONSE TO 3741
		1931	LIC	FR2, X'44' LCAD DATA ADDRESS REGISTER
		1932	LIC	RECLN(, XR1), X'42' LOAD LENGTH COUNT REGISTER
		1933	SIO	X'00', X'42' WRITE A RECCRD
		1934	ISBIZ TIC	ISBIZ(, XR1), X'42' WAIT TILL NOT BUSY
		1935	SNS	MSTAT(, XR2), X'42' GET THE STATUS EYES
		1936	TBF	MSTAT-1(, XR2), X'0A' TEST FOR PARITY ERROR OR OVERFLOW
		1937	EF	DHALT(, XR1) IF ERROR, HALT AND TRY AGAIN
		1938	SIO	X'08', X'43' NORMAL RESPONSE TO THE 3741
		1939	B	PRTEXT(, XR2) RETURN TO RETURN ROUTINE
		17C6 1940	FUNCSH DC	XL2'4000' FUNCTION REGISTER DATA
		17C8 1941	XFRLIN DC	XL2'00' TRANSFER LINES DATA AREA
		17CA 1942	RECLN DC	XL2'007F' LENGTH OF RECORD TO BE WRITTEN
		1943		*****
		1944	*	1442 ALTERNATE CCDE *
		1945		*****
FF42 1888		1946	CRG	X'FFFF'-X'1888'+* IF FLAGGED, OVER LAY PROBLEM
		1947	CRG	X'1888'
		0711 1948	USING	PRTN, XR2
		1888 1949	USING	FHALT, XR1
		1950	PHALT HPL	H9, HH *1442 NOT READY OR ERROR
		1951	B	FRTN1(, XR2) TRY IT AGAIN
		1952	PUN42 CLI	PRSI0+1(, XR2), X'E0' EXIT IF THIS WAS A SPACE OPERATION
		1953	BE	PRTEXT(, XR2)
		1954	LIC	FR2(, XR2), X'54' LOAD PUNCH DATA ADDRESS REGISTER

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1897 71 50 4A		1955	LIC	FUNNUM(, XR1), X'50' LOAD PUNCH COUNT REGISTER (128-N)
189A D1 50 00		1956	FUNERR TIO	PHALT(, XR1), X'50' TEST FOR NOT READY OR ERROR
189D F3 54 00		1957	SIC	X'00', X'54' PUNCH ONLY
18A0 D1 52 18		1958	EIZZEE TIC	EIZZEE(, XR1), X'52' WAIT FOR BUSY TO DROP
18A3 E0 53 40		1959	SNS	MSTAT(, XR2), X'53' GET STATUS EYES
18A6 B9 36 40		1960	TEF	MSTAT(, XR2), X'36' CHECK FOR ANY ERRORS
18A9 B9 0F 40		1961	TEF	MSTAT(, XR2), X'0F' MORE ERRORS?
18AC D0 90 12		1962	BF	FUNERR(, XR1) REFUNCH THE CARD
18AF 7D FF 4B		1963	CLI	FIGTWC(, XR1), X'FF' CHECK IF 2ND CARD FLAG IS SET
18B2 F2 81 16		1964	JE	PUNDUN IF SET, THEN GO EXIT THIS RTN
18B5 3C 40 08CE		1965	MVI	LPDATA+79, X'40' MOVE IN FIRST ELANK
18B9 0C 1F 08CA 08CE		1966	MVC	LPDATA+78(32), LPDATA+79 BLANK OUT REST OF INPUT AREA
18BF 0C 2E 08AA 08FA		1967	MVC	LPDATA+46(47), LPDATA+126 MOVE IN THE REST OF THE DATA
18C5 7C FF 4E		1968	MVI	FIGTWC(, XR1), X'FF' SET THE 2ND CARD FLAG
18C8 D0 87 12		1969	B	FUNERR(, XR1) GO PUNCH THE SECOND DATA CARD
18CB 7C 00 4B		1970	FUNDUN MVI	FIGTWC(, XR1), X'0' RESET 2ND CARD FLAG
18CE E0 87 65		1971	B	PRTEXT(, XR2) RETURN TO RETURN ROUTINE
18D1 0030	18D2	1972	FUNNUM DC	XL2'0030' PUNCH COUNT FOR 1442
18D3 00	18D3	1973	FIGTWC DC	XL1'0' FLAG FOR 2ND CARD PUNCHED
		1974		
		1975		*****
		1976	*	
		1977	*	BEGINNING OF DCP RESERVED STORAGE. X'7800'-X'7FFF' (2K) *
		1978	*	
		1979	*	
		1980		*****
7800		1981	ORG	X'7800'
7800 C0 87 0450		1982	TRYFDD B	ISTCVL THIS INST OVERLAYED BY FDD
		1983		
		1983		
		1983		
		1983		
		1984		*****
		1985	*	
		1986	*	SPACE 1403 34 TIMES RATHER THAN 6 OR 7
		1987	*	
		1988		*****
FE03 7D00		1989	ORG	X'FFFF'-X'7D00'+* IF FLAGGED, OVER LAY PROBLEM
		1990	ORG	X'7D00'
		7E00 1991	SPC34 EQU	*
		1992	TEN	SBYTE1, X'04' SSWOD ** THESE INSTRUCTIONS
		1993	JF	GNW ** FOR DUMP ONLY
		1994	SEF	SBYTE1, X'04' GET SSWOD OFF NOW **
		1995	B	DCDUMF **
		7D0F 1996	GNW EQU	*
		1997	TEN	SBYTE1, X'01' IF SSW OF ON, AND SP 6 OR MORE DO 34
		1998	TBN	NSPACE, X'06'
		1999	JF	DOREG
		2000	MVI	NSPACE, 13 12 X 3 = 36
		2001	DCREG1 SIC	NSPACE(1), CWN1 SPACE 36 LOCP
		2002	BL	PRTEXT
		2003	B	PRTN
		7D2D 2004	DC	XL2'E003' SPACE 3
		2005	B	LCREG1
		2006	COBEG SIC	NSPACE(1), CWN1 SPACE LOCP LIKE DCP
		2007	BI	PRTEXT
		2008	B	PRTN
		7E41 2009	DC	XL2'E001'
		2010	B	DCREG
		2011		
		2011		
		2012		*****
		2013	*	
		2014	*	DUMP STORAGE ROUTINE
		2015	*	

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

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ERR IOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
2016 *****
2017 *****
2018 *****
7D46 2019 DCDUMF EQU *
7D46 CO 87 021A          2020 B FRINT SPACE
7D4A 11                  2021 DC XL1'11'
7D4B CO 87 021A          2022 B FRINT CLEAR BUF
7D4F 81                  2023 DC XL1'61'
7D50 28                  2024 DC IL1'40' CLEAR BUF
7D51 7E25                2025 DC AL2(DPHG)
7D53 OC 73 08F4 7E9E     2026 MVC X'087C'+120(116),DPHG1 MOVE HEADINGS FOR DUMP
7D59 CO 87 021A          2027 B FRINT
7E5D A1                  2028 DC XL1'A1' CWN AREA
7D5E 3C 0F 7DA6          2029 MVI SRC,X'0F' BEGIN DUMPING AT 0000
7E62 3C 00 7DA5          2030 MVI SRC-1,X'00'
7D66 30 00 7DF8          2031 SNS CWNOLD,X'00' MAKE CLD = PRESENT (SENSE SWITCHES)
2032
7D6A 2033 DFLP EQU * TGP OF DUMP LOOP
7D6A 30 00 7DF6          2034 SNS CWNWSW,X'00' GET SWITCHES
7D6E OD 01 7DF6 7DF8     2035 CLC CWNWSW(2),CWNOLD IF NO CHG TO SSW, GO ON
7E74 F2 81 10           2036 JF CCNTU
2037
2038 * MUST BE NEW VAL IF SW, SO INSERT IT
7D77 OC 01 7DA6 7DF6     2039 NEWD MVC SRC(2),CWNWSW
7D7D 3C 0F 7DA6          2040 MVI SRC,X'0F' START AT 256 BYTE BOUNDARY
7D81 OC 01 7DF8 7DF6     2041 MVC CWNCLD(2),CWNWSW PUT NEW IN CLD
2042 * BEFORE PRINT SEE IF WE'VE CHANGED TO NEXT X'400' BYTES
7D87 2043 CONTU EQU *
2044 AIC HECTF(1),CWN16 PUMP CTR
7D87 OE 00 7DFB 7DF2     2045 JNGI NCDPHG CAUSES HEADING ABOUT EVERY 16 LINES
2046
2047 B FRINT SPACE
7D94 2048 DC XL1'11'
7D95 OC 73 08F4 7E9E     2049 MVC X'087C'+120(116),DPHG1 MOVE HEADINGS FOR DUMP
7E9B CO 87 021A          2050 B FRINT
7D9F A1                  2051 DC XL1'A1' OWN AREA
2052
7DA0 2053 NODPHG EQU *
2054 *
2055 *
2056 * SET UP DUMP PRINT LINE (3 UNPACKS AND THE ADDRESS)
7DA0 CO 87 021E          2057 B UNPACK
7EA4 10                  2058 DC IL1'16'
7DA5 0000                7DA6 2059 SRC DC AL2(*-*)
7DA7 08A6                7DA8 2060 DC AL2(LPDATA+4+6+32)
7DA9 OC 01 7DBE 7DA6     2061 MVC SRC1(2),SRC
7CAF OE 01 7DBB 7DF2     2062 ALC SRC1(2),CWN16
7DB5 CO 87 021E          2063 B UNPACK
7DB9 10                  7DB9 2064 DC IL1'16'
7EBA 0000                7DBB 2065 SRC1 DC AL2(*-*)
7DBC 08CE                7DBD 2066 DC AL2(LPDATA+4+6+32+8+32)
7DBE OC 01 7DD0 7EBE     2067 MVC SRC2(2),SRC1
7EC4 OE 01 7DD0 7DF2     2068 ALC SRC2(2),CWN16
7DCA CO 87 021E          2069 B UNPACK
7DCE 10                  7ECE 2070 DC IL1'16'
7DCF 0000                7ED0 2071 SRC2 DC AL2(*-*)
7DD1 08F6                7DD2 2072 DC AL2(LPDATA+4+6+32+8+32+8+32)
7DE3 CO 87 021E          2073 B UNPACK PACK THE SOURCE ADDRESS
7DD7 02                  7DD7 2074 DC IL1'2'
7DD8 7DA6                7DD9 2075 DC AL2(SFC)
7DDA 0884                7DEB 2076 DC AL2(LPDATA+4+4)
7EDC 3C 0F 0884          2077 MVI LPDATA+4+4,C'0' ELIMINATE THE F FROM ADDRESS
7DE0 CO 87 021A          2078 B PRINT --- PRINT THE LINE OF DUMP ---
7DE4 A2                  7DE4 2079 DC XL1'A2' CWN AREA
7DE5 OE 01 7DA6 7DF4     2080 ALC SRC(2),CWN48
7DEB CO 87 7D6A          2081 B DFLP
2082 CONTINUE DUMP

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
7DEF 0001                7DF0 2083 CWN1 DC XL2'0001'
7DF1 0010                7DF2 2084 CWN16 DC XL2'0010'
7DF3 0030                7DF4 2085 CWN48 DC XL2'0030'
7DF5 0000                7DF6 2086 CWN5W DC XL2'0000'
7DF7 0000                7DF8 2087 CWNOLD DC XL2'0000'
7DF9 00                  7DF9 2088 CIESKC DC XL1'00'
7DFA 00                  7DFA 2089 CIDIP DC XL1'00'
7DFB 00                  7DFE 2090 HDCIR DC XL1'00'
7DFC 0000                7DFD 2091 DC XL2'0000' EXTRA
7DFE C3C8C1D5C7C540E2   7E25 2092 DPHG DC CL40'CHANGE SWITCH 1 AND 2 FOR NEW DUMP ADDR '
7E06 E6C9E3C3C840F140   2092
7E0E C1D5C440F240C6E6   2092
7E16 D940D5C5E640C4E4   2092
7E1E D4E740C1C4C4E940   2092
7E26 4040404040C1C4C4   7E54 2093 DC CL47' ADDR 00 02 04 06 08 0A 0C 0E '
7E2E D94040F0F04040F0   2093
7E36 F24040F0F44040F0   2093
7E3E F64040F0F84040F0   2093
7E46 C14040F0C34040F0   2093
7E4E C540404040404040   2093
7E55 40404040F0F04040   7E78 2094 DC CL36' 00 02 04 06 08 0A 0C 0E '
7E5D F0F24040F0F44040   2094
7E65 F0F64040F0F84040   2094
7E6D F0C14040F0C34040   2094
7E75 F0C54040            2094
7E79 4040404040404040   7E9E 2095 DPHG1 DC CL38' 00 02 04 06 08 0A 0C 0E '
7E81 F0F04040F0F24040   2095
7E89 F0F44040F0F64040   2095
7E91 F0F84040F0C14040   2095
7E99 F0C34040F0C5       2095

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DATE 29AUG75 07NOV75 19MAR76 03JUN76 11FEB77  
 EC NO. 827804 827805 827872 571871 387010

PROG ID FFF-4 DATE 29AUG75 07NOV75 19MAR76 03JUN76 11FEB77  
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FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		2097		*THIS FIXES DUAL PROGRAM FEATURE PROC CHECK PRCELEM, BY DISABLING
		2098		*DPF & RETURNING DCP CONTROL TO PROGRAM LEVEL 1.
7E9F	35 20 7EBA	7E9F	2099	DPFIX EQU * DUAL PRCG. LVL CHANGE FIX
7EA3	F1 00 00	2100	I	DISDFP,PIAR PCINT PIAR TO DISABLE DPF
7EA6	F3 00 00	2101	APL	X'00',X'00' ADVANCE PRCGRAM LEVEL
7EA9	C2 02 0208	2102	LABEL1	SIO X'00',X'00' DISABLE DPF FEAT.
7EAD	34 01 029E	2103	IA	LEASE,XR2 LOAD XR2
7EB1	C0 87 0212	2104	ST	!CDEN+3,XR1 SAVE XR1
7EB5	C0 87 0279	2105	F	TESTI
7EB9	7EA6	2106	B	RTNFIK RETURN FROM DPF FIX RTN.
		7EBA	2107	DISDPF DC AL2(LABEL1) ADDR PIAR TO DISABLE DPF

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		FEBA	2109	ORG X'FFFF'-X'8000'** IF THIS ORG FLAGGED YOU'RE OVER
			2110 *	CCFE ECUNLARY.
			2111	
			2111	
			2111	
			2111	
06CE			2112	ORG PRT7 ORG AT END SO IF NCT ENOUGH CORE, LINKAGE NOT DONE
06CE	C0 87 7D00		2113	B SPC34 INTERCEPT SPACE COMMANDS AND TRY TO SPC 34
			2114	
			2115	*****
			2116 *	THE FOLLOWING 10 'TREP' CARDS WERE INSERTED TO PROVIDE
			2117 *	A MEANS OF CHANGING UDT,CPU AND CHAIN IMAGI WHEN
			2118 *	OPERATING ON A 3741.
			2119	*****
			2120	TREP
			2121	TREP
			2122	TREP
			2123	TREP
			2124	TREP
			2125	TREP
			2126	TREP
			2127	TREP
			2128	TREP
			2129	TREP
			2130 *	TREP
			2131	*****
			2132	*****
			2133	TREP
			2134	TREP
			2135	TREP
			2136	TREP
			2137	TREP
			2138	TREP
			2139	TREP
			2140	TREP
			2141	TREP
			2142	TREP
			2143	TREP
			2144	TREP
			2145	TREP
			2146	TREP
			2147	TREP
			2148	TREP
			2149	TREP
			2150 *	
0E86	2151			END PEGIN

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CRCSS-REFERENCE

CRCSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ACTKON	A	003	12BB	1767	1655
AINPUT	A	001	0067	0107	0110
AJDEST	A	003	012C	0232	0229
ALTPRT	A	001	0786	1132	1102 1133 1171 1173 1341
AL5424	A	003	168E	1896	
ARR	C	001	0008	1347	0108 0280 0294* 0573 0651 0679 0703 0721 0776 0795 0976 1088
ARRSAV	A	001	0402	0746	0653 0656* 0679* 0721* 1279* 1282 1283*
BEGIN	A	001	0E86	1419	0460 1328 2151
BEGINA	A	001	0E90	1422	
BIT0	C	001	0080	1383	0282 0593 0596 0615 0918 0982 1094 1203
BIT1	C	001	0040	1384	0594 1000 1065 1219
BIT2	C	001	0020	1385	0282 0297 0579 0590 0995 1211 1613 1668 1670 1682
BIT3	C	001	0010	1386	0385 0582 0993 1212 1216
BIT4	C	001	0008	1387	0282 0590 1230
BIT5	C	001	0004	1388	0276 0282 0579 0590
BIT6	C	001	0002	1389	0590
BIT7	C	001	0001	1390	0621
EIZZEE	A	003	18A0	1958	1958
BOOT1	A	004	0000	0022	0021 0031
BOOT1A	A	003	000D	0026	0026
BOOT1E	A	003	0017	0030	0023 0027
BOOT11	A	002	001E	0033	0024
BOOT2	A	004	0200	0054	0028 0052 0053 0054
BOOT2A	A	003	020D	0058	0056 0066
BOOT2E	A	003	0216	0061	0061
BOOT2E	A	003	020A	0057	0058 0062
BOOT21	A	003	0205	0071	0065
BOOT22	A	001	0239	0072	0065*
BOOT23	A	002	023B	0073	0059
BSYLP	A	005	0770	1123	1123
BSYLP0	A	003	16A3	1903	1903
BSYLP1	A	003	16AF	1907	1909
BT2	A	003	0204	0055	0071
BUSY	A	003	0074	0112	0112
CCHHO	A	005	1140	1725	1728
CCHHO	A	002	114C	1728	
CCFH1	A	005	1145	1726	1729
CCHH1	A	002	114E	1729	
CCHH2	A	005	114A	1727	1667* 1730
CCHH2	A	002	1150	1730	1620
CDERR0	A	003	0A9D	0365	
CDEXIT	A	004	007D	0115	0108*
CDREAD	A	004	0060	0105	0104 0105 0123 0136 0281 0304 0469 0478 0479
CHAIN	A	005	0A0B	0315	0429
CHCTR	A	001	0A0E	0317	0432* 0441* 0467*
CHKEND	A	003	019A	0274	0261
CHKF4	A	003	030E	0628	0623
CHKID	A	001	12E5	1789	1561 1565 1858 1862 1867 1872
CHKSR1	A	004	1310	1802	1791* 1798
CHKSSW	A	005	0169	0260	0253
CHKSS0	A	004	017E	0264	0272
CHKSS1	A	004	041F	0780	0777* 0779*
CHKSS2	A	003	042F	0785	0780* 0782*
CHKSW5	A	006	0664	1023	1036
CHKY	A	004	1314	1803	1790* 1792 1793*
CHK1	A	003	0F8D	1513	1511*
CHK2	A	003	0F90	1514	1512*
CIOHLT	A	001	078D	1172	1162
CIOST5	A	002	0751	1169	1160* 1161
CIO1	A	004	07BD	1157	1149
CIO1A	A	001	07EA	1171	
CIO1E	A	003	07C1	1158	1166 1171
CIO2	A	001	07BD	1173	
CIO2X	A	003	07C4	1159	1147* 1156* 1173
CKBLK	A	003	013F	0239	0243

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
CKCHN	A	001	0E6F	0428	0423
CKCIO	A	001	138F	1856	1852
CKCOM	A	003	0154	0252	0458
CKCOMA	A	003	0A0F	0319	0220
CKCOM1	A	004	0113	0220	0459*
CKCFU	A	003	0A3C	0334	0320
CKDCFS	A	005	0B5E	0422	0372
CKEND	A	003	0BA7	0445	0430
CKPTA	A	004	0FD3	1533	1528
CKREP	A	004	010C	0218	0127 0152
CKUDI	A	003	0AA8	0371	0335
CLRCCR	A	004	0108	0203	0216
CLLOCP	A	004	00EE	0139	0144
CHPK	A	004	033C	0651	0680 0722
CHPKX	A	001	0362	0662	0651*
CNT	A	001	12E4	1783	1775* 1780*
CONTU	A	001	7D87	2043	2036
CPU	A	001	0204	0506	0348* 0355* 1458
CPULP	A	005	0A69	0350	0354
CPUOP	A	004	0A65	0349	0359
CRTCHG	A	004	069C	1038	
CRTFLG	C	001	0879	1361	
CTR	A	001	0336	0646	0654 0655 0657* 0698* 0723 0725* 0740* 1434* 1441* 1442* 1448* 1450* 1454*
DADDR	A	001	04A2	0832	0830*
DASH	A	001	124F	1757	1488 1496
DATSW5	A	002	040C	0769	0268 0772 0777 0781 0781* 0782 0791 0793 0798 0800 0820* 0822 0823 0833 0839 0844 0846 0849 0857 0865 1883 1884*
DECO	A	004	01F4	0300	0290
DEC1	A	001	01F5	0301	0292
DEST	A	002	013A	0237	0227 0230 0238*
DEST1	A	001	0382	0690	0658* 0691*
DEST2	A	001	03DB	0733	0659* 0739*
DEV	A	001	0AA7	0370	0382 0390 0394
DFOUR	A	002	1160	1738	1452 1453
DHALT	A	003	1788	1920	1870 1919 1927 1937
DISDPF	A	002	7EBA	2107	2100
DKFLAG	A	001	10FD	1677	1609* 1618
DODUMP	A	001	7D46	2019	1995
DOHA	A	004	1123	1697	1590 1594 1632
DOHO	A	001	1114	1689	1683
DOIT	A	003	16A6	1904	1900
DOLIC	A	003	006E	0110	0117
DORIG	A	006	7D32	2006	1999 2010
DORIG1	A	006	7D1E	2001	2005
DOSZ	A	006	0ED7	1452	1445 1449
DPFIX	A	001	7E9F	2099	0574
DPLP	A	001	7D6A	2033	2081
DPNG	A	040	7E25	2092	2025
DPNG1	A	038	7E9E	2095	2026 2049
DSKSYS	A	001	137F	1849	1843
DTABLE	C	001	01FE	1414	0286 0294 0578* 0619 0637* 1847 1847* 1850 1850*
DUMCOM	A	002	0624	0998	
DO48	A	003	0A02	0312	0436
DO430	A	002	1165	1741	
D120	A	003	0A05	0313	0434
ENDCLR	A	001	0132	0212	0209
ENDRTN	A	001	0901	1201	
ENTRY1	A	001	029A	0585	1839*
ENTRY2	A	001	0331	0639	1840*
ERR	A	003	0081	0116	0109
FD6	A	002	1084	1627	1620* 1666*
FD6ADR	A	002	1086	1628	1623
FD6D	A	001	1074	1621	1592 1619
FD6KON	A	003	12BE	1768	1664 1684
FD6RTN	A	001	1087	1629	1614 1628

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FINDSZ	A	006	0EED	1453	1455
FIVE	A	001	03F3	0741	0656
FIXMOE	A	004	1318	1822	0327 1421
FLAG	C	001	01FD	1413	0276 0282 0297 0827 1230
FLAGS	A	001	1161	1739	1499* 1527 1530* 1533 1536*
PLGTWO	A	001	18D3	1973	1963 1968* 1970*
PLG1	A	001	1082	1626	1642*
FRTN	C	001	0A07	1358	0859
FUNCSH	A	002	17C6	1940	1922
FO	C	001	00FE	0568	0632 0828
F1	C	001	00FA	0569	
F4	C	001	00F1	0570	0628
GOLOAD	A	001	112E	1711	1420 1630 1698
GWN	A	001	7D0F	1996	1993
HA	C	001	003F	1402	1232 1710
HALT	A	004	0222	0526	
HALTA	A	003	09E6	1303	1301* 1302*
HALTE	A	003	09F1	1306	1304* 1305*
HALT2	A	004	09EC	1291	1285
HALT3	A	004	09C3	1294	1287 1290
HB	C	001	0079	1403	
HC	C	001	006C	1404	0630
HD	C	001	0073	1405	0295
HDCTR	A	001	7DFB	2090	2044*
HDG	A	028	05CE	0968	1018
HDG1	A	001	05E2	0967	0981* 0984* 1007 1011 1015
HE	C	001	007C	1406	0609
LEXIT	A	004	09F4	1307	1289 1292
HF	C	001	003C	1407	0809
HGO	A	004	0BB8	0451	0455
HH	C	001	003E	1408	0030 0057 0116 0295 0325 0365 0387 0438 0447 0453 0609 0630 0818 0851 0863 0912 1115 1143 1221 1232 1692 1710 1830 1877 1874 1894 1920 1950
HHHALT	A	003	13D1	1877	1874
HL	C	001	0068	1409	
HLA	A	003	046C	0809	
HLTB	A	003	0478	0814	
HLTC1	A	003	0311	0630	0636
HLTD	A	003	04D6	0851	0868
HLTE	A	003	056A	0912	
HLTF	A	003	02D7	0609	
HLTG	A	003	112A	1710	
HLTHE	A	004	01DB	0294	0289
HLTTAB	A	001	0980	1274	1273 1281
HP	C	001	003E	1411	0812 0814
HU	C	001	006B	1410	0817
HO	C	001	006F	1392	0325 0326 0365 0366 0387 0388 0438 0439 0447 0448 0453 0454 1692 1693 1830 1831
HOH	A	003	1333	1830	1835
H1	C	001	0003	1393	0448 1221
H2	C	001	0076	1394	0851 1831
H3	C	001	0057	1395	0388 0863 0912
H4	C	001	001B	1396	1693
H5	C	001	005E	1397	0030 0057 0116 0326 0454
H6	C	001	007D	1398	0366 1115
H7	C	001	0007	1399	0439
H8	C	001	007F	1400	
H9	C	001	005F	1401	1143 1894 1920 1950
IAR	C	001	0010	1346	0522* 0523* 0524* 0525* 0526* 0527* 0528*
IDADDR	A	002	063D	1006	1003*
IDLOST	A	011	1295	1760	1684*
ID3340	C	001	0006	1674	1662
ID5444	C	001	0007	1673	1660
IMGADR	A	002	0BDE	0465	0431* 0466*
INADR1	A	002	0BF9	0472	
INPUT	C	001	0880	0477	0106 0135 0178 0218 0226 0345 0360 0464 0472

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
IPL	C	001	0040	0482	0025 0060
ISA0	A	004	104E	1606	
ISA1	A	004	105C	1611	1608
ISBIZ	A	003	17B3	1934	1934
ISCHN	A	004	0B77	0431	
ISEND	A	001	0BB8	0450	0446
ISSSW	A	003	0178	0263	0426
ISWIN	A	001	10D5	1661	1659
IS120	A	004	0B9C	0441	0435
ITR1	A	001	0531	0892	1312
ITR2	A	002	0783	1129	1313
ITR3	A	001	02CA	0602	1314
ITR4	A	001	067A	1029	1315
ITR5	A	002	0785	1130	1316
ITR6	A	002	0231	0530	1317
ITR7	A	001	0556	0905	0841 1318
J	A	003	1156	1734	1846
J1	A	003	1159	1735	1844
LABEL	A	004	00D4	0145	0137* 0146* 0148
LABEL1	A	003	7EA6	2102	2107
LAST	A	001	07E0	1170	
LBASE	A	001	0208	0510	0567 0572 0617 2103
LDEND	A	004	094C	1223	1204 1215
LDPT2	A	004	01AF	0280	0296 0305
LDR	A	006	116E	1747	1529
LDREG	A	004	03F7	0743	0701 0704* 1308
LDROK	A	001	0BC9	0456	0452
LDUDT	A	005	0AF4	0394	0391
LDWORK	A	004	005D	0479	0132* 0133 0287 0288
LDX	A	004	01A7	0278	0298
LDX0	A	001	01AA	0279	0280*
LD1	A	001	02A7	0589	0583
LENGTH	A	003	00BB	0138	0149
LEXIT	A	004	13CC	1881	1822*
LE1	A	003	02E7	0615	0612
LE2	A	004	032E	0638	0591 0616 1735
LHLT1	A	004	09DE	1301	1294*
LHLT1A	A	004	09E2	1302	1295*
LHLT2	A	004	09E9	1304	1296* 1300
LHLT2A	A	004	09ED	1305	1297*
LINE1	A	023	1189	1749	1433* 1452* 1453* 1482
LINE1A	A	036	11AC	1750	1457 1457* 1460 1476
LINE2	A	029	11E1	1753	1492
LINE3	A	026	11FE	1754	1538* 1542
LINE4	A	033	121C	1755	1560
LINK	A	004	0216	0523	
LM0	A	002	0953	1226	
LMSG	A	014	05AF	0965	0529 1226
LMSG0	A	002	022F	0529	
LNK1	A	004	052E	0891	0913
LNK1A	A	004	0539	0895	0598
LNK2	A	004	0544	0899	0894 0919
LNK3	A	004	0558	0908	0900
LNK4	A	005	0571	0916	0911
LNK5	A	004	0588	0923	0889* 0897
LNK6	A	004	058C	0924	0875* 0922*
LOAD	A	004	022A	0528	1625 1645 1649
LODEM	A	004	029E	0566	0571* 0640 2104*
LONE	A	001	027D	0577	0624
LOOP	A	003	009B	0128	0125 0134
LOOPSZ	A	006	0EB0	1442	1444
LPBUSY	C	001	00E6	1108	1123
LPDATA	C	001	087C	1353	0978* 0999 0999* 1061 1061* 1111 1911 1911* 1965* 1966 1966* 1967 1967* 2060 2066 2072 2076 2077*
LPERR2	A	003	0758	1115	1117 1124
LPIMAG	A	001	08C0	1178	0433* 0442* 1110

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
LPRDY	C	001	00E0	1109	1117 1124
LPTONE	A	004	00EF	0155	
LVMOB	A	001	13D8	1879	1827 1832 1836 1855
LX1	A	004	02F4	0619	
LX2	A	001	02FB	0622	1735 1844*
MASC	A	004	0A7E	0355	0349* 0352 0353 0353*
MASK	A	002	115D	1736	0411* 0414 0414* 0416 0417 1509* 1511 1512 1522 1522*
MHLT2	A	003	1688	1894	1865 1893 1901 1904 1910
MICDAT	A	003	12B8	1766	
MICLDR	A	003	12B5	1765	
MNN	C	001	0003	0645	0681 0726
MNZ	C	001	0002	0644	0692 0695
MODIFY	A	001	042F	0784	0786* 0842*
MOVE	A	005	00FC	0164	0154* 0155* 0157
MOVID	A	003	031E	0634	0626
MSTAT	A	002	0751	1107	1169 1898* 1899 1907* 1908 1935* 1936 1959* 1960 1961
MVCID	A	005	10E5	1662	1660*
MVX1	A	001	036F	0683	0681* 0692 0695*
MVX2	A	001	03D9	0732	0726* 0735 0737*
MZN	C	001	0001	0643	0735 0737
MZZ	C	001	0000	0642	
NEG1	A	002	0338	0647	0691 0697 0698 0734 0739
NEG4	A	002	008A	0120	0147
NEWD	A	006	7D77	2039	
NEXT	A	003	012F	0233	0245
NEXTOP	A	006	0FAC	1522	1515
NEXTR	A	004	008B	0123	0069 0177 0210 0217 0240 0255 0258 0273 0275 0329 0332 0364
NEXISS	A	004	0683	1034	0367 0389 0402 0440 0449 0468
NE2	A	004	10FF	1682	1024
NINE	A	001	041B	0778	1652 1654 1656
NOALT	A	004	0745	1103	0730
NOBHF	A	003	0291	0582	0580
NOCHG	A	003	0BA4	0443	0437
NODPMG	A	001	7DA0	2053	2045
NOPOF	A	001	0F35	1478	1472
NORM	C	001	0000	0483	0111
NOTD	A	004	1385	1851	1848
NOTFND	A	019	12A8	1761	1688
NOTOP	A	001	0F1A	1467	1463
NOT64	A	006	0ED1	1450	1447
NCUNIT	A	003	0FF1	1544	1501
NOX	A	001	0A55	0341	0338
NSPACE	A	001	05CE	0970	0989* 0996* 1055* 1152 1154* 1998 2000* 2001* 2006*
NUM256	A	002	0131	0211	0206
N1	A	002	008E	0119	0142 0238
N24	A	001	0A06	0314	0466
N9	A	001	0AA6	0369	0409
OK	A	004	01E6	0297	0291 0293
OKCTR	A	004	0BD5	0462	0470
CLDSEC	A	001	7DF9	2088	
OLDTP	A	001	7DFA	2089	
ONCEXX	A	004	1345	1836	1837*
ONE	A	001	0399	0699	0467 0576 0725 0909 1046 1443 1454 1509 1523 1780 1793
ONEA	A	002	0A0D	0316	0411 0412
OPBDF	A	001	12E2	1764	1458* 1462 1462*
OPDON	A	004	0A8F	0360	0358
OPLOCP	A	006	0F05	1462	1471
OPNUB	A	001	115E	1737	1510* 1516 1523* 1524
OPTTAB	A	001	12A9	1762	1461
OWNOLD	A	002	7DF8	2087	2031* 2035 2041*
OWNSW	A	002	7DF6	2086	2034* 2035 2039 2041
OWN1	A	002	7DF0	2083	2001 2006
OWN16	A	002	7DF2	2084	2044 2062 2068
OWN48	A	002	7DF4	2085	2080
PACK	A	004	0226	0527	0224 0234 0265 0343 0379 0462

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FAP	A	001	0000	0006	
PGCK2	A	002	0207	0508	
PHALT	A	003	1888	1950	1875 1949 1956
PK1	A	003	03C7	0726	0724 0742
PK2	A	004	03CA	0727	0738
PK3	A	005	03D8	0731	0729
PK4	A	004	03EC	0739	0736
PLINE	C	001	0880	1354	0966 1018* 1021 1506 1507 1538
POP	A	003	0F27	1472	1459* 1466* 1470
PREXIT	A	006	06DF	1061	0988 1056 1099 2002 2007
PRIME	A	003	075E	1117	1105
PRINT	A	004	021A	0524	0256 0330 1223 1431 1473 1479 1485 1489 1493 1539 1555 1557
PRINTE	A	004	070D	1076	1574 1579 1685 1690 1778 2020 2022 2027 2047 2050 2078
PRIV	A	002	1154	1732	0976* 0977 1063 1072* 1126
PRNTR	A	007	1172	1748	1535
PROGID	C	001	0A01	1356	1010
PRVIC	A	003	076D	1122	1091* 1121* 1148 1150 1855 1923 1952
PRTEXT	A	004	0776	1125	1104 1151 1167 1897 1912 1924 1939 1953 1971
PRTE1	A	004	0705	1074	0975*
PRTE2	A	004	0709	1075	0973*
PRTHG	A	002	069E	1041	
PRTN	A	004	0711	1087	0997 1016 1040 1042 1052 1057 1086 1087 1140 1892 1918 1948
PRTNA	A	001	078D	1141	2003 2008
PRTNE	A	004	077E	1127	1171 1172 1173 1865* 1870* 1875*
PRTN1	A	004	0724	1093	1088* 1090 1092*
PRTN2	A	004	0736	1098	1116 1144 1895 1921 1951
PRT2A	A	004	0601	0987	1095
PRT2A	A	003	0605	0988	0983
PRT5	A	005	06A5	1045	0986
PRT6	A	006	06C2	1051	1001
PRT6A	A	004	06C8	1052	0991* 1038* 1039* 1045* 1046* 1048* 1049* 1050* 1145* 1146* 1155* 1165*
PRT7	A	004	06CE	1055	0996
PRT8	A	003	06F5	1068	0994 1047 1059 2112
PRT9	A	003	06FE	1071	1066
PRUDI	A	006	0FE3	1538	1069
PR1	A	002	0753	1110	1531 1534
PR2	A	002	0755	1111	1119 1905
PR3	A	002	05B1	0966	1120 1931 1954
PR4	A	002	0757	1112	0963 0974 1049 1125
PSR	C	001	00C4	1348	1118
PTAGS	A	001	05E1	0972	0980* 1094
PTC10	A	005	0793	1145	
PTPDC	A	003	0AEE	0377	0374
PTMSG	A	004	02C7	0601	0595
PTR	A	001	02F7	0620	0628 0632* 0633* 0634 0828*
PTX	A	004	12BF	1774	1573 1578
PTX2	A	004	12E0	1782	1774*
PTZERO	A	004	02C3	0600	0635
PT90	A	004	073A	1099	1097
FUNDUM	A	003	18CE	1970	1964
PUNERR	A	003	189A	1956	1962 1969
PUNNUM	A	002	18D2	1972	1955
PUN42	A	003	188E	1952	
P1IAE	C	001	0020	1349	2100*
P7IAR	C	001	0081	1350	
RDCD	A	004	0BED	0469	0443
READ	C	001	00F1	0484	0025 0060 0111
READRC	A	004	10AE	1649	1671
RECLN	A	002	17CA	1942	1932
RED	A	003	008F	0124	0283 0299
RESTART	A	003	0978	1244	1202
RHALT	A	004	0990	1279	1130
RITREC	A	003	1791	1923	
RLDA	A	004	02A3	0588	0573* 0575 0576* 0581*

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
RLD2	A	003	02DD	0611	0608
RLFLGS	A	001	02CB	0603	0593* 0596*
RLINK	A	004	052A	0889	1129
RLOAD	A	004	026A	0571	0904
RNUM	A	001	0A03	1195	0860* 0861 0869* 0895 0909* 0910 1014 1238 1239 1241*
RPACK	A	004	03B4	0721	0530
RPFY	A	004	0211	0517	0872* 0899 0908 0916* 1242*
RPGNE	A	004	05DA	0975	1055
RPRINT	A	004	05D2	0973	0601
RTEST	A	004	043E	0792	0706 0891 1307
RTNPLX	A	003	0279	0575	2106
RUNEX	A	004	0363	0679	1028
SADDR	A	002	0185	0267	0264*
SALLY	A	005	0A43	0336	
SAVE1	A	004	13D4	1878	1857* 1861 1866 1871 1876
SAVREG	A	004	03A0	0703	0652 1280
SBYTE0	A	001	0208	0511	0254 0328 0424* 0597 0599 0607 0783 0893 0902 0917 0985 0987
					1096 1098 1101 1103 1229 1288 1291 1697
SBYTE1	A	001	0209	0512	0425* 0611 1992 1994* 1997
SBYTE2	A	001	020A	0513	
SBYTE3	A	001	020B	0514	
SBYTE4	A	001	020C	0515	
SBYTE5	A	001	020D	0516	0262 0262* 0613 0613* 1023 1023* 1025* 1624*
SEARCH	A	004	1095	1641	1611
SETSSW	A	004	040D	0774	0269 0855
SETSI0	A	001	043D	0789	0776*
SET0	A	001	0403	0766	0770 0775
SID	A	001	1301	1797	1794*
SIOI	C	001	0018	1360	
SIZE	A	002	0203	0505	0346 1435 1439 1446 1450
SMOD	A	001	0200	0503	0336* 1433 1589 1851
SNUM	A	002	05D0	0971	1022* 1031 1034* 1035
SPAPRT	A	002	06DA	1058	
SPBFHG	A	002	0657	1017	
SFC34	A	001	7D00	1991	2113
SPFLGS	C	001	0A02	1357	1203
SPT	C	001	0A00	1355	
SPUDT	C	001	0A0A	1359	1205
SRC	A	002	7DA6	2059	2029* 2030* 2039* 2040* 2061 2075 2080*
SRCE	A	002	0138	0236	0233*
SRC1	A	002	7DEE	2065	2061* 2062* 2067
SRC2	A	002	7DD0	2071	2067* 2068*
SRFLAG	A	001	10FE	1678	1613 1644* 1668* 1670 1682
SRX	A	004	10F9	1672	1641* 1695
SR1	A	004	03B0	0707	0703*
SR2	A	004	03FE	0744	0705*
SSDEST	A	002	067F	1032	1027* 1039
SSW	A	001	05CC	0969	0260
SSWD	A	003	0BF7	0471	0422
SSW0A	C	001	0020	1375	
SSW0B	C	001	0010	1376	
SSW0C	C	001	0008	1377	
SSW0D	C	001	0004	1378	
SSW0E	C	001	0002	1379	
SSW0F	C	001	0001	1380	
SSW00	C	001	0080	1365	0599 0902
SSW01	C	001	0040	1366	0597 0853
SSW02	C	001	0020	1367	0917
SSW03	C	001	0010	1368	0985 1096
SSW04	C	001	0008	1369	0987 1098 1288
SSW05	C	001	0004	1370	1101 1103
SSW06	C	001	0002	1371	1291
SSW07	C	001	0001	1372	0254 0328 0607 1229 1697
SSW08	C	001	0080	1373	
SSW09	C	001	0040	1374	0611
SSW2F	C	001	0001	1381	1624

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
STATUS	A	004	005F	0478	0113* 0114
STEP	A	004	031A	0633	0629
S1	A	004	00C2	0140	0138* 0139 0142* 0143 0146
S2	A	004	00C6	0141	0139*
TBASE	A	001	0403	0765	
TEMP	A	001	0362	0663	0727* 0728 0730* 0731
TEMPA	A	001	1135	1721	1439* 1443*
TEMP1	A	001	0380	0689	0682* 0684* 0685 0687*
TEST	A	004	0212	0522	0610 0618 0631 1C93 1243 1712 1880 2105
TESTE	A	004	0467	0805	0795* 0841* 0874*
TEST1	A	001	046C	0807	0799 0801
TEST11	A	003	04F2	0857	0847
TEST12	A	005	04F1	0861	0871
TEST13	A	003	04F9	0863	
TEST14	A	004	04FF	0865	0862
TEST16	A	005	0518	0872	0866
TEST2	A	003	0472	0812	0838 0842 0853 0856 0864 0876
TEST3	A	003	047E	0817	0813
TEST5A	A	004	049F	0831	
TEST6	A	004	04A3	0833	
TEST6A	A	001	04B0	0837	0835
TEST7	A	003	04B3	0839	0824 1734
TEST7A	A	001	04C1	0843	0840
TEST8	A	003	04D0	0849	0845
TEST9	A	001	04EC	0854	0850
TEXT1	A	004	045F	0803	0794* 0797 0858
TEXT11	A	004	0463	0804	0792*
THLT	A	003	0481	0818	0809* 0810 0812 0814* 0815 0817*
THREE	A	001	02E4	0614	0633
TMSG	A	018	05A1	0964	0605
TOMU	A	003	00F9	0163	
TOMUCH	A	001	0101	0165	0163
TOPE	A	001	040E	0771	0869
TRYCPU	A	004	132B	1828	1825
TRYFDD	A	004	7800	1982	0796
TRYFD6	A	006	10DA	1664	
TRYOUT	A	001	10F1	1669	1665
TRY64	A	004	0EC3	1446	1436
TR1	A	001	0531	1312	0522
TR1442	A	004	13C0	1872	1869
TR2	A	002	0783	1313	0523
TR3	A	001	02CA	1314	0524
TR3741	A	004	13AF	1867	1864
TR4	A	001	067A	1315	0525
TR5	A	002	0785	1316	0526
TR5424	A	004	139E	1862	1860
TR5	A	002	0231	1317	0527
TR7	A	001	0556	1318	0528
TSTCRD	A	001	0489	0821	1734 1846*
TSTDSK	A	001	045E	C802	1845*
TSTFD6	A	004	108E	1631	
TSTINS	A	003	13E0	1884	1841
TSTOVL	A	003	0450	0797	1841* 1982
TSTUET	A	001	133D	1833	1829
TST07	A	001	1037	1588	1563 1567 1571
TWO	A	002	033B	0649	0581 0740 1092 1283
TWOK	A	002	1138	1723	
T3	A	001	047D	0816	
UADDR	A	002	0F6D	1505	1502*
UDTA	A	005	0AE5	0290	0386
UDTB	A	003	0B1F	0407	0404
UDTC	A	003	0B2A	0410	0408
UDTD	A	006	0B45	0416	0413
UDTLP	A	003	0F5D	1500	1546
UDTLP1	A	006	0F81	1511	1525
UDT1	C	001	0249	0480	

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CROSS-REFERENCE

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
UDT2	C	001	0261	0481	
UFIND1	A	004	0912	1206	1214
UFIND2	A	004	0916	1207	1218
UFIND3	A	003	0928	1212	1222
UFIND4	A	003	0935	1216	1208
ULP1	A	004	0AC1	0378	0406
ULP2	A	003	0AD2	0384	0393
ULP3	A	005	0B33	0412	0415
ULP4	A	003	0B08	04C0	0420
UNPACK	A	004	021E	0525	0284 1004 1008 1012 1503 2057 2063 2069 2073
UNPK1	A	003	036E	0681	0700
UNPK2	A	004	036E	0682	0696
UNPK3	A	004	037F	0688	0686
UNPK4	A	003	0393	0697	0694
UOK	A	004	0A2A	0327	0322 0324
UPTR	A	002	0ACE	0381	0378*
USET1	A	003	0B51	0418	0416*
USET2	A	003	0B54	0419	0417*
UTAB	A	001	0232	0534	0321 0323 0375* 0376 0376* 0383 0451 1206 1498 1569 1591 1593 1658 1795 1834 1842
VTAD	C	001	0C04	1675	1666
VTID	A	003	113E	1724	1662* 1664
VT33	C	001	000E	1676	1667
VXR1	A	004	0436	0787	0774*
WASPOP	A	001	0F3D	1484	1477
XC7	A	001	1155	1732	1520
XFRLIN	A	002	17CE	1941	1925* 1926 1928
XFRSNS	A	003	1797	1925	1929
XF1	A	001	0A96	0362	0350
XM	A	004	1022	1573	
XM1	A	013	128A	1759	1577
XONE	A	001	067B	1030	1034
XREF1	A	004	02ED	0617	1339 1713
XREF2	A	001	1318	1821	1338
XREF3	A	001	0E86	1418	1337
XREF4	A	001	040D	0773	1336
XREF5	A	002	040C	0772	1335
XR1	C	001	0001	1351	0021 0022* 0023 0024 0026 0027 0031 0052 0055 0055* 0063 0064 0064* 0106* 0124 0126 0128 0130 0131 0131* 0132 0135* 0140 0140 0141 0141 0145 0145 0147* 0151 0154 0155 0156 0156* 0164 0178* 0179 0218* 0219 0228 0230* 0231 0232 0232* 0233 0239 0241 0241* 0242 0244 0244* 0252 0260 0263 0263* 0264 027C 0271 0271* 0274 0277 0288 0290 0292 0319 0334 0336 0337 0339 0339 0340 0342 0350 0351 0356 0356* 0357 0360* 0363 0371 0373 0377 0377* 0378 0397 0397* 0398 0400 0400* 0401 0403 0405 0405* 0407 0409 041C 0412 0422 0429 0434 0436 0445 0458* 0459 0575* 0578 0579 0582 0586* 0590 0594 0615 0619* 0621 0624 0625 0627 0634* 0635 0637 0654* 0655 0656 0656 0657 0658 0659 0681 0682 0684 0685 0687 0687 0691 0691 0692 0695 0696 0697 0698 0698 0700 0701 0704 0723 0725 0726 0727 0728 0730 0730 0731 0734 0735 0737 0738 0739 0739 0740 0740 0742 0743* 0770 0774 0775* 0776 0777 0777 0779 0780 0780 0781 0781 0782 0782 0783* 0785 0787* 0790 0794 0803* 0827* 0829 0829 0830 0831* 0833 0834 0836 0859* 0860 0861 0865 0867 0870 0870* 0872 0873 0873* 0874 0875 0889 0908* 0910 0916 0918 0921 0921* 0922 0923* 0975 0977* 0980 0982 0989 0993 0995 1000 1002 1002* 1003 1021* 1026 1026* 1027 1033 1037 1045 1048 1050 1063* 1064 1065 1068 1074* 1090* 1091 1126* 1133* 1157* 1158 1163 1164 1164* 1198 1206* 1207 1209 1210 1216 1217 1217* 1240* 1241 1242 1244 1282* 1284 1286 1294 1295 1296 1297 1461* 1464 1468 1468* 1469 1498* 1500 1502 1513 1514 1544 1545 1545* 1569* 1570 1606* 1607 1647* 1651 1653 1655 1662 1666 1667 1791 1792* 1794 1795* 1796 1799 1800 1800* 1802* 1857 1878* 1893 1901 1903 1904 1909 1910 1919 1922 1925 1926 1927 1928 1929 1932 1934 1937 1949 1955 1956 1958 1962 1963 1968 1969 1970 2104 C053 0054* 0058 0059 0061 0062 0065 0065 0066 0104 0105* 0108 0109 0110 0112 0113 0114 0117 0132 0133 0134 0136* 0137 0138

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
					0139 0139 0142 0142 0143 0144 0146 0146 0147 0147 0149 0154 0155 0157 0230 0233 0238 0238 0240 0243 0245 0255 0258 0275 0283 0299 0329 0332 0364 0367 0383* 0384 0384* 0385 0390 0392 0394 0395 0396 0418 0419 0440 0468 0567 0571 0572* 0573 0575 0576 0581 0587* 0593 0596 0597 0599 0607 0610 0611 0613 0613 0617* 0618 0624 0628 0631 0632 0633 0633 0634 0635 0653* 0657 0658 0659 0660 0660* 0682 0697* 0705 0727 0734* 0744* 0791 0792 0793* 0794 0795 0798 0800 0804* 0809 0812 0814 0817 0820 0822 0823 0830 0833 0838 0839 0841 0842 0844 0846 0848 0849 0853 0855 0856 0857 0858 0864 0865 0869 0871 0874 0876 0877 0963 0973 0974* 0980 0981 0984 0989 0990 1003 1018 1022 1027 1034 1034 1035 1036 1039 1049 1055 1055 1064* 1067 1067* 1070 1070* 1071 1071* 1072 1075* 1086 1087* 1088 1090 1091 1092 1116 1117 1118 1119 1120 1121 1123 1124 1125* 1140 1144 1145 1147 1148 1150 1151 1156 1160 1161 1162 1165 1166 1167 1205* 1207 1209 1210 1211 1212 1213 1213* 1219 1238 1239* 1240 1241 1273 1281* 1294 1295 1296 1297 1301 1301 1302 1304 1304 1305 1305 1460* 1464 1465 1465* 1507* 1508 1516 1517 1518 1520 1521 1521* 1529 1535 1714 1883 1884 1892 1895 1896 1897 1898 1899 1905 1907 1908 1912 1918 1921 1923 1924 1935 1936 1939 1948 1951 1952 1953 1954 1959 1960 1961 1971 2103*
YTCHKI	A	003	1300	1796	1801
XZ1	A	004	12C7	1776	1781
X0000	A	002	1163	1740	
X04	A	001	1136	1722	1442
X100	A	002	1152	1731	
X200	A	001	0200	0214	0209
X39	A	001	0389	0693	0687
X87F	A	001	087F	1197	1198
ZCNE	A	001	0719	1089	1145 1165
ZEO	A	006	0112	0205	0206* 0207 0208

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

OBJECT CARD LISTING

OBJECT CARD LISTING

THE CHARACTER INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

THED1D "03=G"8 "03G?@-00A JM A<L4A JL / DKC<4 A"1"0H\* SOD ..... 09MFFF40006
T+-EBOH\* SBAEHA '66C "EY|OH\*BI-E H/ED:-\*MA@-DE EG ;4H\* 4-DH\_ G\*OH\* BI-H ..... -G;.G5 ; 0SHFFF40007
T+-E'-K"K SE'EOC --;|K &G-/ 'P' C 2 &@8 &HH8A ?OH\* BFSG-/2' (-HE3< A RY| OH( -7K &M 4 &D 8K<FFF40008
T+-F8\*/BG SQB DC<BGA 5'E0GK &| -E#OH\* S77E + A.3-D -7EUG /0 (-AD#EG F 9, G '8A ) 8QFFF40009
T+-G3<@BG /8B -@ PJ4B E5E@-D&G&< A'E"2-J<) OG5P"H AB3MH -"0+7| /OF ?+E A"\* & E--/3| 0@| 7Z<FFF40010
T EG5@|D ..... K OFFF40011
T OG" F ADO ..... 6S\*FFF40012
T+-Y: @|L8@-.0F<| H0\*XN D -NO @-D Y|& B<XBABSY'@ H 2@YDF@C\_?@F')OH\* LFC-A -T-DE" /OH EH; 5HQFFF40013
T+-Z5/2' 00C2 OM \* H AG7FE?HAA50 CG19@@ R@@ F /OH WA-SH -<@ HD| D H-4Q C DO--U<@YD HC- PYOFFF40014
T+-DOBX@H-@BGBWU : HD4-DA-H <@YD DOH\*HR\*HABHC2/OG 1-\*D&HD?@C\_?@F' '8H\*?BEA'9 C2 E5 'E < ;, HFFF40015
T+-, @-DH| BF00 X V8EP\*HAAL&ABR? /OHW - ED-E -H ?8-HC>A A@Z H@C\_ ?@F'POH\* S84 D X@YD 4EQFFF40016
T+-XWA#4 < AB\_H < HZ#X| \$0 \_H A P5- |HA 'HA P5 <BA H\_'EOC2 &- K &. /0, A-- @-H EL- E0\*FFF40017
T+- / DH; " C D JPEY(L0 B-72--Y + JE)DN7 /O#3C .M/E\*C .NJE)>- A>- BOH\*.ED4B -? 7@-D QCQFFF40018
T+->\*CCO --Z H IOH\*A;D4DAOY. @-D O|A\*.7L0BB-8@ / 8LEH.B-P2-JE( -X H ?HAD- #S" A?A=B G.30 ;TKFFF40019
T+-?PA&Y+| |@H;|H GJX7E <BAB#T0+6" OS0| /OB. |E B<?H AB? #S"A?P\*BGB#T B EEM ( DAE#BGCYS /OH 2H<FFF40020
THE79IT H,0- C- .7&YFCO HC-+R8 & ?OH\* Q<BGE'PSB>Q HSE ..... E 4FFF40021
T+-H: ..... (J E<LMEAB<5L .H(J F;TM&A8M5D H1(J EN-O? #E ..... M:DFFF40022
T+-15 ..... A 4 -HS0-HEE.& HX# 3,DFFF40023
T+-H0/7: \_EF;T-F ; 9U\* -G" XUU |H &AQ&AX-<#;A @Z EOH\* <HA CB - OH\* GU> |HE-\$D 07- E14FFF40024
T+-., & C2DAF#-<+ 8& C D H9>H OA <BGA).GD-O,"0B 8 &C2D \$0+7J-/CD 8& G2D K? OME;H @/ \*/ FFF40025
T+-<N&#HB -T-/0, B &G'; D @Z (\$- B)P-| ?HEEX| ,7 1#"HAB- #S+BGB,3 '#: @ #'25 ; ' \_EH =OHD NO FFF40026

T+-( / 1D\* -G" XB G "C /OH\$ | " " B (-CQ#BG : 5 -E B0-DC(V8A3.5% " \$ <AFOAZEK5 -. /0 ;38FFF40027
T+\*+\* CEHA . /O< @- <9E AH G,OKX7 :K?HEAE@ KV<@ " F-E< X4E+-HAAIXO B+) PG+QGB V8 " G & LH =RHFFF40028
T+-|P4H-A(-C#3E A "Y4 -|=OH\*D|XB G " 4B &BOH\*C|G- A |HEAM@ " +R- + T\$ " X G70.|HEAE8 . +H K3QFFF40029
T+-EKF " B16 -I 'E|2-&R@ E|E/9J ; EMBPO " A) AU\*H A " CE - " OH\* HA HA HA HA " 4 &E 90-D \$C8FF74C030
T+-J(A (4BCZQ 1@ I: "--P " E8AEV C S8IC-DBBGY " CX AAB" B & " OH\* C? BAF\$B -&\_ EE\_ / -OH\* Q&XFFF40031
T+-KH; C2/02'#&C 2/A+@4 C2E 7B & " 0-H <BG " A ?C1 @@Y\*|?19@YDF?C9 @@Y\*C?F\_@C#X " X A> ( " 730FFF40032
T+-LC .U- |HEH@H A -Y@"E.7POXB ,& AV@HA " AX -HA;@@ B@/ C;OD @H) X?;@ @-DHT E-ANS-/6; '8& 3D FFF40033
T+-L=@YDI? " @-D N>-DU?L A@YHF@C\_ 68H) X8H\*B8H) X?>H " B EH(EDHA10 B-< G& H OC2-E\$0+5- -/6\* E\$@FFF40034
T+-M9X& A |EADY7 " XBA(A(Q> " YC 7M A =BG9/OC /DC4-D D\_ E-( DET=EGR3E AAC? /O&=>D EE|H &B34 ) 64FFF40035
T+-N4 &YCOHD |H GJC7" /C2 &48- H HOA " <BG WY (E& BE&8 B-<CWJ4 B-< @YD@C\_POH+E./O C /D QQ\*FFF40036
T+-O7 3-- /8- G D ND4-DD ( DET@H A " C /0 " 8XPC@X O5MCT1) XH2) PA@@P D@X+C@XO5HCL15XG E1\*6 REHFFF40037
T+-PDEHA 2\*J 9-- X94\_ 5'XO14CU9+ XQ(XRK4CS8)\$S " C&EA03B -O1( D GBC&HA1 5 &#&|D I IO 03\*FFF40038
T+-QV B ?D A;H @Z H?E0A+J EB|H GRCUH -T20(;\* A4 ">")|F P07-& |H &\_E-- |H&D\*PCA1G - " 0 ROUFFF40039
T+-R-OT#BEA&E C 2UGLK 604 Q3 /OH ; - " ASX /OH; -Y AA\*L /OH; 6YCA-- /O\*J8 DXFOSSG<H ABIO P, @FFF40040
T+-ES? -C-HBC&H (@S O+-D&C) HA #E A3XBG 6<AA) " WX1 , E8 G@D'<A"--, ( @E D@-O&C.- FO@# /O\* KQ8FFF40041
T+-\$OD;H OH\*GD; AG " FOOD| " \$C 9X 2-/X\* E&G 20AA#H G- F16D< " " C /O\*J8-B? A4DZ#H H0H\* ) BQFFF40042
T+-JA1G- \*BGA#8 </ T#BE 5 &#&4-H ;D @Z C8-HB;L @Z C8-HC8-HA( H GD<HA " CE - " OH\* " <H PZ IYF40043
T+-< -\*J /O\_EE OX E; Q&A\* <#OH\* BDT\$ A)G2U \*9D H H@Y\*D+&-EB<E#A\_@ 9A H&ZAA+ &BE< EA7Q 7D4FFF40044
T+-;G@Y+ " H / @\*GC0+77-/1|/8D; 18DE19DH19UK#BE7 3 " C/9V"/8B-B-O 1(EDGD<BG " EB-H 60-D JE6FFF40045
T+-BA872/O\$0+5" -/1<> " \$CBC> AX+ @-\$O'8E72 JS' E# --OH' -P+@YHD| H E3TO AX+@ESPB ES \*J- 2D-FFF40046
TGE-- <Q . RE.U C&+BE-G1 (HA K@ " AX<H8 H08B) V ..... " \*FFF40047
T+--@-.3'|P6"IT 9&G\_@Q;-T9+PW9=T ZHF\_#4).15(PC05T RQE\_\*O\*.C1<PF1BT ILU\_ ..... 6A\*FFF40048

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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OBJECT CARD LISTING

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	
T+/-5						*/EFFF40049	T+/G:0*.L1MA.K4	.E (LU8) ( OXN 0'S	R6*PC84A-9*PR2*\$	YQDA EDA EDA EDA	EDA EDA EDA EDA	ED 8LDPFF40071
T E/7						EJ<FFF40050	T+/H5EDA EDA EDA	EDA EDA EDA EDA	1< PE<XSG ( CO*L	E1DA EDA EDA EDA	ELA EDA EDA EDA	-QF RK7FFF40072
T+-U:8 00 AQI;TS	B-.2DC#E -YH0-E	B<W4 C2 JS* H	BW <A \$Y- \$-E ;H	E @BEBJ.2/1) 8L G	K &< EC&FFF40051	T+/10QFA-QFA-QFA	-QFA-QFA-QFA-QFA	-QFA-QFCD9 (LP6+	A52N 1) XR5_V 8>	A824S8@XC8UCP1*\$	O6*M 2SYFFF40073	
T+-V50I IE,V -H	E " # @BGBKT /OH	EJ08E,"@ +EDBECU	H -72U  0+3"E -Y	C_EDDX AOC /D	COH* *-FFF40052	T+/H,E (XU5) PI5*)	1<XS4UCD2*GG5)\$	S8@XC8WCP6)\$G6*G	H6+-X94CN5> ( 1_\$	U5+J 5_N 1<XS4UC	1@?< *3@FFF40074	
T+-W0 /.E/0E	F@C)V*\$PP4G-5@	" :013-C04B E80H*	CY<HBBQ 5 E&PC-D	D -<*-E A@YH6-*@	A@Y6 5\$4FFF40053	T+/.W* P6*"TQ  G	4@2\$C@<GC8@SD*TE	HD><@ / O F H? 0	:B.%E7<BG /Y/CO	K9 +R0 DK1@BG	( - PCHFFF40075	
T+-X,DL-H -T2UC?	2/0*8 -HH@/ 1W I	/ I-CR&BQ W0AW (	0 L7"E- 90 YA@ZQ	, AX H@ E CO B	% GH @RHFFF40054	T+</D1*4 J<L (8D	LE0BAD1*CWJO D0D	0-DE<Y4  H@EX-	E )HA @E&DOCB E	OH* C&HD*@'P S	@YD 13-FFF40076	
TCOX# H0 *OC0 C	/0E=0H*C'0					H/@FFF40055	T+/(#BC7EBHC J	Q16 B < AD370+6"	0\$7\$ /11Q16 E<X&E	AD3  A1 Q H*LJ-0	A 2YA"EOA 3DA"CO	BAEH =S4FFF40077
TDJ" C /0:F	EC & (CYQIF					8JHFFF40056	T+/*PD=H8- H3@/	RC HB=/E\$  DP-0	BAHUJC @C -@A"EH	GA-@E -@A"37E -C	2 E 2/4U4 J POH*	K9J LEQFFF40078
T+-# CA DAD'OH*	LF<BG /YJC J;&H	C (I4A -G2-/4	< AD5 -D@D <6C-	C (/D6C0 J (&R0 D	+X H J: DFFF40057	T+ K@-DC@Y*60H*	K9-C2 EU<+0-HEX	2/2P /1.V@ H@E61	BA@E27HGE<EGD>N	J@-DICD@G6ATL2Y*	C@C% ;/4FFF40079	
T+-##/1E"OHBA-D	G A C (?HGA--B 3Q	B -E-DQ-JF0QJDQ-	JQ @ 3QCW* AC_4	<C1F_DE8< AH2 -E	@/O@ RQ0FFF40058	TC1 S+@HA C /OH	KOH* . E				.8FFF40080	
T+-@G@H@BDR#E JH	ZC- KX/H20B  FZO	CS -H@A0@Y4-D	A-) - @YDDOH* A-H	B@BG /YE+1E_@Y*	H0H* O/MFFF40059	T+/\$B@C_-8H*L?;A	)8HEVX  ( >A "a/	I4-- @"- 4-DS4--	X-JB@20X  ( >D	"4A X4-- CB<H"0U	8H* *.<FFF40081	
T+-'1 /YAE1FIOH*	BF-D3DU" /OH E L<	J8*BG /YA<1I 0-D	B<TOADOL' C2-Q8	4 E' _OH*BG-D S	CO-H "R*FFF40060	T A\$CBE					-\$HFFF40082	
T+-=XBHK@Q < JE	) 9U@ AE;C  T/E	*C  UJE);E A;E	B@/ OT ADN::@ F	'=-G2--O+ DJN;H	B E8 *I4FFF40061	T+/-B@C_-8H*L*ND	=?;A)8HEV*D ( ; E	"4I ; D"4I  @4<	H<H&GNPEB? (B (E	BH#ABE.UH 'E@   (	CB+ 38HFFF40083	
T+-"X JE) DN4+ AE	; 9U'CAE;OHH L4	ADCG2 E2<A&UJ E30	BDOG2/1' /E/@-D	IT QHDPH@ AE/CAU	J=0- LIMFFF40062	TA1-H/6N G@					QK FFF40084	
T+/ SW@BG /YAF/G	#;A A4-DCOI  P*E	G /YJ0H*EF-M/D/3	/1.V* HAI@BGD>C	-@-D-0-DE<X6-  H	AE* 'HE'FFF40063	T+/TE@C_-8H*L?;A	)8HEVXNJ@NAH4N	25E 4NHQXE ( >LB	>E' 4I K--'.@YD	O D H200-B<YH200	>BH' 120FFF40085	
I+/A) /1H"OH*BF-D	@DY, /1H"OH*BF/E	'10H 0 DJH35 T.	2-K88- H30I JH@H	A TI'Y C2 E&@YAC	'0H* ==-0FFF40064	TDATE Z@"47E/1I	@ D7-/6H <				@JQFFF40086	
T+/BQDIM8HAC=@Z	- E E"-HAA-CADBE	JH OAG"HE/TYA -7	/OHDB ("ODH*<D	E DI4@D G'OH*JH3E	HD 0 K3DFFF40065	T 7-COH*DM					424FFF40087	
T+/CL A-E-T0 G=8	@ AC=OH*EH-.B E&S	OH*BH/A'"OC -JC	"-E OHDE"44E /H	#0 DE"37A T.2-E&E	@A1 QSDFFF40066	T+X4:+ EBB-H&EBCX	D -X /75P+ DDEI-	FA*#2UA-2CEP+CC	E3X700HBF7@EGA1G	-@BG-J8  P+-C	--Q RR<FFF40088	
T+/D+6J0BDLXFC&H	J+1H=@-D+G D6/ E	*AAEHCTY-D 88HAC	=OI E,XBG C" C-	-D @2D 8< /HND,#	/OH 4H0FFF40067	T+X557@BGA1G- *B	G-L. /OHED*BG /E	AHG8VCG<H'G;:OH*	BFDD@C76W  A'ZI	--0 G76CEP'Y7	8@YD 82 FFF40089	
T+/EIF-H;DDT /OH	EE" #S"A?F@BGE U	8 EHH@/ C@C'OH*	BDXBG >4 A -		OADFFF40068	T+X60E 0A-ER''TO	E-Q< P78--Q+ G7	#--.2HAC /OHED&1	3B J=X@BG /D/OH*	BG SRC E'>76	WC-D PQ FFF40090	
T+/FD AE DMJK-D	TG@Y*2@Y*3	@ E A8 (100*L	E6)-E2)PT1) XH5X1	E44CXK4A 8> 06+G	G1H "8EFFF40069	T+X7,-\$ _@XBG /8	E H3-0A-) A'>08	A-) A'@XBG /8E	H'XBG /8B-EQH/C3	OEHL /OH EY-8A-ER	'< 4K0FFF40091	
T+/F"6+-X9'I EDC	C5=J 5_-I2) \$N8UC	A6*N 6+) EDA EDA	EDA EDA EDA 9 (P	I84CD1*\$I5*XTI2)\$	N6+< =D4FFF40070	T+X8W/75D D D	0	0@T	A5*-EE+. W2; C2DC	1E<GN1DC2E<\$06HC	N1;R 1+LM54CA1<L	R&D 3H0FFF40092

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+X9/8DA 6<GD1(V	8 C06DC0@UA @ J	8 C68DC0=DA @<E	8 CC&DC01MA 8DA	8DA 8DC0@DA @ I	8  5CUFFF40093	* 04-BYPASS NCN-	ERROR PRINT.	* F 2 X	X - GO TO RCUTI	NE XX.	* FFF40115
T+X:*DA @ R 8 C	8&DC00MA @<  8 C	8&DA 8DA 8DA 8 C	0&DC0@UA @ J 8 C	6&DC0=DA @<E 8 C	C&D 8Y0FFF40094	* 05-PRINT ON AL	TERNATE DEVICE.	*			* FFF40116
TGP::@<M5HG::@6	@0 0-HEFC&A Z#	/CHKOH*B;P:W			@2 FFF40095	* 06-BYPASS ERRO	R HALTS.	* E E X	X - TERMINATE S	ECTION.	* FFF40117
T 0&J0H)					-YHFFF40096	* 07-LOAD AND GO		*			* FFF40118
TB&4I0'-UE (XEO'S	F1				4- FF FFF40097	* 08-NOT USED.		* D X X	X - DISK-RUN SE	CTION XXX.	* FFF40119
TB&4I9<L16 (XEC'S	F1				=QQFF FFF40098	* 09-LEAVE SECT.	SWITCHES ON.	* D X X	0 - DISK-RUN DE	VICE XI SECTIONS	* FFF40120
TE&4ZQ0GC2<GI5MC	X9=) QDCC5= I5_P	A40			"HXFF FFF40099	* 0D-SPEC. PUEPO	SE STORAGE LUMP.	*			* FFF40121
TG&5G2) LA1@N 0@G	R1DC16<XN6<TE94A	-8(\$P8@XC5*GL			@/YFF FFF40100	* 0F-SPACE 36 TI	MES INSTEAD OF 6	*			* FFF40122
TG&5V2) LA1@N 0@G	R1DC26<XN6<TE94A	-8(\$P8@X05*GL			H/%FF FFF40101	*****	*****	*****	*****	*****	* FFF40123
TG&6C2) LA1@N 0@G	R1DC36<XN6<TE94A	-8(\$P8@XC5*GL			*/%FF FFF40102	ECYR*E7*=-DC"EH\$	=*7M&F  ! C	FR ASC H A SO Q		03370630750 21277NRQFFF40124	
TG&6/2) LA1@N 0@G	R1DC46<XN6<TE94A	-8(\$P8@X05*GL			0/YFF FFF40103						
TG-7 2) LA1@N 0@G	R1DC56<XN6<TE94A	-8(\$P8@XC5*GL&			;6FF FFF40104						
TG&7;5<XS04CR1*	06*J 1_\$R& (-A8@	H1:I,6<PT04A			6:YFF FFF40105						
TF07:5<XS04CR1*	C6*J 1_\$R& (-A8@	H1:I,6<PT00			8 HFF FFF40106						
*	DIAGNOSTIC CCN	TROL PROGRAM			* FFF40107						
*****	*****	*****	*****	*****	*****	FF40108					
*	COMMON S	ENSE SWITCHES	*	DATA SWITCH ENTR	Y	* FFF40109					
*						* FFF40110					
* 00-LOOP ON SEC	TION.	* 1 2 3 4				* FFF40111					
* 01-LOOP ON ROU	TINE.	* ** ** ** *	**			* FFF40112					
* 02-SKIP INTERV	ENTION ROUTINES.	* F 0 X	X - TURN OFF SE	NSE SWITCH XX.		* FFF40113					
* 03-BYPASS ERRO	R PRINT.	* F 1 X	X - TURN ON SEN	SE SWITCH XX.		* FFF40114					

LAST PAGE

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

LAST CHG :03:25:77

```

2 *
3 DECK 4
4 SEQ 0
0000 5 STARTX START 0
6 TREP
0A00 7 ORG X'0A00'
0A00 8 EDIT EQU *
0A03 9 RNUM EQU **3
10 *****
11 * SECTION PREFACE *
12 *
0A0C DD63 0A01 13 DC XL2'DD63'
0A02 00 0A02 14 DC XL1'00' SECTION FLAGS
0A03 01 0A03 15 ONE DC XL1'01' ROUTINE NO.
0A04 0000 0A05 16 DC XL2'00' RESERVED
0A06 0B99 0A07 17 DC AL2(EDITA) ADDRESS OF FIRST ROUTINE PREFIX
0A08 0000 0A09 18 DC AL2(*--*) ADDRESS OF ERROR RECORDING TABLE
0A0A C14000 0A0C 19 DC XL3'C14000'
0A0D E00000 0A0F 20 X5203 DC XL3'E00000'
0A10 E11000 0A12 21 X1403 DC XL3'E11000'
22 *
23 *****
24
0A13 0A14 25 STATE DS XL2
0A15 26 SAVIDB EQU *
0A15 27 PRTEBF EQU SAVIDB
0A15 0A74 28 SAVID DS XL96
29
0A80 30 ORG X'0A80'
0A80 31 READIN EQU *
0B04 32 ORG READIN+132
33
0B04 404040404040 0B09 34 BLNK DC CL6'
0B09 35 DGS2B EQU *-1
0B0A 0B5F 36 DGSNS2 DS XL86
0B60 0B60 37 DGSNSB EQU *
0B77 38 DGSNS1 DS XL24
39 *
40 * SUBROUTINE TO SET DISK DATA FIELD TO X'00'
41 *
0B78 34 08 0B89 42 SETTO ST SETTOR+3,ARR SAVE RETURN ADDRESS
0B7C 3C 00 48FF 43 MVI DDDF+255,0 ZERO OUT DDDF FIELD
0B80 0C FE 48FE 48FF 44 MVC DDDF+254(255),DDDF+255
0B86 C0 87 0000 45 SETTOR B ** RETURN TO CALLER
46
0B8A 34 08 0B98 47 SETO ST SETOR+3,ARR STORE RETURN ADDRESS
0B8E 7C 00 FF 48 MVI 255(,XR1),0 ZERO OUT DDDF
0B91 5C FE FE FF 49 MVC 254(255,XR1),255(,XR1)
0B95 C0 87 0000 50 SETOR B ** RETURN TO CALLER
51
51
51
51
51 * ROUTINE PREFACE
52 *
0B99 01 0B99 54 EDITA DC XL1'01' ROUTINE NUMBER
0B9A 00 0B9A 55 DC XL1'00' ROUTINE FLAGS
0B9B FFFF 0B9C 56 MINUS1 DC XL2'FFFF' ADDRESS OF NEXT ROUTINE
57 *****
58 *
59 * OPERATING INSTRUCTIONS
60 *
61 *
62 * AT THE FIRST HALT, SET THE FOLLOWING SWITCHES,
63 *
64 * 1. SET NO SWITCHES TO RUN ON DRIVE 1.
65 * 2. SET SWITCH 22 TO RUN ON DRIVE 2.

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```

66 * 3. SET SWITCH 17 TO USE 3741 AS INPUT. *
67 * 4. SET SWITCH 18 TO USE THE 1442 AS INPUT. *
68 * 5. SET SWITCH 1A TO USE THE MFCU AS INPUT. *
69 * 6. 5471 IS THE INPUT DEVICE IF SSW 17, 18, OR 1A IS NOT ON *
70 *
71 *****
72
72
72
73 *****
74 *
75 * S E L E C T DISK DRIVE, AND INPUT DEVICE *
76 *
77 * ETC. *
78 *****
0B9D 79 SETDSK EQU *
80 TBN UTAB+1,X'80' IF NOT RUNNING FROM DISK, SET
81 JT **11 SVPREQ LATCH (ALLOWS USAGE OF 12
82 LIO XREG,X'C5' MBYTE DATA MODULE)
83 LIO SVPREQ,X'C5'
84 TBN SWITCH+3,SSW2F IF SSW 2F IS ON, WE HAVE BEEN
85 JT EDITAA CALLED BY 'FE7' (MLTA
86 * CONFIGURATOR PROGRAM.)
87 B PRINT PRINT 'SELECT SSW OPTIONS'
88 DC XL1'42' FLAGS
89 DC AL1(STRTMS-STRTHB) LENGTH
90 DC AL2(STRTMS) MESSAGE ADDRESS
91 DC XL2'FFFF'
92 B PRINT PRINT 'SELECT INPUT DEVICE'
93 DC XL1'06' FLAGS
94 DC AL1(STRTA-STRTAB) LENGTH
95 DC AL2(STRTA) MESSAGE ADDRESS
96 B HALT TO DCP HALT
97 DC XL2'FFFF' HALT ID
98
98
99 EDITAA B TEST GO READ CONSOLE SWITCHES
100 B SELDRV TO SEL DISK DRIVE RTN
101 SBF ADDFLG,X'FF' TURN OFF ADD MODE SWITCH
102 SBF F3741,X'FF' TURN OFF 3741 FLAGS
103 LA DDDF,XR1
104 TBN SWITCH+1,SSW1B SSW1B IS ON, GO TO $ADD
105 BT GET2
106
106
107 TBN SWITCH+3,SSW2F IF SSW 2F IS ON, GET RECORD FROM FE7
108 JF AA07 OTHERWISE, GO ON AS USUAL
109 MVI NODS+1,X'07' DON'T DO ANY PRINTING ON 5471
110
111 AA07 B PRINT1 GO DISPLAY MESSAGE
112 DC XL1'01'
113 DC AL1(MENU1-MENU1A)
114 DC AL2(MENU1) MSG. SELECT OPTION (CONTROL CARD)
115 B PRINT1 PRINT
116 DC XL1'01' FLAG
117 DC AL1(MENU11-MENU1B) MESSAGE LENGTH
118 DC AL2(MENU11) MESSAGE ADDRESS
119 B PRINT1 PRINT
120 DC XL1'01' FLAG
121 DC AL1(MENU12-MENU1C) MESSAGE LENGTH
122 DC AL2(MENU12) MESSAGE ADDRESS
123 B PRINT1 PRINT
124 DC XL1'01' FLAG
125 DC AL1(MENU13-MENU1D) MESSAGE LENGTH
126 DC AL2(MENU13) MESSAGE ADDRESS
127 B PRINT1 PRINT
128 DC XL1'01' FLAG
129 DC AL1(MENU14-MENU1E) MESSAGE LENGTH

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DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0C18	328C	0C19	130	DC AL2(MENU14) MESSAGE ADDRESS
0C1A	C0 87 2A42		131	B PRINT1 PRINT
0C1E	01	0C1E	132	DC XL1'01' FLAG
0C1F	28	0C1F	133	DC AL1(MENU15-MENU1F) MESSAGE LENGTH
0C20	32B4	0C21	134	DC AL2(MENU15) MESSAGE ADDRESS
0C22	C0 87 2A42		135	B PRINT1 PRINT
0C26	01	0C26	136	DC XL1'01' FLAG
0C27	28	0C27	137	DC AL1(MENU16-MENU1G) MESSAGE LENGTH
0C28	32DC	0C29	138	DC AL2(MENU16) MESSAGE ADDRESS
0C2A	C0 87 2A42		139	B PRINT1 PRINT
0C2E	01	0C2E	140	DC XL1'01' FLAG
0C2F	28	0C2F	141	DC AL1(MENU 7-MENU1E) MESSAGE LENGTH
0C30	3304	0C31	142	DC AL2(MENU17) MESSAGE ADDRESS
0C32	C0 87 2A42		143	B PRINT1 PRINT
0C36	02	0C36	144	DC XL1'02' FLAG
0C37	28	0C37	145	DC AL1(MENU18-MENU1I) MESSAGE LENGTH
0C38	332C	0C39	146	DC AL2(MENU18) MESSAGE ADDRESS
0C3A	C0 87 2A42		147	B PRINT1 PRINT MSG
0C3E	06	0C3E	148	DC XL1'06' FLAG
0C3F	14	0C3F	149	DC AL1(KBRDY-KBRDYB) LENGTH
0C40	303C	0C41	150	DC AL2(KBRDY) ADDRESS
0C42	C0 87 2749		151	GET1 B RECORD READ A RECORD
0C46	AD 5F 5F 60		152	CLC 95(96, XR2), 96(, XR2); CHECK FOR BLANK RECORD
0C4A	C0 81 0C42		153	BE GET1 IF BLANK THEN READ NEXT CARD

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
155				*****
156	*			*
157	*	CHECK FOR		\$ /* /& OR C *
158	*			*
159	*			*
160	*			*
161				*****
162				
163	RTRN	CLI	0(, XR2), C'S'	DOES COLUMN 1 CONTAIN A \$?
164		JE	ADDTST	BRANCH IF YES
165		CLI	0(, XR2), C'/'	DOES COLUMN 1 CONTAIN A SLASH?
166		JNE	FLAGS	JUMP IF NO
167		CLI	1(, XR2), C'&'	DOES COLUMN 2 CONTAIN A & ?
168		BE	LINKH	IF YES EXIT PROGRAM
169		CLI	1(, XR2), C'*'	DOES COLUMN 2 CONTAIN A * ?
170		JE	PAUSE	TO PROGRAM HALT IF YES
0C67	171	FLAGS	EQU *	
172		B	PRINT1	GO DISPLAY MESSAGE
0C6B	173	DC	XL1'06'	FLAG
0C6C	174	DC	AL1(MCTL-MCTLB)	LENGTH
0C6E	175	DC	AL2(MCTL)	MSG. INVALID CONTROL CARD
0C6D	360A	HVI	PADD, C'0'	RESET 3741 FORCED ADD FLAG
0C6F	3C F0 2AB6	TBN	USECRT, X'F0'	IS CRT IN USE, DON'T PRINT/HALT
0C73	38 F0 27F5		GET1	GO GET CONTROL CARD AGAIN
0C77	C0 10 0C42	BT	PRINT	NO, PRINT ERROR.
0C7B	C0 87 021A	B	PRINT	NO, PRINT ERROR.
0C7F	46	0C7F	180	DC XL1'46'
0C80	14	0C80	181	DC IL1'20'
0C81	3188	0C82	182	DC AL2(ERRO)
0C83	PFEO	0C84	183	DC XL2'PFEO'
0C85	C0 87 0222	B	HALT	TO DCP ERROR HALT
0C89	PFEO	0C8A	185	DC XL2'PFEO'
0C8B	C0 87 0BF2	B	AA07	HALT ID
0C8F	188	LINKH	EQU *	
0C8F	C0 87 2A42	B	PRINT1	GO DISPLAY MESSAGE
0C93	06	0C93	190	DC XL1'06'
0C94	12	0C94	191	DC AL1(TERM-TERMB)
0C95	3059	0C96	192	DC AL2(TERM)
0C97	C0 87 0216	B	LINK	MSG. OPERATION TERMINATED
0C9B	C0 67 0222		193	LINK
0C9F	PFEO		194	LINK
OCA1	C0 87 0BCB		195	PAUSE B HALT
		OCA0	196	DC XL2'PFE1'
			197	B EDITAA
			198	B
		OCA5	199	ADDTST EQU *
0CL5	BD C1 01	200	CLI	1(, XR2), C'A'
OCA8	F2 81 68	201	JE	SETADD
OCA9	BD D9 01	202	CLI	1(, XR2), C'R'
OCAE	F2 01 07	203	JNE	TPI
OCB1	BD 40 04	204	CLI	4(, XR2), C' '
OCB4	C0 01 1614	205	BNE	REPPGH
OCB8	8D 01 02 2B16	206	TFI	CLC 2(2, XR2), FIGCON
OCBD	C0 81 1D97	207	BE	CFGPGH
OCC1	8D 01 02 2C09	208	CLC	2(2, XR2), DEL
OCC6	F2 01 07	209	JNE	TL
OCC9	BD 40 04	210	CLI	4(, XR2), C' '
OCCC	C0 01 160B	211	BNE	DELPGH
OCDO	BD D3 01	212	TL	CLI 1(, XR2), C'L'
OCDD	C0 81 1B4F	213	BE	LSTPGH
OCDE	8D 01 02 2B18	214	CLC	2(2, XR2), CMPCON
OCDC	C0 81 1C69	215	BE	CHPPGH
OCE0	8D 01 02 2C0B	216	CLC	2(2, XR2), DU
OCE5	F2 01 07	217	JNE	DE
OCE8	BD 40 04	218	CLI	4(, XR2), C' '
OCEB	C0 81 1877	219	BE	DSKDUP
OCEP	C0 87 2A42	220	DE	B PRINT1
OCF3	06	OCF3	221	DC XL1'06'
OCF4	27	OCF4	222	DC AL1(MCTL-MCTLB)

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DD63 3340 CE DISK EDITOR MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OCF5	360A	OCF6	223	DC	AL2(MCTL) HSG. INVALID CONTROL CARD
OCF7	38 F0 27F5		224	TBN	USECRT,X'F0' IS 5471 IN USE,DON'T PRINT/HALT
OCFB	C0 10 OC42		225	BT	GET1 GO GET CONTROL CARD AGAIN
OCFF	C0 87 021A		226	B	PRINT NONE OF THE ABOVE, GO PRINT ERROR.
OD03	C6	OD03	227	DC	XL1'C6' FLAGS
OD04	15	OD04	228	DC	IL1'21' LENGTH
OD05	3191	OD06	229	DC	AL2(ERR2) ADDRESS OF LAST PRINT CHARACTER.
OD07	FPE2	OD08	230	DC	XL2'PFE2' MESSAGE IDENTIFICATION
OD09	C0 87 0222		231	B	HALT TO DCP ERROR HALT
OD0D	FPE2	OD0E	232	DC	XL2'PFE2' HALT ID
OD0F	C0 87 0BF2		233	B	AA07
			234		
			235		*****
			236		*****
			237	**	
			238	**	\$ADD
			239	**	
			240	**	ADD PROGRAM DECK OR DECKS TO CE DATA MODULE
			241	**	
			242		*****
			243		*****
			244		
			244		
			244		
OD13	C0 87 2A42		245	SETADD B	PRINT1 GO DISPLAY MESSAGE
OD17	06	OD17	246	DC	XL1'C6'
OD18	26	OD18	247	DC	AL1(HADD-HADDB)
OD19	3630	OD1A	248	DC	AL2(HADD) HSG. ADD ILLEGAL IF ON 5471
OD1B	38 F0 27F5		249	TBN	USECRT,X'F0' IF USING 5471,RETURN TO START
OD1F	C0 10 OC42		250	BT	GET1
			251		
			251		
			252		*****
			253	*	*
			254	*	CHECK FOR HEADER CARD AND TYPE OF DECK
			255	*	*****
			256		
			256		
			256		
OD23	C0 87 2749		257	GET2 B	RECORD READ 1ST RECORD
OD27	AD 5F 5F 60		258	CLC	95(96,XR2),96(,XR2) CHECK FOR BLANK CARD
OD2B	C0 81 0D23		259	BE	GET2 READ ANOTHER CARD IF BLANK
			260		
		OD2F	261	RTRN2 EQU *	
OD2F	3A 0F 2AC0		262	SBN	ADDPLG,X'0F' TURN ON ADD MODE SWITCH
OD33	0F 06 2AB3 2AB3		263	SLC	DCPPG(7),DCPPG ZER OUT DCPFG,DFLAG,NWRTFG,NWRT,PFLAG
OD39	0C 06 3103 3152		264	MVC	ADMSG+6(7),ADDED PREPARE PRINT FIELD TO PRINT
OD3F	2C 14 3123 1F		265	MVC	ADMSG+38(21),31(,XR2) PROGRAM ADDED AT END OF ROUTINE
OD44	2C 1F 314B 3F		266	MVC	ADMSG+78(32),63(,XR2)
			267		
OD49	38 0F 2ABD		268	TBN	CPUPG,X'0F' IF CPU MODULE JUST READ, THEN CHECK
OD4D	C0 10 121D		269	BT	CPUPG IF THIS IS CPU MODULE
			270		
OD51	04 30 2B1E 2AE7		271	ZAZ	SEQCTR(4),D0(?) INITIALIZE SEQUENCE COUNTER
			272		
OD57	8D 01 0C 2AF9		273	CLC	12(2,XR2),PN IS IT A HEADER CARD?
OD5C	C0 01 1454		274	BNE	TSTDPCP TO ERROR RTN
OD60	3C F0 2AB6		275	MVI	FADD,C'0' RESET 3741 FORCED ADD FLAG
OD64	8D 03 5F 2AE7		276	CLC	95(4,XR2),D0 IS HEADER CARD SEQ #=0?
OD69	C0 01 1541		277	BNE	INVSEQ PRINT ERROR IF NOT
OD6D	BD D4 00		278	CLI	0(,XR2),C'M' IS IT A TAP DECK?
OD70	F2 01 07		279	JNE	**+10 SKIP IF NOT
OD73	3C F0 2AB2		280	MVI	DFLAG,X'F0' SET FLAG FOR TAP DECK
OD77	F2 87 30		281	J	CONTE6 DON'T CHECK FOR SYSTEM TEST
OD7A	8D 05 50 0B09		282	CLC	80(6,XR2),BLNK/ ARE COL'S 75-81 BLANK/
OD7F	F2 81 28		283	JE	CONTE6 IF SO SKIP OUT OF ROUTINE
OD82	BD 40 4A		284	CLI	74(,XR2),C' ' IS COLUMN 75 BLANK?
OD85	C0 01 150D		285	BNE	INVSCD BRANCH TO INVALID SYS TEST HDR

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OD89	0C 00 0D97 2B8B		286	MVC	CLI2+2(1),X74 INITIALIZE COMPARE INSTRUCTION
			287		
OD8F	0E 00 0D97 0A03		288	LOOP7 ALC	CLI2+2(1),ONE INCREMENT POINTER
OD95	BD 40 00		289	CLI2 CLI	*-(,XR2),C' ' IS FIELD BLANK
OD98	C0 81 150D		290	BE	INVSCD TO INVALID SYS TST HDR
OD9C	0D 00 0D97 27EE		291	CLC	CLI2+2(1),X80 IS COUNTER =80
ODA2	C0 01 0D8F		292	BNE	LOOP7
ODA6	3C 0F 2AB0		293	MVI	SCDFG,X'0F' SET SYSTEM TEST MODJLE FLAG
			294		
		ODAA	295	CONTE6 EQU *	
ODAA	2C 5F 0A74 5F		296	MVC	SAVID(96),95(,XR2) SAVE INFO FOR VTOC
ODAF	2C 03 2ADD 5B		297	MVC	SAVEID(4),91(,XR2) SAVE ID FOR LATER COMPARE
ODB4	8D 02 5A 2B29		298	CLC	90(3,XR2),PFA IS IT LOADER?
ODB9	C0 81 116B		299	BE	ADDFPA TO LOADER SEEK RTN
ODBD	8D 02 5A 2B2C		300	CLC	90(3,XR2),PFB IS IT LOADER?
ODC2	F2 01 0D		301	JNE	CONTE1 TO LOADER SEEK RTN
ODC5	3C FF 2AAE		302	MVI	NWRTFG,X'FP' DON'T WRITE IN VTOC
ODC9	0C 04 2BBE 2B38		303	MVC	DDCFM(5),C3H172 SET CONTROL FIELD
ODCF	F2 87 35		304	J	CONTE2
ODD2	8D 03 03 2B33		305	CONTE1 CLC	3(4,XR2),DTAHDR IS IT DATA DECK?
ODD7	F2 01 13		306	JNE	CKH
ODDA	2C 03 2AED 56		307	MVC	LSTDGD(4),86(,XR2) SAVE # OF LAST DATA CARD
ODDF	3C 0F 2AB2		308	MVI	DFLAG,X'0F'
ODE3	BD D7 52		309	CLI	82(,XR2),C'P' IS IT PROG DATA DECK?
ODE6	F2 01 04		310	JNE	CKH NO, DON'T SET FLAG
ODE9	3C 0F 2AAD		311	MVI	PFLAG,X'0F' SET PROG DATA DECK FLAG
			312		
ODED	C0 87 121D		313	CKH B	CPUPG CHECK IF CPU MODULE
		ODF1	314	DCECT1 EQU *	
ODF1	C0 87 2201		315	B	RDFAS READ FAS SECTOR
			316		
ODF5	0C 01 2AC3 2272		317	MVC	VTOC*(2),FASINF STORE # OF RECORDS IN VTOC
ODFB	0C 04 2BB8 226F		318	MVC	NAS(5),FASINB+8 STORE NEXT AVAIL SECTOR
0Z01	0C 04 2BBE 2BB8		319	MVC	DDCFM(5),NAS SET DDCF FOR SEEK
			320		
			320		
			321		*****
			322	*	THIS SECTION READS 48 CARDS AT A TIME, CHECKS THEM, AND
			323	*	BRANCHES TO A WRITE ROUTINE.
			324	*	
			325		*****
			326		
			326		
		OE07	327	CONTE2 EQU *	
OE07	3C 00 2BAD		328	MVI	VTH-5,0 ZERO SYSTEM TEST FLAG
OE0B	0C 01 2BAB 2B5A		329	MVC	SCTR(2),ZERO ZERO SECTOR LENGTH FIELD
OE11	C6 30 2B1E 2AE6		330	AZ	SEQCTR(4),D1(1) INITIALIZE SEQ CTR
OE17	3C 01 2B20		331	MVI	RCTR,1 INITIALIZE RECORD COUNTER
			332		
OE1B	6C 5F DF 5F		333	MVC	223(96,XR1),95(,XR2)
OE1F	6C 5F 5F 5F		334	MVC	95(96,XR1),95(,XR2) MOVE 2ND DDDF FIELD IN
OE23	36 01 2B8A		335	A	X256,XR1 INCREMENT POINTER TO NEXT FIELD
OE27	F2 87 08		336	J	LOOP1
			337		
OE2A	C2 01 4800		338	LOCP2 LA	DDDF,XR1 INITIALIZE XR1
OE2E	3C 00 2B20		339	MVI	RCTR,0 INITIALIZE RECORD COUNTER TO -1
			340		
OE32	C0 87 2749		341	LOOP1 B	RECORD READ A CARD RECORD
			342		
OE36	AD 5F 5F 60		343	CLC	95(96,XR2),96(,XR2) IS IT A BLANK CARD?
OE3A	C0 81 0E32		344	BE	LOOP1 IF SO, FLUSH IT
			345		
OE3E	3D 00 2AB2		346	CLI	DFLAG,0 IS IT DATA DECK OR TAP DECK?
OE42	F2 01 6E		347	JNE	CONTA7 IF IT IS, DONT CHECK TEXT CARD
			348		
OE45	BD E2 00		349	CLI	0(,XR2),C'S' IS IT AN 'S' CARD?
OE48	F2 01 0A		350	JNE	**+13 IF NOT, SKIP THIS SECTION
OE4B	06 30 2B1E 2AE6		351	AZ	SEQCTR(4),D1(1) INCREMENT SEQ # COUNTER



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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OE51	CO 87 OE32	352	B	LOOP1	READ ANOTHER CARD
OE55	BD D9 00	353			IS IT A REP CARD?
OE58	F2 01 15	354	CLI	0(,XR2),C'R'	IF SO, CONVERT IT TO A TEXT RCRD
OE5B	BD 40 01	355	JNE	CONTE2	IF COLUMN 2 OR 7 ARE NOT BLANK
OE5E	CO 01 1153	356	CLI	1(,XR2),C' '	THE CARD IS IN ERROR
OE62	BD 40 06	357	BNE	REPERR	
OE65	CO 01 1153	358	CLI	6(,XR2),C' '	
OE69	CO 87 202E	359	BNE	REPERR	
OE6D	F2 87 A9	360	B	CONVRT	CONVRT TEXT CARD
		361	J	LOOP4	
OE70	BD 5C 00	362			IS IT A COMMENT CARD?
OE73	CO 81 12F1	363	CONTE2	CLI 0(,XR2),C''	GO HANDLE IT
OE77	BD 03 03 2B0D	364	BE	ASTRK	IS IT A SSW CARD?
OE7C	F2 01 0B	365	CLC	3(4,XR2),SSWID	JUMP IF NOT
OE7F	38 FF 2AB3	366	JNE	NOTSSW	IF IT IS DCP THEN GO ADD IT IN ITS
OE83	CO 10 1319	367	TBN	DCPFG,X'FF'	SPECIAL RECORD.
OE87	F2 87 8F	368	BT	DCPCD1	OTHERWISE ADD IT NORMALLY
OE8A	BD 03 03 2B11	369	J	LOOP4	IS IT A UDT CARD?
OE8F	CO 81 13F5	370	NOTSSW	CLC 3(4,XR2),UDTID	GO HANDLE IT
OE93	BD 03 03 2B01	371	BE	DCPCD3	IS IT A CPU CARD?
OE98	CO 81 141D	372	CLC	3(4,XR2),CPUIDZ	GO HANDLE IT
OE9C	BD 07 07 2B09	373	BE	DCPCD4	IS IT A // CHAIN CARD
OEA1	CO 81 1383	374	CLC	7(8,XR2),CHNID	GO HANDLE IT
		375	BE	DCPCD2	
OEAS	BD C5 00	376	CLI	0(,XR2),C'E'	IS IT AN END CARD?
OEAB	CO 81 OF33	377	BE	LWRITE	GO TO LAST WRITE ROUTINE
OEAC	BD E3 00	378	CLI	0(,XR2),C'T'	IS IT A TEXT CARD?
OEAF	CO 01 1521	379	BNE	INVCD	SINCE THAT IS THE ONLY THING LEFT, IF IT ISN'T A TEXT CARD IT IS INVALID
OEBS	3D F0 2AB2	380	CONTA7	CLI DFLAG,X'FO'	IS IT A TAP DECK?
OE7	F2 01 09	381	JNE	**+12	SKIP IF NOT
OEBA	BD 01 01 2AFB	382	CLC	1(2,XR2),HE	IS AT A TAP END CARD?
OEBF	CO 81 OF33	383	BE	LWRITE	WRITE FOR THE LAST TIME
OECS	3D OF 2AB2	384	CLI	DFLAG,X'OF'	IS IT A DATA DECK
OE7	F2 01 1D	385	JNE	SEQCHK	THEN SKIP THE SEQ # CHECK
OECA	2D 03 2AED 5F	386	CLC	LSTDCD(4),95(,XR2)	IS IT THE LAST CARD IN THE DATA DCK?
OECP	CO 01 OEE7	387	BNE	SEQCHK	GO TO LAST WRITE ROUTINE
OE7	3D OF 2AAD	388	CLI	PFLAG,X'OF'	IS IT PROG. DATA DECK?
OE7	CO 01 OF33	389	BNE	LWRITE	NO, GO TO LAST WRITE ROUTINE
OE7	3D 02 2ABF	390	CLI	CD1OR2,2	IS IT UNCOMPRESSED DECK?
OE7	CO 01 OF33	391	BNE	LWRITE	NO, GO TO LAST WRITE ROUTINE
OE7	3A F0 2AAD	392	SBN	PFLAG,X'FO'	SET ON LAST PROG DATA CARD FLAG
OE7	8D 03 5F 2B1E	393	SEQCHK	CLC 95(4,XR2),SEQCTR	COMPARE SEQ #'S
OE7	CO 01 1541	394	BNE	INVSEQ	IF NOT =, GO PRINT ERROR
OE7	8D 03 5B 2ADD	395	CLC	91(4,XR2),SAVEID	IS ID SAME AS ON HEADER CARD?
OE7	CO 01 1572	396	BNE	INVID	IF NOT =, GO PRINT ERROR
OE7	06 30 2B1E 2AEE	397	AZ	SEQCTR(4),D1(1)	INCREMENT SEQUENCE COUNTER
OE7	3D 00 2AB2	398	CLI	DFLAG,0	IF NOT A DATA OR TAP DECK THEN
OE7	F2 81 07	399	JE	NOTDAT	COMPRESS IT
OE7	38 OF 2AAD	400	TBN	PFLAG,X'OF'	IF NOT A PROG DATA DECK THEN
OE7	F2 90 0C	401	JF	LOOP4	SKIP COMPRESS
OE7	CO 87 1F59	402	B	CMPRS1	COMPRESS TEXT CARD
OE7	3D FF 2AAD	403	NOTDAT	CLI PFLAG,X'FF'	PROG DATA DECK LAST CARD?
OE7	CO 81 OF33	404	BE	LWRITE	YES, GO TO END CARD ROUTINE
OE7	6C 5F 5F 5F	405	LOOP4	MVC 95(96,XR1),95(,XR2)	MOVE CARD RECORD INTO DISK WRITE RCD
OE7	3D 2F 2B20	406	CLI	RCTR,47	IS RCTR = MAXREC
OE7	CO 81 OF44	407	BE	WRITE	IF SO,GO WRITE 48 RECORDS
OE7	0E 00 2B20 OA03	408	ALC	RCTR(1),ONE	INCREMENT COUNTER
OE7	36 01 2B8A	409	A	X256,XR1	INCREMENT POINTER
OE7	CO 87 OE32	410	B	LOOP1	READ ANOTHER RECORD
		411			
		412			
		413			
		414			
		415			
		416			
		417			
		418			
		419			

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		420			***** THIS SECTION WRITES DECKS ON THE DISK. *
		421	*		*****
		422			*****
		423			*****
		424	LWRITE	MVI LWRT,X'FF'	SET LAST RECORD FLAG
		425	SBP	F3741,X'01'	RESET 3741 ADD FLAG
		426	MVC	95(96,XR1),95(,XR2)	WRITE END CARD IMAGE ON PACK
		427	MVC	MSGBGN+LENGTH-ENDROU(XR1),LENGTH-1	LENGTH-ENDROU(XR1),LENGTH-1
		428			
		429	*		THE ABOVE INSTRUCTION ADDS THE END CARD ROUTINE
		430	*		INTO THE LAST HALF OF THE END CARD.
		431			
		432	WRITE	MVC DDCF(1),RCTR	SET # OF RECORDS TO WRITE
		433	B	WINRW	WRITE N RECORDS
		434	DC	IL1'40'	WRITE FLAG
		435	DC	AL2(DDDF)	@ OF DDDF
		436	DC	AL2(DDCFB)	@ OF DDCF
		437			
		438	ALC	SCTR(2),RCTR	INCREMENT SECTOR COUNTER
		439	ALC	SCTR(2),ONE	ADJUST TO CORRECT VALUE
		440			
		441	B	STPFLD	STEP DDCF TO NEXT SECTOR
		442	DC	AL2(DDCFM)	@ OF RIGHT MOST BYTE
		443			
		444	CLI	LWRT,X'FF'	IS LAST WRITE FLAG SET?
		445	BNE	LOOP2	READ ANOTHER RECORD IF NOT
		446			
		447			
		448	*		***** SCAN VTOC AND OVERWRITE OLD PROGRAMS *****
		449			*****
		450			
		451	CLI	NWRTPG,X'FF'	IS NO WRITE FLAG SET?
		452	BE	PASWR	THEN WRITE IT IN PAS AREA
		453			
		454	RTRN1	MVC VTIMB+14(5),NAS	MOVE IN DISK LOCATION
		455	MVC	NAS(5),DDCFM	UPDATE NEXT AVAIL SECTOR
		456			
		457	B	SETTO	SET DDDF FIELD TO 0
		458			
		459	CLC	VTOC#(2),ZERO	IS THIS FIRST ENTRY?
		460	BE	NWRT	GO TO NEW RTN WRITE
		461			
		462	MVC	PRGID2(3),SAVEID-1	MOVE IN PROGRAM ID
		463	B	SCNVTC	SCAN VTOC
		464	FLAG2	DC IL1'0'	FLAG
		465	PRGID2	DC CL3'XXX'	PROGRAM TO SCAN FOR
		466			
		467	CLI	FLAG2,0	IF THERE IS NOT A SCAN HIT, GO TO
		468	JE	NWRT	NWRT
		469	MVI	DDCF,0	SET TO 1 RECORD
		470	MVC	DDDF+6(3),OLD	OVERWRITE WITH 'OLD'
		471	B	WINRW	WRITE ON DISK
		472	DC	IL1'40'	WRITE FLAG
		473	DC	AL2(DDDF)	@ OF DDDF
		474	DC	AL2(DDCFB)	@ OF DDCF
		475			
		476	NWRT	B SCNVTC	SCAN VTOC TO END
		477	FLAG3	DC IL1'0'	FLAG
		478	DC	CL3'***'	ADDRESS OF NO PROGRAMS (SCAN TO
		479	*		THE END)

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	OPFB	3D 00	0FB8	480	CLI FLAG3,0
	OPFB	3D 00	0FB8	481	BE SCNERR
	OPFB	3D 00	0FB8	482	
	OPFB	3D 00	0FB8	483	MVC VTINB+6(3),IDLOC
	OPFB	3D 00	0FB8	484	MVC VTINB+8(1),IDLOC+1
	OPFB	3D 00	0FB8	485	CLI SCDFG,0
	OPFB	3D 00	0FB8	486	JE CONTC5
	OPFB	3D 00	0FB8	487	
	OPFB	3D 00	0FB8	488	B PACK
	OPFB	3D 00	0FB8	489	DC IL1'2'
	OPFB	3D 00	0FB8	490	DC AL2(IDLOC-1)
	OPFB	3D 00	0FB8	491	DC AL2(VTIM-5)
	OPFB	3D 00	0FB8	492	
	OPFB	3D 00	0FB8	493	CONTC5 MVC DDDF+28(29),VTIM
	OPFB	3D 00	0FB8	494	MVC DDDF+223(96),SAVID
	OPFB	3D 00	0FB8	495	
	OPFB	3D 00	0FB8	496	WRTVTC MVI DDCF,1
	OPFB	3D 00	0FB8	497	MVI DDDF1+255,0
	OPFB	3D 00	0FB8	498	MVC DDDF1+254(255),DDDF1+255
	OPFB	3D 00	0FB8	499	
	OPFB	3D 00	0FB8	500	B WINRW
	OPFB	3D 00	0FB8	501	DC XL1'40'
	OPFB	3D 00	0FB8	502	DC AL2(DDDF)
	OPFB	3D 00	0FB8	503	DC AL2(DDCFB)
	OPFB	3D 00	0FB8	504	
	OPFB	3D 00	0FB8	505	ALC VTOC#(2),ONE
	OPFB	3D 00	0FB8	506	MVC PASINF(2),VTOC#
	OPFB	3D 00	0FB8	507	MVC PASINF-3(5),NAS
	OPFB	3D 00	0FB8	508	B WRFAS
	OPFB	3D 00	0FB8	509	B CONTC9
	OPFB	3D 00	0FB8	510	
	OPFB	3D 00	0FB8	511	*****
	OPFB	3D 00	0FB8	512	* RECORD SPECIAL MODULES IN VTOC FORMAT IN FAS *
	OPFB	3D 00	0FB8	513	*****
	OPFB	3D 00	0FB8	514	
	OPFB	3D 00	0FB8	515	FASWR CLI DCPFG,X'FF'
	OPFB	3D 00	0FB8	516	JE QDCP
	OPFB	3D 00	0FB8	517	TBN CPUFG,X'0P'
	OPFB	3D 00	0FB8	518	JT QCPU
	OPFB	3D 00	0FB8	519	CLC IDLOC(3),PFA
	OPFB	3D 00	0FB8	520	JE QPFA
	OPFB	3D 00	0FB8	521	CLC IDLOC(3),FPB
	OPFB	3D 00	0FB8	522	JE QFPB
	OPFB	3D 00	0FB8	523	B RTRN1
	OPFB	3D 00	0FB8	524	
	OPFB	3D 00	0FB8	525	QFPB MVC VTINB+14(5),C3H12
	OPFB	3D 00	0FB8	526	MVC DDCFM(5),C3H163
	OPFB	3D 00	0FB8	527	J CONTC3
	OPFB	3D 00	0FB8	528	
	OPFB	3D 00	0FB8	529	QDCP TBN CPUDFG,X'FF'
	OPFB	3D 00	0FB8	530	BF DCPERR
	OPFB	3D 00	0FB8	531	
	OPFB	3D 00	0FB8	532	MVC PNAS-1(4),C3H15
	OPFB	3D 00	0FB8	533	MVI PNAS,5
	OPFB	3D 00	0FB8	534	MVC NAS-1(4),C3H15
	OPFB	3D 00	0FB8	535	MVI NAS,1
	OPFB	3D 00	0FB8	536	MVC SECT#(2),X4
	OPFB	3D 00	0FB8	537	
	OPFB	3D 00	0FB8	538	B RWRTN
	OPFB	3D 00	0FB8	539	
	OPFB	3D 00	0FB8	540	MVC PNAS(5),PASINB+8
	OPFB	3D 00	0FB8	541	MVC NAS(5),C3H0
	OPFB	3D 00	0FB8	542	MVC SECT#(2),SCTR
	OPFB	3D 00	0FB8	543	
	OPFB	3D 00	0FB8	544	B RWRTN
	OPFB	3D 00	0FB8	545	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
				546	MVC VTINB+14(5),C3H0
				547	MVC DDCFM(5),C3H164
				548	J CONTC3
				549	
				550	QCPU EQU *
				551	LA DDDF,XR1
				552	MVC DDCFM(5),C3H165
				553	MVI DDCF,0
				554	
				555	B WINRW
				556	DC XL1'80'
				557	DC AL2(DDDF)
				558	DC AL2(DDCFB)
				559	
				560	TBF FSTCPU,X'0P'
				561	JT CONTD9
				562	
				563	B SETO
				564	MVC 21(2,XR1),ONE
				565	MVC 3(4,XR1),ACTO
				566	MVC 6(3,XR1),CPUIDZ-1
				567	MVC 8(1,XR1),SAVEID
				568	MVC 14(5,XR1),COH048
				569	MVC 159(21,XR1),ADMSG+38
				570	MVC 191(32,XR1),ADMSG+78
				571	J WCPUVT
				572	
				573	CONTD9 ALC 21(2,XR1),ONE
				574	
				575	WCPUVT MVI DDCF,0
				576	J WRT3
				577	QFPA MVC VTINB+14(5),PFALOC
				578	MVC DDCFM(5),C3H162
				579	
				580	CONTC3 MVI DDCF,0
				581	MVC VTINB+6(3),SAVEID-1
				582	MVC VTINB+8(1),SAVEID
				583	
				584	B SETO
				585	MVC DDDF+28(29),VTIM
				586	MVC DDDF+223(96),SAVID
				587	
				588	WRT3 B WINRW
				589	DC XL1'40'
				590	DC AL2(DDDF)
				591	DC AL2(DDCFB)
				592	B CONTC9
				593	
				594	*****
				595	* ADD THE FIRST PROGRAM TO A VIRGIN PACK *
				596	*****
				597	
				598	NWRT MVC VTINB+6(3),IDLOC
				599	MVC VTINB+8(1),IDLOC+1
				600	MVC VTINB+14(5),C4HOR1
				601	MVC DDCFM(5),C2HOR1
				602	MVC DDDF+28(29),VTIM
				603	MVC DDDF+223(96),SAVID
				604	B WRTVTC
				605	
				606	*****

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
        607 *          REP CARD ERROR HANDLING ROUTINE *
        608 *****
        609
        610
1153 C0 87 021A      610 REPERR B   PRINT          PRINT 'ERROR IN REP CARD'
1157 C2              611          DC          XL1'C2'          FLAG
1158 22              612          DC          AL1(ERR5-ERR5B)  LENGTH
1159 2ECD            115A 613          DC          AL2(ERR5)      ADDRESS OF MESSAGE
115B PFE5            115C 614          DC          XL2'PFE5'      ID
        615
115D C0 87 2A8A      616          B          PRINT2         PRINT CARD IMAGE
        617
1161 C0 87 0222      618          B          HALT           TO DCP HALT
1165 PFE5            1166 619          DC          XL2'PFE5'      ID
        620
1167 C0 87 0E32      621          B          LOOP1
        622
        622
        622
        622
        622
        622
        622
        622
        622
        622
        622
        623 *****
        624 *          ADD CPU-MEMORY OR PFA CARD DECKS *
        625 *****
        626
116B 3A P0 2ABD      116B 627 ADDPFA EQU *
        628          SBN          CPUFG,X'P0'          SET FLAG FOR PFA MODE
        629
116F 60 2ABD        116F 630 ADDCPU EQU *
        631
        632          LA          DDDF,XR1          LOAD XR1
116F C2 01 480G      633          ZAZ          SEQCTR(4),D1(1)  INITIALIZE SEQUENCE COUNTER
1173 04 30 2B1E 2AEE 634          HVC          TEMP3(2),ZERO  ZERO OUT POINTER
1179 0C 01 2277 2B5A 635
        636 GZT5 B          RECORD         READ A RECORD
117F C0 87 2749      637
        638          CLI          0(,XR2),C'E'        IS IT AN END CARD?
1183 BD C5 00        639          JE          END2
1186 F2 81 4B        640          CLI          0(,XR2),C'T'        IS IT A TEXT CARD?
1189 BD E3 00        641          BNE          INVCD          GO TO INVALID CARD RTN
118C C0 01 1521      642
        643          CLC          95(4,XR2),SEQCTR  DOES SEQUENCE # MATCH THE EXPECTED
1190 8D 03 5F 2B1E 644          BNE          INVSEQ          SEQUENCE #?
1195 C0 01 1541      645          CLC          91(4,XR2),SAVEID  DOES ID MATCH EXPECTED ID?
1199 8D 03 5B 2ADD 646          BNE          INVID
119E C0 01 1572      647
        648          AZ          SEQCTR(4),D1(1)  INCREMENT SEQUENCE COUNTER
11A2 06 30 2B1E 2AEE 649          B          CHPRS1          COMPRESS DATA
11A8 C0 87 1F59      650
        651          MVI          READIN,0          ZERO OUT HIGH ORDER BYTE
11AC 3C 00 0A80      652
        653          ALC          TEMP3(2),READIN+1  INCREMENT POINTER
11B0 0E 01 2277 0A81 654          ALC          TEMP3(2),ONE          ADJUST IT
11B6 0E 01 2277 0A03 655          CLC          TEMP3(2),X256          IS POINTER TOO HIGH
11BC 0D 01 2277 2B8A 656          JH          STP2           IF IT IS PRINT ERROR
11C2 F2 84 44        657
        658          MVC          65(66,XR1),69(,XR2)  STRIP OFF LENGTH AND ADDRESS AND
11C5 6C 41 41 45      659 *          ADD TO CONTENTS OF SECTOR
        660          A          READIN+1,XR1      INCREMENT FIELD POINTER
11C9 36 01 0A81      661          LA          1(,XR1),XR1          ADJUST IT
11CD D2 01 01        662
        663          B          GET5           IF NOT READ MORE
11D0 C0 87 117F      664
        664

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
11D4 38 0F 2ABD      665 END2      EQU          *
11D8 F2 10 11        666          TBM          CPUFG,X'OP'          IS IT A CPU-MEM MODULE?
        667          JT          CONTG4          THEN PUT IN CPU DDCP
        668
11DB 0C 04 2BBE 2B74 669          HVC          DDCPH(5),PFALOC  LOAD DDCP
11E1 3C 00 2BC2      670          MVI          DDCF,0
11E5 3B P0 2ABD      671          SBF          CPUFG,X'P0'          TURN OFF PFA MODE IF IT IS ON
11E9 F2 87 0A        672          J          WRT2
        673
11EC 0C 04 2BBE 2B79 674 CONTG4 HVC  DDCPH(5),CHIDL  MOVE IN DDCP FIELD TO WRITE DATA
11F2 3C 00 2BC2      675          MVI          DDCF,0          IN NEXT CPU LOCATION
        676
11F6 C0 87 239C      677 WRT2 B          WINRW          WRITE RECORD ON DISK
11FA 40              11FA 678          DC          XL1'40'          FLAG
11FB 4800            11FC 679          DC          AL2(DDDF)        @ OF DDDF
11FD 2BB9            11FE 680          DC          AL2(DDCFB)       @ OF DDCP
        681
11FF C0 87 219B      682          B          STPFLD          INCREMENT CONTROL FIELD
1203 2B79            1204 683          DC          AL2(CHIDL)
        684
1205 C0 87 1020      685          B          FASWR          ENTER VTOC LIKE RECORD
        686
        686
        686
        686
1209 C0 87 021A      687 STP2 B          PRINT          PRINT 'TOO MANY CARDS'
120D C6              120D 688          DC          XL1'C6'          FLAG
120E 2F              120E 689          DC          AL1(ERR8-ERR8B)  LENGTH
120F 2D99            1210 690          DC          AL2(ERR8)      ADDRESS
1211 PFE8            1212 691          DC          XL2'PFE8'      ID
        692
1213 C0 87 0222      693          B          HALT           TO DCP HALT RTN
1217 PFE8            1218 694          DC          XL2'PFE8'          FLAG
        695
1219 C0 87 0C8F      696          B          LINKH
        697
        697
        697
        697
        698 *****
        699 *          CPU & MEMORY SECTION *
        700 *          THIS SECTION PREPARES THE MODULE TO BE ADDED *
        701 *          TO THE PACK. *
        702 *****
        703
121D 34 08 12A9      121D 704 CPUPG EQU *
        705          ST          CPUPGR+3,ARR  SAVE RETURN ADDRESS IN CASE NOT
        706 *          CPU-MEM MODULE
        707          CLI          88(,XR2),C'0'  IF HIGH ORDER BYTE OF MODULE NOT
        708          JNE          END3          ZERO THEN NOT CPU MODULE
        709
1221 BD P0 58        710          MVI          FADD,C'0'        RESET 3741 FORCED ADD FLAG
1224 F2 01 7B        711          TBM          FSTCPU,X'OP'        IS THIS THE SECOND MODULE?
        712          SBF          FSTCPU,X'OP'        TURN OFF FLAG
1227 3C P0 2AB6      713          JF          CONTG1          IF NOT SECOND MODULE, THEN JUMP
122B 38 0F 2AEE      714
        715          MVC          CHIDL(5),C1HOR1  SET TO WRITE REST OF MODULES
122F 3B 0F 2ABE      716
        717 CONTG1 CLC  12(2,XR2),PN  IS IT A HEADER CARD?
1233 F2 90 06        718          JE          CONTG2          IF NOT DON'T RESET SEQ # COUNTER
        719
1236 0C 04 2B79 2B83 720          MVC          TEMP3(2),ZERO  ZERO OUT BYTE COUNTER
123C 8D 01 0C 2AP9 721          AZ          SEQCTR(4),D1(1)  INCREMENT CARD SEQ # CTR
1241 F2 81 14        722          LA          DDDF,XR1        RESET POINTER
        723          B          GET5+4          ENTER CARD READ MODE, SKIPPING READ-
        724 *          ING THE FIRST CARD.
1258 C0 87 0226      725 CONTG2 B          PACK

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DD63 3340 CE DISK EDITOR MOD 12

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
125C	02	125C	726	DC	IL1'2'
125D	0ADA	125E	727	DC	AL2 (READIN+90)
125F	2BE8	1260	728	DC	AL2 (CHID)
1261	3D D0 2BE8	729			
1265	F2 82 3A	730	CLI	CMID, X'D0'	SEE IF LOW ORDER BYTES ARE IN THE
1268	3D F5 2BE8	731	JL	END3	RANGE X'D0'-X'F5'. IF SO, IT IS A
126C	F2 84 33	732	CLI	CMID, X'F5'	CPU-MEMORY MODULE.
126F	3A 0F 2ABD	733	JH	END3	
1273	04 30 2B1E 2AE7	734			
1279	8D 03 5F 2B1E	735	SBN	CPUPFG, X'0F'	SET CPU FLAG
127E	C0 01 1541	736			
1282	2C 5F 0A74 5F	737	ZAZ	SEQCTR (4), DO (1)	RESET SEQUENCE # COUNTER
1287	2C 03 2ADD 5B	738	CLC	95 (4, XR2), SEQCTR	IS SEQUENCE # CTR =0?
128C	8D 01 5A 2AE9	739	BNE	INVSEQ	IF NOT GO TO ERROR HANDLING RTN
1291	F2 01 0A	740	MVC	SAVID (96), 95 (, XR2)	SAVE HEADER CARD IMAGE
1294	3A 0F 2ABE	741	MVC	SAVEID (4), 91 (, XR2)	SAVE ID
1298	0C 04 2B79 2B7E	742			
129E	C0 87 116F	743	CLC	90 (2, XR2), DD0	IS THIS THE FIRST CPU MODULE?
12A2	3B 0F 2ABD	744	JNE	CONTG3	JUMP IF NOT
12A6	C0 87 0000	745	SBN	FSTCPU, X'0F'	SET FIRST MODULE FLAG
		746	MVC	CHIDL (5), COH048	SET DDCP TO WRITE FIRST MODULE
		747			IN CYL 0, HD 0, REC 48
		748			
		749	CONTG3 B	ADDCPU	TO ADD CPU PROGRAM TO PACK
		750			
		751	END3 SBF	CPUPFG, X'0F'	RESET CPU FLAG
		752	CPUPGR B	**	RETURN TO CALLER
		753			
		753			
		753			
		753			
		753			
		753			
		754			
		755			
		756			
		757			
		758			
		758			
12AA	0D 01 3110 2AP9	759	CONTC9 CLC	ADMSG+19 (2), PN	IS MESSAGE TO BE PRINTED VALID?
12B0	F2 01 18	760	JNE	GET3-4	IF NOT, THEN DON'T PRINT IT
12B3	0C 02 3107 2ADC	761			
12B9	3C 60 3108	762	MVC	ADMSG+10 (3), SAVEID-1	MOVE ID INTO PRINT FIELD
12BD	0C 00 3109 2ADD	763	MVI	ADMSG+11, C'-'	INSERT -
12C3	C0 87 021A	764	MVC	ADMSG+12 (1), SAVEID	MOVE LEVEL # INTO PRINT FIELD
12C7	02	765	B	PRINT	PRINT 'ADDED-- XXX ETC.'
12C8	4F	12C7 766	DC	XL1'02'	FLAG
12C9	314B	12C8 767	DC	AL1 (ADMSGE-ADMSG)	LENGTH
		12CA 768	DC	AL2 (ADMSGE-1)	ADDRESS
		769			
12CB	C2 01 4800	770	LA	DDDF, XR1	
12CF	C0 87 2749	771	GET3 B	RECORD	READ A RECORD
12D3	AD 5F 5F 60	772	CLC	95 (96, XR2), 96 (, XR2)	IS IT A BLANK RECORD?
12D7	C0 81 12CF	773	BE	GET3	THEN FLUSH IT
12DB	3E 0F 2AC0	774			
12DF	BD 61 00	775	SBP	ADDPLG, X'0F'	TURN OFF ADD SWITCH
12E2	C0 81 0C4E	776	CLI	0 (, XR2), C'/'	IF IT IS A '/' OR A '\$' THEN GO TO
12E6	BD 5B 00	777	BE	RTRN	SECTION THAT HANDLES CONTROL CARDS
12E9	C0 81 0C4E	778	CLI	0 (, XR2), C'\$'	
12ED	C0 87 0D2F	779	BE	RTRN	
		780	B	RTRN2	IF NOT, ASSUME IT IS A HEADER CARD
		781			AND GO HANDLE IT
		782			
		782			
		782			
		782			

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		783			*****
		784	*		THIS SECTION HANDLES COMMENT AND DCP CARDS
		785	*		*
		786			*****
		787			
		788			
12F1	ASTRK EQU *	789			
12F1	8D 03 5F 0B09	789	CLC	95 (4, XR2), BLNK	IS THERE A SEQUENCE #?
12F6	F2 81 18	790	JE	CONTA9	IF NOT SKIP CHECK
12F9	8D 03 5B 2ADD	791	CLC	91 (4, XR2), SAVEID	IS ID SAME AS HEADER CARD
12FE	C0 01 4572	792	BNE	INVID	GO HANDLE IT
1302	8D 03 5F 2B1E	793	CLC	95 (4, XR2), SEQCTR	ARE SEQ #'S EQUAL?
1307	C0 01 1541	794	BNE	INVSEQ	IF NOT PRINT ERROR
130B	06 30 2B1E 2AE8	795	AZ	SEQCTR (4), D1 (1)	INCREMENT SEQCTR
		796			
1311	6C 5F 5F 5F	797	CONTA9 MVC	95 (96, XR1), 95 (, XR2)	LOAD DDDF
1315	C0 87 0F19	798	B	LOOP4	
		799			
1319	3C 08 2BD2	800	DCPCD1 MVI	DDCFSM, 8	SET TO OPERATE ON RECORD 8
131D	38 F0 2AB3	801	TBN	DCPFG, X'F0'	IF ADDING SSW TO DCP THEN DESTROY
1321	F2 10 08	802	JT	PRWR	OLD ONE.
1324	8D 01 05 0B09	803	CLC	5 (2, XR2), BLNK	IF FIELD IS BLANK THEN DESTROY
1329	F2 01 07	804	JNE	NBLNK	EXISTING ONE
132C	6C 5F 5F 5F	805	PRWR MVC	95 (96, XR1), 95 (, XR2)	MOVE IN NEW RECORD AND GO WRITE IT
1330	F2 87 F6	806	J	WRT1	
		807			
1333	34 01 1347	808	NBLNK ST	THADR, XR1	STORE XR1
1337	0C 03 2BD1 2B65	809	MVC	DDCFSM-1 (4), C3H15	READ IN EXISTING SSW RECORD
133D	3C 00 2BD6	810	MVI	DDCFS, 0	
1341	C0 87 239C	811	B	WINRW	
1345	80	1345 812	DC	XL1'80'	READ FLAG
1346	0000	1347 813	THADR DC	AL2 (***)	
1348	2BCD	1349 814	DC	AL2 (DDCFSB)	
		815			
134A	4D 02 02 2B0D	816	CLC	2 (3, XR1), SSWID	
134F	C0 01 132C	817	BNE	PRWR	LY THEN WRITE NEW ONE
1353	C2 02 0A82	818	LA	READIN+2, XR2	INITIALIZE REGISTERS
1357	D2 01 02	819	LA	2 (, XR1), XR1	
135A	D2 01 01	820	LA	1 (, XR1), XR1	SCAN TO END OF RECORD
135D	7D 40 01	821	CLI	1 (, XR1), C' '	IF NOT BLANK, DO AGAIN
1360	C0 01 135A	822	BNE	*-6	
1364	7C 6B 01	823	LOOP9 MVI	1 (, XR1), C' '	ADD COMMA
1367	D2 01 03	824	LA	3 (, XR1), XR1	INCREMENT POINTERS
136A	E2 02 03	825	LA	3 (, XR2), XR2	
136D	6C 01 00 00	826	MVC	0 (2, XR1), 0 (, XR2)	MOVE IN NEW SSW
1371	BD 6B 01	827	CLI	1 (, XR2), C' '	IF NEXT CHARACTER IS A COMMA,
1374	C0 81 1364	828	BE	LOOP9	THEN DON'T QUIT
		829			
1378	35 01 1347	830	L	THADR, XR1	RESTORE REGISTERS
137C	C2 02 0A80	831	LA	READIN, XR2	
1380	F2 87 A6	832	J	WRT1	GO WRITE RECORD
		833			
1383	3C 07 2BD2	834	DCPCD2 MVI	DDCFSM, 7	WRITE INFO IN RECORD 7
1387	7C 40 FF	835	MVI	255 (, XR1), C' '	BLANK OUT
138A	5C FE FE FF	836	MVC	254 (255, XR1), 255 (, XR1)	ENTIRE DDDF
138E	BD E2 09	837	CLI	9 (, XR2), C'S'	DO COL'S 10-12='STD'?
1391	F2 81 95	838	JE	WRT1	GO WRITE IT
		839			
1394	6C 0B 0B 0B	840	MVC	11 (12, XR1), 11 (, XR2)	MOVE IN CARD IMAGE OF // CHAIN
1398	34 01 143D	841	ST	THADR, XR1	SAVE XR1 IN ORDER TO RESTORE IT
139C	3C 02 2BFD	842	MVI	ICTR, 2	PREPARE TO READ IN 2 CARDS
		843			
13A0	4D 02 0B 2AP1	844	CLC	11 (3, XR1), D48	IS IT A 48 IMAGE CHAIN?
13A5	F2 81 0D	845	JE	GET7	IF IT IS, JUMP
13A9	4D 02 0B 2AP4	846	CLC	11 (3, XR1), D120	IF NOT =120 THEN ERROR
13AD	C0 01 15AD	847	BNE	CHNERR	
		848			
13B1	3C 05 2BFD	849	MVI	ICTR, 5	PREPARE TO READ IN 5 CARDS

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
13B5	C0 87 2A42	850	GET7	B	PRINT1
13B9	06	13B9 851		DC	XL1'06'
13BA	26	13BA 852		DC	AL1(MENU4-MENU4B)
13BB	3448	13BC 853		DC	AL2(MENU4)
13BD	C0 87 2749	854		B	READ A RECORD
		855			
13C1	3C 30 2BFE	856		MVI	LCTR,48
13C5	BD 40 00	857	LOOP30	CLI	0(,XR2),C'
13C8	C0 81 15AD	856		BE	CHNER
13CC	E2 02 01	859		LA	1(,XR2),XR2
13CP	0F 00 2BFE 0A03	860		SLC	LCTR(1),ONE
13D5	C0 01 13C5	861		BNZ	LOOP30
13D9	C2 02 0A80	862		LA	READIN,XR2
		863			
13DD	6C 2F 3B 2F	864		MVC	59(48,XR1),47(,XR2)
13E1	D2 01 30	865		LA	48(,XR1),XR1
13E4	0F 00 2BFD 0A03	866		SLC	ICTR(1),ONE
13EA	C0 01 13B5	867		BNZ	GET7
		868			
13EE	35 01 143D	869		L	TEMADR,XR1
13F2	F2 87 34	870		J	WRT1
		871			
13F5	BD 40 03	872	DCPCD3	CLI	3(,XR2),C'
13F8	F2 81 0B	873		JE	DCPCN4
13FB	38 F0 2AAF	874		TBN	CPUDFG,X'F0'
13FF	C0 10 1E1D	875		BT	UDTIP
1403	F2 87 3A	876		J	DCPCN2
		877			
1406	8D 01 05 2B1A	878	DCPCN4	CLC	5(2,XR?),WINID
140B	F2 01 32	879		JNE	DCPCN2
140E	6C 5F 5F 5F	880		MVC	95(96,XR1),95(,XR2)
1412	3C 06 2BD2	881		MVI	DDCFM,6
1416	3A F0 2AAF	882		SBN	CPUDFG,X'F0'
141A	F2 87 0C	883		J	WRT1
		884			
141D	6C 5F 5F 5F	885	DCPCD4	MVC	95(96,XR1),95(,XR2)
1421	3C 05 2BD2	886		MVI	DDCFM,5
1425	3A 0F 2AAF	887		SBN	CPUDFG,X'0F'
		888			
1429	0C 03 2BD1 2B65	889	WRT1	MVC	DDCFM-1(4),C3H15
142F	3C 00 2BD6	890		MVI	DDCFM,0
		891			
1433	34 01 143D	892		ST	TEMADR,XR1
		893			
1437	C0 87 239C	894		B	WINRW
143B	40	143B 895		DC	XL1'40'
143C	0000	143D 896	TEMADR	DC	AL2(*-*)
143E	2BCD	143F 897		DC	AL2(DDCFM)
		898			
1440	38 0F 2AC1	899	DCPCN2	TBN	CFIGFG,X'0F'
1444	C0 10 1F00	900		BT	CFRTR
1448	38 F0 2AB3	901		TBN	DCPFG,X'F0'
144C	C0 90 1707	902		BF	RTRN3A
1450	C0 87 0E32	903		B	LOOP1
		904	*		
		905			
		905			
		905			
		905			
		906	*****		
		907	*		THIS SECTION TESTS TO SEE IF THIS IS
		908	*		A DCP DECK, AND IF IT IS, IT PREPARES
		909	*		IT TO BE ADDED.
		910	*		
		911	*****		
		912			
		912			
1454	8D 02 3E 2B2F	913	TSTDCP	CLC	62(3,XR2),DCPID
					IS IT A DCP MODULE?

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1459	F2 81 12	914		JE	HDRDCP
		915			
145C	38 01 020A	916		TBN	SWITCH,SSW17
1460	F2 90 96	917		JF	INVHDR
1463	3D F0 2AB6	918		CLI	FADD,C'0'
1467	C0 01 0C67	919		BNE	FLAGS
146B	F2 81 8B	920		JE	INVHDR
146E	3C F0 2AB6	921	HDRDCP	MVI	FADD,C'0'
1472	2C 02 2ADC 3E	922		MVC	SAVEID-1(3),62(,XR2)
1477	2C 00 2ADD 3B	923		MVC	SAVEID(1),59(,XR2)
147C	3C FF 2AB3	924		MVI	DCPFG,X'FF'
1480	2C 14 0A34 34	925		MVC	SAVIDE+31(21),52(,XR2)
1485	0C 1F 0A54 3172	926		MVC	SAVIDE+63(32),DCPP
148B	2C 14 3123 34	927		MVC	ADMSG+38(21),52(,XR2)
1490	0C 1F 314B 3172	928		MVC	ADMSG+78(32),DCPP
		929			
1496	3C 04 2BFD	930		MVI	ICTR,4
149A	C0 87 0B8A	931	LOOP19	B	SET0
149E	36 01 2B8A	932		A	X256,XR1
14A2	0F 00 2BFD 0A03	933		SLC	ICTR(1),ONE
14A8	C0 01 149A	934		BNZ	LOOP19
		935			
14AC	0C 03 2BBD 2B65	936		MVC	DDCFM-1(4),C3H15
14B2	3C 05 2BBE	937		MVI	DDCFM,5
14B6	3C 03 2BC2	938		MVI	DDCF,3
		939			
14BA	C0 87 239C	940		B	WINRW
14BE	40	14BE 941		DC	XL1'40'
14BF	4800	14C0 942		DC	AL2(DDDF)
14C1	2BB9	14C2 943		DC	AL2(DDCFM)
		944			
14C3	3C 05 2BFD	945		MVI	ICTR,5
14C7	C2 01 4800	946		LA	DDDF,XR1
14CB	C0 87 2749	947	LOOP3	B	RECORD
14CF	0F 00 2BFD 0A03	948		SLC	ICTR(1),ONE
14D5	C0 01 14CB	949		BNZ	LOOP3
14D9	3C FF 2AB3	950		MVI	DCPFG,X'FF'
14DD	C0 87 2749	951	GET4	B	RECORD
14E1	C0 87 1F59	952		B	CMPS1
14E5	BD 02 02	953		CLI	2(,XR2),2
14E8	C0 01 14DD	954		BNE	GET4
14EC	24 03 2B1E 5F	955		ZAZ	SEQCTR(4),95(4,XR2)
		956			
14F1	3C FF 2AAE	957		MVI	NWRTFG,X'FF'
14F5	C0 87 0DF1	958		B	DCPCT1
		959			
		959			
		959			
		959			
		960	*****		
		961	*		THIS SECTION HANDLES ERRORS IN CARDS
		962	*****		
		963			
		963			
14F9	C0 87 021A	964	INVHDR	B	PRINT
14FD	C6	14FD 965		DC	XL1'C6'
14FE	32	14FE 966		DC	AL1(ERR3-ERR3B)
14FF	2D6A	1500 967		DC	AL2(ERR3)
1501	FFE3	1502 968		DC	XL2'FFE3'
1503	C0 87 0222	969		B	HALT
1507	FFE3	1508 970		DC	XL2'FFE3'
1509	C0 87 0BCB	971		B	EDITAA
		972			
150D	C0 87 021A	973	INVSCD	B	PRINT
1511	C6	1511 974		DC	XL1'C6'
1512	1F	1512 975		DC	AL1(ERR4-ERR4B)
1513	2F69	1514 976		DC	AL2(ERR4)
1515	FFE4	1516 977		DC	XL2'FFE4'



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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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1094 *****
1095 *****
1096 ** $REP
1097 **
1098 ** THIS PART OF THE PROGRAM ADDS REP, SSW, AND COMMENT RECORDS
1099 ** TO ANY PROGRAM ALREADY ON THE 3340 CE DATA MODULE.
1100 **
1101 *****
1102 *****
1103
1103
1103
1103
1103
1614 1104 REPPGM EQU *
1105 MVI LWRT,0 ZERO LAST WRITE FLAG
1106 SBN ADDPLG,X'0P' SET FLAG TO RECORD CARD IMAGE IN
1107 * DISK FIELD
1108 LA DDDF,XR1 LOAD XR1
1109 MVC REPWHO(7),6(,XR2) AND SAVE AREA
1110 MVC REPWH1(7),6(,XR2) MOVE IN REP PROGRAM ID
1111 MVC PRGID(3),6(,XR2) MOVE PROGRAM ID INTO DISPLAY AREA
1112 TBN DELFG,X'0P' IN $DEL MODE?
1113 BT RPCNT7 IF SO, THEN SKIP
1114
1115 CLC 6(3,XR2),DCPID IS ID 'FFF'?
1116 JNE RPCNT1 IF NOT SKIP NEXT SECTION
1117
1118 MVC DDCPH(5),C3H164 SET CONTROL FIELD FOR DCP VTOC
1119 MVI DDCF,0 FOR 1 RECORD
1120 B WINRW READ DCP VTOC
1121 DC XL1'80' READ FLAG
1122 DC AL2(DDDF)
1123 DC AL2(DDCFB)
1124
1125 CLC 6(3,XR1),DCPID IS DCP ON THIS DATA MODULE?
1126 BNE PGNTF IF NOT PRINT SO.
1127 MVI DCPFG,X'0P' SET DCP FLAG
1128 J RPCNT2
1129
1130 RPCNT1 B SCNVTC SCAN VTOC FOR PROGRAM TO REP
1131 FLAG DC IL1'0' BYTE TO TELL RESULTS OF SCAN
1132 PRGID DC CL3'PID' PROGRAM ID
1133
1134 CLI FLAG,0 IF SCAN HIT, DON'T TAKE BRANCH
1135 BE PGNTF
1136
1137 RPCNT2 MVC SAVTD(96),223(,XR1) SAVE HEADER CARD IMAGE
1138 MVC VTIM(29),28(,XR1)
1139 MVC SECT#(2),VTIMB+21 STOR # OF SECTORS
1140 CLI DCFPG,X'0P' IS DCP FLAG SET?
1141 JNE RPCNT3 SKIP NEXT SECTION IF IT IS NOT
1142
1143 MVC TEMP1(2),SECT# SET NUMBER OF REC'DS TO SKIP
1144 SLC TEMP1(2),ONE ADJUST IT
1145 MVC DDCPTH(5),C3H0 PUT CONTROL FIELD TO DCP ADDRESS
1146 MVI DDCPT,0
1147
1148 LOOP6 B STPFLD INCREMENT CONTROL FIELD
1149 DC AL2(DDCPTH) CONTROL FIELD ADDRESS
1150 SLC TEMP1(2),ONE DECREMENT COUNTER
1151 BNZ LOOP6 IF NOT ZERO DO IT AGAIN
1152 J RPCNT4
1153
1153
1153
1154 *****
1155 * MOVE PROGRAM TO END OF PACK AND STRIP OFF END CARD *
1156 *****

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```

1157
1157
1158 RPCNT3 MVC PNAS(5),14(,XR1) SET UP TWO DDCF FIELDS TO TRANSFER
1159 MVC NAS(5),FASINB+8
1160 SLC SECT#(2),ONE
1161
1162 B RWRTN MOVE PROGRAM TO END OF PACK
1163
1163
1163
1164 *****
1165 * HANDLE REP ENTRIES *
1166 *****
1167
1167
1168 RPCNT4 MVI WRT#,0 SET NN FIELD TO 0
1169 LA DDDF,XR1 LOAD XR1
1170
1171 RTRN3 EQU *
1172 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1173 DC XL1'01' FLAG
1174 DC AL1(MENU51-MENU5B) LENGTH
1175 DC AL2(MENU51) MESSAGE ADDRESS
1176 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1177 DC XL1'01' FLAG
1178 DC AL1(MENU53-MENU5D) LENGTH
1179 DC AL2(MENU53) MESSAGE ADDRESS
1180 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1181 DC XL1'01' FLAG
1182 DC AL1(MENU54-MENU5E) LENGTH
1183 DC AL2(MENU54) MESSAGE ADDRESS
1184 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1185 DC XL1'01' FLAG
1186 DC AL1(MENU55-MENU5F) LENGTH
1187 DC AL2(MENU55) MESSAGE ADDRESS
1188 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1189 DC XL1'01' FLAG
1190 DC AL1(MENU56-MENU5G) LENGTH
1191 DC AL2(MENU56) MESSAGE ADDRESS
1192 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1193 DC XL1'01' FLAG
1194 DC AL1(MENU57-MENU5H) LENGTH
1195 DC AL2(MENU57) MESSAGE ADDRESS
1196 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1197 DC XL1'06' FLAG
1198 DC AL1(MENU58-MENU5I) LENGTH
1199 DC AL2(MENU58) MESSAGE ADDRESS
1200
1201 RTRN3A B RECORD READ A RECORD
1202
1203 CLI 0(,XR2),C'X' HAS AN X BEEN ENTERED?
1204 BE EDITAA IF SO, DON'T REP PROGRAM
1205
1206 CLI 0(,XR2),C'E' IS IT AN END RECORD?
1207 JE ENDRP
1208 CLI 0(,XR2),C'!' IS IT A COMMENT CARD?
1209 JE CONTF3
1210 CLC 3(4,XR2),SSWID IS IT A SSW CARD?
1211 JNE NSSW JUMP IF NOT
1212 TBN DCPFG,X'0P' IF REP-ING DCP, THEN ADD IT TO
1213 JF CONTF3 SPECIAL RECORD
1214 MVI DDCPSH,4
1215 B DCPCD1+4
1216
1217 NSSW CLI 0(,XR2),C'R' IS IT A REP CARD?
1218 BNE INVCD1 CONVERT REP CARD TO TEXT CARD
1219 CLI 1(,XR2),C' ' COLUMN 2 BLANK?

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DD63 3340 CE DISK EDITOR MOD 12

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
173F	CO 01 1850	1220	BNE	INVCD1	IF NOT, GO TO INVALID CARD
1743	BD 40 06	1221	CLI	6(,XR2),C'	COLUMN 6 BLANK?
1746	CO 01 1850	1222	BNE	INVCD1	IF NOT GO TO INVALID CARD
		1223			
174A	BD 40 02	1224	CLI	2(,XR2),C'	IF COL'S. 3 OR 8 ARE BLANK,
174D	CO 81 1850	1225	BE	INVCD1	THEN IT IS AN INVALID CARD
1751	BD 40 07	1226	CLI	7(,XR2),C'	
1754	CO 81 1850	1227	BE	INVCD1	
		1228			
1758	CO 87 202E	1229	B	CONVRT	CONVERT REP CARD TO TEXT CARD
175C	6C 5F 5F 5F	1230	CONTP3 MVC	95(96,XR1),95(,XR2)	MOVE IN CARD IMAGE
		1231			
1760	OE 00 2BE0 0A03	1232	ALC	WRT*(1),ONE	INCREMENT WRITE#
1766	36 01 2B8A	1233	A	X256,XR1	INCREMENT TO NEXT REC'D
176A	CO 87 2A42	1234	B	PRINT1	PRINT MSG
176E	06	176E 1235	DC	XL1'06'	FLAG
176F	27	176F 1236	DC	AL1(REPWH1-MENU5C)	LENGTH
1770	3657	1771 1237	DC	AL2(REPWH1)	MSG 'ENTER NEXT REP'
1772	CO 87 1707	1238	B	RTRN3A	READ ANOTHER RECORD
		1239			
		1239			
		1240			
1241	*			*****	*****
				PUT IN END CARD AND UPDATE VTOC	*
				*****	*****
1776	7C C5 00	1244	ENDRP MVI	0(,XR1),C'E'	CREATE END RECORD
1779	4C 7F FF 3739	1245	MVC	MSGBGN+LENGTH-ENDROU(LENGTH-ENDRCU,XR1),LENGTH-1	
177E	OE 01 2BAB 2BE0	1246	ALC	VTIMB+21(2),WRT#	UPDATE # OF VTOC ENTRIES
		1247			
		1248	*		MOVE IN END CARD ROUTINE FOR DCF
1784	CO 87 239C	1249	B	WINRW	WRITE END RECORD ON DISK
1788	40	1788 1250	DC	XL1'40'	WRITE FLAG
1789	4800	178A 1251	DC	AL2(DDDF)	
178B	2BD7	178C 1252	DC	AL2(DDCFB)	
		1253			
178D	CO 87 219B	1254	B	STPFLD	INCREMENT WRITE DDCF
1791	2BDC	1792 1255	DC	AL2(DDCFB)	
		1256			
1793	3D 0F 2AB3	1257	CLI	DCPFG,X'0F'	IS DCP FLAG SET?
1797	F2 01 0B	1258	JNE	RPCNT5	JUMP IF NOT
179A	3C 00 2BC2	1259	MVI	DDCF,0	SET TO WRITE ONE RECORD
179E	3C 00 2AB3	1260	MVI	DCPFG,0	RESET DCP FLAG
17A2	F2 87 58	1261	J	RPCNT6	GO WRITE VTOC RECORD
		1262			
17A5	OE 01 2272 0A03	1263	RPCNT5	ALC	FASINF(2),ONE
17AB	OC 04 2BA4 226F	1264	MVC	VTIMB+14(5),FASINB+8	UPDATE ADDRESS OF FIRST ENTRY
17B1	OC 04 226F 2BDC	1265	MVC	FASINB+8(5),DDCFM	UPDATE NEXT AVAIL ADDR IN FAS
17B7	CO 87 2242	1266	B	WRFAS	WRITE FAS SECTOR
		1267			
17BB	OC 02 17C8 346E	1268	RPCNT7	MVC	PRGID1(3),REPWHO
17C1	CO 87 227A	1269	B	SCNVTC	SCAN FOR OLD VTOC ENTRY
17C5	00	17C5 1270	DC	IL1'0'	TO SCAN VTOC SUBRT
17C6	404040	17C8 1271	PRGID1	DC	CL3'
17C9	OC 04 3109 4808	1272	MVC	ADMSG+12(5),DDDF+8	ID OF PROGRAM TO SCAN FOR
17CF	3D 00 17C5	1273	CLI	FLAG1,0	MOVE IN ID AND LEVEL INTO PRINT FLD
17D3	F2 81 4A	1274	JE	PGNTF	IF FLAG =0 THEN PROGRAM NOT FOUND
17D6	OC 02 4806 2B14	1275	MVC	DDDF+6(3),OLD	OVERWRITE VTOC ENTRY WITH 'OLD'
		1276			
17DC	3C 00 2BC2	1277	MVI	DDCF,0	ZERO NN FIELD
17E0	CO 87 239C	1278	B	WINRW	WRITE OLD VTOC ENTRY
17E4	40	17E4 1279	DC	XL1'40'	WRITE FLAG
17E5	4800	17E6 1280	DC	AL2(DDDF)	@ OF DDDF
17E7	2DB9	17E8 1281	DC	AL2(DDCFB)	@ OF DDCF
		1282			
17E9	38 0F 2C03	1283	TBN	DELFG,X'0F'	IS THIS \$DEL PROGRAM?
17E9	CO 10 15E1	1284	BT	DEL1	IF SO, RETURN TO DELETE OPTION

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
				1285	
17F1	CO 87 227A		B	SCNVTC	GO TO END OF VTOC RECORD
17F5	00	17F5 1287	DC	XL1'0'	FLAG (NOT USED)
17F6	5C5C5C	17F8 1288	DC	CL3'****'	SPECIAL CHARACTER SIGNALLING GO TO
		1289	*		END OF VTOC
17F9	3C 01 2BC2	1290	MVI	DDCF,1	SET NN FIELD TO WRITE TWO REC'DS
		1291			
17FD	CO 87 0B78	1292	RPCNT6	B	SETTO
1801	OC FF 49FF 48FF	1293	MVC	DDDF1+255(256),DDDF+255	SET FIELD TO X'00'
1807	OC 1C 481C 2BB2	1294	MVC	DDDF+28(29),VTIM	ZERO OUT SECOND WRITE FIELD
180D	OC 5F 48DF 0A74	1295	MVC	DDDF+223(96),SAVID	SET UP VTOC RECORD
		1296			
1813	CO 87 239C	1297	B	WINRW	WRITE NEW VTOC
1817	40	1817 1298	DC	XL1'40'	WRITE FLAG
1818	4800	1819 1299	DC	AL2(DDDF)	
181A	2BB9	181B 1300	DC	AL2(DDCFB)	
		1301			
181C	CO 87 0BCB	1302	B	EDITAA	RETURN TO MAIN OPTION MENU
		1303			
		1303			
		1303			
		1304			*****
		1305	*		HANDLE PROGRAM NOT FOUND, X ENTRY, AND INVALID CARD
		1306			*****
		1307			
		1307			
1820	OC 02 31BA 1669	1308	PGNTF	MVC	HSG02-12(3),PRGID
1826	CO 87 021A	1309	B	PRINT	MOVE IN JD OF PROGRAM NOT FOUND
182A	06	182A 1310	DC	XL1'06'	PRINT 'PROGRAM NOT FOUND'
182B	17	182B 1311	DC	IL1'23'	FLAG
182C	31C6	182D 1312	DC	AL2(HSG02)	LENGTH
		1313			
182E	38 0F 2C03	1314	TBN	DELFG,X'0F'	IS IT IN THE DELETE MODE?
1832	CO 10 1601	1315	BT	DEL2	IF YES, THEN CHECK IF ANOTHER
		1316	*		PROGRAM TO DELETE
1836	CO 87 0BCB	1317	B	EDITAA	
		1318			
		1318			
183A	3C 00 2BE0	1319	XHANDL	MVI	WRT#,0
183E	C2 01 4800	1320	LA	DDDF,XR1	ONLY WRITE THE END CARD
1842	CO 87 0B8A	1321	B	SETO	LOAD XR1
1846	OC 04 2BDC 2BE7	1322	MVC	DDCFM(5),XLOC	SET DDDF TO 0
184C	CO 87 1776	1323	B	ENDRP	LOAD DDCF FIELD WITH NEXT SECTOR
		1324			
1850	CO 87 2A42	1325	INVCD1	B	PRINT1
1854	06	1854 1326	DC	XL1'06'	DISPLAY INVALID CARD ENTERED
1855	26	1855 1327	DC	AL1(ERMS7-ERMS7B)	FLAG
1856	2EAB	1857 1328	DC	AL2(ERMS7)	MESSAGE LENGTH
		1329			
1858	38 F0 27F5	1330	TBN	USECRT,X'F0'	IF 5471 IN USE THEN DON'T PRINT
185C	F2 10 14	1331	JT	BB1	MESSAGE
		1332			
185F	CO 87 021A	1333	B	PRINT	PRINT INVALID CARD IN \$REP
1863	C2	1863 1334	DC	XL1'C2'	FLAG
1864	22	1864 1335	BC	AL1(ERMS5-ERMS5B)	LENGTH
1866	2ECD	1866 1336	DC	AL2(ERMS5)	MESSAGE ADDRESS
1867	PF5	1868 1337	DC	XL2'PF5'	ID
		1338			
1869	CO 87 2A8A	1339	B	PRINT2	PRINT RECORD IMAGE
		1340			
186D	CO 87 0222	1341	B	HALT	TO DCP HALT RTN
1871	PF5	1872 1342	DC	XL2'PF5'	ID
		1343			
1873	CO 87 1707	1344	BB1	B	RTRN3A
					GO READ A RECORD



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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1346	*****			*****
1347	*****			*****
1348	**		\$DUP	**
1349	**		THIS OPTION DUP'S THE CONTENTS OF A 3340 CE DATA	**
1350	**		MODULE ONTO ANOTHER INITIALIZED DATA MODULE.	**
1351	**			**
1352	*****			*****
1353	*****			*****
1354				
1355	DSKDUPI MVI		ICTR,2	RESET COUNTER
1356				
1357	LOOP10 MVI		FRDRV#(1),TODRV#	MOVE CONTENTS TO CORRECT PLACE
1358	MVI		TODRV#,0	CLEAR FIELD
1359	CLI		5(,XR2),C'D'	IS FIRST CHARACTER A D?
1360	BNE		DUPERR	
1361	CLI		6(,XR2),C'1'	IS IT DRIVE 1?
1362	JNE		**7	SKIP IF NOT
1363	MVI		TODRV#,DR1	SET FIELD
1364	CLI		6(,XR2),C'2'	IS IT DRIVE 2?
1365	BNE		TEST1	IF NOT PRINT ERROR
1366	MVI		TODRV#,DR2	SET FIELD
1367	CLI		6(,XR2),C'3'	IS IT DRIVE 3?
1368	JNE		**7	SKIP IF NOT
1369	MVI		TODRV#,DR3	SET FIELD
1370	CLI		6(,XR2),C'4'	IS IT DRIVE 4?
1371	JNE		**7	SKIP IF NOT
1372	MVI		TODRV#,DR4	
1373	TEST1 CLI		TODRV#,0	HAS IT BEEN SET?
1374	BE		DUPERR	IF NOT GO PRINT ERROR
1375				
1376	SLC		ICTR(1),ONE	HAVE WE GONE THROUGH THE LOOP TWICE?
1377	JZ		DUPROC	THEN CONTINUE PROCESS
1378	MVC		4(2,XR2),6(,XR2)	SAVE DRIVE #
1379	MVC		6(2,XR2),8(,XR2)	PUT IN NEXT DRIVE # TO BE COMPARED
1380	B		LOOP10	RETURN TO DETERMINE DRIVE #
1381				
1382	DUPROC CLC		TODRV#(1),FRDRV#	ARE FROM AND TO FIELDS EQUAL?
1383	JE		DUPERR	
1384	MVI		NOT12,0	RESET FLAG NOT 12 M BYTE FLAG
1385	MVC		DRIVE#(1),FRDRV#	CHECK SIZE OF FROM DATA MODULE
1386	MVC		SZERRC(1),4(,XR2)	
1387	B		SNS24	DIAGNOSTIC READ ROUTINE
1388	TBF		DBYTE2,X'03'	JUMP IF NOT 12 M BYTE
1389	BF		SIZER+4	
1390				
1391	MVC		DRIVE#(1),TODRV#	CHECK SIZE OF TO DATA MODULE
1392	MVC		SZERRC(1),6(,XR2)	
1393	B		SNS24	DIAGNOSTIC READ ROUTINE
1394	TBF		DBYTE2,X'03'	IF BITS NOT OFF GO TO ERROR
1395	BF		SIZER	
1396	MVC		STPSCT(4),C4HOR1-1	DUP OUT TO CYL 4 HEAD 0
1397	MVC		STRSCT(4),COH027-1	SET SECTOR TO START DUPPING AT
1398	B		RDWRT	GO DO THE DUP IN 'STPSCT'
1399				
1400	B		RDFAS	READ PAS TO SEE HOW FAR TO DUP
1401	MVI		FASINB+8,48	SET UP RECORD FIELD SO HEAD IS
1402	*			ALWAYS INCREMENTED
1403	B		STPFLD	INCREMENT TO NEXT HEAD
1404	DC		AL2(FASINB+8)	RIGHT END ADDRESS
1405				
1406	MVC		STRSCT(4),C4HOR1-1	SET SECTOR TO START DUPPING AT
1407	MVC		STPSCT(4),FASINB+7	SET 'STPSCT' TO LAST TRACK DUP'ED
1408	B		RDWRT	GO DUP IT
1409				

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1410	MVI		OUTREC+2,0	ZERO OUT CYL SEC OF ALT TRACK FLD
1411	*			
1412	*			SEE IF CYLINDER 0 HEAD 2 IS DEFECTIVE: SEE WHAT
1413	*			IS IN OUTREC AFTER READ OF 1 RECORD
1414	*			
1415	MVC		DDCFM(5),COH2R1	
1416	MVI		DDCF,0	
1417	B		WINRW	
1418	DC		XL1'80'	
1419	DC		AL2(DDDF)	
1420	DC		AL2(DDCFB)	
1421	*			
1422	*			NOW READ IN THE RECORD TO BE MODIFIED
1423	*			
1424	MVC		DDCFM(5),COH027	SET UP ADDRESS TO READ
1425	MVI		DDCF,0	READ 1 RECORD
1426	B		WINRW	READ A RECORD
1427	DC		XL1'80'	
1428	DC		AL2(DDDF)	
1429	DC		AL2(DDCFB)	
1430				
1431	CLI		OUTREC+2,0	SEE IF SUBRT SEEKED TO ALT TRACK
1432	BNE		CALCAD	
1433	MVI		DDDF+32,1	SET ADDRESSES IN UCODE TO NORMAL
1434	MVI		DDDF+34,0	FOR 12 M BYTE
1435	CLI		NOT12,0	DON'T OVERLAY FOR 70 M BYTE IF
1436	JE		WRTREC	FLAG OFF
1437	MVI		DDDF+32,0	SET ADDRESSES IN UCODE TO NORMAL
1438	MVI		DDDF+34,4	FOR 70 M BYTE
1439				
1440	WRTREC MVI		DDCF,0	WRITE 1 RECORD
1441	B		WINRW	
1442	DC		XL1'40'	
1443	DC		AL2(DDDF)	
1444	DC		AL2(DDCFB)	
1445	*			
1446	*			WRITE RECORDS ON CYL 0, HD 0, REC'S 25-29 AT
1447	*			CYL 0, HD 0 REC'S 33-37.
1448	*			
1449	MVC		PNAS-1(4),COH027-1	SET UP SUBRT PARAMETERS
1450	MVC		NAS-1(4),PNAS-1	
1451	MVI		SECT#,5	
1452	MVI		PNAS,25	
1453	MVI		NAS,33	
1454	B		RWRTH	TO WRITE SUBROUTINE
1455				
1456	B		SELDRV	SET DRIVE# VIA SSW'S
1457	B		EDITAA	RETURN TO MAIN OPTION MENU
1458				
1459	DUPERR B		PRINT	PRINT 'INVL'D CHARACTERS IN DUP FLD'
1460	DC		XL1'C6'	FLAG
1461	DC		AL1(ERR9-ERR9B)	LENGTH
1462	DC		AL2(ERR9)	MESSAGE ADDRESS
1463	DC		XL2'FFE9'	ID
1464				
1465	B		EDITAA	RETURN TO MAIN OPTION MENU
1466	*			
1467	*			FIRST CALCULATE 3340 LOGICAL FROM SYS/3 LOGICAL
1468	*			
1469	CALCAD CLI		NOT12,0	IF IT IS 12 M BYTE PACK THEN JUMP
1470	JE		CAL12	
1471	MVC		WORK(2),ZERO	
1472	MVC		CL3(2),OUTREC+2	GET SYS/3 LOGICAL CYL
1473	MVC		HL3(2),OUTREC+4	GET SYS/3 LOGICAL HEAD
1474	MVI		COUNT,40	
1475	MULT40 ALC		WORK(2),CL3	MULTIPLY CL3 BY 40
1476	SLC		COUNT(1),ONE	

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
19EC C0 01 19E0          1477      BNZ      MULT40
                          1478
19F0 0E 01 2AC9 2ACD    1479      ALC      WORK(2),HL3      NOW ADD 2(HL3) TO CL3
19F6 0E 01 2AC9 2ACD    1480      ALC      WORK(2),HL3
                          1481 *
                          1482 *      DIVIDE ABOVE BY 12
                          1483 *
19FC 0C 01 2AD9 2B5A    1484      MVC      COUNT(2),ZERO
1A02 0D 01 2AC9 2BF6    1485      CLC      WORK(2),X12      IF LESS THAN 12, DON'T DIVIDE
1A08 F2 02 03           1486      JNL      DIV12
1A0B F2 87 16           1487      J        SKD12
1A0E 0F 01 2AC9 2BF6    1488 DIV12 SLC      WORK(2),X12
1A14 0E 01 2AD9 0A03    1489      ALC      COUNT(2),ONE
1A1A 0D 01 2AC9 2BF6    1490      CLC      WORK(2),X12
1A20 C0 02 1A0E         1491      BNL      DIV12
1A24 0C 01 2ACF 2AD9    1492 SKD12 MVC      CLW(2),COUNT      INTEGER PART IS 3340 LOGICAL CYL
1A2A 0C 01 2AD1 2AC9    1493      MVC      HLW(2),WORK      REMAINDER IS 3340 LOGICAL HEAD
                          1494 *
                          1495 *      NOW CALCULATE 3340 PHYSICAL FROM 3340 LOGICAL
                          1496 *
                          1497 *      FIRST, DIVIDE CLW BY 2
1A30 0C 01 2AD9 2B5A    1498      MVC      COUNT(2),ZERO
1A36 0C 01 2AC9 2ACF    1499      MVC      WORK(2),CLW
1A3C 0D 01 2AC9 2BEA    1500      CLC      WORK(2),X2      IF LESS THAN 2 DON'T DIVIDE
1A42 F2 02 03           1501      JNL      DIVC2
1A45 F2 87 16           1502      J        SKD02
1A48 0F 01 2AC9 2BEA    1503 DIV02 SLC      WORK(2),X2
1A4E JE 01 2AD9 0A03    1504      ALC      COUNT(2),ONE
1A54 0D 01 2AC9 2BEA    1505      CLC      WORK(2),X2
1A5A C0 02 1A48         1506      BNL      DIV02
                          1507
1A5E 0C 01 2AD3 2AD9    1508 SKD02 MVC      CPW(2),COUNT      3340 PHYSICAL CYL IS INTEGER
                          1509 *      PART OF ABOVE CALCULATION
                          1510 *
                          1511 *      REMAINDER OF ABOVE CALCULATION IS NOW MULTIPLIED BY 12
                          1512 *
1A64 3C 0C 2AD9         1513      MVI      COUNT,12
1A68 0C 01 2AD5 2B5A    1514      MVC      HPW(2),ZERO
1A6E 0E 01 2AD5 2AC9    1515 MULT12 ALC      HPW(2),WORK
1A74 0F 00 2AD9 0A03    1516      SLC      COUNT(1),ONE
1A7A C0 01 1A6E         1517      BNZ      MULT12
                          1518 *
                          1519 *      ADD HLW TO ABOVE TO GET 3340 PHYSICAL HEAD VALUE
                          1520 *
1A7E 0E 01 2AD5 2AD1    1521      ALC      HPW(2),HLW
1A84 F2 87 69           1522      J        FINCAL
                          1523 *
                          1524 *      FOLLOWING IS USED TO CALCULATE PHYSICAL HEAD AND CYL
                          1525 *      FOR 12 MBYTE CE DATA MODULES
                          1526 *
1A87 0C 01 2AC9 2B5A    1A87 1527 CAL12 EQU      *
1A8D 0C 01 2ACB 2397    1528      MVC      WORK(2),ZERO
1A93 0C 01 2ACD 2399    1529      MVC      CL3(2),OUTREC+2      GET SYS/3 LOGICAL CYL
1A99 3C 0A 2AD9         1530      MVC      HL3(2),OUTREC+4      GET SYS/3 LOGICLA HEAD
1A9D 0E 01 2AC9 2ACB    1531      MVI      COUNT,10
1AA3 0F 00 2AD9 0A03    1532 MULT10 ALC      WORK(2),CL3      MULTIPLY BY 10
1AA9 C0 01 1A9D         1533      SLC      COUNT(1),ONE
                          1534
                          1535 *
                          1536 *      DIVIDE SYS/3 LOGICAL HEAD VALUE BY 2
                          1537 *
1AAD 0C 01 2AD9 2B5A    1538      MVC      COUNT(2),ZERO
1AB3 0D 01 2ACD 2BEA    1539      CLC      HL3(2),X2
1AB9 F2 02 03           1540      JNL      DV02
1ABC F2 87 16           1541      J        SKDV02
1ABF 0F 01 2ACD 2BEA    1542 DV02 SLC      HL3(2),X2
1AC5 0E 01 2AD9 0A03    1543      ALC      COUNT(2),ONE
1ACB 0D 01 2ACD 2BEA    1544      CLC      HL3(2),X2

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1AD1 C0 02 1ABF          1545      BNL      DV02
1AD5 0E 01 2AC9 2AD9    1546 SKDV02 ALC      WORK(2),COUNT      ADD QUOTIENT TO CL3*10
1ADB 0C 01 2AD3 2AC9    1547      MVC      CPW(2),WORK      SAVE 3340 PHYSICAL CYLINDER
                          1548 *
                          1549 *      IF REMAINDER OF ABOVE DIVISION IS 0, HPW = 0;
                          1550 *      IF REMAINDER IS 1, HPW = 2.
                          1551 *
1AE1 3C 00 2AD5         1552      MVI      HPW,0
1AE5 3D 00 2ACD         1553      CLI      HL3,0
1AE9 F2 81 04           1554      JE       *+7
1AEC 3C 02 2AD5         1555      MVI      HPW,2
                          1556 *
                          1557 *      HOW CYLINDER VALUE MUST BE CONVERTED TO ONE BYTE FORMAT
                          1558 *      FORMAT IS AS FOLLOWS:
                          1559 *
                          1560 *      CARSAV---CONTAINS CYLINDERS 00-FF
                          1561 *      HARSAV--BITS 0 1 2 3 4 5 6 7
                          1562 *      0 1 0 {<-HEAD VALUES->}
                          1563 *
                          1564 *      BITS 0 AND 2 ARE ALWAYS 0
                          1565 *      BIT 1 IS 1 ONLY WHEN CYL IS GREATER THAN X'FF'
1AF0 0C 00 2AC6 2AD3    1566 PINCAL MVC      CARSAV(1),CPW
1AF6 3B 40 2AC7         1567      SBP      HARSAV,X'40'
1AFA 0D 01 2AD3 2AD7    1568      CLC      CPW(2),CKER      IS CYL GREATER THAN X'00FF'
1B00 F2 84 03           1569      JH      HERE
1B03 F2 87 04           1570      J        *+7
1B06 3A 40 2AC7         1571 HERE SBN      HARSAV,X'40'      IF SO, SET BIT 1 ON
                          1572
1B0A 08 03 2AC7 2AD5    1573      MNN      HARSAV,HPW
1B10 3B 10 2AC7         1574      SBP      HARSAV,X'10'
1B14 3D 0F 2AD5         1575      CLI      HPW,X'0F'      IS 3340 HD GREATER THAN '0F' ?
1B18 F2 84 03           1576      JH      HERE1
1B1B F2 87 04           1577      J        *+7
1B1E 3A 10 2AC7         1578 HERE1 SBN      HARSAV,X'10'      IF SO, SET BIT 3 ON
                          1579
1B22 0C 00 4820 2AC6    1580      MVC      DDDF+32(1),CARSAV      UPDATE MICROCODE WITH ALT CYL
1B28 0C 00 4822 2AC7    1581      MVC      DDDF+34(1),HARSAV      AND HEAD
1B2E C0 87 1984         1582      B        WRTREC      GO WRITE THE RECORD ON DATA MODULE
                          1583 *
                          1584 *
                          1585 *      ROUTINE HANDLING WRONG DATA MODULE SIZE
                          1586 *
1B32 00                  1B32 1587 NOT12 DC      IL1'0'
1B33 3C FF 1B32         1588 SIZER HVI      NOT12,X'FF'
1B37 34 08 1B4E         1589      ST        SIZERR+3,ARR      STORE RETURN ADDRESS
1B3B C0 87 021A         1590      B        PRINT      PRINT 'DATA MODULE SIZE NOT 12 ...'
1B3F C6                  1B3F 1591 DC      XL1'C6'
1B40 59                  1B40 1592 DC      AL1(SZERR-SZERRB)
1B41 2FF0                1B42 1593 DC      AL2(SZERR)
1B43 FFEP                1B44 1594 DC      XL2'FFEP'
                          1595
1B45 C0 87 0222         1596      B        HALT      HALT -EF-
1B49 FFEP                1B4A 1597 DC      XL2'FFEP'
1B4B C0 87 0000         1598 SIZERR B      *-*
                          1599
                          1599
                          1599
                          1599
                          1599
                          1599
                          1599
                          1599
                          1599
                          1599
                          1600 *****
                          .601 *****
                          1602 **      $LST
                          1603 **      THIS OPTION LISTS THE PROGRAMS ON THE 3340 CE
                          1604 **      DATA MODULE.
                          1605 **

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DD63 3340 CE DISK EDITOR MOD 12

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1606				*****
1607				*****
1608				*****
1608				*****
1B4F	38 02 0A0F	1609	LSTPGH EQU *	
1B53	F2 10 17	1610	TBN X5203,X'02'	IS PRINTER 132 PRINT POSITION
1B56	38 20 0A11	1611	JT LSPGM1	JUMP IF YES
1B5A	F2 10 10	1612	TBN X1403-1,X'20'	IS IT THE 1403 PRINTER
1B5D	3C 01 1B9C	1613	JT LSPGM1	JUMP IF YES
1B61	3C 01 1BDB	1614	MVI LOP12A+1,X'01'	SET COUNTER TO 1 IF NOT
1B65	3C 40 1B7C	1615	MVI LSCNT2+1,X'01'	SET COUNT TO 1
1B69	3C 40 1B60	1616	MVI LSPG1A+1,X'40'	SET TO BLANK
1B6D	3C 40 0A93	1617	MVI LSPG1B+1,X'40'	SET TO BLANK
1B71	0C 7D 0A92 OA93	1618	LSPGM1 MVI PRTPBF+126,C'	BLANK OUT PRINT
1B77	3C 60 0A18	1619	MVC PRTPBF+125(126),PRTPBF+126	BLANK OUT PRINT
1B7B	3C 60 0A5A	1620	MVI PRTPBF+3,C'-'	INSERT BUFFER
		1621	LSPG1A MVI PRTPBF+69,C'-'	
		1622	* MVC PRTPBF+64(3),AST	DASHES
1B7F	3C 4B 0A54	1623	LSPG1B MVI PRTPBF+63,C'-'	INSERT DIVIDER
		1624		
1B83	3C 01 2C00	1625	MVI MCTR,1	USE NEW DDCP FIELD IN SUBRT 'LSTRD'
1B87	04 02 2ADD 2AF7	1626	ZAZ TEMP5(3),MAXPGM(3)	SET TEMP VTOC# TO MAX # OF ENTRIES
1B8D	0C 04 2BBE 2B60	1627	MVC DDCPH(5),C2HOR1	SET DDCP TO READ VTOC
1B93	3C 02 2BFF	1628	LSPGM2 MVI KCTR,2	INITIALIZE COUNTER
		1629		
1B97	C2 02 0A15	1630	LOOP12 LA PRTPBF,XR2	INITIALIZE ADDRESS POINTER
1B9B	3C 02 2BFE	1631	LOP12A MVI LCTR,2	INITIALIZE COUNTER
		1632		
1B9F	C0 87 1C35	1633	LSCNT1 B LSTRD	READ NEXT RECORD IN VTOC
1EA3	4D 02 02 2B92	1634	CLC 2(3,XR1),ACT0-1	ARE COL'S 1-3 'ACT'?
1BA8	F2 01 2F	1635	JNE LSCNT2	IF NOT, QUIT LISTING PROGRAMS
		1636		
1BAB	07 20 2ADD 2AEE	1637	SZ TEMP5(3),D1(1)	DECREMENT # OF VTOC ENTRIES LEFT
		1638		
1BB1	4D 02 06 2B14	1639	CLC 6(3,XR1),OLD	IS IT AN OLD ENTRY?
1BB6	C0 81 1B9F	1640	BE LSCNT1	READ ANOTHER ENTRY IF IT IS
		1641		
1BBA	9C 02 02 06	1642	MVC 2(3,XR2),6(,XR1)	PUT IN ID FIELD
1BBE	9C 00 04 08	1643	MVC 4(1,XR2),8(,XR1)	PUT LEVEL INTO PRINT FIELD
1BC2	9C 14 1A 9F	1644	MVC 26(21,XR2),159(,XR1)	MOVE PN & EC INTO PRINT FIELD
1BC6	9C 1F 3C BF	1645	MVC 60(32,XR2),191(,XR1)	MOVE COMMENT AREA INTO PRINT FIELD
		1646		
1BCA	0F 00 2BFE 0A03	1647	SLC LCTR(1),ONE	DECREMENT COUNTER
1BD0	F2 81 1C	1648	JZ LSCNT3	GO PRINT IF READ 2 RECORDS
1BD3	E2 02 42	1649	LA 66(,XR2),XR2	INCREMENT XR2
1BD6	C0 87 1B9F	1650	B LSCNT1	READ 2ND RECORD
		1651		
1BDA	3D 02 2BFE	1652	LSCNT2 CLI LCTR,2	LCTR=2
1BDE	F2 81 22	1653	JE LSTCON	THEN DON'T PRINT AT ALL
1BE1	3C 40 0A93	1654	MVI PRTPBF+126,C'	IF ONE RECORD HAS BEEN READ BEFORE
1BE5	0C 3C 0A92 OA93	1655	MVC PRTPBF+125(61),PRTPBF+126	REACHING END OF VTOC, THEN PRINT
1BEB	3C 0F 2AB1	1656	MVI LWRT,X'0F'	IT
		1657		
1BEF	C0 87 021A	1658	LSCNT3 B PRINT	PRINT LIST FIELD
1BF3	01	1659	DC XL1'01'	FLAG
1BF4	7F	1660	DC IL1'127'	LENGTH
1BF5	0A93	1661	DC AL2(PRTBF+126)	MESSAGE ADDRESS
		1662		
1BF7	3D 0F 2AB1	1663	CLI LWRT,X'0F'	IS THIS THE LAST RECORD?
1BFB	3C 00 2AB1	1664	MVI LWRT,0	
1BFF	C0 01 1B97	1665	BNE LOOP12	IF NOT, THEN READ SOME MORE
		1666		
1C03	C0 87 021A	1667	LSTCON B PRINT	SPACE 2 LINES
1C07	12	1668	DC XL1'12'	
		1669		
1C08	38 02 2BFE	1670	TBN LCTR,X'02'	
1C0C	F2 10 04	1671	JT **7	
1C0F	3C 40 0A5A	1672	MVI PRTPBF+69,C'	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1673				
1674	SLC	KCTR(1),ONE		IS THIS THE SECOND TIME?
1675	MVC	VTOC1#(3),TEMP5		SAVE # OF VTOC ENTRIES LEFT
1676	BZ	STCNT		IF SO, THEN BRANCH
1677				
1678	MVI	MCTR,1		FORCE SUBRT 'LSTRD' TO USE NEW DDCP
1679	MVC	DDCPH(5),C3H162		SET UP DDCP FOR PAS VTOC
1680	MVI	PRTPBF+69,C'-'		INSERT DASH IN CASE IT WAS DESTROYED
1681	B	LOOP12		GO READ THE RECORDS
1682				
1682				
1683	*			
1684	*			
1685	*			
1686	*			
1687				
1688	LSTRD	ST LSTRDR+3,ABR		SAVE RETURN ADDRESS
1689	SLC	MCTR(1),ONE		DECREMENT COUNTER
1690	JZ	LSTRDR+4		
1691	A	X256,XR1		INCR XR1 IF NOT READING NEW TRACK
1692	LSTRDR	B **		RETURN TO CALLER
1693				
1694	MVI	MCTR,48		RESTORE COUNTER
1695	MVI	DDCP,47		SET NN FIELD TO READ 48 RECORDS
1696	LA	DDDF,XR1		REINITIALIZE XR1
1697				
1698	B	WINRW		READ 48 RECORDS OF VTOC
1699	DC	XL1'80'		READ FLAG
1700	DC	AL2(DDDF)		
1701	DC	AL2(DDCFB)		
1702				
1703	B	STPFLD		INCREMENT DDCP
1704	DC	AL2(DDCPH)		
1705	B	LSTRDR		
1706				
1706				
1706				
1706				
1707				*****
1708				*****
1709	**	SCMP		**
1710	**			THIS OPTION REMOVES ALL 'OLD' ENTRIES FROM THE VTOC
1711	**			AND THEIR CORRESPONDING PROGRAM AREAS.
1712	**			**
1713				*****
1714				*****
1715				
1715				
1716				
1716				
1717	CHPPGM	EQU *		
1718	LA	DDDF,XR1		
1719	MVC	VTOC#(2),ZERO		PREPARE BUFFER FOR PAS SECTOR
1720	ZAZ	VTOC1#(3),MAXPGM(3)		PREPARE PRINT BUFFER
1721	MVC	DDCPH(5),C2HOR1		SET UP DDCP TO SCAN FOR FIRST
1722				
1723	LOOP5	MVI DDCP,0		OPERATE ON ONE RECORD
1724	B	WINRW		READ A VTOC RECORD
1725	DC	XL1'80'		READ FLAG
1726	DC	AL2(DDDF)		
1727	DC	AL2(DDCFB)		
1728				
1729	CLC	6(3,XR1),OLD		IS THIS AN 'OLD' ENTRY?

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	
1C91	F2 81 1E		1730	JE	CMCNT1	JUMP OUT OF SEARCH ROUTINE	1D4C	04 40 2C4E 2AE7		1796	ZAZ	SPACE#(5),D0(1)	ZERO OUT # OF SECTORS LEFT BUFFER	
1C94	4D 02 02 2B92		1731				1797			1798	LOOP18	CLI	FASINM-3,34	IS CYL # = 34?
1C99	F2 01 AC		1732	CLC	2(3,XR1),ACT0-1	IS THIS THE END OF THE VTOC?	1D52	3D 22 226C		1799	JNL	STP3	THEN QUIT AND PRINT	
1C9C	0E 01 2AC3 0A03		1733	JNE	STCNT	GO PRINT MESSAGE	1800			1801	CLI	FASINM,1	IS REC # = 1	
1CA2	07 20 2C2A 2AEE		1734	ALC	VTOC#(2),ONE	INCREMENT VTOC COUNT	1D59	3D 01 226F		1802	JE	CMCNT4	IF SO, THEN JUMP	
1CA8	C0 87 219B		1735	SZ	VTOC1#(3),D1(1)	DECREMENT PRINT BUFFER	1D5D	F2 81 10		1803	AZ	SPACE#(5),D1(1)	INCREMENT # OF SECTS LEFT	
1CAC	2BBE	1CAD	1736	B	STPFLD	STEP CONTROL FIELD	1D60	06 40 2C4E 2AEE		1804				
1CAE	C0 87 1C7F		1737	DC	AL2(DDCFB)		1D66	C0 87 219B	1D6B	1805	B	STPFLD	INCREMENT FIELD	
1CB2	1C 04 2BB8 0E		1738				1D6A	226F		1806	DC	AL2(FASINM)		
1CB7	0C 04 2BC8 2BBE		1739	B	LOOP5	RETURN TO READ ANOTHER RECORD	1D6C	C0 87 1D52		1807	B	LOOP18	DO IT AGAIN	
1CBD	3C 00 2BCC		1740				1D70	3C 30 226F		1808				
1CC1	C0 87 219B		1741	CMCNT1	MVC	NAS(5),14(,XR1)	1D74	06 34 2C4E 2AF1		1809	CMCNT4	MVI	FASINM,48	SET TO LAST RECORD
1CC5	2BC8	1CC6	1742	MVC	DDCFR#(5),DDCFR	SET UP NEXT AVAILABLE SECTOR	1D7A	C0 87 219B		1810	AZ	SPACE#(5),D48(2)	INCREMENT SECTORS LEFT BY 48	
1CC7	3C 00 2BCC		1743	MVI	DDCFR,0	SET UP NAS IN VTOC	1D7E	226F	1D7F	1811	B	STPFLD	INCREMENT FIELD	
1CCB	C0 87 239C		1744	DC	AL2(DDCFR)	INITIALIZE CONTROL FIELD	1D80	3D 22 226C		1812	DC	AL2(FASINM)		
1CCF	80	1CCP	1745	B	WINRW	STEP CONTROL FIELD	1D84	F2 02 04		1813	CLI	FASINM-3,34	REACHED CYL 34?	
1CD0	4800	1CD1	1746	DC	XL1'80'	OPERATE ON ONE RECORD	1D87	C0 87 1D70		1814	JNL	STP3	DO IT AGAIN	
1CD2	2BC3	1CD3	1747	DC	AL2(DDDF)	READ NEXT ENTRY	1D8B	C0 87 021A		1815	B	CHCNT4		
1CD4	4E 02 02 2B92		1748	DC	AL2(DDCFR)	READ FLAG	1D8F	06	1D8F	1816	STP3	B	PRINT	PRINT 'XX VTOC ENTRIES LEFT ...'
1CD9	F2 01 45		1749	CLC	2(3,XR1),ACT0-1	REACHED THE END OF VTOC?	1D90	4C	1D90	1817	DC	XL1'06'	FLAG	
1CDC	4D 02 06 2B14		1750	JNE	ENCFP1	IF SO PRINT MESSAGE	1D91	2C57	1D92	1818	DC	AL1(VMSG-VMSGB)	LENGTH	
1CE1	C0 81 1CC1		1751	CLC	6(3,XR1),OLD	IS IT AN 'OLD' ENTRY?	1D93	C0 87 0BCB		1819	DC	AL2(VMSG)	MESSAGE ADDRESS	
1CE5	1C 01 2BE2 15		1752	BE	LOOP16	THEN GO READ ANOTHER RECORD	1820			1821	B	EDITAA	RETURN TO MAIN OPTION MENU	
1CEA	1C 04 20C7 0E		1753				1822			1823				
1CEF	4C 04 0E 2BB8		1754	MVC	SECT#(2),21(,XR1)	STORE HOW MANY SECTORS TO MOVE	1824			1825				
1CF4	3C 00 2BC2		1755	MVC	PNAS(5),14(,XR1)	STORE WHERE TO FIND PROGRAM	1826			1826				
1CF8	C0 87 239C		1756	MVC	14(5,XR1),NAS	MOVE IN NEW PROGRAM LOCATION ADDRESS	1826			1826				
1CFC	40	1CFC	1757	MVI	DDCF,0	WRITE VTOC ENTRY	1826			1826				
1CFD	4800	1CFE	1758	B	WINRW	WRITE FLAG	1827			1827				
1CFP	2BB9	1D00	1759	DC	XL1'40'		1828			1828				
1D01	0E 01 2AC3 0A03		1760	DC	AL2(DDDF)		1829			1829	**	SCONFIG	**	
1D07	07 20 2C2A 2AEE		1761	DC	AL2(DDCFB)		1830			1830	**	THIS OPTION ALLOWS NEW UDT,CPU, OR // CHAIN ENTRIES	**	
1D0D	C0 87 219B		1762	ALC	VTOC#(2),ONE	INCREMENT NUMBER OF VTOC ENTRIES	1831			1831	**	TO BE MADE TO THE DIAGNOSTIC CONTROL PROGRAM.	**	
1D11	2BBE	1D12	1763	SZ	VTOC1#(3),D1(1)	DECREMENT PRINT BUFFER	1832			1832	**		**	
1D13	C0 87 20C8		1764	B	STPFLD	STEP VTOC LOCATION POINTER	1833			1833				
1D17	0C 04 2BB8 2BDC		1765	DC	AL2(DDCFB)		1834			1834				
1D1D	C0 87 1CC1		1766	B	RWRTH	TO READ-WRITE RTN WHERE PROGRAM IS MOVED	1835			1835				
1D21	3C 00 2BC2		1767	MVC	NAS(5),DDCFTH	UPDATE NEXT AVAILABLE SECTOR FIELD	1D97	3A 0F 2AC1	1D97	1836	CFGPGM	EQU	*	
1D25	C0 87 0B78		1768	B	LOOP16	RETURN	1D9B	C2 01 4800		1837	SBN	CPFIGFG,X'0F'	SET CONFIGURE FLAG	
1D29	C0 87 239C		1769				1838			1838	LA	DDDF,XR1	LOAD ADDRESS POINTER	
1D2D	40	1D2D	1770	MVI	DDCF,0	ZERO OUT RECORD BYTE	1839			1839				
1D2E	4800	1D2F	1771	B	SETTO	SET DDDF TO 0	1D9F	0C 03 20C6 2B65		1840	MVC	PNAS-1(4),C3H15	SET UP PARAMETERS FOR SUBROUTINE	
1D30	2BB9	1D31	1772	B	WINRW	WRITE RECORD OF 0'S TO SIGNIFY EOR	1DA5	0C 03 2BB7 2B65		1841	MVC	NAS-1(4),C3H15	RWRTH, TO MOVE DCP RECORDS TO	
1D32	0C 04 226F 2BB8		1773	DC	XL1'40'	WRITE FLAG	1DAB	3C 01 20C7		1842	MVI	PNAS,1	TEMPORARY DISK LOCATION	
1D38	0C 01 2272 2AC3		1774	DC	AL2(DDDF)		1DAF	3C 05 2BB8		1843	MVI	NAS,5		
1D3E	0C 02 2269 2269		1775	DC	AL2(DDCFB)		1DB3	0C 01 2BE2 2BEE		1844	MVC	SECT#(2),X4		
1D44	C0 87 2242		1776				1845			1845				
1D48	C0 87 2201		1777	B	RWRTH	MOVE RECORDS ON DISK	1846			1846	B	RWRTH		
			1778	CFRT	B	PRINT1	DISPLY 'CONFIGURE ENTRIES'	1847		1847				
			1779	DC	XL1'01'	FLAG	1848			1848	CFRT	B	PRINT1	
			1780	DC	AL1(MENU2-MENU2B)	MESSAGE LENGTH	1DC1	01	1DC1	1849	DC	XL1'01'	FLAG	
			1781	DC	AL2(MENU2)	MESSAGE ADDRESS	1DC2	26	1DC2	1850	DC	AL1(MENU2-MENU2B)	MESSAGE LENGTH	
			1782	B	PRINT1	DISPLY 'CONFIGURE ENTRIES'	1DC3	3352	1DC4	1851	DC	AL2(MENU2)	MESSAGE ADDRESS	
			1783	DC	XL1'01'	FLAG	1DC5	C0 87 2A42		1852	B	PRINT1	DISPLY 'CONFIGURE ENTRIES'	
			1784	DC	AL1(MEN22-MENU2C)	MESSAGE LENGTH	1DC9	01	1DC9	1853	DC	XL1'01'	FLAG	
			1785	DC	AL2(MEN22)	MESSAGE ADDRESS	1DCA	28	1DCA	1854	DC	AL1(MEN22-MENU2C)	MESSAGE LENGTH	
			1786				1DCB	337A	1DCC	1855	DC	AL2(MEN22)	MESSAGE ADDRESS	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1DCD	C0 87 2A42	1856	B		PRINT1
1DD1	01	1DD1 1857	DC		XL1'01'
1DD2	28	1DD2 1858	DC		AL1(MEN23-MENU2D)
1DD3	33A2	1DD4 1859	DC		AL2(MEN23)
1DD5	C0 87 2A42	1860	B		PRINT1
1DD9	01	1DD9 1861	DC		XL1'01'
1DDA	28	1DDA 1862	DC		AL1(MEN24-MENU2E)
1DDB	33CA	1DDC 1863	DC		AL2(MEN24)
1DDC	C0 87 2A42	1864	B		PRINT1
1DE1	01	1DE1 1865	DC		XL1'01'
1DE2	30	1DE2 1866	DC		AL1(MEN25-MENU2F)
1DE3	33FA	1DE4 1867	DC		AL2(MEN25)
1DE5	C0 87 2A42	1868	B		PRINT1
1DE9	06	1DE9 1869	DC		XL1'06'
1DEA	28	1DEA 1870	DC		AL1(MEN27-MENU2H)
1DEB	3422	1DEC 1871	DC		AL2(MEN27)
1DED	C0 87 2749	1872			
		1873	CFRT3	B	RECORD
		1874			GET ENTRY
1DF1	BD E7 00	1875	CLI		0(,XR2),C'X'
1DF4	C0 81 1F28	1876	BE		CFGEND
1DF8	BD C5 00	1877	CLI		0(,XR2),C'E'
1DFB	C0 81 1F28	1878	BE		CFGEND
		1879			
1DFP	8D 07 07 2B09	1880	CLC		7(8,XR2),CHNID
1E04	C0 81 1383	1881	BE		DCPCD2
1E08	BD C3 00	1882	CLI		0(,XR2),C'C'
1E0B	C0 81 141D	1883	BE		DCPCD4
1E0F	BD E4 00	1884	CLI		0(,XR2),C'U'
1E12	C0 01 1F30	1885	BNE		CFGERR
1E16	BD 40 03	1886	CLI		3(,XR2),C' '
1E19	C0 81 13F5	1887	BE		DCPCD3
		1888			
		1888			
		1888			
		1888			
		1889			*****
		1890	*		THIS SECTION HANDLES UDTX ENTRIES.
		1891			*****
		1892			
		1892			
1E1D	34 01 1E38	1893	UDTXP	ST	TMADR1,XR1
1E21	E2 02 03	1894	LA		3(,XR2),XR2
1E24	0C 03 2BD1 2B65	1895	MVC		DDCFPSM-1(4),C3H15
1E2A	3C 06 2BD2	1896	HVI		DDCFPS,6
1E2E	3C 00 2BD6	1897	HVI		DDCFPS,0
		1898			
1E32	C0 87 239C	1899	B		WINRW
1E36	80	1E36 1900	DC		XL1'80'
1E37	0000	1E38 1901	TMADR1	DC	AL2(*-*)
1E39	2BCD	1E3A 1902	DC		AL2(DDCFPSB)
		1903			
1E3B	35 01 1E38	1904	UDSCN	L	TMADR1,XR1
1E3F	D2 01 03	1905	LA		3(,XR1),XR1
1E42	6D 01 02 02	1906	LOOP25	CLC	2(2,XR1),2(,XR2)
1E46	F2 01 03	1907	JNE		UTCNT4
1E49	7C E7 01	1908	HVI		1(,XR1),C'X'
1E4C	D2 01 01	1909	UTCNT4	LA	1(,XR1),XR1
1E4F	7D 40 00	1910	CLI		0(,XR1),C' '
1E52	F2 81 0B	1911	JE		LOOP21
1E55	7D 6B 00	1912	CLI		0(,XR1),C','
1E58	C0 81 1E42	1913	BE		LOOP25
1E5C	C0 87 1E4C	1914	B		UTCNT4
		1915			
1E60	E2 02 01	1916	LOOP21	LA	1(,XR2),XR2
1E63	BD 40 00	1917	CLI		0(,XR2),C' '
1E66	F2 81 0B	1918	JE		UTCNT1
1E69	BD 6B 00	1919	CLI		0(,XR2),C','

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1E6C	C0 01 1E60	1920	BNE		LOOP21
1E70	C0 87 1E3B	1921	B		UDSCN
		1922	*		
1E74	35 01 1E38	1923	UTCNT1	L	TMADR1,XR1
1E78	D2 01 03	1924	LA		3(,XR1),XR1
1E7B	C2 02 0A83	1925	LA		READIN+3,XR2
		1926			
1E7F	D2 01 01	1927	LOOP22	LA	1(,XR1),XR1
1E82	7D 40 00	1928	CLI		0(,XR1),C' '
1E85	C0 01 1E7F	1929	BNE		LOOP22
		1930			
1E89	7C 6B 00	1931	HVI		0(,XR1),C','
1E8C	3C FF 1EA4	1932	HVI		MVC9+1,X'FF'
1E90	D2 01 01	1933	LOOP23	LA	1(,XR1),XR1
1E93	E2 02 01	1934	LA		1(,XR2),XR2
1E96	0E 00 1EA4 0A03	1935	ALC		MVC9+1(1),ONE
1E9C	BD 40 00	1936	CLI		0(,XR2),C' '
1E9F	C0 01 1E90	1937	BNE		LOOP23
		1938			
1EA3	6C 00 00 00	1939	HVC9	HVC	0(*-*,XR1),0(,XR2)
1EA7	35 01 1E38	1940	L		TMADR1,XR1
1EAB	D2 01 04	1941	LA		4(,XR1),XR1
1EAE	D2 02 00	1942	LA		0(,XR1),XR2
		1943			POINTERS
1EB1	7D E7 00	1944	LOOP24	CLI	0(,XR1),C'X'
1EB4	F2 81 10	1945	JE		UTCNT2
1EB7	7D 40 00	1946	CLI		0(,XR1),C' '
1EBA	F2 81 37	1947	JE		UTCNT3
1EBD	D2 01 01	1948	LA		1(,XR1),XR1
1EC0	E2 02 01	1949	LA		1(,XR2),XR2
1EC3	C0 87 1EB1	1950	B		LOOP24
		1951			
1EC7	E2 02 01	1952	UTCNT2	LA	1(,XR2),XR2
1ECA	BD 6B 00	1953	CLI		0(,XR2),C','
1ECD	C0 01 1EC7	1954	BNE		UTCNT2
		1955			
1ED1	34 01 2AC5	1956	ST		ADDR,XR1
1ED5	6C 00 00 01	1957	UTCNT5	MVC	0(1,XR1),1(,XR2)
1ED9	BD 40 01	1958	CLI		1(,XR2),C' '
1EDC	F2 81 0A	1959	JE		UTCNT6
1EDF	D2 01 01	1960	LA		1(,XR1),XR1
1EE2	E2 02 01	1961	LA		1(,XR2),XR2
1EE5	C0 87 1ED5	1962	B		UTCNT5
		1963			
1EE9	35 01 2AC5	1964	UTCNT6	L	ADDR,XR1
1EED	92 02 00	1965	LA		0(,XR1),XR2
1EF0	C0 87 1EB1	1966	B		LOOP24
		1967			
1EF4	35 01 1E38	1968	UTCNT3	L	TMADR1,XR1
1EF8	C2 02 0A80	1969	LA		READIN,XR2
1EFC	C0 87 1429	1970	B		WRT1
		1971			
		1971			
1F00	3C 01 2BB8	1972	CFPTRN	HVI	NAS,1
1F04	3C 05 20C7	1973	HVI		PNAS,5
1F08	C0 87 20C8	1974	B		RJRTN
		1975			
1F0C	38 F0 27F5	1976	TBM		USECRT,X'F0'
1F10	C0 90 1DED	1977	BF		CFRT3
1F14	C0 87 2A42	1978	B		PRINT1
1F18	01	1F18 1979	DC		XL1'01'
1F19	4E	1F19 1980	DC		AL1(REM-REMB)
1F1A	35AC	1F1B 1981	DC		AL2(REM)
1F1C	C0 87 2A42	1982	B		PRINT1
1F20	06	1F20 1983	DC		XL1'06'
1F21	37	1F21 1984	DC		AL1(REM2-REMB2)
1F22	35E3	1F23 1985	DC		AL2(REM2)
1F24	C0 87 1DED	1986	B		CFRT3

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		1987	*	READING MESSAGE
1F28	3B FF 2AC1	1988	CPGEND SBF	CFIPFG,X'PF'
1F2C	C0 87 0BCB	1989	B	EDITAA
		1990	*	RESET CONFIGURE FLAG
		1991	*	RETURN TO MAIN OPTION MENU
		1992	*	HANDLE ERRORS IN CONFIGURE RECORDS
		1993	CFGERR B	PRINT
1F30	C0 87 021A	1994	DC	XL1'42'
1F34	42	1995	DC	AL1(CERR-CERRB)
1F35	38	1996	DC	AL2(CERR)
1F36	3028	1997	DC	XL2'FFE5'
1F38	FFE5	1998	B	PRINT2
1F3A	C0 87 2A8A	1999	TBN	USECRT,X'F0'
1F3E	38 F0 27F5	2000	BT	CFRT3
1F42	C0 10 1DED	2001	B	HALT
1F46	C0 87 0222	2002	DC	XL2'FFE5'
1F4A	FFE5	2003	B	EDITAA
1F4C	C0 87 0BCB			

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		2005	*****	*****
		2006	*	*
		2007	*	THIS PORTION OF THE LISTING CONTAINS THE SUBROUTINES USED
		2008	*	BY THE DIFFERENT PROGRAM OPTIONS.
		2009	*	*
		2010	*****	*****
		2011		
		2012	*****	*****
		2013	* CMPRS *	
		2014	*****	*****
		2015	*	*
		2016	*	COMPRESS DATA SUBROUTINE
		2017	*	*
		2018	*****	*****
		2019		
		2020	TEMP9 DC	IL1'0'
1F50	00	2021	XR2WK DC	IL2'0'
1F51	0000	2022	TEMP8 EQU	XR2WK
		2023	NEG3 DC	IL2'-3'
1F53	FFFD	2024	NEG4 DC	IL2'-4'
1F55	FFFC	2025	ADDR1 DC	IL2'0'
1F57	0000	2026		
		2027	CHPRS1 ST	COMPIT+3,ARR
		2028		STORE EXIT ADDRESS
		2029	CLI	CD1OR2,1
1F59	34 08 202B	2030	JE	CPCNT1
		2031		IS IT A COMPRESSED CARD?
		2032	ST	ADDR1,XR1
1F5D	3D 01 2ABF	2033	ST	ADDR,XR2
1F61	F2 81 87	2034		STORE XR1
		2035	MVC	TEMP9(1),88(,XR2)
		2036	LA	READIN+88,XR2
		2037	AA19 CLI	0(,XR2),X'D0'
		2038	JNE	AA18
		2039	MVI	0(,XR2),X'2A'
		2040	AA18 A	MINUS1,XR2
		2041	ST	XR2WK,XR2
		2042	CLC	XR2WK(2),READAD
		2043	BNL	AA19
		2044	LA	READIN+87,XR1
		2045	LA	0(,XR1),XR2
		2046	AA20 MVI	SS1+1,0
		2047	CHLOOP MVC	SS2+1(1),SS1+1
		2048	SS1 ALC	1(*-,XR2),1(,XR2)
		2049	SS2 ALC	1(*-,XR2),1(,XR2)
		2050	ALC	SS1+1(1),ONE
		2051	CLI	SS1+1,4
		2052	BNE	CHLOOP
		2053	MVC	1(3,XR1),0(,XR2)
		2054	A	NEG3,XR1
		2055	A	NEG4,XR2
		2056	ST	XR2WK,XR2
		2057	CLC	XR2WK(2),READAD
		2058	BNL	AA20
		2059	L	ADDR1,XR1
		2060	L	ADDR,XR2
		2061		RESTORE XR2
		2062	MVC	DGSNS1(66),88(,XR2)
1F59	34 08 202B	2063	MVC	66(66,XR2),DGSNS1
				ADJUST FIELD TO PROPER POSITION

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
1FE3 BC E3 00		2064	MVI	0(,XR2),C'T'	INSERT T
1FE6 8C 00 58 1F50		2065	MVC	88(1,XR2),TEMP9	REPLACE DESTROYED BYTE
		2066			
1FEB 3D 0F 2AB0		2067	CPCNT1 CLI	SCDFG,X'0F'	IS THIS A SYSTEM TEST MODULE?
1FEF F2 81 36		2068	JE	COMPXT	IF SO, DON'T PAD WITH ZEROS
1FF2 38 0F 2AAD		2069	TBN	PFLAG,X'0F'	IS THIS PROG DATA DECK
1FF6 F2 90 07		2070	JP	ZOUT	NO, ZERO OUT THE FIELD
1FF9 AC 07 4F 5F		2071	SEQNV MVC	79(8,XR2),95(,XR2)	ELSE MOVE ID/SEQ TO COMP POSITION
1FFD F2 87 28		2072	J	COMPXT	YES, THEN DON'T PAD WITH ZEROS
		2073			
2000 0C 00 200E 0A81		2074	ZOUT MVC	MVI3+2(1),READIN+1	ZERO OUT UNUSED PORTION OF FIELD
2006 0E 00 200E 2BFO		2075	ALC	MVI3+2(1),X5	PRECEDED BY A X'FF' DELIMITER
200C BC FF 00		2076	MVI3 MVI	*-*(,XR2),X'FF'	
200F 0E 00 200E 2BEA		2077	ALC	MVI3+2(1),X2	
2015 0C 00 2025 2BFC		2078	MVC	MVC8+1(1),X87	
201B 0F 00 2025 200E		2079	SLC	MVC8+1(1),MVI3+2	
2021 BC 00 57		2080	MVI	87(,XR2),0	ZERO OUT RIGHTMOST BYTE
2024 AC 00 56 57		2081	MVC8 MVC	86(*-*,XR2),87(,XR2)	ZERO OUT REST OF FIELD
		2082			
2028 C0 87 0000		2083	COMPXT B	*-*	RETURN TO CALLER
		2084			
		2084			
		2084			
		2084			
		2084			
		2084			
		2084			
		2084			
		2084			
		2085	*****		
		2086	* CONVERT *		
		2087	*****		
		2088	* THIS SUBRT CONVERTS REP CARDS INTO TEXT CARDS *		
		2089	*		
		2090	*****		
		2091			
		2091			
202C 0A84		202D	2092 READ4 DC	AL2(READIN+4)	
		2093			
		2093			
202E 34 08 20B9		2094	CONVRT ST	CONVTR+3,ARR	SAVE RETURN ADDRESS
2032 34 01 219A		2095	ST	TEMP4,XR1	SAVE REGISTER
2036 C0 87 0226		2096	B	PACK	CONVERT FROM EBCDIC TO HEX
203A 04		203A	2097 DC	IL1'4'	SOURCE LENGTH
203B 0A85		203C	2098 DC	AL2(READIN+5)	SOURCE
203D 0A81		203E	2099 DC	AL2(READIN+1)	DESTINATION
203F 0C 01 0A83 0A81		2100	MVC	READIN+3(2),READIN+1	PUT ADDRESS IN RIGHT PLACE
2045 0C 01 2063 202D		2101	MVC	DEST(2),READ4	INITIALIZE DESTINATION FIELD
204B C2 01 0A88		2102	LA	READIN+8,XR1	LOAD XR1
204F 3C E3 0A80		2103	MVI	READIN,C'T'	CONVERT TO TEXT CARD
2053 3C 00 0A81		2104	MVI	READIN+1,0	INITIALIZE LENGTH TO 'ONE'
2057 34 01 2061		2105	NEXT ST	SRCE,XR1	UPDATE SOURCE ADDRESS
205B C0 87 0226		2106	B	PACK	CONVERT DATA FROM EBCDIC TO HEX
205F 02		205F	2107 DC	IL1'2'	LENGTH
2060 0000		2061	2108 SRCE DC	AL2(*-*)	SOURCE
2062 0000		2063	2109 DEST DC	AL2(*-*)	DESTINATION
2064 7D 40 01		2110	CLI	1(,XR1),C' '	IS NEXT COLUMN BLANK?
2067 F2 81 22		2111	JE	CONTA5	CONTINUE PROCESS
206A 0E 01 0A83 0A03		2112	ALC	READIN+3(2),ONE	INCREMENT RIGHT ADDR POINTER
2070 7D 6B 01		2113	CLI	1(,XR1),C' '	IS NEXT COLUMN A COMMA?
2073 F2 01 03		2114	JNE	*+6	SKIP IF NOT
2076 D2 01 01		2115	LA	1(,XR1),XR1	INCREMENT POINTER
2079 D2 01 02		2116	LA	2(,XR1),XR1	
207C 0E 01 2063 0A03		2117	ALC	DEST(2),ONE	INCREMENT DESTINATION FIELD
2082 0E 00 0A81 0A03		2118	ALC	READIN+1(1),ONE	INCREMENT LENGTH
2088 C0 87 2057		2119	B	NEXT	CONTINUE
		2120	*		
		2121	*	SET REST OF FIELD TO X'00'.	
		2122	*		

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
208C 3C 00 0ADF		2123	CONTA5 MVI	READIN+95,0	CLEAR OUT ID FIELD
2090 0C 06 0ADE 0ADF		2124	MVC	READIN+94(7),READIN+95	
2096 C2 01 0AD7		2125	LA	READIN+87,XR1	
209A 34 01 20BB		2126	CONTA4 ST	TEMP1,XR1	
209E 0D 01 2063 20BB		2127	CLC	DEST(2),TEMP1	
20A4 F2 02 0B		2128	JNL	CONTA6	
20A7 7C 00 00		2129	MVI	0(,XR1),0	
20AA 36 01 0B9C		2130	A	MINUS1,XR1	
20AE C0 87 209A		2131	B	CONTA4	
20B2 35 01 219A		2132	CONTA6 L	TEMP4,XR1	RELOAD REGISTER
		2133			
20B6 C0 87 0000		2134	CONVTR B	*-*	RETURN TO CALLER
		2135			
		2135			
		2135			
		2135			
		2135			
		2135			
		2135			
		2135			
		2135			
		2136	*****		
		2137	* RWRN *		
		2138	*****		
		2139	* THIS SUBROUTINE READS DATA IN FROM C C H H R FIELD IN FIELD *		
		2140	* PNAS, AND WRITES IT ON THE SAME MODULE AT LOCATION C C H H R *		
		2141	* IN THE FIELD 'NAS'.		
		2142	*		
		2143	*****		
		2144			
		2144			
20BA 0000		20BB	2145 TEMP3 DC	IL2'0'	
20BC 000000000000		20C1	2146 VTNAS DC	6IL1'0'	
20C2 000000000000		20C7	2147 PNAS DC	6IL1'0'	
		2148			
		2148			
		20C8	2149 RWRN EQU	*	
		2150	ST	RWRN+3,ARR	
		2151	MVC	TEMP1(2),SECT#	MOVE # OF SECTORS TO BE MOVED INTO A BUFFER
		2152	*		RESET FLAG
20D2 3C 00 2AAE		2153	MVI	NWRTPG,0	SET UP DUAL CONTROL FIELD FOR MOVING PROGRAM
20D6 0C 04 2BD2 20C7		2154	MVC	DDCFSH(5),PNAS	
20DC 0C 04 2BDC 2BB8		2155	MVC	DDCFTH(5),NAS	
		2156			
20E2 0D 01 20BB 2BFA		2157	LOOP17 CLC	TEMP1(2),X48	IS # OF SECTORS < 48?
20E8 F2 04 0D		2158	JNH	CHCNT2	THEN JUMP
20EB 3C 2F 2BD6		2159	MVI	DDCF5,47	SET CONTROL FIELD TO MOVE 48 REC'S
20EF 0F 01 20BB 2BFA		2160	SLC	TEMP1(2),X48	DECREMENT COUNTER
20F5 F2 87 10		2161	J	CHCNT3	JUMP
20FB 0C 00 2BD6 20BB		2162	CHCNT2 MVC	DDCF5(1),TEMP1	SET # OF RECORDS TO MOVE
20FE 0F 00 2BD6 0A03		2163	SLC	DDCF5(1),ONE	ADJUST IT
2104 3C 0F 2AAE		2164	MVI	NWRTPG,X'0F'	SET FLAG TO QUIT
		2165			
2108 0C 00 2BE0 2BD6		2166	CHCNT3 MVC	DDCF1(1),DDCF5	SET BOTH FIELDS
		2167			
210E C0 87 239C		2168	B	WJNRW	READ IN RECORDS TO MOVE
2112 80		2112	2169 DC	XL1'80'	READ FLAG
2113 4800		2114	2170 DC	AL2(DDDF)	
2115 2BCD		2116	2171 DC	AL2(DDCF5B)	
		2172			
2117 C0 87 239C		2173	B	WINRW	WRITE RECORDS TO MOVE
211B 40		211B	2174 DC	XL1'40'	WRITE FLAG
211C 4800		211D	2175 DC	AL2(DDDF)	
211E 2BD7		211F	2176 DC	AL2(DDCF5B)	
		2177			
2120 C0 87 219E		2178	B	STPFLD	STEP CONTROL FIELD
2124 2BD2		2125	2179 DC	AL2(DDCF5H)	
2126 C0 87 219E		2180	B	STPFLD	STEP CONTROL FIELD
212A 2BDC		212B	2181 DC	AL2(DDCF5H)	

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

212C 3D 00 2AAE 2182  
2130 C0 81 20E2 2183 CLI NWRTFG,0  
2184 BE LOOP17  
2185  
2134 C0 87 0000 2186 RWRTR B \*\*  
2187  
2187  
2187  
2187  
2187  
2187  
2187  
2187  
2187  
2187  
2188 \*\*\*\*\*  
2189 \* RDWRT \*  
2190 \*\*\*\*\*  
2191 \* THIS SUBROUTINE READS FROM ONE DATA MODULE, AND WRITES ON \*  
2192 \* ANOTHER. THE FROM DATA MODULE Q CODE SHOULD BE IN 'PRDRV#' \*  
2193 \* AND THE TO Q CODE IN 'TODRV#' THE C C H H FIELD TO START \*  
2194 \* DUPLICATING AT IN 'STRSCT', AND THE C C H H FIELD TO STOP AT \*  
2195 \* IN 'STPSTCT' (4 BYTE FIELDS). \*  
2196 \*  
2197 \*\*\*\*\*  
2198  
2198  
2138 00000000 213B 2199 STRSCT DC 4IL1'0'  
213C 00000000 213F 2200 STPSTCT DC 4IL1'0'  
2201  
2201  
2140 34 08 2193 2202 RDWRT ST RDWRTR+3,ARR SAVE RETURN ADDRESS  
2203  
2144 0C 03 2BD1 213B 2204 MVC DDCFSM-1(4),STRSCT SET UP C C H H FIELD  
214A 3C 01 2BD2 2205 MVI DDCFSM,1 START AT RECORD 1  
214E 0C 09 2BE0 2BD6 2206 MVC DDCPT(10),DDCFS DO THE SAME FOR THE WRITE DDCP  
2207  
2154 3C 2F 2BD6 2208 LOOP11 MVI DDCFS,47 SET UP FIELDS TO WRITE  
2158 3C 2F 2BE0 2209 MVI DDCPT,47 1 TRACK  
2210  
215C 0C 00 234E 2C01 2211 MVC DRIVE\*(1),PRDRV# SET WINRW TO OPERATE ON RIGHT DRV  
2162 C0 87 239C 2212 B WINRW READ IN 48 RECORDS  
2166 80 2166 2213 DC XL1'80' READ FLAG  
2167 4800 2168 2214 DC AL2(DDDF)  
2169 2BCD 216A 2215 DC AL2(DDCFSB)  
2216  
216B 0C 00 234E 2C02 2217 MVC DRIVE\*(1),TODRV# SET WINRW TO OPERATE ON RIGHT DRV  
2171 C0 87 239C 2218 B WINRW WRITE 48 RECORDS  
2175 40 2175 2219 DC XL1'40' WRITE FLAG  
2176 4800 2177 2220 DC AL2(DDDF)  
2178 2BD7 2179 2221 DC AL2(DDCPTB)  
2222  
217A C0 87 219B 2223 B STPFLD INCREMENT DDCFS  
217E 2BD2 217F 2224 DC AL2(DDCFSM)  
2180 C0 87 219B 2225 B STPFLD INCREMENT DDCPT  
2184 2BDC 2185 2226 DC AL2(DDCPTM)  
2227  
2186 0D 03 2BD1 213F 2228 CLC DDCFSM-1(4),STPSTCT IS IT TIME TO QUIT?  
218C C0 82 2154 2229 BL LOOP11 IF NOT, GO BACK  
2190 C0 87 0000 2230 RWRTR B \*\* RETURN TO CALLER  
2231  
2231  
2231  
2231  
2231  
2231  
2231  
2231  
2231  
2231  
2232 \*\*\*\*\*  
2233 \* STPFLD \*

2234 \*\*\*\*\*  
2235 \* THIS SUBRT STEPS THE DISK DRIVE CONTROL FIELD TO \*  
2236 \* THE NEXT SECTOR. \*  
2237 \* THE FORMAT FOLLOWS: \*  
2238 \* \*  
2239 \* B STPFLD \*  
2240 \* DC AL2(\*\*) THIS IS THE RIGHT END ADDRESS OF \*  
2241 \* A FIVE BYTE FIELD CONTAINING \*  
2242 \* C C H H R. \*  
2243 \* \*  
2244 \*\*\*\*\*  
2245  
2245  
2198 2246 DDCFX DC 5IL1'0'  
2199 0000 219A 2247 TEMP4 DC IL2'0'  
2248  
2248  
219B 34 08 2200 2249 STPFLD ST STPFLR+3,ARR SAVE ADDRESS  
219F 0E 01 2200 0A03 2250 ALC STPFLR+3(2),ONE POINT TO FIELD ADDRESS  
21A5 0C 01 21B0 2200 2251 MVC MVC6+5(2),STPFLR+3 OVERLAY INSTRUCTION  
21AB 0C 01 21B6 0000 2252 MVC MVC3+5(2),\*\*  
21B1 0C 04 2198 0000 2253 MVC3 MVC DDCFX(5),\*\* MOVE IN FIELD TO BE WORKED ON  
21B7 0E 01 2200 0A03 2254 ALC STPFLR+3(2),ONE POINT TO RETURN ADDRESS  
2255  
21BD 3D 30 2198 2256 CLI DDCFX,48 IS R FIELD EQUAL TO 48?  
21C1 F2 02 09 2257 JNL INCHD THEN GO TO NEW HEAD  
21C4 0E 00 2198 0A03 2258 ALC DDCFX(1),ONE INCREMENT REC #  
21CA F2 87 24 2259 J CONTAB  
2260  
21CD 3D 13 2197 2261 INCHD CLI DDCFX-1,19 IS HEAD # 19?  
21D1 F2 02 0D 2262 JNL INCCL THEN INCREMENT CYLINDER  
21D4 3C 01 2198 2263 MVI DDCFX,1 RESET TO RECORD 1  
21D8 0E 01 2197 0A03 2264 ALC DDCFX-1(2),ONE INCREMENT HEAD  
21DE F2 87 10 2265 J CONTAB  
2266  
21E1 0E 01 2195 0A03 2267 INCCL ALC DDCFX-3(2),ONE INCREMENT CYLINDER  
21E7 0C 01 2197 2B5A 2268 MVC DDCFX-1(2),ZERO HEAD 0  
21ED 3C 01 2198 2269 MVI DDCFX,1 RECORD 1  
2270  
21F1 0C 01 21FA 21B6 2271 CONTAB MVC MVC4+3(2),MVC3+5 OVERLAY INSTRUCTION  
21F7 0C 04 0000 2198 2272 MVC4 MVC \*\*\*(5),DDCFX REPLACE FIELD  
2273  
21FD C0 87 0000 2274 STPFLR B \*\* RETURN TO CALLER  
2275  
2275  
2275  
2275  
2275  
2275  
2275  
2275  
2275  
2275  
2275  
2276 \*\*\*\*\*  
2277 \* RDPAS \*  
2278 \*\*\*\*\*  
2279 \* THIS SUBRT SEEKS TO AND READS THE PAS RECORD \*  
2280 \* FORMAT FOLLOWS: \*  
2281 \* \*  
2282 \* B RDPAS THE RECORD READ FROM THE DISK IS \*  
2283 \* DEPOSITED IN THE 12 BYTE FIELD: \*  
2284 \* 'PASINF'. \*  
2285 \* \*  
2286 \*\*\*\*\*  
2287  
2287  
2201 34 08 2241 2288 RDPAS ST RDPASR+3,ARR SAVE RETURN ADDRESS  
2205 0C 04 2BC8 2B3D 2289 MVC DDCFRM(5),C3H161 SET UP DDCP FIELD TO READ PAS RCRD  
220B 3C 00 2BCC 2290 MVI DDCFR,0  
220F C0 87 239C 2291 B WINRW READ PAS



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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2213	80	2213	2292	DC	XL1'80'
2214	4800	2215	2293	DC	AL2(DDDF)
2216	2BC3	2217	2294	DC	AL2(DDCFRB)
		2295			
2218	0D 02 4802 2269	2296		CLC	DDDF+2(3),FAS
221E	F2 01 09	2297		JNE	**12
2221	0C 08 2272 480B	2298		MVC	FASINF(9),DDDF+11
2227	F2 87 14	2299		J	RDFASR
		2300			
222A	0C 01 2272 2B5A	2301		MVC	FASINF(2),ZERO
2230	0C 04 226F 2B5B	2302		MVC	FASINB+8(5),C4HOR1
2236	3C 00 2270	2303		MVI	FASINB+9,0
223A	3C 00 226A	2304		MVI	FASINB+3,0
		2305			
223E	C0 87 0000	2306		RDFASR B	**
		2307			
		2307			
		2307			
		2307			
		2307			
		2307			
		2307			
		2307			
		2308			*****
		2309		*	WRFAS *
		2310			*****
		2311		*	THIS SUBROUTINE WRITES INFO IN THE FAS REGION *
		2312		*	
		2313		*	FORMAT FOLLOWS:
		2314		*	
		2315		*	B WRFAS DATA STORED IN THE 12 BYTE FIELD: *
		2316		*	'FASINF' IS WRITTEN IN THE FAS THE *
		2317		*	FAS REGION OF THE DISK. *
		2318		*	
		2319			*****
		2320			
		2320			
2242	34 08 2266	2321		WRFAS ST	WRFASR+3,ARR
		2322			SAVE RETURN ADDRESS
2246	0C 04 2BC8 2B3D	2323		MVC	DDCFR(5),C3H161
224C	3C 00 2BCC	2324		MVI	DDCFR,0
2250	C0 87 0B78	2325		B	SETTO
2254	0C 08 480B 2272	2326		MVC	DDDF+11(12),FASINF
		2327			
225A	C0 87 239C	2328		B	WINRW
225E	40	225E 2329		DC	XL1'40'
225F	4800	2260 2330		DC	AL2(DDDF)
2261	2BC3	2262 2331		DC	AL2(DDCFRB)
		2332			
2263	C0 87 0000	2333		WRFASR B	**
		2334			
		2334			
		2334			
		2334			
		2334			
		2334			
		2334			
		2335			*****
		2336		*	SCNVTC *
		2337			*****
		2338		*	THIS SUBROUTINE SCANS VTOC FOR THE ID IN THE PARAMETER *
		2339		*	LIST. IT THEN SETS A FLAG INDICATING SCAN HIT OR NOT. *
		2340		*	THE ADDRESS OF THE HIT AND ITS CONTENTS ARE SAVED. *
		2341		*	
		2342		*	FORMAT FOLLOWS:
		2343		*	
		2344		*	B SCNVTC

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		2345	*	DS	XL1
		2346	*	DC	CL3'PID'
		2347	*		
		2348	*		FLAG BYTE: X'00'= NO SCAN HIT THROUGH ENTIRE *
		2349	*		CONTENTS OF VTOC *
		2350	*		X'0F'= SCAN HIT *
		2351	*		NOTE: ON NO SCAN HIT THE ADDRES LEFT IN THE DDCP FIELD IS *
		2352	*		THE NEXT AVAILABLE RECORD FOR VTOC. *
		2353	*		
		2354	*		NOTE: TO SCAN TO END OF VTOC, PUT '***' IN PRGID *
		2355	*		
		2356	*		*****
		2357	*		
		2357	*		
		2267	2358	FASINB EQU	*
		2269	2359	FAS DC	CL3'FAS'
2267	C6C1E2	2272	2360	FASINF DC	9IL1'0'
226A	0000000000000000				
2272	00				
		226F	2361	FASINH EQU	FASINB+8
2273	5C5C5C	2275	2362	AST DC	CL3'****
2276	0000	2277	2363	TEMP3 DC	IL2'0'
2278	00FF	2279	2364	X255 DC	IL2'255'
		2365			
		2365			
		2365			
		2366	SCNVTC ST	SCNVTR+3,ARR	SAVE RETURN ADDRESS
		2367	ST	TEMP3,XR1	SAVE XR1
		2368	L	SCNVTR+3,XR1	LOAD XR1
		2369			
		2370	ALC	SCNVTR+3(2),X4	INCREMENT TO RETURN ADDRESS
		2371			
		2372	B	RDFAS	GO READ FAS
		2373	MVC	DDCFR(5),C2HOR1	SET DDCF
		2374	MVI	DDCF,0	
		2375			
		2376	CLC	FASINF(2),ZERO	SEE IF VIRGIN PACK
		2377	JE	END1	GO HANDLE IT
		2378			
		2379	LA	3(,XR1),XR1	INCREMENT XR1
		2380	ST	MVC1+5,XR1	OVERLAY MOVE INSTRUCTION
		2381	A	NEG3,XR1	DECREMENT XR1 BY 3
		2382			
		22AE	3C FF 48FF		
		22B2	0C FE 48FE 48FF		
		2383	MVI	DDDF+255,X'FF'	FILL DDDF WITH X'FF'
		2384	MVC	DDDF+254(255),DDDF+255	
		2385			
		2386	MVC	DDDF+3(4),ACT0	PUT IN SCAN PARAMETERS
		2387	MVC1	DDDF+6(3),**	
		2388			
		2389	CLC	DDDF+6(3),AST	IF PID DOESN'T = '****'
		2390	JNE	**13	THEN JUMP
		2391	MVI	DDDF+127,0	OTHERWISE ZERO OUT HALF OF SCAN FLD
		2392	MVC	DDDF+126(127),DDDF+127	
		2393			
		2394	MVI	LSTSCN,0	
		2395	MVC	TIO18+1(1),DRIVE#	OVERLAY TIO INST
		2396	SBN	TIO18+1,X'03'	
		2397	MVC	TEMP2(2),FASINF	KEEP HEAD OF VTOC #
		2398			
		22EB	0D 01 2ADF 2279		
		22F1	F2 04 0D		
		22F4	0F 01 2ADF 2279		
		22FA	3C FE 2BC2		
		22FE	F2 87 0A		
		2400			
		2401	SLC	TEMP2(2),X255	IS # OF RECORDS TO SCAN >255?
		2402	MVI	DDCF,254	SKIP IF NOT
		2403	J	**13	DECREMENT COUNTER
		2404			SET DDCF
		2405	MVC	DDCF(1),TEMP2	SKIP
		2406	MVI	LSTSCN,X'FF'	SET LAST SCAN FLAG
		2407			
		2408	B	WINRW	SCAN READ
		230B	C0 87 239C		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
230F	20	230F	2409	DC	IL1'20'
2310	4800	2311	2410	DC	AL2(DDDF)
2312	2BB9	2313	2411	LC	AL2(DDCFB)
			2412		
2314	C1 00 2331	2413	TIO18	TIO	CONTE5,*--
			2414		IS IT SCAN HIT?
2318	C0 87 219B	2415	B	STPFLD	INCREMENT SCAN DDCF FIELD
231C	2BBE	231D	2416	DC	AL2(DDCFB)
			2417		
231E	3D FF 2AB4	2418	CLI	LSTSCN,X'FF'	IS LAST SCAN FLAG SET?
2322	C0 04 22EB	2419	BNE	LOOP8	RETURN IF NOT
			2420		
2326	34 01 232D	2421	ST	MVI1+3,XR1	OVERLAY MVI INST
			2422		
232A	3C 00 0000	232A	2423	END1	EQU *
232E	F2 87 15		2424	MVI1	MVI *--*,0
			2425	J	SCNVTE
			2426		RESET SCAN HIT FLAG
2331	34 01 2338		2427	CONTE5	ST MVI2+3,XR1
2335	3C 0F 0000		2428	MVI2	MVI *--*,X'0F'
2339	3C 00 2BC2		2429	MVI	DDCF,0
233D	C0 87 239C		2430	B	WINRW
2341	80	2341	2431	DC	IL1'80'
2342	4800	2343	2432	DC	AL2(DDDF)
2344	2BB9	2345	2433	DC	AL2(LDCFB)
			2434		READ IN 1 RECORD
2346	35 01 2277		2435	SCNVTE L	TEMP3,XR1
234A	C0 87 0000		2436	SCNVTR B	*--*
			2437		RELOAD XR1
			2437		RETURN TO CALLER
			2437		
			2437		
			2437		
			2437		
			2437		
			2437		
			2437		
			2437		
			2438	*****	
			2439	* SELDRV *	
			2440	*****	
			2441	*	
			2442	*	SUBROUTINE TO TEST SENSE SWITCHES AND SELECT
			2443	*	WHICH DISK DRIVE TO USE
			2444	*	
			2445	*****	
			2446		
			2446		
234E	00	234E	2447	DRIVE# DC	IL1'0'
			2448		
234F	34 08 2374		2449	SELDV ST	SLDRVR+3,ARR
2353	39 38 020C		2450	TBF	SBYTE4,SSW22+SSW23+SSW24
2357	F2 90 08		2451	JF	*+11
235A	3C C0 234E		2452	MVI	DRIVE#,DR1
235E	3C F1 303C		2453	MVI	KBRDY,C'1'
2362	38 20 020C		2454	TBN	SBYTE4,SSW22
2366	F2 90 08		2455	JF	SLDRVR
2369	3C C8 234E		2456	MVI	DRIVE#,DR2
236D	3C F2 303C		2457	MVI	KBRDY,C'2'
			2458	*	TBN SBYTE4,SSW23
			2459	*	JF *+11
			2460	*	MVI DRIVE#,DR3
			2461	*	MVI KBRDY,C'3'
			2462	*	TBN SBYTE4,SSW24
			2463	*	JF *+11
			2464	*	MVI DRIVE#,DR4
			2465	*	MVI KBRDY,C'4'
2371	C0 07 0000		2466	SLDRVR B	*--*
					RETURN TO CALLER

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2468	*****				
2469	* WINRW *				
2470	*****				
2471	* SUBROUTINE: READ, WRITE OR SCAN N RECORDS ON 3340				
2472	*				ACCESS FORMAT:
2473	*	B	WINRW		BRANCH TO SUBROUTINE
2474	*	DC	XL1		FLAG
2475	*	DC	AL2(*--*)		@ OF DISK DRIVE DATA FIELD
2476	*	DC	AL2(*--*)		@ OF DISK DRIVE CONTROL FIELD
2477	*				
2478	*				FLAG BITS (NO MORE THAN ONE BIT ON AT A TIME)
2479	*				BIT
2480	*	0-		SEEK AND READ	
2481	*	1-		SEEK AND WRITE	
2482	*	2-		SEEK AND SCAN READ	
2483	*				
2484	*				VALUES OF BYTE 'DRIVE#:
2485	*		DRIVE 1		'DRIVE#'= X'CO'
2486	*		DRIVE 2		'DRIVE#'= X'CB'
2487	*		DRIVE 3		'DRIVE#'= X'D0'
2488	*		DRIVE 4		'DRIVE#'= X'D8'
2489	*				
2490	*****				
2491					
2491					
2375	0000000000000000	237E	2492	DDCFE DC	10IL1'0'
237D	0000		2492		
237F	0000	2380	2493	TDDDR DC	IL2'0'
		2381	2494	QUITPG EQU	*
2381	0000	2382	2495	TDDCR DC	IL2'0'
		2383	2496	TDDDF EQU	*
2383	0000000000000000	238B	2497	DC	9IL1'0'
238B	00		2497		
		238C	2498	TDDCF EQU	*
238C	0000000000	2390	2499	DC	5IL1'0'
2391	238C	2392	2500	TDDCF@ DC	AL2(TDDCF)
2393	2383	2394	2501	TDDDF@ DC	AL2(TDDDF)
		2395	2502	OUTREC EQU	*
2395	0000000000	2399	2503	DC	5IL1'0'
239A	0C8F	239B	2504	LINK@ DC	AL2(LINK@)
			2505		
			2505		
			2505		
			2505		
			2506	WINRW ST	WINRWR+3,ARR
239C	34 08 2522		2506	ST	ADDR,XR1
23A0	34 01 2AC5		2507	L	WINRWR+3,XR1
23A4	35 01 2522		2508	ALC	WINRWR+3(2),X5
23A8	0E 01 2522 2BF0		2509		SET RETURN ADDRESS TO NEXT INST
			2510		
23AE	3C 0A 2BFD		2511	MVI	ICTR,10
23B2	1C 01 23E0 04		2512	MVC	MOV1+5(2),4(,XR1)
23B7	0C 01 251E 23E0		2513	MVC	MVI4+3(2),MOV1+5
23BD	0E 01 23E0 2BF0		2514	ALC	MOV1+5(2),X5
23C3	0E 01 23E0 2BEC		2515	ALC	MOV1+5(2),X3
23C9	0C 01 23D8 23E0		2516	MVC	MVC10+3(2),MOV1+5
23CF	0E 01 23E0 0A03		2517	ALC	MOV1+5(2),ONE
23D5	0C 02 0000 2B8A		2518	MVC10	MVC *--*(3),X256
23DB	0C 09 237E 0000		2519	MOV1	MVC DDCF(10),*--*
23E1	0C 01 24B8 23E0		2520	MVC	MOV2+3(2),MOV1+5
23E7	0D 03 2379 2B87		2521	CLC	DDCF-5(4),C33H18
23ED	C0 84 2735		2522	BH	TOOPAR
			2523		
23F1	78 20 00		2524	TBN	0(,XR1),X'20'
23F4	C0 10 24D9		2525	BT	SCANRD
			2526		
			2527	*	
			2528	*	
			2529	*	
					THIS SECTION OVERLAYS I/O INSTRUCTIONS FOR CORRECT DRIVE *
					*

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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2530
23F8 OC 00 246F 234E      2531      MVC      SIO1+1(1),DRIVE#   OVERLAY SIO INSTRUCTION
23FE OC 00 246C 234E      2532      MVC      SIO5+1(1),DRIVE# OVERLAY SIO INST
2404 OC 00 2472 234E      2533      MVC      TIO4+1(1),DRIVE# OVERLAY TIO INST
240A 3A 02 2472          2534      SBN      TIO4+1,X'02'
240E OC 00 24AF 234E      2535      MVC      SIO7+1(1),DRIVE#   OVERLAY SIO INST
2414 OC 00 24B2 234E      2536      MVC      TIO5+1(1),DRIVE#   OVERLAY TIO INST
241A 3A 01 24B2          2537      SBN      TIO5+1,X'01'
241E OC 00 2468 234E      2538      MVC      TIO1+1(1),DRIVE#   OVERLAY TIO INST
2424 OC 00 2476 234E      2539      MVC      TIO7+1(1),DRIVE#   OVERLAY TIO INST
2540
242A 78 40 00          2541      TBN      0(,XR1),X'40'      SEE IF READ OR WRITE REQUEST
242D F2 10 07          2542      JT       **10
2430 3A 01 246F          2543      SBN      SIO1+1,X'01'      OVERLAY FOR READ
2434 F2 87 2A          2544      J        RTRY1
2437 3A 02 246F          2545      SBN      SIO1+1,X'02'      OVERLAY FOR WRITE
243B OC 01 24A0 23E0      2546      MVC      CLI1+3(2),MOV1+5   OVERLAY CLI INST
2441 OC 01 2489 23E0      2547      MVC      MOV3+3(2),MOV1+5   OVERLAY MVC INST
2447 OC 00 2490 246C      2548      MVC      SIO8+1(1),SIO5+1 OVERLAY SIO INST
244D OC 00 2493 246C      2549      MVC      SIO9+1(1),SIO5+1 OVERLAY SIO INST
2453 3A 01 2493          2550      SBN      SIO9+1,X'01'      FURTHER OVERLAY SIO INST
2457 OC 00 2496 234E      2551      MVC      TIO8+1(1),DRIVE#   OVERLAY TIO INST
245D 3A 02 2496          2552      SBN      TIO8+1,X'02'
2553
2461 2554 RTRY1 EQU *
2555
2461 71 C4 02          2556      LIO      2(,XR1),DDDR      LOAD DISK DRIVE DATA REGISTER
2464 71 C6 04          2557      LIO      4(,XR1),DDCR      LOAD DISK DRIVE CONTROL REGISTER
2558
2467 C1 00 26B1          2559      TIO1     TIO      HALT1,*--      TEST FOR DEVICE NOT READY
246B F3 00 00          2560      SIO5     SIO      X'00',*--      SEEK
2561
246E 2562 DRTRN2 EQU *
2563
246E F3 00 00          2564      SIO1     SIO      X'00',*--      READ OR WRITE N RECORDS
2471 C1 00 2471          2565      TIO4     TIO      *,*--      TEST FOR ADAPTER NOT BUSY
2475 C1 00 2703          2566      TIO7     TIO      HALT2,*--      TEST FOR NOT READY DURING INST
2567
2479 38 02 246F          2568      TBN      SIO1+1,X'02'      IS IT WRITE INST?
247D F2 90 97          2569      JF       WINRWT          IF NOT, RETURN TO CALLER
2570
2480 OC 00 249A 234E      2571      MVC      TIO19+1(1),DRIVE# OVERLAY TIO
2486 OC 09 0000 237E      2572      MOV3     MVC      *-*(10),DDCFE
248C 71 C4 02          2573      LIO      2(,XR1),DDDR      RELOAD DDDR
248F F3 00 00          2574      SIO8     SIO      0,*--      SEEK
2492 2575 DRTRN3 EQU *
2576
2492 F3 00 03          2576      SIO9     SIO      3,*--      READ VERIFY
2495 C1 00 2495          2577      TIO8     TIO      *,*--      WAIT TILL DRIVE NOT BUSY
2499 C1 00 24D1          2578      TIO19    TIO      CHK1,*--      UNIT CHECK?
249D 3D FF 0000          2579      CLI      *-*,X'FF'          SUCCESSFUL READ VERIFY?
24A1 F2 81 73          2580      JE       WINRWT
2581
24A4 0F 00 2BFD 0A03      2582      BRTRY1   SLC      ICTR(1),ONE      IS THIS THE 10TH TIME?
24AA C0 81 2699          2583      BZ       EE2            IF YES GO TO END ROUTINE
24AE F3 00 01          2584      SIO7     SIO      X'01',*--      RECALIBRATE
24B1 C1 00 24B1          2585      TIO5     TIO      *,*--      WAIT FOR SEEK NOT BUSY
24B5 OC 09 0000 237E      2586      MOV2     MVC      *-*(10),DDCFE      RELOAD DDCF FIELD
2587
24BB 7D 20 00          2588      CLI      0(,XR1),X'20'    IS IT A SCAN READ?
24BE F2 81 3E          2589      JE       TIO9-6         IF SO, RETURN TO THAT SECTION
24C1 38 FF 25E1          2590      TBN      WRTVPY,X'FF'     IS IT WRITE VERIFY?
24C5 3B FF 25E1          2591      SBF      WRTVPY,X'FF'
24C9 C0 10 2486          2592      BT       MOV3
24CD C0 87 2461          2593      B        RTRY1
2594
24D1 3C FF 25E1          2595      CHK1    MVI      WRTVPY,X'FF'
24D5 C0 87 2703          2596      B        HALT2

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2597
2597
2597
24D9 OC 00 250D 234E      2598      SCANED   MVC      SIO10+1(1),DRIVE# OVERLAY SIO INSTR
24DF 3A 03 250D          2599      SBN      SIO10+1,X'03'
24E3 OC 00 250A 234E      2600      MVC      SIO11+1(1),DRIVE# OVERLAY SIO INST
24E9 OC 00 2506 234E      2601      MVC      TIO9+1(1),DRIVE#   OVERLAY TIO INSTR
24EF OC 00 2510 234E      2602      MVC      TIO10+1(1),DRIVE# OVERLAY TIO INSTR
24F5 3A 02 2510          2603      SBN      TIO10+1,X'02'
24F9 OC 00 2514 234E      2604      MVC      TIO11+1(1),DRIVE# OVERLAY TIO INSTR
24FF 71 C4 02          2605      LIO      2(,XR1),DDDR      LOAD DDDR
2502 71 C6 04          2606      LIO      4(,XR1),DDCR      LOAD DDCR
2505 C1 00 26B1          2607      TIO9     TIO      HALT1,*--      TEST FOR DEVICE NOT READY
2509 F3 00 00          2608      SIO11    SIO      X'00',*--      SEEK
2609
250C 2610 DRTRN1 EQU *
2611
250C F3 00 0C          2611      SIO10    SIO      X'0C',*--      EXECUTE SCAN READ
250F C1 00 250F          2612      TIO10    TIO      *,*--      WAIT UNTIL DONE
2513 C1 00 2703          2613      TIO11    TIO      HALT2,*--      TEST FOR UNIT CHECK
2614
2517 35 01 2AC5          2614
251B 3C 00 0000          2615      WINRWT   L        ADDR,XR1
251F C0 87 0000          2616      MVI4     MVI      *-*,0          ZER OUT FLAG BYTE BEFORE RETURNING
2617      WINRWR   B        *-*          RETURN TO CALLER
2618
2619 *
2620 *
2621 * THIS SECTION FINDS THE ALTERNATE TRACK ADDRESS SEEKS TO IT *
2622 * AND RETURNS CONTROL; OR, WHEN COMING OFF AN ALTERNATE TRACK, *
2623 * IT GETS THE PROGRAM BACK TO THE RIGHT TRACK. *
2624
2523 34 08 254C          2625      DEPTRK   ST      DEPTRK+3,ARR      SAVE ADDRESS
2527 0F 00 2BFD 0A03      2626      SLC      ICTR(1),ONE      DECREMENT LOOP COUNTER
252D C0 81 2699          2627      BZ       EE2            QUIT IF 10 TIMES
2531 3D 0D 0B67          2628      CLI      DBYTE7,X'0D'    COMPARE BYTE 7
2535 F2 81 15          2629      JE       TODTRK        IF='0D' THEN SEEK TO ALTERNATE
2630
2538 OC 01 2541 251E      2631      MVC      MVI5+3(2),MVI4+3 OVERLAY INTSTRUCTION TO ZERO DDCF
253E 3C 00 0000          2632      MVI5     MVI      *-*,0          FLAG BYTE.
2633
2542 3D 0E 0B67          2634
2546 F2 81 7D          2635      CLI      DBYTE7,X'0E'    OVERLAY INTSTRUCTION TO ZERO DDCF
2549 C0 87 0000          2636      JE       FRDTRK        FLAG BYTE.
2637
254D OC 00 2584 234E      2637      DEPTRK   B        *-*          RETURN TO CALLER
2553 OC 00 2588 234E      2638      TODTRK   MVC      TIO15+1(1),DRIVE# OVERLAY TOP ONST
2559 3A 01 2588          2639      MVC      SIO2+1(1),DRIVE# OVERLAY SIO INST
255D OC 00 25A0 2588      2640      SBN      SIO2+1,X'01'
2563 OC 00 258F 234E      2641      MVC      SIO4+1(1),SIO2+1 OVERLAY SIO INST
2569 OC 01 25AC 23E0      2642      MVC      SIO3+1(1),DRIVE#   PUT DDCF ADDRESS IN MOVE INST
256F 0F 01 25AC 2BFD      2643      MVC      MVC2+3(2),MOV1+5 ADJUST ADDRESS
2575 OC 00 259C 2584      2644      SLC      MVC2+3(2),X5
2645      MVC      TIO2+1(1),TIO15+1
2646
257B 30 C4 2380          2646
257F 31 C4 2394          2647      SNS      TDDDR,DDDR      SAVE CONTENTS OF DDDR
2583 C1 00 26B1          2648      LIO      TDDDFa,DDDR      LOAD DDDR WITH TEMPORARY VALUE
2587 F3 00 01          2649      TIO15    TIO      HALT1,*--      SEE IF DEVICE IS READY
258A 31 C6 2394          2650      SIO2     SIO      X'01',*--      READ HA AND R0 FIELDS
258E F3 00 00          2651      LIO      TDDDFa,DDCR      CHANGE THE DDCF FOR SEEK
2591 OC 04 2399 2387      2652      SIO3     SIO      X'00',*--      SEEK TO ALTERNATE TRACK
2597 31 C4 2394          2653      MVC      OUTREC+4(5),TDDDF+4
259B C1 00 26B1          2654      LIO      TDDDFa,DDDR
259F F3 00 01          2655      TIO2     TIO      HALT1,*--
25A2 71 C6 04          2656      SIO4     SIO      X'01',*--      READ HA & R0 OF ALT TRACK
25A5 31 C4 2380          2657      LIO      4(,XR1),DDCR      RELOAD DDCR
2658      LIO      TDDDR,DDDR      RELOAD DDDR

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	25A9	0C 04 0000	2387	2659	MVC2	MVC ** (5), TDDDF+4 2660 * 2661 * 2662 CLI 0(,XR1), X'20' 2663 BE DRTRN1 2664 TBN WRTVPY, X'FF' 2665 SBF WRTVPY, X'FF' 2666 BT DRTRN3 2667 B DRTRN2 2668 * 2669 FRDTRK EQU * 2670 CLI 0(,XR1), X'20' 2671 BE TIO9 2672 TBN WRTVPY, X'FF' 2673 SBF WRTVPY, X'FF' 2674 BT SIO8 2675 B TIO1 2676 * 2677 * 2678 * 2679 * 25DE 2680 DGSNS@ DC AL2(DGSNSB) 25E0 2681 TEM1 DC IL2'0' 25E1 2682 WRTVPY DC IL1'0' 2683 * 2684 SNS24 ST SNS24R+3, ARR 2685 SNS STATE, X'C5' 2686 SNS TEM1, DDDR 2687 LIO DGSNS@, DDDR 2688 MVC SIO6+1(1), DRIVE# 2689 SBN SIO6+1, X'01' 2690 SIO SIO X'07', ** 2691 * 2692 LIO TEM1, DDDR 2693 SNS24R B ** 2694 * 2695 SNSAP ST SNSAPR+3, ARR 2696 ST TEMP6, XR1 2697 ST TEMP4, XR2 2698 LA DGSNSB, XR1 2699 LA DGS2B+2, XR2 2700 * 2701 * 2702 * 2703 * 2704 MVI CTR1, 6 2705 LOOP13 MVI CTR2, 4 2706 LOOP14 ST UP1, XR1 2707 ST UP2, XR2 2708 B UNPACK 2709 DC IL1'1' 2631 2710 UP1 DC AL2(***) 2633 2711 UP2 DC AL2(***) 2712 MVI 1(,XR2), C' 2713 LA 1(,XR1), XR1 2714 LA 3(,XR2), XR2 2715 SLC CTR2(1), ONE 2716 BNZ LOOP14 2717 MVI 1(3, XR2), BLNK 2718 * 2719 LA 3(,XR2), XR2 2720 SLC CTR1(1), ONE 2721 BNZ LOOP13 2722 * 2723 B PRINT 265D 2724 DC XL1'02' 265E 2725 DC AL1(EDMS2-EDMS2B)

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	265F	2D38	2660	2726	DC	AL2(EDMS2) 2727 * 2728 B PRINT 2665 2729 DC XL1'02' 2666 2730 DC AL1(HDG1-HDG1B) 2668 2731 DC AL2(HDG1) 2732 * 2669 2733 B PRINT 266D 2734 DC XL1'06' 266E 2735 DC AL1(DGSNS2-DGS2B) 2670 2736 DGPRT@ DC AL2(DGSNS2) 2737 * 2671 35 01 2AE1 2738 L TEMP6, XR1 2675 35 02 219A 2739 L TEMP4, XR2 2679 C0 87 0000 2740 SNSAPR B ** 2741 * 2742 EE1 B PRINT 2681 2743 DC XL1'C2' 2682 2744 DC AL1(ERMS1-ERMS1B) 2684 2745 DC AL2(ERMS1) 2686 2746 DC XL2'FFFF' 2747 B SNS24 2748 B SNSAP 2749 B HALT 2694 2750 DC XL2'FFFF' 2751 B LINKH 2752 * 2753 EE2 B PRINT 269D 2754 DC XL1'C2' 269E 2755 DC AL1(EDMS1-EDMS1B) 26A0 2756 DC AL2(EDMS1) 26A2 2757 DC XL2'FFFF' 2758 B SNSAP 2759 B HALT 26AC 2760 DC XL2'FFFF' 2761 B LINKH 2762 * 2763 * 2764 * 2765 * 2766 * 26B1 2767 HALT1 EQU * 2768 ST HALT1R+3, ARR 2769 SLC HALT1R+3(2), X4 2770 * 2771 B SNS24 26BB 2772 HALT1A TBN STATE-1, X'10' 26C3 2773 F2 90 04 **7 26C6 2774 F4 2C63 MVI ERMSG-24, C' 26CA 2775 F2 90 04 TBN STATE-1, X'20' 26CE 2776 F2 90 04 JF **7 26D1 2777 F3 2C63 MVI ERMSG-24, C'3' 26D5 2778 F4 0A13 TBN STATE-1, X'40' 26D9 2779 F2 90 04 JF **7 26DC 2780 F2 2C63 MVI ERMSG-24, C'2' 26E0 2781 F2 90 04 TBN STATE-1, X'80' 26E4 2782 F2 90 04 JF **7 26E7 2783 F3 F1 2C63 MVI ERMSG-24, C'1' 26EB 2784 C0 87 021A B PRINT 26EF 2785 C6 DC XL1'C6' 26F0 2786 DC AL1(ERMSG-ERMSGB) 26F1 2787 DC AL2(ERMSG) 26F3 2788 DC XL2'FFFF' 26F5 C0 87 2607 B SNSAP 2789 * 2790 * 2791 * 2792 *

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
26F9	C0 87 0222	2792	B	HALT	TO DCP HALT ROUTINE
26FD	FFFC	26FE 2793	DC	XL2'FFFC'	HEADING
26FF	C0 87 0000	2794			
		2795	HALT1R B	*--*	RETURN TO CALLER
		2796			
		2796			
		2796			
		2796			
2703	C0 87 25E2	2703 2797	HALT2 EQU	*	
2707	38 01 0A14	2798	B	SNS24	
270B	C0 10 267D	2799	TBN	STATE,X'01'	CHECK IF ANY CHECKS OCCURRED
		2800	BT	EE1	
		2801			
270F	39 02 0B60	2802	TBF	DBYTE0,TRKCC	SEE IF DEFECTIVE TRACK. IF IT IS
2713	39 01 0B61	2803	TBF	DBYTE1,OPINCP	
2717	C0 90 2523	2804	BF	DEFTRK	THEN READ ALTERNATE TRACK LOCATION,
		2805	*		SEEK TO IT, AND CONTINUE OPERATION.
		2806			
271B	39 25 0B60	2807	TBF	DBYTE0,X'25'	IF ANY OF THESE
271F	39 1C 0B61	2808	TBF	DBYTE1,X'1C'	BITS ARE ON
2723	39 78 0B62	2809	TBF	DBYTE2,X'78'	THEN RETRY OPERATION
2727	C0 90 24A4	2810	BF	BRTRY1	
		2811			
272B	0C 01 2702 239B	2812	MVC	HALT1R+3(2),LINKH0	AFTER HALT1, TERMINATE SECTION
2731	C0 87 26BF	2813	B	HALT1A	PRINT 'DEVICE NOT READY OR CHECK'
		2814			
		2814			
		2814			
2735	C0 87 021A	2815	TOOPAR B	PRINT	PRINT 'NO ROOM LEFT ...'
2739	C6	2739 2816	DC	XL1'C6'	
273A	4E	273A 2817	DC	AL1(ERR14-ERR14B)	
273B	2E85	273C 2818	DC	AL2(ERR14)	
273D	FFEE	273E 2819	DC	XL2'FFEE'	
273F	C0 87 0222	2820	B	HALT	HALT -EE-
2743	FFEE	2744 2821	DC	XL2'FFEE'	
2745	C0 87 0BCB	2822	B	EDITAA	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2824					*****
2825	*				INPUT ROUTINES
2826	*				
2827	*				THE FOLLOWING ROUTINES WILL ALLOW
2828	*				INPUT RECORDS TO BE READ.
2829	*				
2830	*				SSW18 = 1442 AS INPUT DEVICE
2831	*				SSW17 = 3741 AS INPUT DEVICE
2832	*				SSW1A = MFCU AS INPUT DEVICE
2833	*				NO SETTING = 5471 AS INPUT DEVICE
2834					*****
2835					
2836	RECORD ST				XEXITR+3,ARR SAVE RETURN ADDRESS
2837	TRYAGN LA				READIN,XR2 SET XR2 TO POINT TO READIN
2838	NVI				95(,XR2),C' ' BLANK INPUT BUFFER
2839	NVC				94(95,XR2),95(,XR2)
2840					
2841	SBF				USECRT,X'F0' RESET USECRT FLAG
2842	NVI				CD10R2,2 SET FLAG FOR READING UNCOMPRESS DATA
2843					
2844	TBN				SWITCH+3,SSW2F IF SSW 2F ON, DO FE7 PROCEDURE
2845	JF				CK18 IF OFF, NORMAL PROCESSING
2846	ST				ADDR,XR1 SAVE XR1
2847	NVC				GOOUT+3(2),X3PPF SET UP LINKAGE TO FE7 ROUTINE
2848	GOOUT B				*--* GO TO OUT IN FE7
2849	L				ADDR,XR1 RESTORE REGISTERS
2850	LA				READIN,XR2
2851	B				XEXIT RETURN TO CALLER
2852					
2853	CK18 TBN				SWITCH+1,SSW18 TEST SSW 18
2854	BT				LD1442 IF ON, USE THE 1442 AS INPUT.
2855	TBN				SWITCH,SSW17 TEST SSW 17
2856	JT				LD3741 IF ON, USE THE 3741 AS INPUT.
2857	TBN				SWITCH+1,SSW1A TEST SSW 1A,
2858	BT				MFCU IF ON, USE THE MFCU AS INPUT.
2859	TBN				SWITCH+1,SSW1B IS SSW1B ON
2860	JT				CLE55 IF SO USE PROGRAM E55 AS INPUT
2861	SBN				USECRT,X'F0' USE THE 5471 FOR INPUT
2862	B				LD5471 IF NO SWITCHES ON USE 5471 FOR INPUT
2863					
2864	CLE55 ST				ADDR,XR1 SAVE ADDRESS IN XR1
2865	NVC				BE55+3(2),X'7001' GO TO 7001 AND GET ADDRESS TO BRANCH
2866	BE55 B				*--* BRANCH TO E55
2867	LA				READIN,XR2 RESTORE XR2
2868	L				ADDR,XR1 RESTORE XR1
2869	NVI				CD10R2,2 SET FLAG FOR UNCOMPRESSED FORMAT
2870					
2871	XEXIT TBN				ADDPLG,X'OF' ADD MODE SWITCH ON?
2872	JF				XEXITR IF NOT RETURN TO CALLER
2873	B				SET0 SET DDDF FIELD TO ZERO
2874	NVC				223(96,XR1),95(,XR2) PUT CARD IMAGE IN TO DISK FIELD
2875	CLI				CD10R2,2 IS IT IN UNCOMPRESSED FORMAT?
2876	JE				XEXITR IF YES, RETURN TO CALLER
2877	TBN				SWITCH+3,SSW2F SKIP IF CALLED BY FE7 OR CCC
2878	JT				XEXITR
2879	TBN				SWITCH,SSW17 USING 3741 THEN RECORDS IN
2880	JT				XEXITR COMPRESS FORM
2881					
2882	MVC				95(8,XR2),79(,XR2) ADJUST ID AND SEQ # FIELDS
2883	XEXITR B				*--* RETURN TO CALLER
2884					
2884					
2884					
2884					
27ED	5050	27EE	2885 X80	DC	XL2'5050' FOR 2560 READ LENGTH (80)
27EF	0A80	27FO	2886 CARD10	DC	AL2(READIN) ADDRESS OF FIRST CARD READIN AREA
27F1	3900	27F2	2887 BU114	DC	XL2'3900' ADDRESS OF 2ND CARD READIN AREA
		27F2	2888 CARD20	EQU	BUF14

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
27F3 0000 27F4 2889 STATUX DC XL2'0'
27F5 00 27F5 2890 USECRT DC IL1'0' SWITCH FOR NOT PRINTING ON 5471
2891
2891
2891
2891
2892 *****
2893 * 5471 INPUT ROUTINE *
2894 * *
2895 * CODE TO READ RECORD FROM THE 5471 PRINTER/KEYBOARD *
2896 *****
2897
27F6 2898 LD5471 EQU *
2899 B SELDRV SET DRIVE # IN DISPLAY
2900 RTRY L XEXT1+3, XR2 LOAD THE @ OF READ BUFFER
2901 MVC 131(132, XR2), 132(, XR2) CLEAR BUFFER
2902 SIO X'41', X'18' START CARRIAGE RETURN + RESET PRT
2903 NXTCHR SIO X'11', X'10' PROCEED IND ON + RESET REG KEY
2904 RESNS SNS DAT, X'11' CHARACTER KEYED
2905 TBN DAT, X'40' END OR CANCEL KEYED
2906 JF TSTDAT NO
2907 TBN DAT, X'20' CANCEL KEYED
2908 BT RTRY YES
2909 SIO 1, X'10' RESET REQUEST KEY
2910 XEXT1 LA READIN, XR2 LOAD @ OF BUFFER
2911 B DORD CHECK FOR INPUT
2912 TSTDAT TBN DAT, X'08' DATA KEYED
2913 BF RESNS NO
2914 TBN DAT, X'04' RETURN KEY PRESSED
2915 BT RTRY YES
2916 MVC 0(1, XR2), DAT-1
2917 LIO DAT, X'18' MOVE CHARACTER TO BE PRINTED
2918 SIO X'81', X'18' PRINT CHARACTER
2919 LA 1(, XR2), XR2 MOVE TO NEXT CHARACTER
2920 ST TSTN, XR2 STORE CONTENTS OF REG
2921 CLI TSTN, X'E0'
2922 BE XEXT1
2923 B NXTCHR
2924 DORD SIO X'40', X'18' RETURN CARRIAGE
2925 DOREAD CLI READIN+131, C' CHECK FOR BLANK INPUT
2926 JNE NOTBLK
2927 C=C READIN+130(131), READIN+131
2928 BE RTRY
2929 NOTBLK B XEXIT
2930
2930
2930
2931 *****
2932 *
2933 * 3741 INPUT ROUTINE *
2934 * *
2935 *****
286D 2936 LD3741 EQU *
2937 TBN F3741, X'10' HAVE WE READ THE LAST RECORD
2938 JF DOSIO JUMP IF NOT
2939 MVC 1(2, XR2), SLAMP MOVE IN A 1/E
2940 SBF F3741, X'PP' TURN OFF ALL FLAGS
2941 B EOJ1 GO END IT
2942 DOSIO LIO FUNBT1, X'41' LOAD THE FUNCTION BYTE
2943 SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
2944 TBN SNBYT2-1, X'04' ARE WE READY
2945 JF ERR11 NO ERROR
2946 TBN SNBYT2-1, X'02' TEST FOR READ BIT ON
2947 JT CONTI1 LOOP UNTIL READ BIT IS ON
2948 B PRINT PRINT MSG 3741 NOT IN READ MODE
289B 2949 DC XL1'C1' SPACE
289C 2950 DC IL1'29' LENGTH

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
289D 3674 289E 2951 DC AL2(RDMD) MSG @
289F FFF1 28A0 2952 DC XL2'FFF1' HALT INDICATOR
28A1 C0 87 021A 2953 B PRINT PRINT INFO MSG
28A5 06 28A5 2954 DC XL1'06' SPACE
28A6 45 28A6 2955 DC IL1'69' LENGTH
28A7 36B9 28A8 2956 DC AL2(SETUP) MSG @
28A9 C0 87 0222 2957 B HALT INDICATE 'P1' ON STIK LIT
28AD FFF1 28AE 2958 DC XL2'FFF1'
28AF C0 87 2881 2959 B DOSIO RETURN
28B3 F3 43 08 2960 CONTI1 SIO X'08', X'43' NORMAL RESPONSE TO 3741
28B6 3C 01 2ABF 2961 MVI CD1OR2, 1 SET FOR COMPRESS
28BA 31 44 27F0 2962 LIO CARD2@, X'44' PUT READ @ IN DSAR
28BE 31 42 2992 2963 LIO LENCT2, X'42' PUT 255-LENGTH IN LC REG
28C2 F3 41 00 2964 SIO 0, X'41' READ NEXT RECORD
28C5 C1 42 28C5 2965 TIO *, X'42' TEST UNTIL 3741 NOT BUSY
28C9 30 42 2994 2966 SNS SNBYT2, X'42' GET THE STATUS BYTE
28CD 39 0A 2993 2967 TBF SNBYT2-1, X'0A' PARITY READ ERROR OR LCR CVFLW
28D1 C0 90 297D 2968 BF ERR11 HALT IF EITHER CONDITION EXIST
28D5 F3 43 08 2969 SIO X'08', X'43' NORMAL RESPONSE TO 3741
28D8 38 01 2AB5 2970 TBN F3741, X'01' ADD FLAG ON
28DC F2 10 40 2971 JT EOJCHK
28DF BD 5B 00 2972 CLI 0(, XR2), C'S' CONTROL CARD READ
28E2 F2 01 04 2973 JNE **7 JUMP IF NOT
28E5 3A 08 2AB5 2974 SBN F3741, X'08' SET CONTROL FLAG ON
28E9 BD 61 00 2975 CLI 0(, XR2), C'/' CONTROL CARD READ
28EC F2 01 0A 2976 JNE CTLREC ASSUME A CONTROL RECORD
28EF BD 50 01 2977 CLI 1(, XR2), C'E' TERMINATOR RECORD?
28F2 F2 81 4C 2978 JE FIN GO FINISH READING
28F5 3A 08 2AB5 2979 SBN F3741, X'08' SET CONTROL RECORD BIT
28F9 38 08 2AB5 2980 CTLREC TBN F3741, X'08' SET CONTROL FLAG ON
28FD F2 10 1F 2981 JT EOJCHK
2900 3A 01 2AB5 2982 SBN F3741, X'01' SET THE ADD AND REPLACE FLAGS ON
2904 3C F1 2AB6 2983 MVI FADD, C'1' SET FORCED ADD FLAG
2908 30 43 2994 2984 WAIT SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
290C 38 02 2993 2985 TBN SNBYT2-1, X'02' READ BIT ON?
2910 C0 10 0D2F 2986 BT RTRN2 RETURN TO PROCESS 1ST RECORD
2914 38 08 2994 2987 TBN SNBYT2, X'08' END OF JOB?
2918 F2 10 17 2988 JT LSTRC CONTINUE
291B C0 87 2908 2989 B WAIT
291F 30 43 2994 2990 EOJCHK SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
2923 38 02 2993 2991 TBN SNBYT2-1, X'02' READ BIT ON
2927 F2 10 13 2992 JT CDEXIT RETURN
292A 38 08 2994 2993 TBN SNBYT2, X'08' END OF JOB
292E C0 90 291F 2994 BF EOJCHK
2932 3A 10 2AB5 2995 LSTRC SBN F3741, X'10' TURN ON LAST RECORD
2936 C0 87 27C1 2996 B XEXIT RETURN
293A F3 43 08 2997 EOJ1 SIO X'08', X'43' NORMAL RESPONSE TO 3741
293D C0 87 27C1 2998 CDEXIT B XEXIT RETURN TO CALLER
2941 30 43 2994 2999 FIN SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
2945 38 02 2993 3000 TBN SNBYT2-1, X'02' READ BIT ON
2949 F2 10 0C 3001 JT NXT RETURN
294C 38 08 2994 3002 TBN SNBYT2, X'08' END OF JOB
2950 C0 10 293A 3003 BT EOJ1
2954 C0 87 2941 3004 B FIN
2958 F3 43 08 3005 NXT SIO X'08', X'43' LOOP
295B 31 44 27F2 3006 LIO CARD2@, X'44' NORMAL RESPONSE TO 3741
295F 31 42 2992 3007 LIO LENCT2, X'42' PUT READ @ IN DSAR
2963 F3 41 00 3008 SIO 0, X'41' PUT 255-LENGTH IN LC REG
2966 C1 42 2966 3009 TIO *, X'42' READ NEXT RECORD
296A 30 42 2994 3010 SNS SNBYT2, X'42' TEST UNTIL 3741 NOT BUSY
296E 39 0A 2993 3011 TBF SNBYT2-1, X'0A' GET THE STATUS BYTE
2972 C0 90 297D 3012 BF ERR11 PARITY READ ERROR OR LCR OVFLW
2976 F3 43 08 3013 SIO X'08', X'43' HALT IF EITHER CONDITION EXIST
2979 C0 87 2941 3014 B FIN NORMAL RESPONSE TO 3741
297D C0 87 021A 3015 ERR11 B PRINT LOOP TO TEST
2981 46 3016 * BRANCH TO PRINT MFCU NOT READY OR
2982 23 2981 3017 DC XL1'46' ERROR.
2982 3018 DC IL1'35' FLAGS
LENGTH

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2983	29FA	2984	3019	DC	AL2(ERRORC) ADDRESS OF LAST PRINT CHARACTER
2985	FFEC	2986	3020	DC	XL2'FFEC' MESSAGE IDENTIFICATION
2987	C0 87 0222	3021	B	HALT	ISSUE HALT 'EC'
2988	FFEC	298C	3022	DC	XL2'FFEC'
298D	C0 87 2881	3023	B	DOSIO	GO TRY START I/O
2991	007F	2992	3024	LENCT2 DC	XL2'007F'
2993	0000	2994	3025	SNBYT2 DC	XL2'0'
2995	4000	2996	3026	FUNBT1 DC	XL2'4000'
3027					*****
3028	*				MFCU INPUT ROUTINE *
3029					*****
3030					
2997	C1 F0 29BA	3031	MFCU	TIO	ERR,X'F0' TEST FOR NOT READY OR ERROR
2998	31 F5 27F0	3032	LIO	CARD10,X'F5'	LOAD DATA READIN ADDRESS
2999	F3 F1 00	3033	SIO	X'00',X'F1'	READ CARD INTO I/O AREA
29A2	C1 F1 29A2	3034	TIO	*,X'F1'	WAIT
29A6	30 F3 27F4	3035	SNS	STATUX,X'F3'	SENSE DEVICE STATUS
29AA	39 86 27F4	3036	TBF	STATUX,X'86'	TEST FOR READ OR FEED CHECK
29AE	3C 02 2ABF	3037	MVI	CD1OR2,2	SET FOR UNCOMPRESSED DATA
29B2	C0 10 2A1F	3038	BT	XEXT	
29B6	C0 87 2997	3039	B	MFCU	
3040					
29BA	34 08 29D7	3041	ERR	ST	ERR1+3,ARR STORE RETURN ADDRESS
29BE	0F 01 29D7 2BEE	3042	SIC	ERR1+3(2),X4	AND ADJUST IT
29C4	C0 87 021A	3043	B	PRINT	BRANCH TO PRINT MFCU NOT READY OR ERROR.
3044	*				
29C8	46	29C8	3045	DC	XL1'46' FLAGS
29C9	23	29C9	3046	DC	IL1'35' LENGTH
29CA	29FA	29CB	3047	DC	AL2(ERRORC) ADDRESS OF LAST PRINT CHARACTER
29CC	FFEC	29CD	3048	DC	XL2'FFEC' MESSAGE IDENTIFICATION
29CE	C0 87 0222	3049	B	HALT	BRANCH TO DCP HALT
29D2	FFEC	29D3	3050	DC	XL2'FFEC' HALT ID
29D4	C0 87 0000	3051	ERR1	B	*-- RETURN TO TIO
3052					
29D8	C1D3E3C5D9D5C1E3	29FA	3053	ERRORC DC	CL35'ALTERNATE LOADER NOT READY OR ERROR'
29E0	C540D3D6C1C4C5D9	3053			
29E8	40D5D6E340D9C5C1	3053			
29F0	C4E840D6D940C5D9	3053			
29F8	D9D6D9	3053			
3054					
3054					
3054					
3054					
3055					*****
3056	*				1442 INPUT ROUTINE *
3057					*****
3058					
29FB	31 54 27F0	3059	LD1442	LIO	CARD10,X'54'
29FF	3C 01 2ABF	3060	MVI	CD1OR2,1	SET FLAG FOR COMPRESSED DATA
2A03	C0 87 2A23	3061	B	RD1442	
2A07	BD E7 4C	3062	CLI	76(,XR2),C'X'	TEST FOR A 96 BYTE RECORD
2A0A	C0 01 2A1F	3063	BNE	XEXT	
2A0E	31 54 27F2	3064	LIO	BUF14,X'54'	IF SO THEN READ SECOND
2A12	3C 02 2ABF	3065	MVI	CD1OR2,2	SET FLAG FOR UNCOMPRESSED DATA
2A16	C0 87 2A23	3066	B	RD1442	CARD AND MOVE 20 BYTES
2A1A	8C 13 5F 3913	3067	MVC	95(20,XR2),CARD2A+19	TO MAKE A 96 BYTE RECORD
2A1F	C0 87 2858	3068	XEXT	B	DORREAD CHECK INPUT
3069					
2A23	34 08 2A3D	3070	RD1442	ST	X1442,ARR
2A27	C1 50 29RA	3071	DX14	TIO	ERR,X'50' TEST FOR NOT READY OR ERROR
2A2B	F3 51 00	3072	SIO	X'00',X'51'	READ CARD INTO I/O AREA
2A2E	C1 52 2A2E	3073	TIO	*,X'52'	WAIT
2A32	30 53 27F4	3074	SNS	STATUX,X'53'	SENSE DEVICE STATUS
2A36	39 93 27F4	3075	TBF	STATUX,X'93'	TEST FOR READ OR FEED CHECK
2A3A	C0 10 0000	3076	BT	*--	
2A3E	C0 87 2A27	2A3D	3077	X1442 EQU	*-1
		3078	B	DX14	
		3079			

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
3080					*****
3081	*				5471 PRINT ROUTINE *
3082					*****
2A42	3083	PRINT1	EQU	*	
3084	ST	PRTEND+3,ARR			STORE THE RETURN @
3085	SBF	USECRT,X'F1'			SET OFF USECRT
3086	ST	TEMP4,XR1			SAVE THE CONTENTS OF XR1
3087	L	PRTEND+3,XR1			LOAD @ OF THE PRINTER PARM LIST
3088	TBF	SWITCH,SSW17			ARE WE USING 3741
3089	TBF	SWITCH+1,SSW18+SSW1A			ARE WE USING 5424 OR 1442
3090	NODS	JT	D5471		NO,THEN JUMP
3091	J	PASPRM			YES,DON'T PRINT ON 5471
3092	D5471	SBN	USECRT,X'F0'		SET BIT FOR 5471
3093	MVC	PRTPRM(1),0(,XR1)			BUILD
3094	MVC	PRTPRM+1(1),1(,XR1)			PARM LIST
3095	MVC	PRTPRM+3(2),3(,XR1)			FOR 5471 OR PRINTER
3096	B	PRINT			GO PRINT
2A77	3097	PRTPRM	EQU	*	PRINTER PARM LIST
2A7A	3098	DC	4XL1'00'		
3099	PASPRM	LA	4(,XR1),XR1		POINT TO 1ST INSTRUCTION PASSED PARM
3100	ST	PRTEND+3,XR1			STORE THAT @ INTO RETURN BRANCH
3101	L	TEMP4,XR1			RESTORE XR1 TO ORIGINAL VALUE
3102	PRTEND	B	*--		RETURN TO CALLER
3103					*****
3104	*				THIS ROUTINE WILL SET UP THE PRINTER SO THAT THE FIRST SIX POSITIONS*
3105	*				OF THE PRINT DATA IS NOT LOST WHEN PRINTING ON THE ALTERNATE PRINT*
3106	*				DEVICE.
3107					*****
2A8A	3108	PRINT2	EQU	*	
3109	SI	RTRN6+3,ARR			STORE THE RETURN @
3110	TBN	SWITCH-2,SSW05			TEST FOR ALTERNATE PRINT DEVICE
3111	JT	PRT2			YES,LOAD AT X'880'
3112	MVC	X87C+95(96),READIN+95			MOVE IN DATA TO BE PRINTED
3113	J	PRT3			JUMP AROUND
3114	PRT2	MVC	X880+90(91),READIN+90		MOVE IN DATA TO BE PRINTED
3115	PRT3	B	PRINT		GO PRINT
2A88	3116	DC	XL1'26'		FLAG
3117	RTRN6	B	*--		RETURN TO CALLER

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		3119		*****	
		3120		* DC'S *	
		3121		*****	
		3122			
		3122			
		3122			
		3122			
2AAD	00	2AAD	3123	PFLAC DC	IL1'0'
2AAE	00	2AAE	3124	NWRTFG DC	IL1'0'
2AAF	00	2AAF	3125	CPUDFG DC	IL1'0'
2AB0	00	2AB0	3126	SCDFG DC	IL1'0'
2AB1	00	2AB1	3127	LWRT DC	IL1'0'
2AB2	00	2AB2	3128	DFLAG DC	IL1'0'
2AB3	00	2AB3	3129	DCPPG DC	IL1'0'
			3130		
2AB4	00	2AB4	3131	LSTSCN DC	IL1'0'
2AB5	00	2AB5	3132	F3741 DC	IL1'0'
2AB6	F0	2AB6	3133	FADD DC	CL1'0'
2AB7	5BC1C4C4	2ABA	3134	DADD DC	CL4'\$ADD'
2ABB	6150	2ABC	3135	SLAMP DC	CL2'/'6'
2ABD	00	2ABD	3136	CPDFG DC	IL1'0'
2ABE	00	2ABE	3137	FSTCPU DC	IL1'0'
2ABF	02	2ABF	3138	CDTOR2 DC	IL1'2'
2AC0	00	2AC0	3139	ADDFLG DC	IL1'0'
2AC1	00	2AC1	3140	CPFGFG DC	IL1'0'
2AC2	0000	2AC3	3141	VTOC# DC	IL2'0'
2AC4	0000	2AC5	3142	ADDR DC	IL2'0'
2AC6	00	2AC6	3143	CARSVA DC	IL1'0'
2AC7	00	2AC7	3144	HARSAV DC	IL1'0'
2AC8	0000	2AC9	3145	WORK DC	IL2'0'
2ACA	0000	2ACB	3146	CL3 DC	IL2'0'
2ACC	0000	2ACD	3147	HL3 DC	IL2'0'
2ACE	0000	2ACF	3148	CLW DC	IL2'0'
2AD0	0000	2AD1	3149	HLW DC	IL2'0'
2AD2	0000	2AD3	3150	CPW DC	IL2'0'
2AD4	00G0	2AD5	3151	HPW DC	IL2'0'
2AD6	00FF	2AD7	3152	CKER DC	XL2'00FF'
2AD8	0000	2AD9	3153	COUNT DC	IL2'0'
2ADA	4C404040	2ADD	3154	SAVEID DC	CL4' ' '
		2ADD	3155	TEMP5 EQU	SAVEID
2ADE	0000	2ADF	3156	TEMP2 DC	IL2'0'
2AE0	0000	2AE1	3157	TEMP6 DC	IL2'0'
2AE2	0000	2AE3	3158	TEMP7 DC	IL2'0'
2AE4	F0F0F0F0	2AE7	3159	D0 DC	CL4'0000'
2AE8	C4F0	2AE9	3160	DD0 DC	CL2'D0'
2AEA	F0F0F0F0	2AED	3161	LSTD0 DC	CL4'0000'
2AEE	F1	2AEE	3162	D1 DC	CL1'1'1'
2AEF	F0F4F8	2AF1	3163	D48 DC	CL3'048'
2AF2	F1F2F0	2AF4	3164	D120 DC	CL3'120'
2AF5	F7F6F8	2AF7	3165	MAXPGM DC	CL3'768'
2AF8	D7D5	2AF9	3166	PN DC	CL2'PN'
2AFA	D4C5	2AFB	3167	ME DC	CL2'ME'
2APC	E240	2AFD	3168	SB DC	CL2'S ' '
2AFE	C3D7E440	2B01	3169	CPUIDZ DC	CL4'CPU ' '
2B02	616140C3C8C1C9D5	2B09	3170	CHNID DC	CL8'// CHAIN'
2B0A	E2E2E640	2B0D	3171	SSWID DC	CL4'SSW ' '
2B0E	E4C4E340	2B11	3172	UDTID DC	CL4'UDT ' '
2B12	D6D3C4	2B14	3173	OLD DC	CL3'OLD'
2B15	C3D6	2B16	3174	FIGCON DC	CL2'CO'
2B17	C3D4	2B18	3175	CHPCON DC	CL2'CH'
2B19	C3F1	2B1A	3176	WINID DC	CL2'C1'
2B1B	F0F0F0F0	2B1E	3177	SEQCTR DC	CL4'0000'
2B1F	0000	2B20	3178	RCTR DC	IL2'0'
2B21	00	2B21	3179	CTR1 DC	IL1'0'
2B22	00	2B22	3180	CTR2 DC	IL1'0'
2B23	8001	2B24	3181	XREG DC	XL2'8001'
2B25	0003	2B26	3182	SVPREQ DC	XL2'0003'
2B27	C6C6C1	2B29	3183	FFA DC	CL3'FFA'

THESE  
MUST  
REMAIN  
TOGETHER,  
ZEROED  
AT ABOUT  
RTRN2

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2B2A	C6C6C2	2B2C	3184	FPB DC	CL3'FPB'
2B2D	C6C6C6	2B2F	3185	DCPID DC	CL3'FFF'
2B30	F0686B40	2B33	3186	DTAHDR DC	CL4'0,, ' '
2B34	0003001102	2B38	3187	C3H172 DC	XL5'0003001102'
2B39	0003001001	2B3D	3188	C3H161 DC	XL5'0003001001'
2B3E	0003001002	2B42	3189	C3H162 DC	XL5'0003001002'
2B43	0003001003	2B47	3190	C3H163 DC	XL5'0003001003'
2B48	0003001004	2B4C	3191	C3H164 DC	XL5'0003001004'
2B4D	0003001005	2B51	3192	C3H165 DC	XL5'0003001005'
2B52	0003000001	2B56	3193	C3H0 DC	XL5'0003000001'
2B57	0004000001	2B5B	3194	C4HOR1 DC	XL5'0004000001'
2B5C	0002000001	2B60	3195	C2HOR1 DC	XL5'0002000001'
2B61	000003000F	2B65	3196	C3H15 DC	XL5'000003000F'
2B66	000000001B	2B6A	3197	COH027 DC	XL5'000000001B'
2B6B	0000000201	2B6F	3198	COH2R1 DC	XL5'0000000201'
2B70	0003001101	2B74	3199	FFALOC DC	XL5'0003001101'
2B75	0000000030	2B79	3200	CHIDL DC	XL5'0000000030'
2B7A	0000000030	2B7E	3201	COH048 DC	XL5'0000000030'
2B7F	0001000001	2B83	3202	C1HOR1 DC	XL5'0001000001'
2B84	00210012	2B87	3203	C33H18 DC	XL4'00210012'
		2B5A	3204	ZERO EQU	C4HOR1-1
2B88	000100	2B8A	3205	X256 DC	IL3'256'
2B8B	4A	2B8B	3206	X74 DC	IL1'74'
2B8C	005F	2B8D	3207	X95 DC	IL2'95'
2B8E	0200	2B8F	3208	X200 DC	XL2'0200'
2B90	C1C3E3	2B92	3209		CL3'ACT'
2B93	00	2B93	3210	ACT0 DC	XL1'00'
2B94	0013	2B95	3211	X19 DC	IL2'19'
		2B96	3212	VTIMB EQU	*
2B96	C1C3E3	2B98	3213		CL3'ACT'
2B99	0000000000000000	2BB2	3214	VTIM DC	26IL1'0'
2BA1	0000000000000000		3214		
2BA9	0000000000000000		3214		
2BB1	0000		3214		
		2B8B	3215	SCTR EQU	VTIMB+21
2BB3	0000000000000000	2BB8	3216	NAS DC	6IL1'0'
		2BB9	3217	DDCFB EQU	*
2BB9	0000000000000001	2B2C	3218	DDCF DC	XL10'000000000000000010000'
2BC1	0000		3218		
		2BBE	3219	DDCFB EQU	DDCFB+5
		2BC3	3220	DDCFB EQU	*
2BC3	0000000000000001	2BCC	3221	DDCFB DC	XL10'000000000000000010000'
2BCB	0000		3221		
		2BC8	3222	DDCFB EQU	DDCFB+5
		2BCD	3223	DDCFB EQU	*
2BCD	0000000000000001	2BD6	3224	DDCFB DC	XL10'000000000000000010000'
2BD5	0000		3224		
		2BD2	3225	DDCFB EQU	DDCFB+5
		2BD7	3226	DDCFB EQU	*
2BD7	0000000000000001	2BE0	3227	DDCFB DC	XL10'000000000000000010000'
2BDF	0000		3227		
		2BDC	3228	DDCFB EQU	DDCFB+5
2BE1	0000	2BE2	3229	SECT# DC	IL2'0'
2BE3	0000000000	2BE7	3230	XLOC DC	5IL1'0'
2BE8	00	2BE8	3231	CMID DC	IL1'0'
2BE9	0002	2BEA	3232	X2 DC	IL2'2'
2BEB	0003	2BEC	3233	X3 DC	IL2'3'
2BED	0004	2BEE	3234	X4 DC	IL2'4'
2BEF	0005	2BF0	3235	X5 DC	IL2'5'
2BF1	0006	2BF2	3236	X6 DC	IL2'6'
2BF3	0008	2BF4	3237	X8 DC	IL2'6'
2BF5	000C	2BF6	3238	X12 DC	IL2'12'
2BF7	002F	2BF8	3239	X7 DC	IL2'47'
2BF9	0030	2BFA	3240	X48 DC	IL2'48'
2BFB	0057	2BFC	3241	X87 DC	IL2'87'
2BFD	00	2BFD	3242	ICTR DC	IL1'0'
2BFE	00	2BFE	3243	ICTR DC	IL1'0'
2BFF	00	2BFF	3244	KCTR DC	IL1'0'



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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2C00	00	2C00	3245	MCTR DC	IL1'0'
2C01	00	2C01	3246	FRDRV# DC	IL1'0'
2C02	00	2C02	3247	TODRV# DC	IL1'0'
2C03	00	2C03	3248	DELFG DC	IL1'0'
2C04	0000	2C05	3249	TSIN DC	XL2'0'
2C06	27C1	2C07	3250	EXITA DC	AL2(XEXIT)
2C08	C4C5	2C09	3251	DEL DC	CL2'DE'
2C0A	C4E4	2C0B	3252	DU DC	CL2'DU'
		2C0B	3253	VMSGB EQU	*-1
		2C2A	3254	VTOC1# DC	CL31'NO. OF PGH. ENTRIES LEFT IS XXX'
2C0C	D5D64B40D6C640D7				
2C14	C7D44B40C5D5E3D9				
2C1C	C9C5E240D3C5C6E3				
2C24	40C9E240E7E7E7				
2C2B	6B40E2D7C8C3C540	2C4E	3255	SPACE# DC	CL36' SPACE AVAILABLE FOR PGMS. IS KXXXX'
2C33	C1E5C1C9D3C1C2D3				
2C3B	C540C6D6D940D7C7				
2C43	D4E24B40C9E240E7				
2C4B	E7E7E7E7				
2C4F	40E2C5C3E3D6D9E2	2C57	3256	VMSG DC	CL9' SECTORS.'
2C57	4B				
		2C57	3257	ERMSGB EQU	*-1
2C58	F3F3F4F040C4D9C9	2C7B	3258	ERMSG DC	CL36'3340 DRIVE X NOT READY OR UNIT CHECK'
2C60	E5C540E740D5D6E3				
2C68	40D9C5C1C4E840D6				
2C70	D940E4D5C9E340C3				
2C78	C8C5C3D2				
		2C7B	3259	ERMS1B EQU	*-1
2C7C	C1C4C1D7E3C5D940	2C90	3260	ERMS1 DC	CL21'ADAPTER CHECK ON 3340'
2C84	C3C8C5C3D240D6D5				
2C8C	40F3F3F4F0				
		2C90	3261	HDG1B EQU	*-1
2C91	F0F0404040404040	2CBD	3262	DC	CL45'00 03 04 07 08 11
2C99	40F0F340404040F0				
2CA1	F440404040404040				
2CA9	F0F740404040F0F8				
2CB1	40404040404040F1				
2CB9	F140404040				
2CBE	F1F2404040404040	2CE6	3263	HDG1 DC	CL41'12 15 16 19 20 23'
2CC6	40F1F540404040F1				
2CCE	F640404040404040				
2CD6	F1F940404040F2F0				
2CDE	40404040404040F2				
2CE6	F3				
		2CE6	3264	EDMS1B EQU	*-1
2CE7	F3F3F4F040C6C1C9	2D0B	3265	EDMS1 DC	CL37'3340 FAILED TO EXECUTE A SIO 10 TIMES'
2CEF	D3C5C440E3D640C5				
2CF7	E7C5C3E4E3C540C1				
2CFE	40E2C9D640F1F040				
2D07	E3C9D4C5E2				
		2D0B	3266	EDMS2B EQU	*-1
2D0C	E3C8C540C9D5C6D6	2D38	3267	EDMS2 DC	CL45'THE INFORMATION BELOW IS THE 24 BYTE DIAG SNS'
2D14	D9D4C1E3C9D6D540				
2D1C	C2C5D3D6E640C9E2				
2D24	40E3C8C540F2F440				
2D2C	C2E8E3C540C4C9C1				
2D34	C740E2D5E2				
		2D38	3268	ERR3B EQU	*-1
2D39	C9D5E5C1D3C9C440	2D61	3269	DC	CL41'INVALID HEADER CARD- CORRECT HEADER CARD'
2D41	C8C5C1C4C5D940C3				
2D49	C1D9C46C40C3D6D9				
2D51	D9C5C3E340C8C5C1				
2D59	C4C5D940C3C1D9C4				
2D61	40				
2D62	C1D5C440D9C5E3D9	2D6A	3270	ERR3 DC	CL9'AND RETRY'
2D6A	E8				
		2D6A	3271	ERR8B EQU	*-1
2D6B	E3C8C540C6C6C140	2D99	3272	ERR8 DC	CL47'THE FFA DECK OR A CPU MODULE HAS TOO MANY BITES'
2D73	C4C5C3D240D6D940				

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2D7B	C140C3D7E440D4D6				
2D83	C4E4D3C540C8C1E2				
2D8B	40E3D6D640D4C1D5				
2D93	E840C2E8E3C5E2				
		2D99	3273	ERR9B EQU	*-1
2D9A	C9D5E5C1D3C9C440	2DC9	3274	ERR9 DC	CL48'INVALID CHARACTERS IN DRIVE FIELD OF \$DUP OPTION'
2DA2	C3C8C1D9C1C3E3C5				
2DAA	D9E240C9D540C4D9				
2DB2	C9E5C540C6C9C5D3				
2DBA	C440D6C6405BC4E4				
2DC2	D740D6D7E3C9D6D5				
		2DC9	3275	ERR10B EQU	*-1
2DCA	D4C9E2E2C9D5C740	2DF6	3276	DC	CL45'MISSING UDI OR CPU CARD. INSERT CARD IN DECK'
2DD2	E4C4E340D6D940C3				
2DDA	D7E440C3C1D9C44B				
2DE2	4040C9D5E2C5D9E3				
2DEA	40C3C1D9C440C9D5				
2DF2	40C4C5C3D2				
2DF7	40C1D5C440C1C4C4	2E09	3277	ERR10 DC	CL19' AND ADD DECK OVER.'
2DFE	40C4C5C3D240D6E5				
2E07	C5D94B				
		2E09	3278	ERR8B EQU	*-1
2E0A	E3C8C540C6D6D3D3	2E37	3279	ERR8B DC	CL46'THE FOLLOWING CHAIN IMAGE DATA CARD IS INVALID'
2E12	D6E6C9D5C740C3C8				
2E1A	C1C9D540C9D4C1C7				
2E22	C540C4C1E3C140C3				
2E2A	C1D9C440C9E240C9				
2E32	D5E5C1D3C9C4				
		2E37	3280	ERR14B EQU	*-1
2E38	D5D640D9D6D6D440	2E66	3281	DC	CL47'NO ROOM LEFT ON DATA MODULE - DO A \$CMP BEFORE'
2E40	D3C5C6E340D6D540				
2E48	C4C1E3C140D4D6C4				
2E50	E4D3C5406040C4D6				
2E58	40C1405BC3D4D740				
2E60	C2C5C6D6D9C540				
2E67	C1C4C4C9D5C740D6	2E85	3282	ERR14 DC	CL31'ADDING OR REPPING ANY PROGRAMS.'
2E6F	D940D9C5D7D7C9D5				
2E77	C740C1D5E840D7D9				
2E7F	D6C7D9C1D4E24B				
		2E85	3283	ERMS7B EQU	*-1
2E86	C5D9D9D6D940C9D5	2EAB	3284	ERMS7 DC	CL38'ERROR IN MESSAGE, RETYPE AND HIT END'
2E8E	40D4C5E2E2C1C7C5				
2E96	6B40D9C5E3E8D7C5				
2E9E	40C1D5C440C8C9E3				
2EA6	40C5D5C44040				
		2EAB	3285	ERR5B EQU	*-1
2EAC	C3C1D9C440E2E8D5	2ECD	3286	ERR5 DC	CL34'CARD SYNTAX ERROR - CARD READ WAS:'
2EB4	E3C1E740C5D9D9D6				
2EBC	D9406040C3C1D9C4				
2EC4	40D9C5C1C440E6C1				
2ECC	E27A				
		2ECD	3287	ERR6B EQU	*-1
2ECE	C9D5E5C1D3C9C440	2EF4	3288	ERR6A DC	CL39'INVALID SEQUENCE # ON CARD - SEQ # XXXX'
2ED6	E2C5D8E4C5D5C3C5				
2EDE	407B40D6D540C3C1				
2EE6	D9C4406040E2C5D8				
2EEE	407B40E7E7E7E7				
2EF5	40E6C1E240D9C5C1	2F09	3289	ERR6C DC	CL21' WAS READ, AND # XXXX'
2EFD	C46B40C1D5C4407B				
2F05	40E7E7E7E7E7				
2F0A	4040E6C1E240C5E7	2F17	3290	ERR6 DC	CL14' WAS EXPECTED'
2F12	D7C5C3E3C5C4				
		2F17	3291	ERR7B EQU	*-1
2F18	C9D5E5C1D3C9C440	2F34	3292	ERR7A DC	CL29'INVALID ID - ID READ WAS XXXX'
2F20	C9C4406040C9C440				
2F28	D9C5C1C440E6C1E2				
2F30	40E7E7E7E7E7				
2F35	6B40C9C440C5E7D7	2F4A	3293	ERR7 DC	CL22', ID EXPECTED WAS XXXX'

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2F3D	C5C3E3C5C440E6C1		3293		
2F45	E240E7E7E7E7		3293		
		2F4A	3294	ERR4B	EQU *-1
2F4B	C9D5E5C1D3C9C440	2F69	3295	ERR4	DC CL31'INVALID SYSTEM TEST HEADER CARD'
2F53	E2E8E2E3C5D44QE3		3295		
2F5B	C5E2E340C8C5C1C4		3295		
2F63	C5D940C3C1D9C4		3295		
		2F69	3296	SCERRB	EQU *-1
2F6A	E2C3C1D540C5D9D9	2F97	3297	SCERR	DC CL46'SCAN ERROR- HIT SYSTEM RESET,START, THEN RETRY'
2F72	D6D96040C8C9E340		3297		
2F7A	E2E8E2E3C5D440D9		3297		
2F82	C5E2C5E36BE2E3C1		3297		
2F8A	D9E36B40E3C8C5D5		3297		
2F92	40D9C5E3D9E8		3297		
		2F97	3298	SZERRB	EQU *-1
2F98	C4C1E3C140D4D6C4	2FAD	3299	SZERRC	DC CL22'DATA MODULE ON DRIVE X'
2FA0	E4D3C540D6D540C4		3299		
2FAB	D9C9E5C540E7		3299		
2FAE	40C9E240D5D6E340	2FDB	3300		DC CL46' IS NOT A 12 M BYTE PACK. IF YOU WISH TO CONT'
2FB6	C140F1F240D440C2		3300		
2FBE	E8E3C540D7C1C3D2		3300		
2FC6	4B4040C9C640E8D6		3300		
2FCE	E440E6C9E2C840E3		3300		
2FD6	D640C3D6D5E3		3300		
2FDC	C9D5E4C56B40D9C5	2FF0	3301	SZERR	DC CL21'INUE, RESET TPE HALT.'
2FE4	E2C5E340E3C8C540		3301		
2FEC	C8C1D3E34B		3301		
		2FF0	3302	CERRB	EQU *-1
2FF1	C5D9D9D6D940C9D5	3021	3303		DC CL49'ERROR IN DCP CONFIGURE RECORD. RECORD IS PRINTED'
2FF9	40C4C3D740C3D6D5		3303		
3001	C6C9C7E4D9C540D9		3303		
3009	C5C3D6D9C44B4040		3303		
3011	D9C5C3D6D9C440C9		3303		
3019	E240D7D9C9D5E3C5		3303		
3021	C4		3303		
3022	40C2C5D3D6E67A	3028	3304	CERR	DC CL7' BELOW:'
		3028	3305	KBRDYB	EQU *-1
3029	D9C5C1C4E860C4C9	303C	3306	KBRDY	DC CL20'READY-DISK I/O ON DX'
3031	E2D240C961D640D6		3306		
3039	D540C4E7		3306		
		303C	3307	HSPB	EQU *-1
303D	E2C5C540D7D9C9D5	3047	3308	HSP	DC CL11'SEE PRINTER'
3045	E3C5D9		3308		
		3047	3309	TERMB	EQU *-1
3048	E2C5C3E3C9D6D540	3059	3310	TERM	DC CL18'SECTION TERMINATED'
3050	E3C5D9D4C9D5C1E3		3310		
3058	C5C4		3310		
		3059	3311	STRTHB	EQU *-1
305A	F14B4040E3E4D9D5	3085	3312		DC CL44'1. TURN ON SSW TO SELECT INPUT DEVICE. 17'
3062	40D6D540E2E2E640		3312		
306A	E3D640E2C5D3C5C3		3312		
3072	E340C9D5D7E4E340		3312		
307A	C4C5E5C9C3C54B40		3312		
3082	4040F1F7		3312		
3086	6040F3F7F4F14040	30B1	3313		DC CL44'- 3741 18- 1442 1A-MFCU NONE- 5471 '
308E	4040F1F86040F1F4		3313		
3096	F4F240404040F1C1		3313		
309E	60D4C6C3E4404040		3313		
30A6	40D5D6D5C56040F5		3313		
30AE	F4F7F140		3313		
30B2	40	30B2	3314	STRTHS	DC CL1' '
		30B2	3315	STRTAB	EQU *-1
30B3	F24B4040C4C9E2D2	30E0	3316		DC CL46'2. DISK DRIVE 1 WILL BE USED. IF DRIVE 2 IS '
30BB	40C4D9C9E5C540F1		3316		
30C3	40E6C9D3D340C2C5		3316		
30CB	40E4E2C5C44B4040		3316		
30D3	C9C640C4D9C9E5C5		3316		
30DB	40F240C9E240		3316		

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
30E1	C4C5E2C9D9C5C440	30F5	3317	STRTA	DC CL21'DESIRED SET ON SSW22.'
30E9	E2C5E340D6D540E2		3317		
30F1	E2E6F2F24B		3317		
30F6	C4C5D3C5E3C5C4	30FC	3318	PGMDEL	DC CL7'DELETED'
		30FD	3319	ADMSG	EQU *
30FD	4040404040404040	314B	3320		DC 79XL1'40'
3105	4040404040404040		3320		
310D	4040404040404040		3320		
3115	4040404040404040		3320		
311D	4040404040404040		3320		
3125	4040404040404040		3320		
312D	4040404040404040		3320		
3135	4040404040404040		3320		
313D	4040404040404040		3320		
3145	4040404040404040		3320		
		314C	3321	ADMSG	EQU *
314C	C1C4C4C5C46060	3152	3322	ADDED	DC CL7'ADDED--'
3153	C4C9C1C7D5D6E2E3	3172	3323	DCPP	DC CL32'DIAGNOSTIC CONTROL PROG---MOD 12'
315B	C9C340C3D6D5E3D9		3323		
3163	D6D340D7D9D6C760		3323		
316B	6060D4D6C440F1F2		3323		
3173	0A80	3174	3324	READAD	DC AL2(READIN)
3175	D4C9E2E2C9D5C740	3188	3325	ERR0	DC CL20'MISSING CONTROL CARD'
317D	C3D6D5E3D9D6D340		3325		
3185	C3C1D9C4		3325		
3189	40C9D540C5D9D9D6	3191	3326	ERR2	DC CL9' IN ERROR'
3191	D9		3326		
3192	5D640E2D7C1C3C5	3186	3327	ERROR6	DC CL37'NO SPACE AVAILABLE TO ADD NEW PROGRAM'
319A	40C1E5C1C9D3C1C2		3327		
31A2	D3C540E3D640C1C4		3327		
31AA	C440D5C5E640D7D9		3327		
31B2	D6C7D9C1D4		3327		
31B7	40E7E7E740D5D6E3	31C6	3328	MSG02	DC CL16' XXX NOT ON DISK'
31BF	40D6D540C4C9E2D2		3328		
		31C6	3329	MENU1A	EQU *-1
31C7	C5D5E3C5D940D6D5	31EC	3330	MENU1	DC CL38'ENTER ONE OF THE FOLLOWING OPTIONS: '
31CF	C540D6C640E3C8C5		3330		
31D7	40C6D6D3D3D6E6C9		3330		
31DF	D5C740D6D7E3C9D6		3330		
31E7	D5E27A404040		3330		
		31EC	3331	MENU1B	EQU *-1
31ED	E150404040404040	3214	3332	MENU11	DC CL40'/' - TERMINATE OPERATION - '
31F5	40404040406040E3		3332		
31FD	C5D9D4C9D5C1E3C5		3332		
3205	40D6D7C5D9C1E3C9		3332		
320D	D6D5406040404040		3332		
		3214	3333	MENU1C	EQU *-1
3215	5BC3D4D740404040	323C	3334	MENU12	DC CL40'\$CMP - COMPRESS - '
321D	40404040406040C3		3334		
3225	D6D4D7D9C5E2E240		3334		
322D	6040404040404040		3334		
3235	4040404040404040		3334		
		323C	3335	MENU1D	EQU *-1
323D	5BC3D6D5C6C9C740	3264	3336	MENU13	DC CL40'\$CONFIG - CONFIGURE - '
3245	40404040406040C3		3336		
324D	D6D5C6C9C7E4D9C5		3336		
3255	4060404040404040		3336		
325D	4040404040404040		3336		
		3264	3337	MENU1E	EQU *-1
3265	5BD3E2E340404040	328C	3338	MENU14	DC CL40'\$LST - LIST - '
326D	40404040406040D3		3338		
3275	C9E2E34060404040		3338		
327D	4040404040404040		3338		
3285	4040404040404040		3338		
		328C	3339	MENU1F	EQU *-1
328D	5BC4C5D3E7E7E76B	32E4	3340	MENU15	DC CL40'\$DELXXX,XXX XXX= ID OF PGH(S) TO DELETE'
3295	E7E7E74040E7E7E7		3340		
329D	7E40C9C440D6C640		3340		

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
32A5	D7C7D44DE25D40E3	3340		
32AD	D640C4C5D3C5E3C5	3340		
		32B4	3341	MENU1G EQU *-1
32B5	5BC4E4D740C6C6E3	32DC	3342	MENU16 DC CL40*\$DUP PFTT FF= FROM MODULE; TT= TO MODULE*
32BD	E340C6C67E40C6D9		3342	
32C5	D6D440D4D6C4E4D3		3342	
32CD	C55E40E3E37E40E3		3342	
32D5	D640D4D6C4E4D3C5		3342	
		32DC	3343	MENU1H EQU *-1
32DD	5BD9C5D7E7E7E740	3304	3344	MENU17 DC CL40*\$REPXXX XXX= ID OF PROGRAM TO REP *
32E5	4040404040E7E7E7		3344	
32ED	7E40C9C440D6C640		3344	
32F5	D7D9D6C7D9C1D440		3344	
32FD	E3D640D9C5D74040		3344	
		3304	3345	MENU1I EQU *-1
3305	C4C5D7D9C5E2E240	332C	3346	MENU18 DC CL40*DEPRESS -END- KEY TO INPUT RESPONSE *
330D	60C5D5C46040D2C5		3346	
3315	E840E3D640C9D5D7		3346	
331D	E4E340D9C5E2D7D6		3346	
3325	D5E2C54040404040		3346	
		332C	3347	MENU2B EQU *-1
332D	C5D5E3C5D940C3D6	3352	3348	MENU2 DC CL38*ENTER CONFIGURE RECORD, OPTIONS ARE: *
3335	D5C6C9C7E4D9C540		3348	
333D	D9C5C3D6D9C46B40		3348	
3345	D6D7E3C9D6D5E240		3348	
334D	C1D9C57A4040		3348	
		3352	3349	MENU2C EQU *-1
3353	C3D7E4404B4B4B40	337A	3350	MEN22 DC CL40*CPU ... (EXAMPLE - CPU G,8000,0) *
335B	40404040404040DC5		3350	
3363	E7C1D4D7D3C54060		3350	
336B	40C3D7E440C76BF8		3350	
3373	F0F0F06BF05D4040		3350	
		337A	3351	MENU2D EQU *-1
337B	E4C4E3404B4B4B40	33A2	3352	MEN23 DC CL40*UDT ... (EXAMPLE - UDT C1-2,E0,...) *
3383	40404040404040DC5		3352	
338B	E7C1D4D7D3C54060		3352	
3393	40E4C4E340C3F160		3352	
339B	F26BC5F06B4B4B5D40		3352	
		33A2	3353	MENU2E EQU *-1
33A3	E4C4E3E74B4B4B40	33CA	3354	MEN24 DC CL40*UDTX... (EXAMPLE - UDTX14,51,...) *
33AB	40404040404040DC5		3354	
33B3	E7C1D4D7D3C54060		3354	
33BB	40E4C4E3E7F1F46B		3354	
33C3	F5F16B4B4B4B5D40		3354	
		33CA	3355	MENU2F EQU *-1
33CB	616140C3C8C1C9D5	33FA	3356	MEN25 DC CL48*// CHAIN 048 OR // CHAIN 120 OR // CHAIN STD*
33D3	40F0F4FB4040D6D9		3356	
33DB	4040616140C3C8C1		3356	
33E3	C9D540F1F2F04040		3356	
33EB	D6D94040616140C3		3356	
33F3	C8C1C9D540E2E3C4		3356	
		33FA	3357	MENU2H EQU *-1
33FB	E740404040404040	3422	3358	MEN27 DC CL40*X (RETURN TO THE MAIN OPTION MENU) *
3403	4DD9C5E3E4D9D540		3358	
340B	E3D640E3C8C540D4		3358	
3413	C1C9D540D6D7E3C9		3358	
341B	D6D540D4C5D5E45D		3358	
		3422	3359	MENU4B EQU *-1
3423	C5D5E3C5D940C3C8	3448	3360	MENU4 DC CL38*ENTER CHAIN IMAGE CARD (48 HEX DIGITS) *
342B	C1C9D540C9D4C1C7		3360	
3433	C540C3C1D9C4404D		3360	
343B	F4F840C8C5E740C4		3360	
3443	C9C7C9E3E25D		3360	
		3448	3361	MENU5B EQU *-1
3449	C5D5E3C5D940D6D5	3460	3362	DC CL24*ENTER ONE REPLACE RECORD*
3451	C540D9C5D7D3C1C3		3362	
3459	C540D9C5C3D6D9C4		3362	
3461	4040404040404040	346E	3363	REPWHO DC CL14* \$REPXXX IS INSERTED HERE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
3469	40404040404040		3363	
		346E	3364	MENU5D EQU *-1
346F	E3C8C540C6D6D3D3	3496	3365	MENU53 DC CL40*THE FOLLOWING ARE EXAMPLES: *
3477	D6E6C9D5C740C1D9		3365	
347F	C540C5E7C1D4D7D3		3365	
3487	C5E27A4040404040		3365	
348F	4040404040404040		3365	
		3496	3366	MENU5E EQU *-1
3497	5C404B4B4B4B4040	34BE	3367	MENU54 DC CL40* * .... (ADD THE DESIRED COMMENT) *
349F	404040404040404D		3367	
34A7	C1C4C440E3C8C540		3367	
34AF	C4C5E2C9D9C5C440		3367	
34B7	C3D6D4D4C5D5E35D		3367	
		34BE	3368	MENU5F EQU *-1
34BF	D940E7E7E7E740E7	34E6	3369	MENU55 DC CL40*R XXXX XXXXXX.... *
34C7	E7E7E7E7E74B4B4B		3369	
34CF	4B40404040404040		3369	
34D7	4040404040404040		3369	
34DP	4040404040404040		3369	
		34E6	3370	MENU5G EQU *-1
34E7	E2E2E6401C36BF1	350E	3371	MENU56 DC CL40*SSW 1C,1D (TURNS ON SSW 1C AND 1D) *
34EF	C440404040404040		3371	
34F7	4DE3E4D9D5E240D6		3371	
34FF	D540E2E2E640F1C3		3371	
3507	40C1D5C440F1C45D		3371	
		350E	3372	MENU5H EQU *-1
350P	C54040404040DC3C1	3536	3373	MENU57 DC CL40*E (CAUSES REPS TO BE WRITTEN ON DISK) *
3517	E4E2C5E240D9C5D7		3373	
351F	E240E3D640C2C540		3373	
3527	E6D9C9E3E3C5D540		3373	
352P	D6D540C4C9E2D250		3373	
		3536	3374	MENU5I EQU *-1
3537	E740404040404040	355E	3375	MENU58 DC CL40*X (RETURN TO THE MAIN OPTION MENU) *
353F	4DD9C5E3E4D9D540		3375	
3547	E3D640E3C8C540D4		3375	
354P	C1C9D540D6D7E3C9		3375	
3557	D6D540D4C5D5E45D		3375	
		355E	3376	REMB EQU *-1
355F	C3D6D5C6C9C7E4D9	3584	3377	DC CL38*CONFIGURE CHANGES COMPLETE ON DISK. *
3567	C540C3C8C1D5C7C5		3377	
356P	E240C3D6D4D7D3C5		3377	
3577	E3C540D6D540C4C9		3377	
357P	E2D24B404040		3377	
3585	40E8D6E440D4E4E2	35AC	3378	REM DC CL40* YOU MUST IPL DCP TO PUT THEM IN EFFECT. *
358D	E340C9D7D340C4C3		3378	
3595	D740E3D640D7E4E3		3378	
359D	40E3C8C5D440C9D5		3378	
35A5	40C5C6C6C5C3E34B		3378	
		35AC	3379	REMB2 EQU *-1
35AD	40E3E8D7C540E740	35D4	3380	DC CL40* TYPE X AND DEPRESS END TO RETURN TO MAI*
35B5	C1D5C440C4C5D7D9		3380	
35BD	C5E2E240C5D5C440		3380	
35C5	E3D640D9C5E3E4D9		3380	
35CD	D540E3D640D4C1C9		3380	
35D5	D540D6D7E3C9D6D5	35E3	3381	REM2 DC CL15*N OPTION MENU. *
35DD	40D4C5D5E44B40		3381	
		35E3	3382	ECTLB EQU *-1
35E4	C5D9D9D6D940	35E9	3383	DC CL6*ERRCR *
35EA	C9D540D6D7E3C9D6	360A	3384	MCTL DC CL33*IN OPTION -- RETYPE & HIT END *
35F2	D540606040D9C5E3		3384	
35FA	E8D7C5405040C8C9		3384	
3602	E340C5D5C4404040		3384	
360A	40		3384	
		360A	3385	HADDB EQU *-1
360B	5BC1C4C440C9D5E5	3617	3386	DC CL13*\$ADD INVALID *
3613	C1D3C9C440		3386	
3618	E6C9C5D540E4E2C9	3630	3387	HADD DC CL25*WHEN USING 5471 FOR INPUT*
3620	D5C740F5F4F7F140		3387	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
3628	C6D6D940C9D5D7E4		3387	
3630	E3		3387	
		3630	3388	MENU5C EQU *-1
3631	C5D5E3C5D940D5C5	3649	3389	DC CL25'ENTER NEXT REPLACE RECGRD'
3639	E7E340D9C5D7D3C1		3389	
3641	C3C540D9C5C3D6D9		3389	
3649	C4		3389	
364A	4040404040404040	3657	3390	REPWH1 DC CL14' \$REPXXX IS INSERTED HERE
3652	404040404040		3390	
3658	F3F7F4F140C9E240	3674	3391	RDMD DC CL29'3741 IS NOT IN THE READ MODE.'
3660	D5D6E340C9D54CE3		3391	
3668	C8C540D9C5C1C440		3391	
3670	D4D6C4C54B		3391	
3675	D7E4E340F3F7F4F1	36A1	3392	DC CL45'PUT 3741 INTO READ MODE (SEE USERS GUIDE '
367D	40C9D5E3D640D9C5		3392	
3685	C1C440D4D6C4C540		3392	
368D	4DE2C5C540E4E2C5		3392	
3695	D9E240C7E4C9C4C5		3392	
369D	4040404040		3392	
36A2	C2D3D6C3D240F1F0	36B9	3393	SETUP DC CL24'BLOCK 10) AND RESET HALT'
36AA	5D40C1D5C440D9C5		3393	
36B2	E2C5E340C8C1D3E3		3393	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
			3395	*****
			3396	* EQUATES *
			3397	*****
			3398	
			3398	
007F	3399	MSGBGN	EQU	X'7F'
346E	3400	MENU51	EQU	REPWHO
0008	3401	ARR	EQU	X'08'
0216	3402	LINK	EQU	X'216'
021A	3403	PRINT	EQU	X'21A'
0001	3404	XR1	EQU	X'01'
0002	3405	XR2	EQU	X'02'
0222	3406	HALT	EQU	X'222'
020A	3407	SBYTE2	EQU	X'020A'
0B60	3408	DBYTE0	EQU	DGSNSB
0B61	3409	DBYTE1	EQU	DGSNSB+1
0B62	3410	DBYTE2	EQU	DGSNSB+2
0B67	3411	DBYTE7	EQU	DGSNSB+7
0002	3412	TRKCC	EQU	X'02'
0001	3413	OPINCP	EQU	X'01'
0212	3414	TEST	EQU	X'212'
021E	3415	UNPACK	EQU	X'21E'
0226	3416	PACK	EQU	X'226'
022A	3417	LOAD	EQU	X'22A'
00C4	3418	DDDR	EQU	X'C4'
00C6	3419	DDCR	EQU	X'C6'
020A	3420	SWITCH	EQU	X'020A'
3FFF	3421	I3FFF	EQU	X'3FFF'
3900	3422	CARD2A	EQU	X'3900'
00C0	3423	IAR	EQU	X'C0'
0018	3424	SIOI	EQU	X'18'
0879	3425	CRTPLG	EQU	X'879'
0004	3426	SSW07	EQU	X'01'
0020	3427	SSW22	EQU	X'20'
0010	3428	SSW23	EQU	X'10'
0008	3429	SSW24	EQU	X'08'
0080	3430	SSW18	EQU	X'80'
0001	3431	SSW17	EQU	X'01'
0020	3432	SSW1A	EQU	X'20'
0010	3433	SSW1B	EQU	X'10'
0001	3434	SSW2F	EQU	X'01'
00C0	3435	DR1	EQU	X'C0'
00C8	3436	DR2	EQU	X'C8'
0CD0	3437	DR3	EQU	X'D0'
00D8	3438	DR4	EQU	X'D8'
0020	3439	P1IAR	EQU	X'20'
0010	3440	IAR	EQU	16
0080	3441	SNSDR1	EQU	X'80'
0040	3442	SNSDR2	EQU	X'40'
0020	3443	SNSDR3	EQU	X'20'
0010	3444	SNSDR4	EQU	X'10'
0A07	3445	QPUDT	EQU	X'A07'
022F	3446	QTAB	EQU	X'22F'
0232	3447	UTAB	EQU	X'232'
0211	3448	RPFY	EQU	X'211'
0080	3449	BIT0	EQU	X'80'
0040	3450	BIT1	EQU	X'40'
0020	3451	BIT2	EQU	X'20'
0010	3452	BIT3	EQU	X'10'
0208	3453	SBYTE0	EQU	X'208'
020C	3454	SBYTE4	EQU	X'20C'
0A02	3455	SPFLGS	EQU	X'A02'
0003	3456	H1	EQU	X'03'
003F	3457	HA	EQU	X'3F'
003B	3458	HH	EQU	X'3B'
0000	3459	L1	EQU	00
0028	3460	L2	EQU	40
0050	3461	L3	EQU	80

SECTION PREFACE UNIT TABLE-3  
FIRST BYTE OF UDT TABLE-3  
FIRST BYTE OF UDT TABLE

SECTION PREFACE FLAGS  
HALT DISPLAY 1  
HALT DISPLAY A  
HALT DISPLAY H

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DD63 3340 CE DISK EDITOR MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0078	3462	L4	EQU	120	
00A0	3463	L5	EQU	160	
00C8	3464	L6	EQU	200	
00F0	3465	L7	EQU	240	
0118	3466	L8	EQU	280	
0140	3467	L9	EQU	320	
0168	3468	L10	EQU	360	
0190	3469	L11	EQU	400	
01B8	3470	L12	EQU	440	
0A6F	3471	IDLOC	EQU	SAVID-5	
0900	3472	X900	EQU	X'900'	
2BE0	3473	WRT#	EQU	DDCFT	
2C05	3474	DAT	EQU	TSTN	
087C	3475	X87C	EQU	X'87C'	
0880	3476	X880	EQU	X'880'	
0004	3477	SSW05	EQU	X'04'	

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
3479					*****
3480	*				
3481	*			END	CARD ROUTINE
3482	*				
3483					*****
36BA	40	36BA	3484	ENDROU DC	CL1'
36BB	1C 16 0016	FF	3485	MVC	22(23),LENGTH-ENDROU+127(,XR1)
36C0	4C 01 D8 022F		3486	*	SET UP PROGRAM RESTART
			3487	MVC	LM#-ENDROU+128(2,XR1),X'22F'
			3488	*	SET MESSAGE ADDRESS IN PRINT LINKAGE
36C5	38 80 0A02		3489	TBN	SPFLGS,BIT0
36C9	F2 10 3F		3490	JT	LDEND
36CC	C2 02 0A07		3491	LA	QPDUT,XR2
36D0	C2 01 022F		3492	UFIND1	LA QTAB,XR1
36D4	E2 02 03		3493	LA	3(,XR2),XR2
36D7	D2 01 03		3494	UFIND2	LA 3(,XR1),XR1
36DA	6D 00 00 00		3495	CLC	0(1,XR1),0(,XR2)
36DE	F2 01 15		3496	JNE	UFIND4
36E1	9C 00 02 02		3497	MVC	2(1,XR2),2(,XR1)
36E5	98 03 01 01		3498	MNN	1(,XR2),1(,XR1)
36E9	BA 20 01		3499	SBN	1(,XR2),BIT2
36EC	B8 10 01		3500	UFIND3	TBN 1(,XR2),BIT3
36EF	C0 90 0916		3501	BF	X900+UFIND1-ENDROU
36F3	F2 87 15		3502	J	LDEND
36F6	78 10 01		3503	UFIND4	TBN 1(,XR1),BIT3
36F9	C0 90 091D		3504	BF	X900+UFIND2-ENDROU
36FD	B9 40 01		3505	TBF	1(,XR2),BIT1
3700	C0 10 0932		3506	BT	X900+UFIND3-ENDROU
3704	F0 3B 03		3507	HLT1	HPL H1,HH
3707	C0 87 0932		3508	B	X900+UFIND3-ENDROU
370B	C0 87 021A		3509	LDEND	B PRINT
370F	47		370F	3510	DC XL1'47'
3710	0E		3710	3511	DC IL1'14'
3711	0000		3712	3512	LM# DC AL2(*-*)
3713	FF00		3714	3513	DC XL2'FF0J'
3715	39 01 0208		3514	TBF	SBYTE0,SSW07
3719	39 08 01FD		3515	TBF	X'1FD',X'08'
371D	F2 90 03		3516	JF	**06
3720	F0 3B 3F		3517	HLTA	HPL HA,HH
			0A03	3518	USING RNUM,XR2
3723	C2 02 0A03		3519	LA	RNUM,XR2
3727	B5 01 04		3520	L	4(,XR2),XR1
372A	9C 00 00 00		3521	MVC	RNUM(1,XR2),0(,XR1)
372E	1C 03 0211 03		3522	MVC	RPF(4),3(,XR1)
3733	C0 87 0212		3523	B	TEST
3737	D0 87 04		3524	B	4(,XR1)
			373A	3525	LENGTH EQU *

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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3527 *****
3528 * IF FLAG OCCURS ON THIS ORG YOU HAVE EXPANDED INTO X'3900'.
3529 * 3900-39FF IS THE BUFFER FOR SECOND CARD FOR 2560 AND 1442.
3530 * 3A00- 0H IS RESERVED FOR USE BY THE HLTA CONFIGURATOR PROGRAM
3531 * 'FE7'.
7E3A 3532 * ORG X'8000'-X'3900'+*
3533 *
3534 *
3535 *
3536 *
4800 3537 * ORG X'4800'
4800 3538 DDDF EQU * WORK FIELD
4800 77FF 3539 DS 48CL256
4900 3540 DDDF1 EQU DDDF+256

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3542 TREP
3543 TREP
3544 TREP
3545 TREP
3546 TREP
3547 TREP
3548 TREP
3549 TREP
3550 TREP
3551 TREP
3552 TREP
3553 TREP
3554 TREP
3555 * JEB
0B9D 3556 END SETDSK

```

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
AA07	A	004	0BF2	0111	0108 0186 0233
AA18	A	004	1F7E	2040	2038
AA19	A	003	1F75	2037	2043
AA20	A	004	1F97	2046	2058
ACT0	A	001	2B93	3210	0565 1634 1732 1756 2386
ADDCPU	A	001	116F	0630	0749
ADDED	A	007	3152	3322	0264
ADDFPA	A	001	116B	0627	0299
ADDFLG	A	0C1	2AC0	3139	0101* 0262* 0775* 1106* 2871
ADDR	A	002	2AC5	3142	1956* 1964 2033* 2060 2507* 2615 2846* 2849 2864* 2868
ADDR1	A	002	1F58	2025	2032* 2059
ADDTST	A	001	0CA5	0199	0164
ADMSG	A	001	30FD	3319	0264* 0265* 0266* 0569 0570 0759 0762* 0763* 0764* 0767 0927* 0928*
ADMSG	A	001	314C	3321	1076* 1077* 1078* 1079* 1083 1272*
ARR	C	001	0008	3401	0767 0768 1083 1084 0042 0047 0705 1589 1688 2027 2094 2150 2202 2249 2288 2321 2366 2449 2506 2625 2684 2695 2768 2836 3041 3070 3084 3109
AST	A	003	2275	2362	2399
ASTRK	A	001	12F1	0788	0364
BB1	A	004	1873	1344	1331
BE55	A	004	27B1	2866	2865*
BIT0	C	001	0080	3449	3489
BITS	C	001	0040	3450	3505
BIT2	C	001	0020	3451	3499
BIT3	C	001	0010	3452	3500 3503
BLNK	A	006	0B09	0034	0282 0789 0803 2717
BRTRY1	A	006	24A4	2582	2810
BUF14	A	002	27F2	2887	2888 3064
CALCAD	A	004	19C3	1469	1432
CAL12	A	001	1A87	1527	1470
CARD10	A	002	27F0	2886	2962 3032 3059
CARD20	A	002	27F2	2888	3006
CARD2A	C	001	3900	3422	3067
CARSAY	A	001	2AC6	3143	1566* 1580
CDEXIT	A	004	293D	2998	2992
CD10R2	A	001	2ABF	3138	0394 2029 2842* 2869* 2875 2961* 3037* 3060* 3065*
CERR	A	007	3028	3304	1995 1996
CERRB	A	001	2FF0	3302	1995
CFGEND	A	004	1F28	1988	1876 1678
CFGERR	A	004	1F30	1993	1885
CFGPGM	A	001	1D97	1836	0207
CFIGFG	A	001	2AC1	3140	0899 1048 1837* 1988*
CFRT	A	004	1DBD	1848	1049
CFRTRN	A	004	1F00	1972	0900
CFRT3	A	004	1DED	1873	1977 1986 2000
CHK1	A	004	24D1	2595	2578
CHNERR	A	004	15AD	1040	0847 0858
CHNID	A	008	2B09	3170	0374 1880
CKEP	A	002	2A77	3152	1568
CKM	A	004	0DED	0313	0306 0310
CK18	A	004	2781	2853	2845
CLE55	A	004	27A7	2864	2860
CLI1	A	004	249D	2579	2546*
CLI2	A	003	0D95	0289	0286* 0288* 0291
CLW	A	002	2ACF	3148	1492* 1499
CL3	A	002	2ACB	3146	1472* 1475 1529* 1532
CMCNT1	A	005	1CB2	1743	1730
CMCNT2	A	006	20F8	2162	2158
CMCNT3	A	006	2108	2166	2161
CMCNT4	A	004	1D70	1810	1802 1818
CMID	A	001	2BE8	3231	0728 0730 0732
CMIDL	A	005	2B79	3200	0674 0683 0715* 0746*
CMLOOP	A	006	1F9B	2047	2052
CMPCON	A	002	2B18	3175	0214
CMPPGH	A	001	1C69	1717	0215
CMPRS1	A	004	1F59	2027	0409 0649 0952

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
COMPXT	A	004	2028	2083	2027* 2068 2072
CONTA4	A	004	209A	2126	2131
CONTA5	A	004	208C	2123	2111
CONTA6	A	004	20B2	2132	2128
CONTA7	A	004	0EB3	0383	0347
CONTA8	A	006	21F1	2271	2259 2265
CONTA9	A	004	1311	0797	0790
CONTB2	A	001	0E07	0327	0304
CONTC3	A	004	10FE	0580	0527 0548
CONTC5	A	006	0FE3	0493	0486
CONTC9	A	006	12AA	0759	0509 0592
CONTD9	A	005	10E6	0573	0561
CONTE1	A	005	0DD2	0305	0301
CONTE2	A	003	0E70	0363	0355
CONTE5	A	004	2331	2427	2413
CONTE6	A	001	0DAA	0295	0281 0283
CONTF3	A	004	175C	1230	1209 1213
CONTG1	A	005	123C	0717	0713
CONTG2	A	004	1258	0725	0718
CONTG3	A	004	129E	0749	0744
CONTG4	A	006	11EC	0674	0667
CONTI1	A	003	28B3	2960	2947
CONVRT	A	004	202E	2094	0360 1229
CONVTR	A	004	20B6	2134	2094*
COUNT	A	002	2AD9	3153	1474* 1476* 1484* 1489* 1492 1498* 1504* 1508 1513* 1516* 1531* 1533*
CPCNT1	A	004	1FEB	2067	1538* 1543* 1546
CPUDFG	A	001	2AAP	3125	2030
CPUPG	A	001	2ABD	3136	0529 0874 0882* 0887*
CPGIDZ	A	004	2B01	3169	0268 0517 0628* 0666 0671* 0735* 0751* 0992 1010 1025
CPUPG	A	001	121D	0704	0372 0566
CPUPGR	A	004	12A6	0752	0269 0313
CPW	A	002	2AD3	3150	0705*
CRTFLG	C	001	0879	3425	1508* 1547* 1566 1568
CTLREC	A	004	28F9	2980	2976
CTR1	A	001	2B21	3179	2704* 2720*
CTR2	A	001	2B22	3180	2705* 2715*
COH027	A	005	2B6A	3197	1397 1424 1449
COH048	A	005	2B7E	3201	0568 0746
COH2R1	A	005	2B6F	3198	1415
C1HOR1	A	005	2B83	3202	0715
C2HOR1	A	005	2B60	3195	0601 1627 1721 2373
C3H0	A	005	2B56	3193	0541 0546 1145
C3H15	A	005	2B65	3196	0532 0534 0809 0889 0936 1840 1841 1895
C3H161	A	005	2B3D	3188	2289 2323
C3H162	A	005	2B42	3189	0578 1679
C3H163	A	005	2B47	3190	0526
C3H164	A	005	2B4C	3191	0547 1118
C3H165	A	005	2B51	3192	0552
C3H172	A	005	2B38	3187	0303 0525
C33H18	A	004	2B87	3203	2521
C4HOR1	A	005	2B5B	3198	0600 1396 1406 2302 3204
DADD	A	004	2ABA	3134	
DAT	A	002	2C05	3474	2904* 2905 2907 2912 2914 2916 2917
DBYTE0	A	001	0B60	3408	2802 2807
DBYTE1	A	001	0B61	3409	2803 2808
DBYTE2	A	001	0B62	3410	1388 1394 2809
DBYTE7	A	001	0B67	3411	2628 2634
DCPCD1	A	004	1319	0800	0368 1215
DCPCD2	A	004	1383	0834	0375 1881
DCPCD3	A	003	13F5	0872	0371 1887
DCPCD4	A	004	141D	0885	0373 1883
DCPCN2	A	004	1440	0899	0876 0879
DCPCN4	A	005	1406	0878	0873
DCPCT1	A	001	0DF1	0314	0558
DCPERR	A	004	1599	1029	0530

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEPN, REFERENCES. Contains cross-reference data for DD63 3340 CE DISK EDITOR MOD 12.

Table with columns: SYMBOL, T, LEN, VALUE, DEPN, REFERENCES. Contains cross-reference data for DD63 3340 CE DISK EDITOR MOD 12.



DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FADD	A	001	2AB6	3133	0176* 0275* 0710* 0918 0921* 2983*
FAS	A	003	2269	2359	1792 2296
FASINE	A	001	2267	2358	0318 0540 1159 1264 1265* 1401* 1404 1407 1790* 1792* 2302* 2303*
					2304* 2361
FASINF	A	001	2272	2360	0317 0506* 0507* 1263* 1791* 2298* 2301* 2326 2376 2397
FASINM	A	001	226F	2361	1798 1801 1806 1810* 1814 1816
FASWR	A	004	1020	0515	0452 0685
FPA	A	003	2B29	3183	0298 0519
FFALOC	A	005	2B74	3199	0577 0669
FFB	A	003	2B2C	3184	0300 0521
FIGCON	A	002	2B16	3174	0206
FIN	A	004	2941	2999	2978 3004 3014
FINCAL	A	006	1AF0	1566	1522
FLAG	A	001	1666	1131	1134
FLAGS	A	001	0C67	0171	0166 0919
FLAG1	A	001	17C5	1270	1273
FLAG2	A	001	0F99	0464	0467
FLAG3	A	001	0FBB	0477	0480
FRDRV*	A	001	2C01	3246	1357* 1382 1385 2211
FRDTRK	A	001	25C6	2669	2635
FSTCPU	A	001	2ABE	3137	0560 0711 0712* 0745*
FUNBT1	A	002	2996	3026	2942
F3741	A	001	2AB5	3132	0102* 0425* 2937 2940* 2970 2974* 2979* 2980 2982* 2995*
GET1	A	004	0C42	0151	0153 0178 0225 0250
GET2	A	004	0D23	0257	0105 0259 1008
GET3	A	004	12CF	0771	0760 0773
GET4	A	004	14DD	0951	0954
GET5	A	004	117F	0636	0663 0723 0994 1012 1027
GET7	A	004	13B5	0850	0845 0867
GOOUT	A	004	2771	2848	2847*
HA	C	001	003F	3457	3517
HALT	C	001	0222	3406	0096 0184 0195 0231 0618 0693 0969 0978 0989 1004 1022 1035
					1050 1059 1341 1596 2001 2749 2759 2792 2820 2957 3021 3049
HALT1	A	001	26B1	2767	255J 2607 2649 2655
HALT1A	A	004	26BF	2772	2813
HALT1R	A	004	26FF	2795	2768* 2769* 2812*
HALT2	A	001	2703	2797	2566 2596 2613
HARSAY	A	001	2AC7	3144	1567* 1571* 1573* 1574* 1578* 1581
HDG1	A	041	2CE6	3263	2730 2731
HDG1B	A	001	2C90	3261	2730
HDRDCP	A	004	146E	0921	0914
HERE	A	004	1B06	1571	1569
HERE1	A	004	1B1E	1578	1576
HH	C	001	003B	3458	3507 3517
HLTA	A	003	3720	3517	
HLT1	A	003	3704	3507	
HLW	A	002	2AD1	3149	1493* 1521
HL3	A	002	2ACD	3147	1473* 1479 1480 1530* 1539 1542* 1544 1553
HPW	A	002	2AD5	3151	1514* 1515* 1521* 1552* 1555* 1573 1575
H1	C	001	0003	3456	3507
IAR	C	001	0010	3440	
IAR1	C	001	00C0	3423	
ICTR	A	001	2BFD	3242	0842* 0849* 0866* 0930* 0933* 0945* 0948* 1355* 1376* 2511* 2582* 2626*
IDLOC	A	096	0A6F	3471	0483 0484 0490 0519 0521 0598 0599
INCCL	A	006	21E1	2267	2262
INCHD	A	004	21CD	2261	2257
INVCD	A	004	1521	0982	0381 0641
INVCD1	A	004	1850	1325	1218 1220 1222 1225 1227
INVHDR	A	004	14F9	0964	0917 0920
INVID	A	005	1572	1014	0401 0646 0792
INVSCD	A	004	150D	0973	0285 0290
INVSEQ	A	005	1541	0996	0277 0399 0644 0739 0794
KBRDY	A	020	303C	3306	0149 0150 2453* 2457*
KBRDYB	A	001	3028	3305	0149
KCTR	A	001	2BFF	3244	1628* 1674*
LCTR	A	001	2BFE	3243	0856* 0860* 1631* 1647* 1652 1670

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
LDEND	A	004	370B	3509	3490 3502
LD1442	A	004	29FB	3059	2854
LD3741	A	001	286D	2936	2856
LD5471	A	001	27F6	2898	2862
LENCT2	A	002	2992	3024	2963 3007
LENGTH	A	001	373A	3525	0427 0427 0427* 1245 1245 1245* 3485
LINK	C	001	0216	3402	0193
LINKM	A	001	0C8F	0188	0168 0696 2504 2751 2761
LINKM0	A	002	239B	2504	2812
LN0	A	002	3712	3512	3487*
LOAD	C	001	022A	3417	
LOOP1	A	004	0E32	0341	0336 0344 0352 0418 0621 0903 0993 1011 1026 1052
LOOP10	A	006	187B	1357	1380
LOOP11	A	004	2154	2208	2229
LOOP12	A	004	1B97	1630	1665 1681
LOOP13	A	004	261F	2705	2721
LOOP14	A	004	2623	2706	2716
LOOP16	A	004	1CC1	1747	1760 1781
LOOP17	A	006	20E2	2157	2184
LOOP18	A	004	1D52	1798	1808
LOOP19	A	004	149A	0931	0934
LOOP2	A	004	0E2A	0338	0445
LOOP21	A	003	1E60	1916	1911 1920
LOOP22	A	003	1E7F	1927	1929
LOOP23	A	003	1E90	1933	1937
LOOP24	A	003	1EB1	1944	1950 1966
LOOP25	A	004	1E42	1906	1913
LOOP3	A	004	14CB	0947	0949
LOOP30	A	003	13C5	0857	0861
LOOP4	A	004	0F19	0413	0361 0369 0408 0798
LOOP5	A	004	1C7F	1723	1741
LOOP6	A	004	169F	1148	1151
LOOP7	A	006	0D8F	0288	0292
LOOP8	A	006	22EB	2399	2419
LOOP9	A	003	1364	0823	0828
LOP12A	A	004	1B9B	1631	1614*
LSCNT1	A	004	1B9F	1633	1640 1650
LSCNT2	A	004	1BDA	1652	1615* 1635
LSCNT3	A	004	1BEF	1658	1648
LSPGM1	A	004	1B6D	1618	1611 1613
LSPGM2	A	004	1B93	1628	
LSPG1A	A	004	1B7B	1621	1616*
LSPG1B	A	004	1B7F	1623	1617*
LSTCON	A	004	1C03	1667	1653
LSTDOD	A	004	2AED	3161	0307* 0390
LSTPGM	A	001	1B4F	1609	0213
LSTRC	A	004	2932	2995	2988
LSTRD	A	004	1C35	1688	1633
LSTRDR	A	004	1C46	1692	1688* 1690 1705
LSTSCN	A	001	2AB4	3131	2394* 2406* 2418
LWRITE	A	004	0F33	0424	0378 0386 0393 0395 0411
LWRT	A	001	2AB1	3127	0424* 0444 1105* 1656* 1663 1664*
L1	C	001	0000	3459	
L10	C	001	0168	3468	
L11	C	001	0190	3469	
L12	C	001	01B8	3470	
L2	C	001	0028	3460	
L3	C	001	0050	3461	
L4	C	001	0078	3462	
L5	C	001	00A0	3463	
L6	C	001	00C8	3464	
L7	C	001	00F0	3465	
L8	C	001	0118	3466	
L9	C	001	0140	3467	
MADD	A	025	3630	3387	0247 0248
MADDB	A	001	360A	3385	0247

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MAIPGM	A	003	2AF7	3165	1626 1720
MCTL	A	033	360A	3384	0174 0175 0222 0223
MCTLB	A	001	35E3	3382	0174 0222
MCTR	A	001	2C00	3245	1625* 1678* 1689* 1694*
ME	A	002	2AFB	3167	0385
MENU1	A	038	31EC	3330	0113 0114
MENU1A	A	001	31C6	3329	0113
MENU1B	A	001	31EC	3331	0117
MENU1C	A	001	3214	3333	0121
MENU1D	A	001	323C	3335	0125
MENU1E	A	001	3264	3337	0129
MENU1F	A	001	328C	3339	0133
MENU1G	A	001	32B4	3341	0137
MENU1H	A	001	32DC	3343	0141
MENU1I	A	001	3304	3345	0145
MENU11	A	040	3214	3332	0117 0118
MENU12	A	040	323C	3334	0121 0122
MENU13	A	040	3264	3336	0125 0126
MENU14	A	040	328C	3338	0129 0130
MENU15	A	040	32B4	3340	0133 0134
MENU16	A	040	32DC	3342	0137 0138
MENU17	A	040	3304	3344	0141 0142
MENU18	A	040	332C	3346	0145 0146
MENU2	A	038	3352	3348	1850 1851
MENU2B	A	001	332C	3347	1850
MENU2C	A	001	3352	3349	1854
MENU2D	A	001	337A	3351	1858
MENU2E	A	001	33A2	3353	1862
MENU2F	A	001	33CA	3355	1866
MENU2H	A	001	33FA	3357	1870
MENU4	A	038	3448	3360	0852 0853
MENU4B	A	001	3422	3359	0852
MENU5B	A	001	3448	3361	1174
MENU5C	A	001	3630	3388	1236
MENU5D	A	001	346E	3364	1178
MENU5E	A	001	3496	3366	1182
MENU5F	A	001	34BE	3368	1186
MENU5G	A	001	34E6	3370	1190
MENU5H	A	001	350E	3372	1194
MENU5I	A	001	3536	3374	1198
MENU51	A	014	346E	3400	1174 1175
MENU53	A	040	3496	3365	1178 1179
MENU54	A	040	34BE	3367	1182 1183
MENU55	A	040	34E6	3369	1186 1187
MENU56	A	040	350E	3371	1190 1191
MENU57	A	040	3536	3373	1194 1195
MENU58	A	040	355E	3375	1198 1199
MEN22	A	040	337A	3350	1854 1855
MEN23	A	040	33A2	3352	1858 1859
MEN24	A	040	33CA	3354	1862 1863
MEN25	A	048	33FA	3356	1866 1867
MEN27	A	040	3422	3358	1870 1871
MFCU	A	004	2997	3031	2858 3039
MINUS1	A	002	0B9C	0056	2040 2130
MOV1	A	006	23DB	2519	2512* 2513 2514* 2515* 2516 2517* 2520 2546 2547 2643
MOV2	A	006	24B5	2586	2520*
MOV3	A	006	2486	2572	2547* 2592
MSGBGM	C	001	007F	3399	0427* 1245*
MSG02	A	016	31C6	3328	1308* 1312
MSP	A	011	3047	3308	
MSPD	A	001	303C	3307	
MULT10	A	006	1A9D	1532	1534
MULT12	A	006	1A6E	1515	1517
MULT40	A	036	19E0	1475	1477
MVC1	A	006	22BE	2387	2380*
MVC10	A	006	23D5	2518	2516*

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MVC2	A	006	25A9	2659	2643* 2644*
MVC3	A	006	21B4	2253	2252* 2271
MVC4	A	006	21F7	2272	2271*
MVC6	A	006	21AB	2252	2251*
MVC8	A	004	2024	2081	2078* 2079*
MVC9	A	004	1EA3	1939	1932* 1935*
MVI1	A	004	232A	2424	2421*
MVI2	A	004	2335	2428	2427*
MVI3	A	003	200C	2076	2074* 2075* 2077* 2079
MVI4	A	004	251B	2616	2513* 2631
MVI5	A	004	253E	2632	2631*
NAS	A	001	2BB8	3216	0318* 0319 0454 0455* 0507 0534* 0535* 0541* 1159* 1450* 1453* 1743* 1764 1780* 1790 1841* 1843* 1972* 2155
NBLNK	A	004	1333	0808	0804
NEG3	A	002	1F54	2023	2054 2381
NEG4	A	002	1F56	2024	2055
NEXT	A	004	2057	2105	2119
NODS	A	003	2A5A	3090	0109*
NOTBLK	A	004	2869	2929	2926
NOTDAT	A	004	0F0D	0409	0406
NOTSSW	A	005	0E8A	0370	0366
NOT12	A	001	1E32	1587	1384* 1435 1469 1588*
NRWRT	A	004	0FB7	0476	0468
NSSW	A	003	1735	1217	1211
NWRT	A	006	112B	0598	0460
NWRTPG	A	001	2AAE	3124	0302* 0451 0957* 2153* 2164* 2183
NXT	A	003	2958	3005	3001
NXTCHR	A	003	2805	2903	2923
OLD	A	003	2B14	3173	0470 1275 1639 1729 1759
ONE	A	001	0A03	0015	0288 0416 0439 0505 0564 0573 0654 0860 0866 0933 0948 1144 1150 1160 1232 1263 1376 1476 1489 1504 1516 1533 1543 1647 1674 1689 1735 1772 1935 2050 2112 2117 2118 2163 2250 2254 2258 2264 2267 2517 2582 2626 2715 2720
OPINCP	C	001	0001	3413	2803
OUTREC	A	001	2395	2502	1410* 1431 1472 1473 1529 1530 2653*
PACK	C	001	0226	3416	0488 0725 2096 2106
PASPRM	A	003	2A7B	3099	3091
PAUSE	A	004	0C9B	0195	0170
PFLAG	A	001	2AAD	3123	0311* 0392 0396* 0407 0410 2069
PGMDEL	A	007	30FC	3318	1077
PGNTP	A	006	1820	1308	1126 1135 1274
PH	A	002	2AF9	3166	0273 0717 0759
PHAS	A	001	20C7	2147	0532* 0533* 0540* 1158* 1449* 1450 1452* 1763* 1840* 1842* 1973* 2154
PRGID	A	003	1669	1132	1111* 1308
PRGID1	A	003	17C8	1271	1268*
PRGID2	A	003	0F9C	0465	0462*
PRINT	C	001	021A	3403	0087 0092 0179 0226 0610 0687 0765 0964 0973 0982 0999 1017 1029 1040 1054 1081 1309 1333 1459 1590 1658 1667 1820 1993 2723 2728 2733 2742 2753 2784 2815 2948 2953 3015 3043 3096 3115 3509
PRINT1	A	001	2A42	3083	0111 0115 0119 0123 0127 0131 0135 0139 0143 0147 0172 0189 0220 0245 0850 1172 1176 1180 1184 1188 1192 1196 1234 1325 1848 1852 1856 1860 1864 1868 1978 1982
PRINT2	A	001	2A8A	3108	0616 0987 1046 1339 1998
PRTBF	A	001	0A15	0027	1618* 1619 1619* 1620* 1621* 1623* 1630 1654* 1655 1655* 1661 1672* 1680*
PRTEND	A	004	2A86	3102	3084* 3087 3100*
PRTPRM	A	001	2A77	3097	3093* 3094* 3095*
PRT2	A	006	2A9E	3114	3111
PRT3	A	004	2AA4	3115	3113
PWR	A	004	132C	0805	0802 0817
P1IAR	C	001	0020	3439	
QCPU	A	001	109E	0550	0518
QDCP	A	004	1053	0529	0516
QFFA	A	006	10F2	0577	0520
QFFB	A	006	1044	0525	0522

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
QPUDT	C	001	0A07	3445	3491
QTAB	C	001	022F	3446	3492
QUITFG	A	001	2381	2494	
RCTR	A	002	2B20	3178	0331* 0339* 0414 0416* 0432 0438
RDFAS	A	004	2201	2288	0315 1400 1795 2372
RDFASR	A	004	223E	2306	2288* 2299
RDMD	A	029	3674	3391	2951
RDWRT	A	004	2140	2202	1398 1408
RDWRT2	A	0J4	2190	2230	2202*
RD1442	A	004	2A23	3070	3061 3066
READADJ	A	002	3174	3324	2042 2057
READIE	A	001	0A80	0031	0032 0651* 0653 0660 0727 0818 0831 0862 1925 1969 2036 2044
					2074 2092 2098 2099 2100 2100* 2102 2103* 2104* 2112* 2118* 2123*
					2124 2124* 2125 2837 2850 2867 2886 2910 2925 2927 2927 3112
					3114 3324
READ4	A	002	202D	2092	2101
RECORD	A	004	2749	2836	0151 0257 0341 0636 0771 0854 0947 0951 1201 1873
REM	A	040	35AC	3378	1980 1981
REMB	A	001	355E	3376	1980
REMB2	A	001	35AC	3379	1984
REM2	A	015	35E3	3381	1984 1985
REPERE	A	004	1153	0610	0357 0359
REPPGM	A	001	1614	1104	0205
REPWHO	A	014	346E	3363	1109* 1268 3400
REPWH1	A	014	3657	3390	1110* 1236 1237
RESKS	A	004	2808	2904	2913
RNUM	A	001	0A03	0009	3518 3519 3521*
RPCNT1	A	004	1662	1130	1116
RPCNT2	A	005	1672	1137	1128
RPCNT3	A	005	16B2	1158	1141
RPCNT4	A	004	16C7	1168	1152
RPCNT5	A	006	17A5	1263	125E
RPCNT6	A	004	17FD	1292	1261
RPCNT7	A	006	17BB	1268	1113
RPM	C	001	0211	3448	3522*
RTRN	A	003	0C4E	0163	0777 0779
RTRN1	A	006	0F75	0454	0523
RTRN2	A	001	0D2F	0261	0780 2986
RTRN3	A	001	16CF	1171	
RTRN3A	A	004	1707	1201	0902 1238 1344
RTRN6	A	004	2AA9	3117	3109*
RTRY	A	004	27FA	2900	2908 2915 2928
RTRY1	A	001	2461	2554	2544 2593
RWRIN	A	001	20C8	2149	0538 0544 1162 1454 1778 1846 1974
RWRINE	A	004	2134	2186	2150*
SAVEID	A	004	2ADD	3154	0297* 0400 0462 0567 0581 0582 0645 0741* 0762 0764 0791 0922*
					0923* 1015 1092* 3155
SAVID	A	096	0A74	0028	0296* 0494 0586 0603 0740* 1137* 1295 3471
SAVIDE	A	001	0A15	0026	0027 0925* 0926*
SB	A	002	2AFD	3168	
SBYTE0	C	001	0208	3453	3514
SBYTE2	C	001	020A	3407	
SBYTE*	C	001	020C	3454	2450 2454
SCANED	A	006	24D9	2598	2525
SCDFG	A	001	2AB0	3126	0293* 0485 2067
SCERR	A	046	2F97	3297	1056 1057
SCERRB	A	001	2F69	3296	1056
SCNERR	A	004	15CD	1054	0481
SCNVIC	A	004	227A	2366	0463 0476 1130 1269 1286
SCNVTE	A	004	2346	2435	2425
SCNVTE	A	004	234A	2436	2366* 2368 2370*
SCTR	A	001	2BAB	3215	0329* 0436* 0439* 0542
SECT*	A	002	2BE2	3229	0536* 0542* 1139* 1143 1160* 1451* 1762* 1844* 2151
SELDRV	A	004	234F	2449	0100 1456 2899
SEQCHK	A	005	0EE7	0398	0389 0391
SEQCTR	A	004	2B1E	3177	0271* 0330* 0351* 0398 0403* 0633* 0643 0648* 0721* 0737* 0738 0793

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SEQMV	A	004	1FF9	2071	0795* 0955* 0997 1007
SETADD	A	004	0D13	0245	0201
SETDSK	A	001	0B9D	0079	3556
SETTO	A	004	0B78	0042	0457 0584 1292 1784 2325
SETTOR	A	004	0B86	0045	0042*
SETUP	A	024	36B9	3393	2956
SET0	A	004	0B8A	0047	0563 0931 1321 2873
SET0R	A	004	0B95	0050	0047*
SIOI	C	001	0018	3424	
SIO1	A	003	246E	2564	2531* 2543* 2545* 2568
SIO10	A	003	250C	2611	2598* 2599*
SIO11	A	003	2509	2608	2600*
SIO2	A	003	2587	2650	2639* 2640* 2641
SIO3	A	003	258E	2652	2642*
SIO4	A	003	259F	2656	2641*
SIO5	A	003	246B	2560	2532* 2548 2549
SIO6	A	003	25FC	2690	2688* 2689*
SIO7	A	003	24AE	2584	2535*
SIO8	A	003	248F	2574	2548* 2674
SIO9	A	003	2492	2576	2549* 2550*
SIZER	A	004	1B33	1588	1389 1395
SIZERR	A	004	1B4B	1598	1589*
SKDV02	A	006	1AD5	1546	1541
SKD02	A	006	1A5E	1508	1502
SKD12	A	006	1A24	1492	1487
SLAMP	A	002	2ABC	3135	2939
SLDRVR	A	004	2371	2466	2449* 2455
SNBYT2	A	002	2994	3025	2943* 2944 2946 2966* 2967 2984* 2985 2987 2990* 2991 2993 2999*
					3000 3002 3010* 3011
					2748 2758 2790
					2695*
SNSAP	A	004	2607	2695	
SNSAPR	A	004	2679	2740	
SNSDR1	C	001	0080	3441	
SNSDR2	C	001	0040	3442	
SNSDR3	C	001	0020	3443	
SNSDR4	C	001	0010	3444	
SNS24	A	004	25E2	2684	1387 1393 2747 2771 2798
SNS24R	A	004	2603	2693	2684*
SPACE*	A	036	2C4E	3255	1796* 1803* 1811*
SPFLGS	C	001	0A02	3455	3489
SRCE	A	002	2061	2108	2105*
SSWID	A	004	2B0D	3171	0365 0816 1210
SSW05	C	001	0004	3477	3110
SSW07	C	001	0001	3426	3514
SSW1A	C	001	0020	3432	2857 3089
SSW1B	C	001	0010	3433	0104 2859
SSW17	C	001	0001	3431	0916 2855 2879 3088
SSW18	C	001	0080	3430	2853 3089
SSW2F	C	001	0001	3434	0084 0107 2844 2877
SSW22	C	001	0020	3427	2450 2454
SSW23	C	001	0010	3428	2450
SSW24	C	001	0008	3429	2450
SS1	A	004	1FA1	2048	2046* 2047 2050* 2051
SS2	A	004	1FA5	2049	2047*
STARTX	A	001	0000	0005	
STATE	A	002	0A14	0025	2685* 2772 2775 2778 2781 2799
STATUX	A	002	27F4	2889	3035* 3036 3074* 3075
STCNT	A	004	1D48	1795	1676 1733
STPFLD	A	004	219B	2249	0441 0682 1148 1254 1403 1703 1738 1747 1775 1805 1813 2178
					2180 2223 2225 2415
STPFLR	A	004	21FD	2274	2249* 2250* 2251 2254*
STPSCT	A	001	213F	2200	1316* 1407* 2228
STP2	A	004	1209	0687	0656
STP3	A	004	1D8B	1820	1799 1817
STRSCT	A	001	213B	2199	1397* 1406* 2204
STRTA	A	021	30F5	3317	0094 0095



DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

OBJECT CARD LISTING

SYMBOL	T	LEN	VALUE	DEPN	REFERENCES
					0927 0953 0955 0996 1014 1086 1088 1088* 1092 1109 1110 1111
					1115 1203 1206 1208 1210 1217 1219 1221 1224 1226 1230 1359
					1361 1364 1367 1370 1378 1378 1379 1379 1386 1392 1630* 1642
					1643 1644 1645 1649 1649* 1875 1877 1880 1882 1884 1886 1894
					1894* 1906 1916 1916* 1917 1919 1925* 1934 1934* 1936 1939 1942*
					1949 1949* 1952 1952* 1953 1957 1958 1961 1961* 1965* 1969* 2033
					2035 2036* 2037 2039 2040* 2041 2045* 2048 2048 2049 2049 2053
					2055* 2056 2060* 2062 2063 2064 2065 2071 2071 2076 2080 2081
					2081 2697 2699* 2707 2712 2714 2714* 2717 2719 2719* 2739* 2837*
					2838 2839 2839 2850* 2867* 2874 2882 2882 2900* 2901 2901 2910*
					2916 2919 2919* 2920 2939 2972 2975 2977 3062 3067 3491* 3493
					3493* 3495 3497 3498 3499 3500 3505 3518 3519* 3520 3521
XR2WK	A	002	1F52	2021	2022 2041* 2042 2056* 2057
X12	A	002	2BF6	3238	1485 1488 1490
X1403	A	003	0A12	0021	1612
X1442	A	001	2A3D	3077	3070*
X19	A	002	2B95	3211	
X2	A	002	2BEA	3232	1500 1503 1505 1539 1542 1544 2077
X200	A	002	2B8F	3208	
X255	A	002	2279	2364	2399 2401
X256	A	003	2B8A	3205	0335 0417 0655 0932 1233 1691 2518
X3	A	002	2BEC	3233	2515
X3FFF	C	001	3FFF	3421	2847
X4	A	002	2BEE	3234	0536 1844 2370 2769 3042
X47	A	002	2BF8	3239	
X48	F	002	2BFA	3240	2157 2160
X5	A	002	2BFO	3235	2075 2509 2514 2644
X5203	A	003	0A0F	0020	1610
X6	A	002	2BF2	3236	
X74	A	001	2B8B	3206	0286
X8	A	002	2BF4	3237	
X80	A	002	27EE	2885	0291
X87	A	002	2BFC	3241	2078
X87C	C	001	087C	3475	3112*
X880	C	001	0880	3476	3114*
X900	C	001	0900	3472	3501 3504 3506 3508
X95	A	002	2B8D	3207	
ZERO	A	005	2B5A	3204	0329 0459 0634 0720 1471 1484 1498 1514 1528 1538 1719 2268
ZOUT	A	006	2000	2074	2301 2376 2070

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

THE CHARACTER INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GBD PN 42 48216 EC 571989 3340 CE DISK EDI TOR MOD 12 84228422 DD630000

TD-YK70< & B9U <E' + +DE &HQDD630001

TAE%I&DA &DA KI-DD630002

T+->2( -.SLO K|@ <"UT=K|"/0 (- .WGO \*53="?" /0 "EC"3S T|2D - 11K%U<\*H,IT-A -7 2DA- E&UDD630003

T+-?\_OH\*BFUIR<. "a<BG' /YF&3C50H\* BH?"00H\*BD%BGH4@ #\*2, +\*aD\_\*HAK 8D H.0A (H3-A -7 2U & HL DD630004

T+-0Y| \*DOaBGHUH AITG%OH\*DE-DY</L /2ZB K-2|<BGHUH AHCI00H\*DE-DY<Y3 /2ZB K-2<BGHUH AHCH 'E&DD630005

T+-1T7<BGHUNAH< DOH\*DE-HY<23 /2Z BA/60|<BGI4W\_P5' -0HD<6,5\$ |HANS5 / |HACS56 \*BACH= 'P D HY4DD630006

T+-2;@YD40H\*DE-Q X(-Y@aBD6+| X'\* &CD. /OHEJ/615|" -OH\*BH?"-OH\*.a%B GHUHDTAROH\*BE%B G SH J\*YDD630007

T+-3R"=G /0?.?\*D a@YEY?)Ua@-DG?H DO DOEH4A S%00HD )V84A SOI@-DG?H DO DOB#7L \*BAP4= ( &H 2DHDD630008

T+-4MH1T -J1ZT&D B. ?2 &;'6 L -J/ 70H\*DE-QX(-Y@B- 50A <E%BG /,PELF J"=. /OHS"=. /0? 20H\* #H DD630009

T+-5|HUHFITQ0+| X'\* &CD. /2)I,N' -Q<BACK<:C2, COQ D%2D3C Q1 3EK.A6 1H1a%G3E. |3-|H,7 DAH ;, UDD630010

T+-6HG&60H18D984 ACB,90 DMNC30H,E ( 5aD9a AENF'5 C 2 &\*a@BD2aY\*OT&H &B0X2-KS'6D, "JM (C " 2ZDD630011

T+-7ECR\*,S08 CR\* H #5 <BAE64 ( "6 PI=# "66| | aD%B1 -BXJ-. <D7N>( VY ,H\*BADO>( VY, -|H ACLO P9<DD630012

T+-8 "2D>C &,?S% 8aY\*5T&<CH3|2 J< % 2, \_NT0|H, H'55. 2 &EaC2D\_OH\*KG\*B GH-D< K,CHXH<AB> 8HWa )J4DD630013

T+-8#C &,?S>8| " , ,60AH:%,0-Q0H18 D#TOAH2AKP'-'SE' -P3QA#8,2/0TB H- |' ,H<BGI4W\_P5' -0HD PD4DD630014

T+-96CTH' BD2a-E >?;H a-DHAT ,GS, >OH\*+<,7R |HAES5 " \* ADN\*'E \$ "JE LOH\*-.?HGDS\$5\* <B AD?D 9LEDD630015

T+-:1T6<CH072 &% 8"2D30A LP-HGT84 C 2XJOHDL'Q4C 2% AOHDMG04GA2%IOHD L-#7E <BAC3+'80C " JM R: XDD630016

T+-#%HL70H, .2 &W ( &DD=abAC3<'C2D 2a-D) .&<D#N" "6# X|&aD, \* AC3<' SD "0 D|<3,0HD6 ( 5a ,G% "DYDD630017

T+-aX JNAT&(SH\_7 " JN2AT ,GS, >|6 D%?HAA3-|HD720 3 /1'R|<aD, \*BAC3( %P5'~|K@, H<BAC4& + BX 'LHDD630018

T+-'SH YC(-D, S%& GCTH@a2D1+0D0\_01 -P5'<~a7+60 H@H ,H<BGH91 K " ,>68 AH:%, H 8AH:XE @B GHR% ;HDD630019

T+-=)H#8"2D10 D +HT7"HD# -J -C & ,ZB>8C &, >B>=0H\* .: 4AH%<,O%BADK% <'--\*H\_3 /2I: " X934 E&DD630020

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

OBJECT CARD LISTING

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/"Q"=R@YDLI	,0-OBK Q, E<BGH91	K ,>BGHYI PE1	*I& I>@BAE*4< S>	*BW@< B>;EX ' BD	0@YD #E&DD630021	T+/LDH6M@AK>=  <	,0%EGH91 K ,>LO	EH"7B M- OH*YK6@	H"4H @ AE<X@2D	30H*YK*BGG5W' -.	J6 RC4DD630043
T+/ LB*BG SQBBW8	,,E0*KAO,X-1-K@	H)COAE@H@ DX"C 9	I"UX"OH*TXDAH B>	9C-DD00YCC DS*S,	CC E *KDD630022	T+/MV7K&CH19-  @	D, %BGC-G /OHE1TH	E7"TOH*BH?"TOH*	.2@BG /,PG2'Z"=L	/OHS"=L /O?.OH*	BFXH 8HDD630044
T+/A+HW@,><BGHU.	/1HD ~@DX"HA.C-	H,72DG (-Z?H2X	2-S% (-Z?H232-6L	/O'5C E,ZB%8C E	,?S% KT4DD630023	T+/N-HS#(="P /2D	H0H*BH?"V E D7*B	ACT. /1E". <>'E@	< 2@IH1@ /OHE1UY	?E""W0H*BH?"WC<	,GSY 0S0DD630045
T+/BIJ"HG3T"HD"	UAORC <-1S_V  M	-100CH#*,RLOAH#-	< K?S#=# /2CHC E	-121?C E,>B_OC D	,8S% =R-DD630024	T+/O59@BACK<' BD	'OHD+<%BGDP@% 2@	4000C.4YD7*BG /,	P<2'H"=- /OHS"=#	'BD'OHD+<%BGDP" /OH	68HDD630046
T+/CDD@BGH<-<AB>	UH5Q<AB>=H432/6C	B M-C E,?S_J	,0%BGH92 K ,>LU	H,#2DE, /O>HL D	NB-< 2SYDD630025	T+/POP%R .-X"=:XB	G S. "=:%BGB@? /OH	E0S8>("",OH*DS-	B%G DA6'OH*BH?"	,OH*+<%BG /,P.S=	P"=4 EJHDD630047
T+/C"L <CH9(<-Q	, DO BB,)L E+H79	<EI@1H40-?3E.@Y*	EL-DNB-<@ B?B@Y*	%C E,ZB_4C E,?S_	B  Q8DD630026	T+/QJOH*BH?"_OH*	N53% . <@QCDHC Q	1 3C@GA61H98*G3E	.?@BG /YBL3E.?OX	GO D.2=HBACY .<	X SY #C0DD630048
T+/D:H@H<S>*H_0	< B>;H_7 /O_BCA1	HGB>2CE'H70Z40H*	TXDAH B>90H*KD-0	BH90H\$00 H98H* 0	DH:E JCHDD630027	T+/B<7 Q@ BD1+~@	D0<HAK "XATJ>ASO	F(V*F. HOE@Q8C20	COA P>84BAS%?@-D	TC E,?S_<  ,0%B	GH90 "K*DD630049
T+/E5H5X<AB>=H6	<GD-*H#H<P4T-BXL	/O"TOH*BF%HS.X7	"9*BGHY, /OHS"=P	/O82+? D?HAK	D<B% ED8DD630028	T+/EG-D- H#V (-Q	,. @ APB @C2D3@Y*	60H*S;-CP2*E' AR	W0HDQHA1-BXL-GAO	,%/O< K?S#:%C2D	3@-D LSHDD630050
T+/FOGS,>C DS)2_	E0H*YK\$7E  HAK#7	T < AEKP ( 5@,G%	AEMP ( 5X\$D7* AEPH	F<B%: D@# /1'R	H- 8 8T0DD630029	T+/\$B@EOAH.% ,8-@	AH.%H 00DH'0,HTO	H=C /2P\$H'0  KB	#B-  JE~@Y*NG E	-108<AB>8HW@  K?	SB-< R#*DD630051
T+/G, KI7BYD+ KI	7B-< ( KI7H8,2/DJ	%EMEE (-DH-) HA *B	GDP@8C2D*@ /JC'E	,?S_+  ,J?GH,7	2/OY 5.YDD630030	T+/\$'OH*-2C0 H=C	B M- OH*DE-DH(F#	/2ZB K-4V%BGHUH	AHCK=OH*D6-DY(+\$	/2ZB K-5C%BGHUH	AHCH *S*DD630052
T+/HWC E,?S_9	,0%BGH91 K ,>*B	GHR%, ;*BGDBC /OH	E1S@_W-"YOH*BH?"	YOH*<T3EHDDW'@ET	2 P% :-0DD630031	T+/*8 (%BGHUH#FCH	;OH*YK\$7X<BAB@>	'1&C2-N: 'P' C2-L:	( 0<,C~HAC3- H,	2UB@AB7KOH*LG\$7	R < ;38DD630053
T+/I/    D_T- H,8	#C2D=@Z FC'E,;K>	CT&D<H?X2-J6< KI	7H5YF<B% ;H>#B M-	'OH*J-@BG SQBB_Y	,:C4 0J0DD630032	T+/)3 J/6?M A0 D	QH.5 A% APFB'E .	-J/6?N GOHDQH<B	GHB9%P5'-C-,8 Y	C(-D,S%BGHUHFI3R	POH" *3QDD630054
T+/H*4B?Y@YH: ~H	,:  HD<3Y H,4D<B%	;H>; ( 5@,G% AEMD	%POZ4P20CH_5ST&E	EH>X2 EY:C2D=C E	,:K% JJ*DD630033	T+/;>E0) @1&A<-*@	7+68AH:%,8<BGH91	K" ,5@BGR%,7C4	H, 2 E%@'B?B	D%*HGO 8AHXH 00	DH:E QI<DD630055
T+/.P~%BGDO@#C2D	'OH* "A<J D~H	AF OB<E*D7C1-<S-	< CDIH_7 /OHE U@	1K@HAK'C /2) I,M'	-Q< "P,%DD630034	T+/-ZHW@<ABI?H'3	/2IBC HP2CJ>OH*	S;-A 6D<ACDIK -	'A-E@YEHC IHAS%	H  ,0%BGH91 K ,>L-	6H-DD630056
T+/<K-J.   +0@D0.5	/ <BACD: "OOC -E1	+OH* (.84CP0X@YD	QTE(\$H_7 JN2TE(	-H1# "JNAAT ,GS,	>E@ @-HDD630035	T+/-UC20COA H8*B	GHIY PE1*  D,0%B	GB7-<"4X"K @<GD-	*H#H<P4T-BXL /2+	*6D- H#X /O?.C H	1>/Q =84DD630057
T+/((P5" /O@R  -	,4TTOH, 2D S( E#	.B-HAA61~P5"2/"Q	4 J(GC<,4K_V	,5%BGH92 " ,3H4	B S% 0/DD630036	T+//~E*BG /YFE3G	F+ @% @ E-E-G /O?	.  ,8<HAK C /O>	H C E,7B?XOH*P)KB	GHUHFI3:,+  X'~H	6E< "7-YDD630058
T+/+HC* AD23B -D	B4-DB4-DA-M A0 D	LUXI, ) HA =H5 60	A "B'E0G -J(U(ED	LJ@HBBYC2/:Q@A2?	K~D "NO<DD630037	T+/SE/OHEOSH>3~"	VOH*DS%BG S."9*B	GE0* @ S7'C "X KO	D  " ,7DA* AF50	'@E\$2 6E@OB0B?~H	FO D 1T%DD630059
T+/ C"53="?"=18-X	2-RN%BO% ( DM LO	BH"5 (-X\$@~HACM4	BB2,40 DN,LOEH"7	/2ZBASQ4K<BGI4U	@<B% 92&DD630038	T+/TNF.H@2B0B?~<	F@-DD  ( % ,74A2H	AAC3Q. H' BOBOHD	R_@@ H"4H "HACHO	AA E% 6QOH*Q;04	. H KYHDD630060
T+/ =" ,5 <BAEE7	S -D  E?~B-  J	EO-HH-F0?+2*K L	B?'B-  J+5(ED	H ~HG(.5 "HAB3T	OHD@ 2T DD630039	T+/U&. G2-)Y@ AX	2C" TLSOA. " ,6L	/2PS+E<.Q%BEF3*	< B(+. H% B=_AXB	GI;H9 0_SOI \$<00	CHL@ H,8DD630061
T+/690A ;G~HG+Y4	AAK\$E@-D2SE'~P30	FH"H: @BD7@Y* <\$E'	~P30EH'H:C2D?C <	,4K_V  ,5T&AEC7	/2< 2Y*DD630040	T+/V.H5Y< 2D#H6X	/2E OH*S LOOH" "	/2P\$HW@< 2D#H5Y	< 2D"HW# /2E	TV00DH#8,\$30 H@.	/2< ) Z<DD630062
T+/J4XD B? (+ @	D0* 6GO 8@BD30I	PA@BGCTH( T8,.H	ADT-A -,2UIQ'@BD	60 D<R"HAS330H,Q	% SY 'S-DD630041	T+/WFXH@H B>9C E	,?S_D  ,0%BGH92	K" ,>L4 H9~ JX	C  EHHCO KBH' A%	2@YDH  AHHCODKBH	@ B% \$HQDD630063
T+/K?7C8% B,) +33	"H,<%E Y4 ( 0~BV6	1*S0H<K<4CA@1K3E	2  E,"*BGB8Y6 K>	HCO ,"%YCO DMW-0	CH#4 7A8DD630042	T+/XAO%BGH91 K	,>60CH<Q,EE0CH#*	-1TOEH=H@PKCG BD	,><BGH<T /2(10H*	.2@BG /,P<B7I"=X	/O% 2-BDD630064

DD63 3340 CE DISK EDITOR MOD 12

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OBJECT CARD LISTING

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CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/X234 P3.2-S4	< K, IH5Y< K, .H9*	< K, (H9U@HB, RC-D	D2K, .CO D6EYCO D	R8 8AHXUD3E8AHXU	D3E0 8: %DD630065	T+/@+100 P' & G	2- & K 6GS -G /1#	N (6DD1) HB <BGG, D	5 J880-HH-<BGEBU	@ K>8  H-1@BGC<-	8@B* QC@DD630087
T+/Y7 K, RH5Y ( K,	IH"\$2 -12/TQ  K,	IH"Q+ K, RB-< ( K,	IH"\$ /Y+C DD32,	RC DD4K, IC DD6K	EC D R8 DB630066	T+/I' *BEG; 7 /2Z	B N85, <BGHUF (3P	TOH*) #L? "H%G /0?	.OH*BFUH8<BT"9*B	GHY8@B-50A ) #*B	G SH 50@DD630088
T+/Z2HXUD304AEXU	, :?HB "HGE-@AHXU	, :-8AH_UH 04AHXU	, :% BPU-< K, LH_U	@CB, RC DD5K_EC-D	D5KY =T4DD630067	T+/"=P /0?.	"7" ( --H34	AH, "2-Q*4 J' Q ( H	D1K0 G5AQ0-HH6.7	E  HA #0D CQBB90	4 /@ E4DD630089
T+/D_26@ H_UH @	APWE+ K, NH_G2/6U	< K, IH5Y< K, .H9*	< K, (H9U@BS, RC-D	D2K, .CO D6EYCO D	EX60 9B6DD630068	T+/"=M-4AG5H1)<	BG7PB E, P4-H	-Y-0 G: Q-YD8 &P	> DAC -Y-YC 6E	-Y% AG9_% -D (-D	-NCQ -\$QDD630090
T+/, Y K, RH5Y ( K,	(H=, 2 -12/1Q  K,	(H=Y+ K, RB-< ( K,	(H=, /D"C-DD2K,	RC DD42, I  D5L4	H%4 628DD630069	T+/" : /'0 ( H-M-4	AG5H1) < BG9*5 J'	Q (6HD1K1AB7) QTDE	BB7; @80B< E-MC4	H, C2-LQ8C2D_@Z	G, * 7R-DD630091
T+/XTAYDD  HD5E0	H%QD43_HX*( K,	LH_-2/ 12/06:EB,	GB <D12, N+1 D134	H_P2/ 12/06:DB,	GC "RUDD630070	T+S 5L5"2/2-< B	+BYD+ B +H"BA"0	+ B +H=Y< B VH"0	B'VH : @ E; % ER	POH* DD ( -->L6	AHRY 00MDD630092
T+/_; KB D1-0 KEH	D1@BGFQ@    @S<T@	HF4# /OHE1VU?@ "	?OH*BH"?OH* C-	BB-"2DA*8H YJ@/	E  D :LDD630071	T+SA00H*BI-6H/6D	AC DH-ODAC D-Q2	_O-DHSC3TBY @ D	A ( D-Q*BG SCB	"G5 -HAA-8ABY<	H 74 5Z8DD630093
T+/>RFP90@ J?S D	\$-C1 P8 @E DLG64	HU-DL F HFC1-BVY	@K0ZM  D% EBH_4	D'00DH#8, QCOBH"	B -Y \$K8DD630072	T+SB, EOG2 E K EG	K EH+ KATB-<+ D	AB-  /2AP  H700	FB_8H7@HAB_*4 KB	#CED-Q2B#@-H.-	(-D @, 8DD630094
T+/?HELOBH" /10	5L6HBH9.2 K@GHB,	)H>9 ( -Q, E<BAF9=	*-HFY DBIOMFZ=	*632"CO ,"-YCAVD	*8-H @I4DD630073	T+SCHW93 /2BE(ED	/H%BG	CEHHL*	< KB#H=H@ BD>C E	,4SCGC E, 7B>8CED	->2% OL@DD630095
T+/0 E%KGF9@ S?	=@YDS D HU00@BZH	HU30 H, G /OHE P@	HU34 H, D@ BD10 D	\$V@BG /YK+ H, " ?H	EACO PIYDD(30074	T+SD/= ?HDCL0?H"Q	KB#H", 2/1 < B?	OH.%  B?OB-<@C2D	>C", 8B?0OH*TXHA	H B? (OH*TXHA B?	POH* E@DD630096
T+/1H@ ZECO , "OY	CC H%HS, )OHD) KCO	A. <AB>=H4H@Q 2	E0H*\$V3EHGDU  BO	B-12-E-6 K>H0H*	CO \$38DD630075	T+SE*HR%, 4%BGR%	, 7C4 HD# -KCSOH*	( - /00C#D/+30AH" H	<BK?-H"Q@.2?O B@	, 8 0 NJ%DD630097	
T+/2E<B0  B@, OXH	AK C /2+*-D- H#X	/2F\$H## /11FO-E	H "OAH%<, O-EB. BY	D'00DH#8, QCO H@.	/2< '3HDD630076	T+SFP B(+ G /2+	*-D- H@4< B(+	/2+*ED- H"- /2F	\$H'. /2F\$H'0 ( '2?	JHL" -SEH0H*	88YDD630098
T+/3 XHAH B>9L6H	FH1L2-J9 ( -H, U?H	A, 8AHX<H 0*- .BY	D#%BGR%, ?%BGG@	*AB>8C-ODH@-, ?TO	H@0 :Y-DD630077	T+SGK ( -S 8	AH- H 00AH\$ S 0	AH\$Q CDHR- 8	AH- H 34OHR2 -U	+ B?QB-12/26'D2F	P@-H E4DD630099
T+/3#0H*/W2?H	, 3<BGH92 K , 044	B S>K@-EEL6HFH1L	-J3AG D, 8/H*ABC	GCUODCS>8  , 0%B	GH90 :E@DD630078	T+SH(CLOAHR+ KP	PB-12/1 + KPNB-<	< KFPH5Y@ KPQC D	/=SF6C E BFOH*	CEHHUD<AB?H@34	@ B% -Q4DD630100
T+/46ED- H#U+ K,	CB-<GHB0DH)* /2F	\$H## /2CHC E, >B?	*OH**0LO H@ /0	80H*TXDAH B>9C E	SS2% 0. DDD630079	T+SIH3<BGH92 K	, 004BK HSE-HAB@0	HHXIH" HGE OAHXH	, O-ODHW@, 030 HY	@ BIDOH* CEHHWQ	<AB% YZ@DD630101
T+/51> OAHXHDOGO	BHHUSE*BGHU. /2H	A.D %LS, X KHS\$ H	B<T4AHW"2-J P@B1	+H># /2F\$HW" /15	K C "RMDD630080	T+SHC2B%  , 3<B	GB7-<B4-.HX. /2+	*ED- H@  /0 1%G	S PE1 * "3EHH444 KI	7(6D @2%DD630102	
T+/6%HHW@P<K1+H?G	/2F\$HW@ HSIK@-B	DOH*) <BG /YFLB1	POH*.23Y H%GB H-	C <-1S_VC <, _2	V  D #J-DD630081	T+S@=H44+ K ( (E=#	/2HAC E, ?S_-	, 0-4AHXH, 0?HA/'H	A 3EAH%<6 J'H   '	H"03=K 9H"00CK <	, 000 H08DD630103
T+/7HX<@AK>8C D	, 8S?>OH*-2<BGHUB	AIT (KOH*DE-DY<7,	/2ZB K-3YXBGHUB	AHC H0H*DG-DO<,"	/2Y 8LDD630082	T+S.9 U-F ( U-	PHXP2 EY@ D/"CG9	H-U/"  D_0 H1H	TLTYCH1H< K, -HXH	( K, -HIX2A 4  K,	-HXU N@DD630104
T+/8SE-QY (B. /2)	I?; * OHD-H, 7E <B	AG2S (AO*, B*BAD8+	*00C -J@) ?; E 0 D	<.5 @BAD" M4 J8	88-H 5IDD630083	T+S<4 18, 0?HGB-0	H@HD733"H, L /2+	*HD- H#XA B<10H*	/W2>=  -@D_<'AH>%	4 K<_   EGEL6	AH3- :I4DD630105
T+/9) 00CH'D, RLO	FH'H@ B?00H*TXH	B? ((ED; +(HA 64	A -.2 E (@90GK E E	'E C2-E_ 'E0C -J9	BOH* PB8DD630084	T+S (?  @ CO H@.	/2+*-D- H#U5 KI	70H* 4BB (4+L-	BC EBC3 H48@@L	@+B BC EBC3HH48	@@T "\$YDD630106
T+/: QGU3S -P' & C	2-E>'E0C J9-0H*	;+3HAGTK E B -D	C4-DA-H 0 D; -71	, C3"GDLK 6GS -D	+ A8 NK4DD630085	T+S+D <BG		H8OT-0 CE@	4BBHS ( DD1LMAIKH	+ KH H3E6DD630107	
T+/*LZ YC?H 0 D	;UFO 5 J884-D	D4-H -; * @YDE-H	@YD74-DA@-HAOH*	; %; HB \$5, < AG%*	4 KY \$B0DD630086	T+S VHS?0  Y, "JO	AH= DC DVGS  -C-D	T8B70C-DT8B?%C D	T6B  -C-DT8 YCC H	B>HC UT- C D	U>B< 4SQDD630108

DD63 3340 CE DISK EDITOR MOD 12

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CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	
T+S6-8 4CH7U,/AB	DI3N8H C DELRC	US2(+C USB(+C	U*S(++-HU*-0 IH@	TL-0 I.HTLTYAI.H	< BE "D*DD630109	T+SU2_L-HH,P2DA@	: KD5 DD_TACHRE	8 SWLOA (.3-HHRL	2DA~/20H<DZVC-	BHR 2DA<8BBWMOI	ZG3Y #1DD630131	
T+SJ\$EB(+C U)S(	+;D @/ G+-DUS*H	GHTYBIF@< KK-H=	< KKIH= < BK&IPO	< BKLIF0: KKLK	UVS< E3XDD630110	T+SV_DB50H*Y0-(	CB<BGI@D0&2WH+ H	ZU*H&CC-HHRL DBU	:0H+Z&-(CBCEDI*H	1&SWK@4D OHZRTA	BHR& QJHDD630132	
T+SKOLTYBIIR11 I	11-LA BE1@0 @0	0& U**D IO<8 SJ	?@ZBPC UWS(+C U	B(==*EB@0 @0	COE ).ODD630111	T+SWY+&YZU@B&HP7	3&CT /2VAOH*BFUQ	TH~, " * < BG S. " * < B	GHH D -0 & CA@BW	:<-MX@ 11 <G1HEH	0@2* =AUDD630133	
T+SLJIIPA BLJ -@	HA*0@ H*4H*@B	AIZX3 GA BK1C U	B(=-K @YD=+ @	V&L? "I;G DBKFOH*	UQLO 8Y8DD630112	T+SXT'CFWI*G@ SD	"0A DG@BGR*4BBY	PCODZ527?0H*BFUQ	TH~, " * < BG S. " * < B	G CA4= E6) PA&@N	4'Q KIHDD630134	
T+SM<"2P/OH*X 00	I&4TLTYCI&4< BM	HH48< BPH48< BM	EH48: SM&C VEB(	+++EB**QDO& W%-<	"I< N-@DD630113	T+SY;0*LE6MCH5>(	6*PA1+ / 5_V 1) X	R5_U1NB-0  DD?@B	GHS+*943 KY-<N&	X@TOBH, " /2YTTA(	-+J< 91*DD630135	
T+SNG 3A BM 0&	X 3MAHXM@ OH*	C&HINO  B?B-	-KER &4.R*HAE&0	AIMDVGT0 "C-	X&D NA-DD630114	T+SZROH*YOC&HHT7	AMBW:@5D ONH.D.TA	LI*69U2-40A " < B	GHS+4BBDI+*DI*L&	AHRY5 KDI+&DBDTH	-X 0#UDD630136	
T+SOB-*BG < BO	DH48< BOHH48: KO	HC VYBOHC VT2	+C DV,B -CODV,B?	OC VXBOD<&ET-CG	DH9& Q8DDD630115	T+SDM@/ C@Y*\$\$?*	X'JO HX* G D; D	* KZ: @BG /Y	4-DD( D&SLMAHR,	/0 ( -D,C-D -T	2D U "1 DD630137	
T+SO'CE W%-< LG	PH9L3 <AB+RH&*	11B+MO& W%-< PG	PACGDH& <A H&)	"H C'-KH<+ @V&L?	"I;D =RYDD630116	T+S, CE@H60,~@Y*	FCEYH6-,EOH*BFSS	/0	@E?A1<J/H		5J-DD630138	
T+SP80A UUXBGIF9	"H C'-KHE+ @V&L?	"I;G DBK OH*URO	(-WATCEB/G	01BP-<*EV7-0 I-4	TLTY 'IHDD630117	T+SXH  @	DA &D	C	0@ C01 C0@ C0@-C	4= G2@ -6=(~H5<P	SE< P9DA/QHCC2<G	I5;H NJ<DD630139
T+SQ3 KP'@0 G<*E	V8<BG 4BBR@ ( D	D&L&BHR,B &-0-H	.B30PH2D@ABXS( D	W<L&BIT  /OH; &	4&HDD630118	T+S_EB>R 9<LT&(\$	L1< 00'LC@-C0@	- D @SFO*\$	FOXSP17A,E4' 0	J - C A A < D H	0 QR8DD630140	
T+SE>?D A4-DA&H	CC0 ,H-YC0 DWH80	B %X18-HCC0 ,H&Y	CO DWG@BG /YB.K4	80H*BF-IO.+\$ /OH	EAVQ 9.HDD630119	T+S> D < 0 &A	C A E < D A	& B A C @	FO HA < D&D	< 0 D H&DD630141		
T+S&ZB5@5 K,/(&H	/W%BG C /OH&0/H	XU ""OH*V8%BGI--	/OHS"" /02 OH*	BF%HV.&?"%BGI--	/OH 1&4DD630120	T+S># A BD D-	A DY POH 0* T	LO* T			KE<DD630142	
T+S\$UH?"=OH*<T3&	HIOH  K*BH=# /2P	S+A HD*H&AC34.F<	8H YL&Z D 1<XQ3/	B/ 2U @@S1T+H	HD*H E,MDD630121	T+S?6 D	A	E	D	H O D H A-	H O 3CUDD630143	
T+S*-U @@K1TOH*	BF%QU.G?"%BGI--	/OHS""3 /0 OH*	V&T-AB/L DBR'+&H	.QCUAB6G UBHT+KH	.QCU E,*DD630122	T+S01 B@ < AP		I&GD1*L	U5)R.&(\$P&(-G5D_	1)PT6*XEBUCL1*\$	TE<XS&-X96_ 8_	A0&H 3D-DD630144
T+S)EG /+P-QXB	6IH&< K*BH9? /2E	"OH*BFXR-.YP*%B	G S."%BGB@X4BB-	X0-HH-.1 P:1;PV@	@B* 5\$HDD630123	T+S1&&<GVO*YLO*.	L1HCF5_V 5@-H8U_	2;I 9=-X9=) 8XP	C8'SR8U?3@*LO&<L	R2;PE&+) 5)ST&(X	E0*E 0LHDD630145	
T+S;N'LOBH,@& &H	(@Z E( DD1&0A17&	"@B& 5 K,E0-H	H-<BGI@D&- H.OA	Z=3-A -,2D(48H'H	.0A OR DD630124	T+S2X:DCO6MCU5*X	TE< H1* K0*LA5=	E6HCC2<PC4UC05HC	3@*LO@ A &DA &DA	@(  &DA @ J &DA	&D :HDD630146	
T+S-EHR*8D H.@/	H? X'*BGI*Q* K,	EC DX_G AOH* <H	BBY 5 K,E  HD?3-	H%K2UBG /O>H&E"	-P34 QOHDD630125	T+S3S& C7&DA & C	&EDA &DA & G1&DA	& G2&DA &DA & G	5&DA & G6&DA &DA	& G9&DA & .0&DA	&D 48DD630147	
T+S-. SD*YDK+ D	BC-H&B3-A -,2D'K	XAS' OH* EA&BY	9 <BGH4@5 S-	/,H+C/ <Q&-<&DL	J. H @SHDD630126	T+S4) &DC2@ 3'  A	1&GI4@PD&+ 0&<P	X1* U&@N OHCS2) R	@-A @@XN1;.T2<N	2)PF5_XH0; I5_N	0XH #B4DD630148	
T+S/P+D KA-H&D3-	. P DB-:@1 A0-H	H-<BGHEH&BBOEOI	YBC-D. P DB-:T	. &1PB0E@1SA&-H	A( H EQHDD630127	T+S5Q4'\$W&<XS&+	H1HC2'DCB:+ E&<L	IO*) 8_PS2)PV0	I1DCH1*GD1) V 0@G	R1FA 0'SR6*PC84C	H1*D -CHDD630149	
T+SSA. M'8BOE0HD	YG%BGH P3FD 'E %	C@-DHCQH. -XCOHD	X=%BGI@D8DBD5@Z	(T DAH,0#*2D50H*	Z+TD NLHDD630128	T+S6L1<PR&< A6*J	0)PDE (X&8'XY&@T	E&<\$F0MCD1* K&(\$	R&<E 0'-0&(LO1+L	L1HCHO;I 8'S0&(L	A5;- 'HODD630150	
T+SS&KWO<D<ZVC-	DHR 2U+4& SWL@/	*OH*BFKD) (XL*@*B	G /YFJLE90H*BH?"	10H*Y--(CBCOAH,@	1JB* )RDDD630129	T+S7+L<.Y&@PS2)P	V0) I1DCC2<GR0*	T1)XS&<XN&<LR2;P	E&<(\$I1) D&(\$F&E?	D9() 5_-T2) \$N5<X	S8XU ).*DD630151	
T+ST7@CEBHR.3&6C	A&STE<DHZVCUHR	UBV*@4<H+ DD_-H	&&.5\$  HAACYHH,0	'Q&C2' &D' H G2-H0	=BBY :K*DD630130	T+S8I5*) 9<LT&(\$	R&< P9DCC0) XDK4A	2)PS1)XT&< A6*J	2)N 1<PC4UCA5*J	0*LD&<LE0'I 5>P	E6H% &JHDD630152	



DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

OBJECT CARD LISTING

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

T+S9D8ATEE<\$04\*| 09XN14CC2<GI5MC I5<GG1HCD0;|AE<| A6\*J 2;I 2)PV0| I1(POE(X05\_J 4@P F84 : 8DD630153

T+S9^5\_N 1<GTOMC H5XLU4@N QDCD5UC A&E?C5() 0%PF5\_X EE<GD1<XN14CO6MC R1)-P2)PG&<GN:DC P6)Q :SHDD630154

T+S::1'XA5+I.1)X B5\_V 2)N 5<PS8%G G10\_ 6\*PT:(~EE<G W1DCH2;( 1)PD&DC C0)XD&+.Y5;|A94C E6)U -.-DD630155

T+S^55\_V QDCC0)X DE(XE0\*J 9%GS;X N9\*GL2\*J 8%PQ9<P N0@N :4C05HCC0)X DEFA 8%PQ&G\_ 9=- X94 RJDD630156

T+S@09%GSE(XE0\*J ,&<GN1DA&+~X9=) 6+\$A8UCE9\*-E0=| E1<XN9\*GL2\*J 2\*J QDCI1DCR1\*GD&+\$ A8U P-YDD630157

T+S',9=-X96\_ 2\*J 1;-F1\*|T1\*J 9%G S6+-X9=-I5;PA&@X DE+.Y8>|E5DCT1;. TE<TE0\*LE6HCC0)X D8%< 5D0DD630158

T+S=N0)N 1)IR5\_V -&<TI84CS:+.T1)J 6\*PS1;(,8>|A6:( ,&+|H1)N 6\*PT6;T D0;|AE(LO1+LL1MC 05N 1#HDD630159

T+S^/1(XI9\*N 94C I8UCN5>( 0MC1@UC H&<.Y8@N 5@GC@U\_ &<XFE+TO9DCW2;. H6+|0&<|05;|I5;L EE4 RI&DD630160

T+T \*6\*PS1;( 8@T EE<TA4=(.1)IR5\_V 2)N 1<|PE<|05\*\$ I1=LR1HCR1\*|06\*J .&DCR1\*|06\*J 2;I 5'U )THDD630161

T+TAP2)PT1\*J 0%P L5>R:6\*PA1+/-1<X S4UCIQ)R 5\_N 1=- S1\*N 5'XI5;|E6;. E0=|I5\_N 8@PR5<X N0;< NYHDD630162

T+TBK1\*L1K4A 8=L R5HC05MCS8>R 8'R 8%PL1\*|TE<XN5=L TE<LE9\*IC1H\_ &DC 1'6A @~4@MA &DC 1=P 5,8DD630163

T+TC(6|G4\*|I &DA @\*E-5<\$C9DA &DC N5\_PEQDC5\*|1&E&DC 2K4A 1<XS4UCD6\*X V1HC1&+\$I4'( 0%N 9+H 8H8DD630164

T+TDH1\*J.&DCI1UC D6\*YV1HC2&<X5&<L E8%XR1\*J 8%PT&(\$ N&+.S9?..2K@LE4@P T1\*J &DA &DA &DA &D 218DD630165

T+TEC&DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &D 3YDD630166

T+TE=&DA &DA &DC A1<LE1FA-1<XA1'P 08>|I04CC5\_PT6)\$ LE(-R5%)-QPCN5XJ @-H@-(LI8>.I5\*) 0'Q R:0DD630167

T+TF95;|R5\_( 0@G R1DCI5NCE6)X06)P 0&+.P0\*|EE<GV0\*X L0\*.L1HCT5UCA1<J 5\*PW&(-R5%-R0)J 9=\* 4&@DD630168

T+TG494CN5>( 5\_N 1<XS4%PN8@PRE(\$ N1HCO1UCT2<N 1\_S L4\*\$W2)PGE(\$P8@X 05;I:&DA QNA &DA &D ;2<DD630169

T+TH?&DA &DA-&+| E6)LI5\*GT1HCO5@P R0;|I5\_N QDA &DA S0\*LP&DA &DA &DA QDCC5\_LP6\*PS8UA -ED @L-DD630170

T+TID&DA &DA &DA &DA &E?C5\_PP2\*) &DA &DA-&<|05\*\$ I1=LR1HA-&DA &DA &DA &DA&4=. TED #Z@DE630171

T+THV&DA &DA &FA 4@XS84A-&DA &DA &DA &DA &DA &E?D1)|X9=),9=- X&DCX9=)=&<XD&(\$ FE(\* JY@DD630172

T+T.-1'J(8V5 8'R 1<PL1;|EO@LU54C F1>|T6<\$F-UCF6)\$ H6(LO1+LL1N9 8=( =&+|0&(LO1+LL1N? R1)\* 88HDD630173

T+T<\$9=-X&DA &DA 9=-X-UCI1DC01UC P6)\$G6\*G&+|0&(X E54A 1<PP6\*PS8UA -1)PDQCK1;/ 8'R 2)N 1C-DD630174

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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* ----- * DD630197
* $DJP PFTT COPY FROM DRIVE FF TO DRIVE TT. FF AND TT CAN BE D1 ORD2. * DD630198
* $ADD ADD A PROGRAM DECK OR DECKS. * DD630199
* $LST LIST PROGRAMS ON DISK. * DD630200
* $DELXXX,YYY DELETE PROGRAMS XXX,YYY FROM DISK. * DD630201
* $REPXXX ADD REP CARDS ET C. TO A PROGRAM, E CARD MUST FOLLOW REPS. * DD630202
* $CONFIG TO CHANGE CPU, UDT, OR CHAIN IMAGE. E CARD MUST BE THE LAST CARD. * DD630203
* $CMP COMPRESS DISK * DD630204
***** DD630205
EB95*E7*=-DC*PH$ ="7H&F| | C FX ASC RA SQ 11350321770 32877;$0DD630206

```



LAST CHG:08:14 75

0A00

```

00000000 * DECK 4
00000001 * SEQ O
00000002 * START X*0A00*
00000003 * TREP
*****
00000004 * LSR FEATURE TEST
*****
00000005 * DA M
00000006 * 410 CPU PANEL
00000007 * INTERVAL TIMER
00000008 * 3277 DISPLAY STATION AND KEYBOARD
00000009 * 3284 PRINTER
00000010 * MLTA IND.VIDUAL LINE
00000011 * MLTA GENERAL ADAPTER
00000012 * SIOC
00000013 * 2501 CARD READER
00000014 * 3741 DISKETTE READER
00000015 * UNASSIGNED
00000016 * 1442 CARD READ PUNCH (FEATURE OR RPQ)
00000017 * UNASSIGNED
00000018 * MAG TAPE DRIVE 0
00000019 * MAG TAPE DRIVE 1
00000020 * MAG TAPE DRIVE 2
00000021 * MAG TAPE DRIVE 3
00000022 * BSCA 1
00000023 * BSCA 2
00000024 * BSCA 3
00000025 * CUSTOM SYSTEMS 1017/1018
00000026 * RESERVED FOR CUSTOM SYSTEMS
00000027 * 5444 DISK PRI SPINDLE REMOV PACK
00000028 * 5444 DISK PRI SPINDLE FIXED PACK
00000029 * 5444 DISK SEC SPINDLE REMOV PACK
00000030 * 5444 DISK SEC SPINDLE FIXED PACK
00000031 * 5445 DISK DRIVE 1
00000032 * 5445 DISK DRIVE 2
00000033 * 5445 DISK DRIVE 3
00000034 * 5445 DISK DRIVE 4
00000035 * 3340 DISK DRIVE 1
00000036 * 3340 DISK DRIVE 2
00000037 * 3340 DISK DRIVE 3
00000038 * 3340 DISK DRIVE 4
00000039 * 1403 PRINTER
00000040 * 1403 PRINTER DIAGNOSTIC
00000041 * 5424 MFCU/2560 MFCN PRI
00000042 * 5424 MFCU/2560 MFCN SEC
*****
00000043 * NOTES: 1) WHEN THIS PROGRAM IS UPDATED FOR NEW DEVICE
00000044 * LSR TESTS, IT MUST BE ENSURED THAT THE CPU
00000045 * MAPS ARE UPDATED ACCORDINGLY. NEW DEVICES
00000046 * SHOULD BE ADDED AS THE LAST ROUTINE (IMMEDIATELY
00000047 * PRECEDING THE ADDRESS DECORD TEST ROUTINE)
00000048 * SO THAT THE IMPACT ON THE MAPS WILL BE MINIMAL.
00000049 * THE CPU MAPS MUST BE UPDATED ANYTIME NEW DEVICES
00000050 * ARE ADDED.
00000051 *
00000052 * 2) THE SPUT FOR ANY NEW DEVICE MUST BE ENTERED AT
00000053 * THE END OF THE LIST RATHER THEN IN THE MIDDLE
00000054 * WHERE THEY MAY NUMERICALLY BELONG. THE CPU MAPS
00000055 * MUST ALSO BE UPDATED FOR ANY NEW SPITS....
*****
00000056 * SECTION PREFACE
*****
00000057
00000058
00000059

```

0A00	FD60	0A01	70	DC	XL2*FD60*
0A02	00	0A02	71	DC	XL1*00*
0A03	00	0A03	72	DC	XL1*00*
0A04	0000	0A05	73	DC	XL2*0*
0A06	2000	0A07	74	DC	AL3(RT01)
0A08	0000	0A09	75	DC	XL2*0*
			76	*	
0A0A	100000	0A0C	77	SPUT10 DC	XL3*100000*
0A0D	200000	0A0F	78	SPUT20 DC	XL3*200000*
0A10	300000	0A12	79	SPUT30 DC	XL3*300000*
0A11	310000	0A15	80	SPUT31 DC	XL3*310000*
0A16	310000	0A18	81	SPUT51 DC	XL3*310000*
0A19	700000	0A1B	82	SPUT70 DC	XL3*700000*
0A1C	800000	0A1E	83	SPUT80 DC	XL3*800000*
0A1F	880000	0A21	84	SPUT88 DC	XL3*880000*
0A22	E10000	0A24	85	SPUTE1 DC	XL3*E10000*
0A25	F00000	0A27	86	SPUTE0 DC	XL3*F00000*
0A28	400000	0A2A	87	SPUT40 DC	XL3*400000*
0A2B	C11000	0A2D	88	SPUTC1 DC	XL3*C11000*
0A2E	890000	0A30	89	SPUT89 DC	XL3*890000*
0A31	E00000	0A33	90	SPUTE0 DC	XL3*E00000*
0A34	000000000000	0A39	91	DC	XL6*0*

PROGRAM ID AND REVISION LEVEL  
SECTION FLAGS  
CURRENT ROUTINE NUMBER  
ADDRESS OF FIRST ROUTINE  
UNIT DEFINITION TABLE  
5471 PRINTER/KEYBOARD  
MLTA GENERAL ADAPTER  
SIOC  
2501 CARD READER  
1442 CARD READER/PUNCH  
3410/3411 TAPE  
BSCA 1  
BSCA 2  
1403 PRINTER  
5424 MFCU  
3741 DISKETTE READER  
3340 DRIVE 1  
INTEGRATED DISPLAY ADAPTER  
5203 LINE PRINTER

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248210  
PAGE 2

FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

93 *
94 *   ORG TO X'2000' TO GET OVER DCP'S LOAD-TIME CODE.
95 *
96 *
2000
97 *   ORG X'2000'
98 *
99 *   ROUTINE 1 PREFIX 5471
100 *
101 RT01 DC XL1'01' ROUTINE NUMBER
102 *   XL1'00' FLAGS
103 *   DC AL2(RT02) ADDRESS OF NEXT ROUTINE PREFIX
104 *
105 *   TBF SBYTE1,SSWLG  BYPASS SSW4 IF LOOP ON SECTION OR
106 *   JF BYPA1 ROUTINE
107 *   MALT XL2'FDA1' AI MALT IF SSW 4 ON
108 *   DC XL2'FDA1'
109 *   ABEND B **4 MODIFY TO BRANCH TO EXIT ON SYSTEM
110 *   RESET- START IF FD6 AU'D-LOADED BY
111 *   DCP
112 *   BYPA1 TBN SBYTES,SSW2F TEST SSW 2F FOR AUTO CALL OF THIS
113 *   ROUTINE AT IPL TIME OF DCP
114 *
115 *   SBF SBYTES,SSW2F
116 *   NORM JF
117 *   MVC ABEND+3(2),RESTR SET UP BYPASS OF FD6 ON SYSTEM RESET-
118 *   START FD6 DURING IPL SEQUENCE
119 *   MVC EXIT+3(2),X'1FF5' SET UP RETURN TO DCP WHEN DCP AUTO-
120 *   CALLS FD6 DURING IPL SEQUENCE
121 *   NORM TBN SPUT10-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
122 *   BF LINK 5471 PRINTER/KEYBOARD IS NOT ATTACHED
123 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
124 *   L XFFFF,X'CO' LOAD THE STORAGE AREA
125 *   ST PAD,X'CO' STORE INT LEVEL 1 IAR INTO PAD
126 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF IAR
127 *   JE NEXT1 WAS SELECTED CORRECTLY
128 *
129 *   HPL X'03',TENS 61 ERROR HALT
130 *
131 *   NEXT1 L X0000,X'CO' FAILURE TO SENSE THE CORRECT
132 *   ST PAD,X'CO' VALUE WILL RESULT IN LSR CHECK
133 *   B LINK
134 *
135 *   ROUTINE 2 PREFIX MLTA GENERAL ADAPTER
136 *
137 RT02 DC XL1'02' ROUTINE NUMBER
138 *   XL1'00' FLAGS
139 *   DC AL2(RT03) ADDRESS OF NEXT ROUTINE PREFIX
140 *
141 *   TBN SPUT20-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
142 *   BF LINK MLTA IS NOT ATTACHED
143 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
144 *   LIO XFFFF,SAB LOAD MLTA LSR WITH -FFFF-
145 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
146 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
147 *   BNE HALT2 WAS SELECTED CORRECTLY
148 *   LIO X0000,SAB LOAD MLTA LSR WITH -0000-
149 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
150 *   CLC PAD,X0000(2) TEST RESULT
151 *   BNE HALT2
152 *   LIO XAAAA,SAB LOAD MLTA LSR WITH -AAAA-
153 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
154 *   CLC PAD,XAAAA(2) TEST RESULT
155 *   BNE HALT2
156 *   LIO X5151,SAB LOAD MLTA LSR WITH -5151-
157 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
158 *   CLC PAD,X5151(2) TEST RESULT
159 *   BE LINK
160
205A 02 205A
205B 00 205B
205C 20B7 205D
141 *   TBN SPUT20-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
142 *   BF LINK MLTA IS NOT ATTACHED
143 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
144 *   LIO XFFFF,SAB LOAD MLTA LSR WITH -FFFF-
145 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
146 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
147 *   BNE HALT2 WAS SELECTED CORRECTLY
148 *   LIO X0000,SAB LOAD MLTA LSR WITH -0000-
149 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
150 *   CLC PAD,X0000(2) TEST RESULT
151 *   BNE HALT2
152 *   LIO XAAAA,SAB LOAD MLTA LSR WITH -AAAA-
153 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
154 *   CLC PAD,XAAAA(2) TEST RESULT
155 *   BNE HALT2
156 *   LIO X5151,SAB LOAD MLTA LSR WITH -5151-
157 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
158 *   CLC PAD,X5151(2) TEST RESULT
159 *   BE LINK
2000 01 2000
2001 00 2001
2002 205A 2003
2004 39 CO 0208
2008 F2 90 0A
200B CO 87 0222
200F FDA1
2011 CO 87 2015
2010
2015 38 01 020D
2019 38 01 020D
201D F2 90 0A
2020 OC 01 2014 2831
2026 OC 01 2806 1FF5
202C 38 20 GA0B
2030 CO 90 0216
2034 OC 01 2809 280B
203A 35 CO 280D
203E 34 CO 2809
2042 OD 01 2809 280D
2048 F2 81 03
204B F0 7D 03
204E 35 CO 280B
2052 34 CO 2809
2058 CO 87 0216
205A 02 205A
205B 00 205B
205C 20B7 205D
205E 38 20 0A0E
2062 CO 90 0216
2066 OC 01 2809 280B
206C 31 28 280D
2070 30 28 2809
2074 OD 01 2809 280D
207A CO 01 2084
207E 31 28 280B
2082 30 28 2809
2086 OD 01 2809 280B
208C CO 01 2084
2090 31 28 280F
2094 30 28 2809
2098 OD 01 2809 280F
209E CO 01 2084
20A2 31 28 2811
20A6 30 28 2809
20AA OD 01 2809 2811
20B0 CO 81 0216

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DATE 29AUG75  
EC NO. 827804

PROG ID FD6-0  
PAGE 2

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248210  
PAGE 2A

FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

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2084 F0 7D 76
161 HALT2 HPL X'76',TENS 62 ERROR HALT
162 *
163 *
164 *
165 *   ROUTINE 3 PREFIX SIOC
166 *
167 RT03 DC XL1'03' ROUTINE NUMBER
168 *   DC XL1'00' FLAGS
169 *   DC AL2(RT04) ADDRESS OF NEXT ROUTINE PREFIX
170 *
171 *   TBN SPUT30-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
172 *   BF LINK SIOC IS NOT ATTACHED
173 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
174 *   LIO XFFFF,SCDAR LOAD SIOC LSR WITH -FFFF-
175 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
176 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
177 *   BNE HALT3 WAS SELECTED CORRECTLY
178 *   LIO X0000,SCDAR LOAD SIOC LSR WITH -0000-
179 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
180 *   CLC PAD,X0000(2) TEST RESULT
181 *   BNE HALT3
182 *   LIO XAAAA,SCDAR LOAD SIOC LSR WITH -AAAA-
183 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
184 *   CLC PAD,XAAAA(2) TEST RESULT
185 *   BNE HALT3
186 *   LIO X5151,SCDAR LOAD SIOC LSR WITH -5151-
187 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
188 *   CLC PAD,X5151(2) TEST RESULT
189 *   BNE HALT3
190 *   LIO X3434,SCDAR LOAD SIOC LSR WITH -3434-
191 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
192 *   CLC PAD,X3434(2) TEST RESULT
193 *   BE LINK
194 *
195 *   HALT3 HPL X'57',TENS 63 ERROR HALT
196 *
197 *
198 *
199 *   ROUTINE 4 PREFIX 2501 CARD READER
200 *
201 RT04 DC XL1'04' ROUTINE NUMBER
202 *   DC XL1'00' FLAGS
203 *   DC AL2(RT05) ADDRESS OF NEXT ROUTINE PREFIX
204 *
205 *   TBN SPUT31-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
206 *   BF LINK 2501 IS NOT ATTACHED
207 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
208 *   LIO XFFFF,RDAR LOAD 2501 LSR WITH -FFFF-
209 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
210 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
211 *   BNE HALT4 WAS SELECTED CORRECTLY
212 *   LIO X0000,RDAR LOAD 2501 LSR WITH -0000-
213 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
214 *   CLC PAD,X0000(2) TEST RESULT
215 *   BNE HALT4
216 *   LIO XAAAA,RDAR LOAD 2501 LSR WITH -AAAA-
217 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
218 *   CLC PAD,XAAAA(2) TEST RESULT
219 *   BNE HALT4
220 *   LIO X5151,RDAR LOAD 2501 LSR WITH -5151-
221 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
222 *   CLC PAD,X5151(2) TEST RESULT
223 *   BNE HALT4
224 *   LIO X3C3C,RDAR LOAD 2501 LSR WITH -3C3C-
225 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
226 *   CLC PAD,X3C3C(2) TEST RESULT
227 *   BE LINK
2087 03 2087
2088 00 2088
2089 2126 208A
2088 38 20 0A11
208F CO 90 0216
20C9 OC 01 2809 280B
20C3 31 34 280D
20C0 30 34 2809
20D1 OD 01 2809 280D
20D7 CO 01 2123
20D8 31 34 280B
20DF 30 34 2809
20E3 OD 01 2809 280B
20E9 CO 01 2123
20ED 31 34 280F
20F1 30 34 2809
20F5 OD 01 2809 280F
20FB CO 01 2123
20FF 31 34 2811
2103 30 34 2809
2107 OD 01 2809 2811
210D CO 01 2121
2111 31 34 2815
2115 30 34 2809
2119 OD 01 2809 2815
211F CO 81 0216
2123 F0 7D 57
2126 04 2126
2127 00 2127
2128 2195 2129
212A 38 20 0A14
212E CO 90 0216
2132 OC 01 2809 280B
2138 31 3C 280D
213C 30 3C 2809
2140 OD 01 2809 280D
2146 CO 01 2192
214A 31 3C 280B
214E 3C 3C 2809
2152 OD 01 2809 280B
2158 CO 01 2192
215C 31 3C 280F
2160 30 3C 2809
2164 OD 01 2809 280F
216A CO 01 2192
216E 31 3C 2811
2172 30 3C 2809
2176 OD 01 2809 2811
217C CO 01 2192
2180 31 3C 2819
2184 30 3C 2809
2188 OD 01 2809 2819
218E CO 81 0216

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```

2192 FO 7D 1B          228
229 HALT6 HPL X'18',TENS      64 ERROR HALT
230 *
231
232
233 *****
234 * ROUTINE 5 PREFIX 1442 CARD READ PUNCH *****
235 RT05 DC XLI'05'          ROUTINE NUMBER
236 DC XLI'00'          FLAGS
237 DC AL2(RT06)        ADDRESS OF NEXT ROUTINE PREFIX
238 *****
239 TBN SPUT51-1,ASSIGN      CK FOR AND BRANCH IF UOT INDICATES
240 BF LINK              1442 IS NOT ATTACHED
241 MVC PAD,X0000(2)     ZERO THE STORAGE AREA
242 LIO XFFFF,RPDAR      LOAD 1442 LSR WITH -FFFF-
243 SNS PAD,RPDAR        STORE 1442 LSR INTO PAD
244 CLC PAD,XFFFF(2)     CONTINUE WITH TEST IF LSR
245 BNE HALT5           WAS SELECTED CORRECTLY
246 LIO X0000,RPDAR      LOAD 1442 LSR WITH -0000-
247 SNS PAD,RPDAR        STORE 1442 LSR INTO PAD
248 CLC PAD,X0000(2)     TEST RESULT
249 BNE HALT5
250 LIO XAAAA,RPDAR      LOAD 1442 LSR WITH -AAAA-
251 SNS PAD,RPDAR        STORE 1442 LSR INTO PAD
252 CLC PAD,XAAAA(2)     TEST RESULT
253 BNE HALT5
254 LIO X5151,RPDAR      LOAD 1442 LSR WITH -5151-
255 SNS PAD,RPDAR        STORE 1442 LSR INTO PAD
256 CLC PAD,X5151(2)     TEST RESULT
257 BNE HALT5
258 LIO X5454,RPDAR      LOAD 1442 LSR WITH -5454-
259 SNS PAD,RPDAR        STORE 1442 LSR INTO PAD
260 CLC PAD,X5454(2)     TEST RESULT
261 BE LINK
262
263 HALT5 HPL X'5D',TENS      65 ERROR HALT
264 *
265
266 *****
267 * ROUTINE 6 PREFIX 3410/3411 TAPE *****
268 RT06 DC XLI'06'          ROUTINE NUMBER
269 DC XLI'00'          FLAGS
270 DC AL2(RT07)        ADDRESS OF NEXT ROUTINE PREFIX
271 *****
272 TBN SPUT'0-1,ASSIGN    CK FOR AND BRANCH IF UOT INDICATES
273 BF LINK              TAPE IS NOT ATTACHED
274 MVC PAD,X0000(2)     ZERO THE STORAGE AREA
275 LIO XFFFF,MTAR      LOAD TAPE LSR WITH -FFFF-
276 SNS PAD,MTAR        STORE TAPE LSR INTO PAD
277 CLC PAD,MTAR        CONTINUE WITH TEST IF LSR
278 PAD,XFFFF(2)       WAS SELECTED CORRECTLY
279 BNE HALT6           LOAD TAPE LSR WITH -0000-
280 LIO X0000,MTAR      STORE TAPE LSR INTO PAD
281 SNS PAD,MTAR        TEST RESULT
282 CLC PAD,X0000(2)
283 BNE HALT6
284 LIO XAAAA,MTAR      LOAD TAPE LSR WITH -AAAA-
285 SNS PAD,MTAR        STORE TAPE LSR INTO PAD
286 CLC PAD,XAAAA(2)     TEST RESULT
287 BNE HALT6
288 LIO X5151,MTAR      LOAD TAPE LSR WITH -5151-
289 SNS PAD,MTAR        STORE TAPE LSR INTO PAD
290 CLC PAD,X5151(2)     TEST RESULT
291 BNE HALT6
292 LIO X6464,MTAR      LOAD TAPE LSR WITH -6464-
293 SNS PAD,MTAR        STORE TAPE LSR INTO PAD

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```

2266 OD 01 2809 281D      294 CLC PAD,X6464(2)
226C CO 81 0216          295 BE LINK
2270 FO 7D 7D          296 HALT6 HPL X'7D',TENS
297 *
298

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TEST RESULT  
66 ERROR HALT

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300 *****
301 * ROUTINE 7 PREFIX BSCA-1
302 *****
2273 07 2273 RT07 DC XL1'07' ROUTINE NUMBER
2274 00 2274 304 DC XL1'00' FLAGS
2275 22E2 2276 DC AL2(RT08) ADDRESS OF NEXT ROUTINE PREFIX
306 *****
307 TBM SPUT80-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
308 BF LINK BSCA IS NOT ATTACHED
309 MVC PAD,X0000(2) ZERO THE STORAGE AREA
310 LIO XFFFF,BSCAR1 LOAD BSCA LSR WITH -FFFF-
311 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
312 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
313 HALT7 WAS SELECTED CORRECTLY
314 LIO X0000,BSCAR1 LOAD BSCA LSR WITH -0000-
315 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
316 CLC PAD,X0000(2) TEST RESULT
317 BNE HALT7
318 LIO XAAAA,BSCAR1 LOAD BSCA LSR WITH -AAAA-
319 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
320 CLC PAD,XAAAA(2) TEST RESULT
321 LIO X5151,BSCAR1 LOAD BSCA LSR WITH -5151-
322 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
323 CLC PAD,X5151(2) TEST RESULT
324 LIO X8484,BSCAR1 LOAD BSCA LSR WITH -8484-
325 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
326 CLC PAD,X8484(2) TEST RESULT
327 BE LINK
328
329
330
331 HALT7 HPL X'07',TENS 67 ERROR HALT
332 *
333
334 *****
335 * ROUTINE 8 PREFIX BSCA-2 OR DA
336 *****
22E2 08 22E2 RT08 DC XL1'08' ROUTINE NUMBER
22E3 00 22E3 DC XL1'00' FLAGS
22E4 2355 22E5 DC AL2(RT09) ADDRESS OF NEXT ROUTINE PREFIX
340 *****
341 TBF SPUT88-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
342 TBF SPUT89-1,ASSIGN DA OR
343 BT LINK BSCA-2 IS NOT ATTACHED
344 MVC PAD,X0000(2) ZERO THE STORAGE AREA
345 LIO XFFFF,BSCAR2 LOAD BSCA LSR WITH -FFFF-
346 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
347 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
348 HALT8 WAS SELECTED CORRECTLY
349 LIO X0000,BSCAR2 LOAD BSCA LSR WITH -0000-
350 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
351 CLC PAD,X0000(2) TEST RESULT
352 BNE HALT8
353 LIO XAAAA,BSCAR2 LOAD BSCA LSR WITH -AAAA-
354 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
355 CLC PAD,XAAAA(2) TEST RESULT
356 HALT8
357 LIO X5151,BSCAR2 LOAD BSCA LSR WITH -5151-
358 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
359 CLC PAD,X5151(2) TEST RESULT
360 BNE HALT8
361 LIO X8C8C,BSCAR2 LOAD BSCA LSR WITH -8C8C-
362 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
363 CLC PAD,X8C8C(2) TEST RESULT
364 BE LINK
365
366 HALT8 HPL X'7F',TENS 68 ERROR HALT

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367 *
368
369 *****
370 * ROUTINE 9 PREFIX 1403 OR 5203 PRINTER
371 *****
372 RT09 DC XL1'09' ROUTINE NUMBER
373 DC XL1'00' FLAGS
374 DC AL2(RTOA) ADDRESS OF NEXT ROUTINE PREFIX
375 *****
376 TBF SPUTE1-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
377 TBF SPUTE0-1,ASSIGN 5203 OK
378 BT LINK 1403 IS NOT ATTACHED
379 MVC PAD,X0000(2) ZERO THE STORAGE AREA
380 LIO XFFFF,LPIAR LOAD 1403 LSR WITH -FFFF-
381 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
382 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
383 BNE HALT8 WAS SELECTED CORRECTLY
384 LIO X0000,LPIAR LOAD 1403 LSR WITH -0000-
385 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
386 CLC PAD,X0000(2) TEST RESULT
387 BNE HALT8
388 LIO XAAAA,LPIAR LOAD 1403 LSR WITH -AAAA-
389 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
390 CLC PAD,XAAAA(2) TEST RESULT
391 BNE HALT8
392 LIO X5151,LPIAR LOAD 1403 LSR WITH -5151-
393 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
394 CLC PAD,X5151(2) TEST RESULT
395 BNE HALT8
396 LIO XE4E4,LPIAR LOAD 1403 LSR WITH -E4E4-
397 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
398 CLC PAD,XE4E4(2) TEST RESULT
399 BNE HALT8
400 LIO XFFFF,LPDAR LOAD 1403 LSR WITH -FFFF-
401 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
402 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
403 BNE HALT8 WAS SELECTED CORRECTLY
404 LIO X0000,LPDAR LOAD 1403 LSR WITH -0000-
405 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
406 CLC PAD,X0000(2) TEST RESULT
407 BNE HALT8
408 LIO XAAAA,LPDAR LOAD 1403 LSR WITH -AAAA-
409 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
410 CLC PAD,XAAAA(2) TEST RESULT
411 BNE HALT8
412 LIO X5151,LPDAR LOAD 1403 LSR WITH -5151-
413 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
414 CLC PAD,X5151(2) TEST RESULT
415 BNE HALT8
416 LIO XE6E6,LPDAR LOAD 1403 LSR WITH -E6E6-
417 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
418 CLC PAD,XE6E6(2) TEST RESULT
419 BE LINK
420
421 HALT8 HPL X'79',TENS 6B ERROR HALT
422 *
423
424 *****
425 * ROUTINE A PREFIX 5424 NFCU
426 *****
427 RTOA DC XL1'0A' ROUTINE NUMBER
428 DC XL1'00' FLAGS
429 DC AL2(RTOB) ADDRESS OF NEXT ROUTINE PREFIX
430 *****
431 TBM SPUTF0-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
432 BF LINK 5424 IS NOT ATTACHED

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
242E	OC 01 2809	280B	433	MVC PAD,X0000(2)
2434	F4 280D		434	LIO XFFFF,MPTAR
2438	OC 01 2809		435	SNS PAD,MPTAR
2442	CO 01 2542	290D	436	CLC PAD,XFFFF(2)
2446	F4 280B		437	BNE HALTC
244A	OC 01 2809		438	LIO X0000,MPTAR
244E	OC 01 2809	280B	439	SNS PAD,MPTAR
2454	OC 01 2542		440	CLC PAD,X0000(2)
2458	F4 280F		441	BNE HALTC
245C	OC 01 2809		442	LIO XAAAA,MPTAR
2460	OC 01 2809	280F	443	SNS PAD,MPTAR
2466	OC 01 2542		444	CLC PAD,XAAAA(2)
246A	F4 2811		445	BNE HALTC
246E	OC 01 2809		446	LIO X5151,MPTAR
2472	OC 01 2809	2811	447	SNS PAD,MPTAR
2478	OC 01 2542		448	CLC PAD,X5151(2)
247C	F4 2809		449	BNE HALTC
2480	OC 01 2809		450	LIO XF4F4,MPTAR
2484	OC 01 2809	282B	451	SNS PAD,MPTAR
2488	OC 01 2542		452	CLC PAD,XF4F4(2)
248E	F4 280D		453	BNE HALTC
2492	OC 01 2809		454	LIO XFFFF,MRDAR
2496	OC 01 2809	280D	455	SNS PAD,MRDAR
249C	OC 01 2542		456	CLC PAD,XFFFF(2)
24A0	F4 280B		457	BNE HALTC
24A4	OC 01 2809		458	LIO X0000,MRDAR
24A8	OC 01 2809	280B	459	SNS PAD,MRDAR
24AE	OC 01 2542		460	CLC PAD,X0000(2)
24B2	F4 280F		461	BNE HALTC
24B6	OC 01 2809		462	LIO XAAAA,MRDAR
24BA	OC 01 2809	280F	463	SNS PAD,MRDAR
24C0	OC 01 2542		464	CLC PAD,XAAAA(2)
24C4	F4 2811		465	BNE HALTC
24C8	OC 01 2809		466	LIO X5151,MRDAR
24CC	OC 01 2809	2811	467	SNS PAD,MRDAR
24D2	OC 01 2542		468	CLC PAD,X5151(2)
24D6	F4 282D		469	BNE HALTC
24DA	OC 01 2809		470	LIO XF5F5,MRDAR
24DE	OC 01 2809	282D	471	SNS PAD,MRDAR
24E4	OC 01 2542		472	CLC PAD,XF5F5(2)
24E8	F4 280D		473	BNE HALTC
24EC	OC 01 2809		474	LIO XFFFF,MPCAR
24F0	OC 01 2809	280D	475	SNS PAD,MPCAR
24F6	OC 01 2542		476	CLC PAD,XFFFF(2)
24FA	F4 280B		477	BNE HALTC
24FE	OC 01 2809		478	LIO X0000,MPCAR
2502	OC 01 2809	280B	479	SNS PAD,MPCAR
2508	OC 01 2542		480	CLC PAD,X0000(2)
250C	F4 280F		481	BNE HALTC
2510	OC 01 2809		482	LIO XAAAA,MPCAR
2514	OC 01 2809	280F	483	SNS PAD,MPCAR
251A	OC 01 2542		484	CLC PAD,XAAAA(2)
251E	F4 2811		485	BNE HALTC
2522	OC 01 2809		486	LIO X5151,MPCAR
2526	OC 01 2809	2811	487	SNS PAD,MPCAR
252C	OC 01 2542		488	CLC PAD,X5151(2)
2530	F4 282F		489	BNE HALTC
2534	OC 01 2809		490	LIO XF6F6,MPCAR
2538	OC 01 2809	282F	491	SNS PAD,MPCAR
253E	OC 01 0216		492	CLC PAD,XF6F6(2)
2542	FO 7D 70		493	BE LINK
494			494	HALTC HPL X*70*,TENS
496			496	* 6C ERROR HALT
497			497	
498			498	
499			499	***** ROUTINE B PREFIX 3741

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
2545	OB	2545	500	*****
2546	OC	2545	501	RTOB DC XL1'OB'
2547	OC	2546	502	DC XL1'OO'
2548	OC	2548	503	DC AL2(RTOC)
2549	38 20 0A29		504	*****
254D	OC 90 0216		505	TBN SPUT40-1,ASSIGN
2551	OC 01 2809	280B	506	BF LINK
2557	31 44 280D		507	MVC PAD,X0000(2)
255B	30 44 2809		508	LIO XFFFF,DKDAR
255F	OC 01 2809	280D	509	SNS PAD,DKDAR
2565	OC 01 2581		510	CLC PAD,XFFFF(2)
2569	31 44 280B		511	BNE H80
256D	30 44 2809		512	LIO X0000,DKDAR
2571	OC 01 2809	280B	513	SNS PAD,DKDAR
2577	OC 01 2581		514	CLC PAD,X0000(2)
257B	31 44 280F		515	BNE H80
257F	30 44 2809		516	LIO XAAAA,DKDAR
2583	OC 01 2809	280F	517	SNS PAD,DKDAR
2589	OC 01 2581		518	CLC PAD,XAAAA(2)
2591	30 44 2809		519	BNE H80
2595	OC 01 2809	2811	520	LIO X5151,DKDAR
259B	OC 01 2581		521	SNS PAD,DKDAR
259F	31 44 2817		522	CLC PAD,X5151(2)
25A3	30 44 2809		523	BNE H80
25A7	OC 01 2809	2817	524	LIO X4444,DKDAR
25AD	OC 81 0216		525	SNS PAD,DKDAR
25B1	FO 7F 6F		526	CLC PAD,X4444(2)
25B8	OC	2584	527	BE LINK
25B5	OC	2585	528	
25B6	267D	2587	529	H80 HPL XO,TENS8
2588	38 20 0A2C		530	* 80 ERROR HALT
258C	OC 90 0216		531	
2590	OC 01 2809	280B	532	
2596	31 C4 280D		533	*****
259C	30 C4 2809		534	ROUTINE C PREFIX 3340 DISK
259E	OC 01 2809	280D	535	*****
25A4	OC 01 267A		536	RTOC DC XL1'OC'
25A8	31 C4 280B		537	DC XL1'OO'
25AC	30 C4 2809		538	DC AL2(RTOD)
25B0	OC 01 267A		539	*****
25B4	31 C4 2808		540	TBN SPUTC1-1,ASSIGN
25B8	30 C4 2809		541	BF LINK
25BC	OC 01 2809	280B	542	MVC PAD,X0000(2)
25C0	OC 01 2809		543	LIO XFFFF,DDDR
25C4	30 C4 2809		544	SNS PAD,DDDR
25C8	OC 01 2809	280D	545	CLC PAD,XFFFF(2)
25D4	OC 01 267A		546	BNE HALT81
25D8	31 C4 2808		547	LIO X0000,DDDR
25DC	30 C4 2809		548	SNS PAD,DDDR
25E0	OC 01 2809	280B	549	CLC PAD,X0000(2)
25E4	OC 01 267A		550	BNE HALT81
25E8	31 C4 280F		551	LIO XAAAA,DDDR
25EC	30 C4 2809		552	SNS PAD,DDDR
25F0	OC 01 2809	280F	553	CLC PAD,XAAAA(2)
25F4	OC 01 267A		554	BNE HALT81
25F8	31 C4 2811		555	LIO X5151,DDDR
25FC	31 C4 2811		556	SNS PAD,DDDR
2600	30 C4 2809		557	CLC PAD,X5151(2)
2604	OC 01 2809	2811	558	BNE HALT81
260A	OC 01 267A		559	LIO XC4C4,DDDR
260E	31 C4 2823		560	SNS PAD,DDDR
2612	30 C4 2809		561	CLC PAD,XC4C4(2)
2616	OC 01 2809	2823	562	BNE HALT81
261C	OC 01 267A		563	LIO XFFFF,DDCR
2620	31 C6 280D		564	SNS PAD,DDCR
2624	30 C6 2809		565	CLC PAD,XFFFF(2)
2628	OC 01 2809	280D	566	BNE HALT81
262E	OC 01 267A		567	LIO X0000,DDCR
2632	31 C6 280B		568	

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2636	30 C6	2809	567	SNS	PAD,DDCR
263A	0D 01	2809	568	CLC	PAD,X0000(2)
2640	CO 01	267A	569	BNE	HALT81
2644	31 C6	280F	570	LIO	XAAAA,DDCR
2648	30 C6	2809	571	SNS	PAD,DDCR
264C	0D 01	2809	572	CLC	PAD,XAAAA(2)
2652	CO 01	267A	573	BNE	HALT81
2656	31 C6	2811	574	LIO	X5151,DDCR
265A	30 C6	2809	575	SNS	PAD,DDCR
265E	0D 01	2809	576	CLC	PAD,X5151(2)
2664	CO 01	267A	577	BNE	HALT81
2668	31 C6	2825	578	LIO	XC6C6,DDCR
266C	30 C6	2809	579	SNS	PAD,DDCR
2670	0D 01	2809	580	CLC	PAD,XC6C6(2)
2676	CO 81	0216	581	BE	LINK
267A	FO 7F	03	582	HPL	X1,TENS8
			583		81 ERROR HALT
			584	*	*****
			585	*	ROUTINE OD PREFIX I/O LSR ADDRESS DECODE TEST
			586	*	*****
267D	OD		588	RTOD	DC XL1'00'
267E	00		589	DC	XL1'00'
267F	FFFF		590	DC	XL2'FFFF'
			591	*	*****
2681	38 20	0A0E	592	TBN	SPUT20-1,ASSIGN
2685	CO 90	269A	593	BF	N2
2689	30 25	2809	594	SNS	PAD,SAB
268D	0D 01	2809	595	CLC	PAD,X5151(2)
2693	CO 81	269A	596	BE	N2
2697	FO 07	03	597	HPL	X1,TENS7
269A	38 20	0A11	598	N2	TBN SPUT30-1,ASSIGN
269E	CO 90	2683	599	BF	N3
26A2	30 34	2809	600	SNS	PAD,SCDAR
26A6	0D 01	2809	601	CLC	PAD,X3434(2)
26AC	CO 81	2683	602	BE	N3
26B0	FO 07	76	603	HPL	X2,TENS7
26B3	38 20	0A14	604	N3	TBN SPUT31-1,ASSIGN
26B7	CO 90	26CC	605	BF	N4
26BB	30 3C	2809	606	SNS	PAD,RDAR
26BF	0D 01	2809	607	CLC	PAD,X3C3C(2)
26C5	CO 81	26CC	608	BE	N4
26C9	FO 07	57	609	HPL	X3,TENS7
26CC	38 20	0A17	610	N4	TBN SPUT51-1,ASSIGN
26D0	CO 90	26E5	611	BF	N5
26D4	30 54	2809	612	SNS	PAD,RPDAR
26D8	0D 01	2809	613	CLC	PAD,X5454(2)
26DE	CO 81	26E5	614	BE	N5
26E2	FO 07	18	615	HPL	X4,TENS7
26E5	38 20	0A1A	616	N5	TBN SPUT70-1,ASSIGN
26E9	CO 90	26FE	617	BF	N6
26ED	30 64	2809	618	SNS	PAD,MTAR
26F1	0D 01	2809	619	CLC	PAD,X6464(2)
26F7	CO 81	26FE	620	BE	N6
26FB	FO 07	50	621	HPL	X5,TENS7
26FE	38 20	0A1D	622	N6	TBN SPUT80-1,ASSIGN
2702	CO 90	2717	623	BF	N7
2706	30 84	2809	624	SNS	PAD,BSCAR1
270A	0D 01	2809	625	CLC	PAD,X8484(2)
2710	CO 81	2717	626	BE	N7
2714	FO 07	70	627	HPL	X6,TENS7
2717	39 20	0A20	628	N7	TBN SPUT88-1,ASSIGN
271B	CO 90	0A2F	629	BF	N91
271F	CO 10	2734	630	TBF	SPUT89-1,ASSIGN
2723	30 8C	2809	631	BT	N91
2727	0D 01	2809	632	SNS	PAD,BSCAR2
272D	CO 81	2734	633	CLC	PAD,X8C8C(2)
2731	FO 07	07	634	BE	N91
				HPL	X7,TENS7
					HALT 77

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2734	38 20	0A2C	635	N91	TBN SPUTC1-1,ASSIGN
2738	CO 90	2758	636	BF	N10
273C	30 C4	2809	637	SNS	PAD,ODDR
2740	0D 01	2809	638	CLC	PAD,XC4C4(2)
2746	CO 01	2758	639	BNE	H89
274A	30 C6	2809	640	SNS	PAD,DDCR
274E	0D 01	2809	641	CLC	PAD,XC6C6(2)
2754	CO 81	2758	642	BE	N10
2758	FO 7F	1F	643	H89	HPL X9,TENS8
275B	39 20	0A23	644	N10	TBF SPUTE1-1,ASSIGN
275F	39 20	0A32	645	TBF	SPUTE0-1,ASSIGN
2763	CO 10	2786	646	BT	N11
2767	30 E4	2809	647	SNS	PAD,LPIAR
276B	0D 01	2809	648	CLC	PAD,XE4E4(2)
2771	CO 01	2783	649	BNE	H7A
2775	30 E6	2809	650	SNS	PAD,LPOAR
2779	0D 01	2809	651	CLC	PAD,XE6E6(2)
277F	CO 81	2786	652	BE	N11
2783	FO 07	3F	653	H7A	HPL XA,TENS7
2786	38 20	0A26	654	N11	TBN SPUT40-1,ASSIGN
278A	CO 90	2788	655	BF	N13
278E	30 F4	2809	656	SNS	PAD,MPTAR
2792	0D 01	2809	657	CLC	PAD,XF4F4(2)
2798	CO 01	2788	658	BNE	H7B
279C	30 F5	2809	659	SNS	PAD,MRDAR
27A0	0D 01	2809	660	CLC	PAD,XF5F5(2)
27A6	CO 01	2788	661	BNE	H7B
27AA	30 F6	2809	662	SNS	PAD,MPCAR
27AE	0D 01	2809	663	CLC	PAD,XF6F6(2)
27B4	CO 81	2788	664	BE	N13
27B8	FO 07	79	665	H88	HPL X8,TENS8
27BB	38 20	0A29	666	N13	TBN SPUT40-1,ASSIGN
27BF	CO 90	27EE	667	BF	GLOAD
27C3	30 44	2809	668	SNS	PAD,DKDAR
27C7	0D 01	2809	669	CLC	PAD,X4444(2)
27CD	CO 81	27EE	670	BE	GLOAD
27D1	FO 7F	7F	671	H88	HPL X8,TENS8
			672		HALT 88
			673	*	ABEXIT
27D4	CO 87	021A	674	B	PRINT
27D8	81		675	DC	XL1'81'
27D9	19		676	DC	IL1'25'
27DA	284A		677	DC	AL2(ABMESS)
27DC	CO 87	021A	678	B	PRINT
27E0	87		679	DC	XL1'87'
27E1	2C		680	DC	IL1'44'
27E2	2876		681	DC	AL2(ABM2)
27E4	CO 87	0222	682	B	HALT
27E8	FDA0		683	DC	XL2'FDA0'
27EA	CO 87	2803	684	B	EXIT
27EE	39 CO	0208	685	GLOAD	TBF SBYTE1,SSWLOP
27F2	F2 90	0E	686	JF	EXIT
			687	*	
27F5	CO 87	021A	688	B	PRINT
27F9	07		689	DC	XL1'07'
27FA	15		690	DC	IL1'21'
27FB	288B		691	DC	AL2(INRMESS)
27FD	CO 87	0222	692	B	HALT
2801	FDA2		693	DC	XL2'FDA2'
2803	CO 87	022A	694	B	LOAD
2807	00		695	DC	XL1'0'
			696		
2808	0000		697	PAD	DC XL2'0'
280A	0000		698	X0000	DC XL2'0'
280C	FFFF		699	XFFFF	DC XL2'FFFF'
280E	AAAA		700	XAAAA	DC XL2'AAAA'
2810	5151		701	X5151	DC XL2'5151'
2812	1818		702	X1818	DC XL2'1818'

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
2814	3434	2815	703	X3434	DC XL2'3434'
2816	4444	2817	704	X4444	DC XL2'4444'
2818	3C3C	2819	705	X3C3C	DC XL2'3C3C'
281A	5454	281D	706	X5454	DC XL2'5454'
281C	6464	281D	707	X6464	DC XL2'6464'
281E	8484	281F	708	X8484	DC XL2'8484'
2820	8C8C	2821	709	X8C8C	DC XL2'8C8C'
2822	C4C4	2823	710	XC4C4	DC XL2'C4C4'
2824	C6C6	2825	711	XC6C6	DC XL2'C6C6'
2826	E4E4	2827	712	XE4E4	DC XL2'E4E4'
2828	E6E6	2829	713	XE6E6	DC X'2'E6E6'
282A	F4F4	282B	714	XF4F4	DC XL2'F4F4'
282C	F5F5	282D	715	XF5F5	DC XL2'F5F5'
282E	F6F6	282F	716	XF6F6	DC XL2'F6F6'
2830	27D4	2831	717	RESTRT	DC AL2(ABEXIT)
2832	C961D640D3E2D940	284A	718	ABMESS	DC CL25'I/O LSR TEST **BYPASSED**
283A	E3C5E2E3405C5CC2		718		
2842	E8D7C1E2E2C5C45C		718		
284A	5C		718		
284B	E3D640D3D6C1C440	2876	719	ABM2	DC CL44'TO LOAD FD6 VIA DCP SET SWIT/HES TO **DFD6**
2853	C6C4F640E5C9C140		719		
285B	C4C3D740E2C5E340		719		
2863	E2E6C9E3C3C8C5E2		719		
286B	40E3D6405C5CC4C6		719		
2873	C4F65C5C		719		
2877	C961D640D3E2D940	288B	720	NRMESS	DC CL21'I/O LSR TEST COMPLETE'
287F	E3C5E2E340C3D6D4		720		
2887	D7D3C5E3C5		720		
			721	*	
			722		
0222		723	723	HALT	EQU X'222'
021A		724	724	PRINT	EQU X'21A'
020D		725	725	SBYTE5	EQU X'20D'
0001		726	726	SSWZF	EQU X'01'
0001		727	727	XR1	EQU 1
0216		728	728	LINK	EQU X'216'
022A		729	729	LOAD	EQU X'22A'
002D		730	730	ASSIGN	EQU X'20'
007D		731	731	TENS	EQU X'7D'
		732			
001B		733	733	CRTAR	EQU X'1B'
002B		734	734	SAB	EQU X'2B'
0034		735	735	SCDAR	EQU X'34'
0044		736	736	DKDAR	EQU X'44'
003C		737	737	RDAR	EQU X'3C'
0054		738	738	RPDAR	EQU X'54'
0064		739	739	MTAR	EQU X'64'
0084		740	740	BSCAR1	EQU X'84'
008C		741	741	BSCAR2	EQU X'8C'
00A4		742	742	DFDR	EQU X'A4'
00A6		743	743	DFCR	EQU X'A6'
00C4		744	744	DDDR	EQU X'C4'
00C6		745	745	DDCR	EQU X'C6'
00E4		746	746	LPDAR	EQU X'E4'
00E6		747	747	LPDAR	EQU X'E6'
00F4		748	748	MPTAR	EQU X'F4'
00F5		749	749	MRDAR	EQU X'F5'
00F6		750	750	MPCAR	EQU X'F6'
036F		751	751	X0	EQU X'6F'
0003		752	752	X1	EQU X'03'
0076		753	753	X2	EQU X'76'
0057		754	754	X3	EQU X'57'
001B		755	755	X4	EQU X'1B'
005D		756	756	X5	EQU X'5D'
007D		757	757	X6	EQU X'7D'
0007		758	758	X7	EQU X'07'
007F		759	759	X8	EQU X'7F'
001F		760	760	X9	EQU X'1F'

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
003F		761	761	XA	EQU X'3F'
0079		762	762	XB	EQU X'79'
0070		763	763	XC	EQU X'70'
0073		764	764	XD	EQU X'73'
007C		765	765	XE	EQU X'7C'
003C		766	766	XF	EQU X'3C'
0010		767	767	PHRP	EQU X'10'
0008		768	768	PRIV	EQU X'08'
0007		769	769	TENS7	EQU X'07'
007F		770	770	TENS8	EQU X'7F'
00C0		771	771	SSWLOP	EQU X'CO'
0208		772	772	SBYTE1	EQU X'0208'
FFFF		773		END	

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SYMBOL T LEN VALUE DEFN

ABEND A 004 2011 0109  
ABEXIT A 004 27D4 0674  
ABMESS A 025 284A 0718  
ABM2 A 044 2876 0719  
ASSIGN C 001 0020 0730

BSCAR1 C 001 0084 0740  
BSCAR2 C 001 008C 0741  
BYPA1 A 004 2015 0712  
CRTAR C 001 0018 0713  
DDCR C 001 00C6 0745  
DDDR C 001 00C4 0744  
OFDR C 001 00A6 0743  
DFDR C 001 00A4 0742  
DKDAR C 001 0044 0736  
EXIT A 004 2803 0694  
GLOAD A 004 27EE 0685  
HALT C 001 0222 0723  
HALTB A 003 241F 0421  
HALTC A 003 2542 0495

HALT2 A 003 20B4 0161  
HALT3 A 003 2123 0195  
HALT4 A 003 2192 0229  
HALT5 A 003 2201 0263  
HALT6 A 003 2270 0297  
HALT7 A 003 22DF 0331  
HALT8 A 003 2352 0366  
HALT81 A 003 267A 0583  
H7A A 003 2783 0653  
H7B A 003 2788 0665  
H80 A 003 2581 0529  
H88 A 003 27D1 0671  
H89 A 003 2758 0643  
LINK C 001 0216 0728

LOAD C 001 022A 0729  
LDAR C 001 00E6 0747  
LPIAR C 001 00E4 0746  
MPCAR C 001 00F6 0750  
MPTAR C 001 00F4 0748  
MRDAR C 001 00F5 0749  
MTAR C 001 0064 0739  
NEXT1 A 004 204E 0130  
NORM A 004 202C 0120  
NRMESS A 021 288B 0720  
N10 A 004 2758 0644  
N11 A 004 2786 0654  
N13 A 004 2788 0666  
N2 A 004 269A 0598  
N3 A 004 2683 0604  
N4 A 004 26CC 0610  
N5 A 004 26E5 0616  
N6 A 004 26FE 0622  
N7 A 004 2717 0628  
N91 A 004 2734 0635  
PAD A 002 2809 0697

CROSS-REFERENCE

REFERENCES

0116\*  
0717  
0677  
0681  
0120 0141 0171 0205 0239 0273 0307 0341 0342 0376 0377 0431  
0120 0141 0171 0205 0239 0273 0307 0341 0342 0376 0377 0431  
0505 0539 0592 0598 0604 0610 0616 0622 0628 0629 0635 0644  
0645 0654 0666  
0310\* 0311 0314\* 0315 0313\* 0319 0322\* 0323 0326\* 0327 0624  
0345\* 0346 0349\* 0350 0353\* 0354 0357\* 0358 0361\* 0362 0631  
0106  
0562\* 0563 0566\* 0567 0570\* 0571 0574\* 0575 0578\* 0579 0640  
0542\* 0543 0546\* 0547 0550\* 0551 0554\* 0555 0558\* 0559 0637  
0508\* 0509 0512\* 0513 0516\* 0517 0520\* 0521 0524\* 0525 0668  
0110\* 0684 0685  
0667 0670  
0107 0682 0692  
0383 0387 0391 0395 0399 0403 0407 0411 0415 0473 0477 0481  
0437 0441 0445 0449 0453 0457 0461 0465 0469 0473 0477 0481  
0485 0489  
0147 0151 0155  
0177 0181 0185 0189  
0211 0215 0219 0223  
0245 0249 0253 0257  
0279 0283 0287 0291  
0313 0317 0321 0325  
0348 0352 0356 0360  
0545 0549 0553 0557 0561 0565 0569 0573 0577  
0649  
0658 0661 0519 0523  
0511 0515  
0639  
0121 0132 0142 0159 0172 0193 0206 0227 0240 0261 0274 0295  
0308 0329 0343 0364 0378 0419 0432 0493 0506 0527 0540 0581  
0694  
0400\* 0401 0404\* 0405 0408\* 0409 0412\* 0413 0416\* 0417 0650  
0380\* 0381 0384\* 0385 0388\* 0389 0392\* 0393 0396\* 0397 0677  
0474\* 0475 0478\* 0479 0482\* 0483 0486\* 0487 0490\* 0491 0662  
0434\* 0435 0438\* 0439 0442\* 0443 0446\* 0447 0450\* 0451 0656  
0454\* 0455 0458\* 0459 0462\* 0463 0466\* 0467 0470\* 0471 0659  
0276\* 0277 0280\* 0281 0284\* 0285 0288\* 0289 0292\* 0293 0618  
0126  
0115  
0691  
0636 0642  
0546 0652  
0655 0664  
0593 0596  
0599 0602  
0605 0608  
0611 0614  
0617 0620  
0623 0626  
0630 0633  
0122\* 0124\* 0125 0131\* 0143\* 0145\* 0146 0149\* 0150 0153\* 0154 0157\*  
0158 0173\* 0175\* 0176 0179\* 0180 0183\* 0184 0187\* 0188 0191\* 0192  
0207\* 0209\* 0210 0213\* 0214 0217\* 0218 0221\* 0222 0225\* 0226 0241\*  
0243\* 0244 0247\* 0248 0251\* 0252 0255\* 0256 0259\* 0260 0275\* 0277\*  
0278 0281\* 0282 0285\* 0286 0289\* 0290 0293\* 0294 0309\* 0311\* 0312  
0315\* 0316 0319\* 0320 0323\* 0324 0327\* 0328 0344\* 0346\* 0347 0350\*  
0351 0354\* 0355 0358\* 0359 0362\* 0363 0379\* 0381\* 0382 0385\* 0386  
0389\* 0390 0393\* 0394 0397\* 0398 0401\* 0402 0405\* 0406 0409\* 0410  
0413\* 0414 0417\* 0418 C:33\* 0435\* 0436 0439\* 0440 0443\* 0444 0447\*

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SYMBOL T LEN VALUE DEFN

PMRP C 001 0010 0767  
PRINT C 001 0214 0724  
PRIV C 001 0008 0768  
RDAR C 001 003C 0737  
RESTRT A 002 283' 0717  
RPDAR C 001 0054 0736  
RT0A A 001 2422 0427  
RT0B A 001 2545 0501  
RT0C A 001 2584 0535  
RT0D A 001 2670 0588  
RT0E A 001 2000 0101  
RT0F A 001 205A 0131  
RT0G A 001 2087 0167  
RT0H A 001 2126 0201  
RT0I A 001 2195 0235  
RT0J A 001 2204 0269  
RT0K A 001 2273 0303  
RT0L A 001 22E2 0337  
RT0M A 001 2355 0372  
RT0N A 001 0028 0734  
SAB C 001 0208 0772  
SBYTE1 C 001 0200 0725  
SBYTE5 C 001 0034 0735  
SCDAR C 001 0A20 0088  
SPUTC1 A 003 0A33 0090  
SPUTE0 A 003 0A24 0085  
SPUTE1 A 003 0A27 0086  
SPUTE2 A 003 0A0C 0077  
SPUTE3 A 003 0A0F 0078  
SPUTE4 A 003 0A12 0079  
SPUTE5 A 003 0A15 0080  
SPUTE6 A 003 0A2A 0087  
SPUTE7 A 003 0A18 0081  
SPUTE8 A 003 0A18 0082  
SPUTE9 A 003 0A1E 0083  
SPUTEA A 003 0A21 0084  
SPUTEB A 003 0A30 0089  
SPUTEC A 003 00C0 0771  
SSWLOP C 001 0001 0726  
SSW2F C 001 007D 0731  
TENS7 C 001 0007 0769  
TENS8 C 001 007F 0770  
UVMXYZ A 001 0A00 0005  
XA C 001 003F 0751  
XAAAA A 002 280F C700

0674 0678 0688  
0208\* 0209 0212\* 0213 0216\* 0217 0220\* 0221 0224\* 0225 0606  
0116  
0242\* 0243 0246\* 0247 0250\* 0251 0254\* 0255 0258\* 0259 0612  
0374  
0429  
0503  
0537  
0074  
0103  
0139  
0169  
0203  
0237  
0271  
0305  
0339  
0144\* 0145 0148\* 0149 0152\* 0153 0156\* 0157 0594  
0105 0665  
0112 0114\*  
0174\* 0175 0178\* 0179 0182\* 0183 0186\* 0187 0190\* 0191 0600  
0539 0635  
0377 0645  
0376 0644  
0431 0654  
0120  
0141 0592  
0171 0598  
0205 0604  
0505 0666  
0239 0610  
0273 0616  
0307 0622  
0341 0628  
0342 0629  
0105 0685  
0112 0114  
0128 0161 0195 0229 0263 0297 0331 0366 0421 0455  
0597 0603 0609 0615 0621 0627 0634 0653 0665  
0529 0583 0643 0671  
0653  
0152 0154 0182 0184 0216 0218 0250 0252 0284 0286 0318 0320  
0353 0355 0388 0390 0408 0410 0442 0444 0462 0464 0482 0484  
0516 0518 0550 0552 0570 0572  
0665

0079 0762  
0070 0753  
2823 0710  
2825 0711  
0073 0764  
007C 0765  
007D 0712  
2829 0713  
003C 0766  
280D 0699

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CROSS-REFERENCE

REFERENCES

0448 0451\* 0452 0455\* 0456 0459\* 0460 0463\* 0464 0467\* 0468 0471\*  
0472 0475\* 0476 0479\* 0480 0483\* 0484 0487\* 0488 0491\* 0492 0507\*  
0509\* 0510 0513\* 0514 0517\* 0518 0521\* 0522 0525\* 0526 0541\* 0543\*  
0544 0547\* 0548 0551\* 0552 0555\* 0556 0559\* 0560 0563\* 0564 0567\*  
0568 0571\* 0572 0575\* 0576 0579\* 0580 0594\* 0595 0600\* 0601 0606\*  
0607 0612\* 0613 0618\* 0619 0624\* 0625 0631\* 0632 0637\* 0638 0640\*  
0641 0647\* 0648 0650\* 0651 0656\* 0657 0659\* 0660 0662\* 0663 0668\*  
0669  
0674 0678 0688  
0208\* 0209 0212\* 0213 0216\* 0217 0220\* 0221 0224\* 0225 0606  
0116  
0242\* 0243 0246\* 0247 0250\* 0251 0254\* 0255 0258\* 0259 0612  
0374  
0429  
0503  
0537  
0074  
0103  
0139  
0169  
0203  
0237  
0271  
0305  
0339  
0144\* 0145 0148\* 0149 0152\* 0153 0156\* 0157 0594  
0105 0665  
0112 0114\*  
0174\* 0175 0178\* 0179 0182\* 0183 0186\* 0187 0190\* 0191 0600  
0539 0635  
0377 0645  
0376 0644  
0431 0654  
0120  
0141 0592  
0171 0598  
0205 0604  
0505 0666  
0239 0610  
0273 0616  
0307 0622  
0341 0628  
0342 0629  
0105 0685  
0112 0114  
0128 0161 0195 0229 0263 0297 0331 0366 0421 0455  
0597 0603 0609 0615 0621 0627 0634 0653 0665  
0529 0583 0643 0671  
0653  
0152 0154 0182 0184 0216 0218 0250 0252 0284 0286 0318 0320  
0353 0355 0388 0390 0408 0410 0442 0444 0462 0464 0482 0484  
0516 0518 0550 0552 0570 0572  
0665

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SYMBOL	T	LEN	VALUE	DEFN	CROSS-REFERENCE														
					REFERENCES	0474	0476	0508	0510	0542	0544	0562	0564	0474	0476	0508	0510	0542	0544
XF4F4	A	002	282B	0714	0474	0476	0508	0510	0542	0544	0562	0564							
XF5F5	A	002	282D	0715	0450	0452	0657												
XF6F6	A	002	282F	0716	0470	0472	0660												
XR1	C	001	0001	0727	0490	0492	0663												
X0	C	001	006F	0751	0529														
X0000	A	002	280B	0698	0122	0130	0143	0148	0150	0173	0178	0180	0207	0212	0214	0241			
					0246	0248	0275	0280	0282	0309	0314	0316	0344	0349	0351	0379			
					0384	0386	0404	0406	0433	0438	0440	0458	0460	0476	0480	0507			
					0512	0514	0541	0546	0548	0566	0568								
X1	C	001	0003	0752	0583	0597													
X1B1B	A	002	2813	0702															
X2	C	001	0076	0753	0603														
X3	C	001	0057	0754	0609														
X3C3C	A	002	2819	0705	0224	0607													
X3434	A	002	2815	0703	0190	0192	0601												
X4	C	001	001B	0755	0615														
X4444	A	002	2817	0704	0524	0526	0669												
X5	C	001	005D	0756	0621														
X5151	A	002	2811	0701	0156	0158	0186	0188	0220	0222	0254	0256	0288	0290	0322	0324			
					0357	0359	0392	0394	0412	0414	0446	0448	0466	0468	0486	0488			
					0520	0522	0554	0556	0574	0576	0595								
X5454	A	002	281B	0706	0258														
X6	C	001	007D	0757	0627														
X6464	A	002	281D	0707	0292	0294	0619												
X7	C	001	0007	0758	0634														
X8	C	001	007F	0759	0671														
X8C8C	A	002	2821	0709	0363	0632													
X8484	A	002	281F	0708	0326	0328	0625												
X9	C	001	001F	0760	0643														

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

FD60 LSR FEATURE TEST MODEL 12

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PM*42	48209*EC*827804*	5412*LSR*FEATURE	*TEST*****MOD*12	84288422*****	*****FD600000
T+&Y9*0*****H**	**A***B***C***CD	**ED**G***H***H-	**+D**I***D***<D	E*HU**<*****	*****2D*FD600001
T+S*:*E*-OTX**T	2U*:/OHS*EG*/2	N+*DBCLXA*-72U*0	<*K*MRCD<*K-FG*H	8H*Y*OI*BE-OAR*U	YB3M*23<FD600002
T+SA50B-(((*YB&4	AR*UYC-RA*#A*3P	*R*40B-10H*BE-H	*H*#8H*Y*OI*BE-O	AR*UYB3D*H*40R2-	IC&D*4C2FD600003
T+SBOH*UYC*AH.&E	1R2-<BZYB&4AR*U	YB&AH.&E1R2-<KBZ	YB&4AR*UYC&AH.&E	1R2-J<BZYB&4AR*U	YD*/*R/8FD600004
T+SC,-&HO2G56*0	/IT--B/G*U*HOC*D	YBK-<L&YCL*4R*U	(*K-IR*7**KOT<L&	YB3*4R*U(*K-IR*?	**KD*=SDFD600005
T+SDWH3D4R*2D1B-	IC&DYBK-10*0/H3D	4RADO1B-IC&DYBK-	JO*0/H3D4RAMO1B-	IC&DYBK-NOHDBE?A	*NJC*8D2FD600006
T+SE/*BFN+B*RE<B	E*/Q<*K-IR*211B-	(*COYE&4AR*UYC*	AHRH11B-<COYB&4	AR*UYB&AHRH11B-	1<CO*-CZFD600007
T+SF*H*U(*K-IR**	**KFK<LOYDL*2R*U	(*K-IRAG**KFK<LO	YFL*2R*U(*K-IRAX	*-&HO2G4SA&*SAC-	-B/*H\$<FD600008
T+SGPOI*BE-OAR*U	YB3EMR*4ONB-IC&D	YBK-10*DS*LEMR*8	ONS-IC&DYBK-10*D	S*LEMR*2ONB-IC&D	YBK-*NBQFD600009
T+SHKCa*AH-D1NB-	JKE&YB&4AR*UYD*	AH-D1NB-S<E&YB&4	AR*UYF&BA*/80-N4	F*B13+B*RF&B&*/Q	<*K-LLYFD600010
T+S11BK-<COYCLA	UR*U(*K-IR*7**KI	O<OEYB3AUH*U(*K-	IR*7**KI0<OEYB3A	UR*U(*K-IR*7**KI	O<OE*L#UFD600011
T+SRHRADORB-IC&D	YBK-JO*DS*CEUR&4	ORB-IC&DYBK-10HD	BE?A*~E*H>H8H*Y	10Y*BE-OAR*UYB3F	DR*4*J24FD600012
T+S.C<H&YB&4AR*U	YC*AH_21/B-<H&C	YB&4AR*UYB&AH_2	1/B-1<H&YB&4AR*U	YC&AH_21/B-J<H&C	YB&4*3R&FD600013
T+S=*K-IRAG**K.	-<Q&YGBDR*U(*K-	IRA**&HO2G4GB**	TNLU-8S*9H*Y?GA*	BE-OAR*UYB3F<R*4	OTB-*#AHFD600014
T+S<9B&4AR*UYC*	AH5H1TB-<HOYB&4	AR*UYB&AH5H1TB-	1<HOYB&4AR*UYC&	AH5H1TB-J<HOYB&4	AR*U*388FD600015
T+S14RAG**KIK<QO	YHLB<R*U(*K-IRB&	*-&HO2G5*BE*UHTU	-8S<9H*Y?20A*BE-O	AR*UYB3GUR*409B-	IC&D*EB&FD600016
T+S+2H*UYC*AI&2	19B-<+&YB&4AR*U	YB&AI&219B-1<+&	YB&4AR*UYC&AI&2	19B-J<+&YB&4AR*U	YD*/*3T<FD600017
T+S1D*K&-<EYI3C	UR*U(*K-IRB-*K&	-<OYCLCWR*U(*K-	IR*7**K&-<OYB3C	WR*U(*K-IR*7**K&	-<O*/*4FD600018
T+S&YR*209S-IC&D	YBK-10*DU3GWRHAD	09S-IC&DYBK-JO*D	UG3GWRBU09S-IC&D	YBK-ZOHDBE?A*;&Y	*IMH*3IHF600019
T+SJ--&B*RI&B&*/O	<*K-IR*21*B-1<1&	YB&4AR*UYC*AIMH	1*B-<1&YB&4AR*U	YB&AIMH1*B-1<1&	YB&4-*QFD600020

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OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+SK\$K-IR"KN	B<-&YDLC4H"U("K-	IRAG"KNB<-&YH3C	4R"U("K-IRB?"KN	B<-MYCLC5H"U("K-	IR"4"1:*FD600021
T+SLOO"DV&TG5H"Z	O"K-IC&DYBK-.O"D	V&TG5H"20"K-IC&D	YBK-10"DV&TG5H&D	O"K-IC&DYBK-JO"D	V&TD"1Q8FD600022
T+SMJ"K-< MYB&4	AR"UY.*"AIMH1"S-	(< QYB&4AR"UYC*	AIMH1"S-< QYB&4	AR"UYB2"AIMH1"S-	<10"3HFD600023
T+SN<H"U("K-IR"	"KNB<-QYDLC6H"U	("K-IRAG"KNB<-Q	Y.3C6H"U("K-IRB"	"-&HC2G50B0"V_C-	-BSU"#:2FD600024
T+SOG01"BE-OAR"U	YB3EDH"40JB-IC&D	YBK-10"DV&LEDR"Z	OJB-IC&DYBK-.O"D	V&LEDR"20JB-IC&D	YBK-NT&FD600025
T+S"BC2"AI\$D1JB-	J<D&YB&4AR"UYD*	AI\$D1JB-P<D&YB&4	AR"UYE2BA"/\$0-62	<"BR"+B"R.<B&"/Q	<"K-5LMFD600026
T+SP"BK-<*&YCLC	DR"U("K-IR"7"KR	:<*&YB3CCH"U("K-	IR"?"KR:<*&YB3C	DR"U("K-IR"7"KR	:<*&5.<FD600027
T+SQB&RADO1B-IC&D	YBK-JO"DW;TGDH&K	O1B-IC&DYBK-TO"D	W;TGFH"401S-IC&D	YBK-10"DW;TGFH"Z	O1S-5SHFD600028
T+SR3B&4AR"UYB2	AIXY11S- <<QYB&4	AR"UYC2"AIXY11S-	J<<QYB&4AR"UYD*	AIXY11S-V<<QYB&4	AR"U"7-3FD600029
T+SE>HBP"-&HO2G2	CC&C"3--B-"UBE	E<B&YB&4AR"UYD*2	AIZ,0A0<8H"YJOI	W&3"4R"U("K-IRAP	"-KQ";83FD600030
T+S\$Z\$H"G)T--B/L	"UB\$<<COYB&4AR"U	YF*BAI&30A5*8H"Y	POI"W9LAMH"U("K-	IRAP?"-K\$V2"*\$+B	RF&""2Q-FD600031
T+S*UUB\$=<F&YB&4	AR"UYG*BAI?#0A54	8H"Y)0I"XE3BDH"U	("K-IRAP"-K*P2)	*+K"FHCU-BS"DB*	4CH0"/*FD600032
T+S)-R"U("K-IRBG	"-K*42" *G+B"R.<B	&I5301B-IC&DYBK-	TO"DXOCCFH"U("K-	IRBP"-K)2G2+K	RH3U"JO"FD600033
T+S;EM"Y20A"X/TC	UH"U("K-IRB-"K;	C<+QYB&4AR"UYR*2	A1B\$0A328H"YWOI	X>3C4R"U("K-IRB?	"K*";,QFD600034
T+S-N>CC5H"U("K-	IRB7"K;B< QYB&4	AR"UY.2BAI#70A7U	8H"YZOI"X#TADR"U	("K-IRAP"-K->2G	"OH*";8HFD600035
T+S-&"/DAFK/ROH*	BFY*2HG\$"/OHS"EC	"/2-C+*BB H&C&B	G"/YGEKS.OH*8H76	SOH*BR-*****	DDVD"6CDFD600036
T+S/.MJ&\$(CJDJCO	2NEJURHKDTH3D1<\$	F9+LW97L4'-P6'S-	M20G0& I56MCT1;.	T&E1*0>TPO;.S1*J	*P+<"=3<FD600037
T+SSF5UCL5&GD&<\$	D"UCV2*E"1< PE+.	E84CS9&XT02TEBUC	T5UA*P<LF1 R*P<V	/5UCLB_V"82PS84C	C5_E"008FD600038
TABS.5" E82M	.....	.....	.....	.....	.....7Q-FD600039
E"1"2E7*=-DC"PH\$	"=7M&F "" ""C	"F&""ASC""R"A	SO""Q	.....14500630750	82675=HUF"FD600040

LAST PAGE

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

LAST CHG :12:11 75

```

2 *
3 DECK 1
4 SEQ 0
5 FE1 START 0
6 TREP
7 ORG X'0A00'
8
9 *****
10 * SYSTEM/3 CPU MODULE FOR SYSTEM TEST
11 *****
12 * SECTION PREFACE
13 *
14 DC XL2'FE10' PROGRAM ID
15 DC XL1'80' SECTION FLAGS
16 DC XL1'01' ROUTINE NO.
17 DC XI2'00' RESERVED
18 DC AL2(TST01) ADDRESS OF FIRST ROUTINE PREFIX
19 DC XL2'FFFF' FILLER
20 *
21 *****
22 * ROUTINE PREFACE
23 *
24 TST01 DC XL1'01' ROUTINE NUMBER
25 DC XL1'00' ROUTINE FLAGS
26 DC XL2'FFFF'
27 *
28 *****

```

0000  
0A00  
0A01 FE10  
0A02 80  
0A03 01  
0A04 C000  
0A05 0A0A  
0A06 FFFF

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0A0E C0 87 0212 30 TST01A B TEST
0A12 38 80 0204 31 TBN CPU,X'80'
0A16 F2 90 48 32 JF TST01B
0A19 35 80 0D7D 33 L ERRINT,IAR0
0A1D 3C 80 0A57 34 MVI BRANCH+1,X'80'
0A21 F3 00 00 35 SIO 0,0
0A24 35 20 0DA9 36 L ADRY,P1IAR
0A28 35 40 0DAB 37 L ACR2,P2IAR
0A2C 35 40 0DA7 38 DPF L ACRX,P2IAR
0A30 F1 00 00 39 CPZ APL 0
0A33 F2 87 06 40 J DF2
41
42 DFX B HALT
43 DC XL2'FE32'
44 *
45
46 DP2 SIO X'06',Y'0'
47 L INTPT,IAR0
48 L ACRA,P1IAR
49 L ADRB,P1IAR
50 L AERC,P2IAR
51 DPA L ACRB,P2IAR
52 CFC APL 0
53 BRANCH B DFC
54
55 B HALT
56 DC XL2'FE31'
57 *
58
59 DPB MVI BRANCH+1,X'87'
60
61 TST01B EQU *
62
63 A L CCRSIZ,3
64 CLI CCRSIZ,X'FF'
65 JNE B
66 L ZERO,3
67 B A NEG128,3
68 JZ TEST2
69 CLC 127(128,XR2),127(XR1)
70 B EXIT
71 B
72 TEST2 EQU *
73 MVI TSTFLD,0
74 TBN TSTFLD,X'FF'
75 JF **9
76 B HALT
77 DC XL2'FE01'
78
79 TBF TSTFLD,X'FF'
80 JT **9
81 B HALT
82 DC XL2'FE02'
83
84 MVI TSTFLD,X'FF'
85 TBF TSTFLD,X'FF'
86 BF **10
87 B HALT
88 DC XL2'FE03'
89
90 TBN TSTFLD,X'FF'
91 JT **9
92 B HALT
93 DC XL2'FE04'
94
95 MVI TSTFLD,0
96 SBN TSTFLD,X'FF'
97 TEN TSTFLD,X'FF'

```

```

*TEST FOR VALID DCP ENTRY IN DATA SW
TEST FOR DUAL PROGRAM FEATURE
BYPASS IF NOT PRESENT
LOAD INTERRUPT IAR FOR ERROR
SET BRANCH INST. TO NOP
DISABLE DUAL PGM. & INTERPT KEY
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL
TO NEXT TEST

GO HALT -0C32- BECAUSE APL INSTR
CAUSED PROGRAM ADVANCE WHEN NOT
ENABLED.

ENABLE DUAL PGM. & INTERPT KEY
LOAD INTERRUPT LEVEL 0 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL

GO TO HALT -0C31- BECAUSE APL DTD
NOT CAUSE AN ADVANCE WHEN DUAL
PROGRAM WAS ENABLED.

SET BRANCH TO UNCONDITIONAL

LOAD CORE SIZE IN XR1& XR2
*CHECK IF CPU HAS 64K OF CORE.
IF NOT, CONTINUE NORMALLY. IF
YES, ENTER X'0000' IN XR1 & XR2
*SUBTRACT 128 BY ADDING X'FF80'
*IF ALL CORE TESTED, END TEST.
IF NOT, CHECK PARITY OF 128
BYTES AND CHECK WITH SUPERVISOR
BEFORE CHECKING NEXT 128 BYTES.

SET TEST FIELD TO ZERO
TEST ALL BITS FOR ON
BYPASS HALT IF ALL OFF
TO HALT IF ANY ON
HALT ID

TEST ALL BITS FOR OFF
BYPASS HALT IF ALL OFF
TO HALT IF ANY ON
HALT ID

SET TEST FIELD TO *FF*
TEST ALL BITS FOR OFF
BYPASS HALT IF ALL ON
TO HALT IF ANY TEST OFF
HALT ID

TEST ALL BITS FOR ON
BYPASS HALT IF ALL ON
TO HALT IF ANY TEST OFF
HALT ID

SET TEST FIELD TO ZERO
SET ALL BITS ON
TEST ALL BITS FOR ON

```

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MCD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0ACF	C0 10 0AD9	98	BT	**10 BYPASS HALT IF ALL ON
0AD3	C0 87 0222	99	B	HALT TO HALT IF ANY TEST OFF
0AD7	FE05	100	DC	XL2*FE05* HALT ID
0AD9	3C FF 0DB2	101		
0ADD	3B FF 0DB2	102	MVI	TSTFLD,X*FF* SET TEST FIELD TO ALL BITS
0AE1	39 FF 0DB2	103	SBF	TSTFLD,X*FF* SET ALL BITS OFF
0AE5	C0 10 0AEF	104	TBF	TSTFLD,X*FF* TEST ALL BITS FOR OFF
0AE9	C0 87 0222	105	BT	**10 BYPASS HALT IF ALL OFF
0AED	FE06	106	B	HALT TC HALT IF ANY TEST ON
0AEF	3C 00 0DB2	107	DC	XL2*FE06* HALT ID
0AF3	3A 00 0DB2	108		
0AF7	3D 00 0DB2	109	MVI	TSTFLD,0 SET TEST FIELD TO ZERO
0AFB	F2 81 06	110	SEN	TSTFLC,0 SET NO BITS ON
0AFE	C0 87 0222	111	CLI	TSTFLD,0 TEST FOR NO CHANGE
0B02	FE07	112	JE	**9 JUMP OVER HALT IF OK
0B04	3C FF 0DB2	113	B	HALT TO HALT IF ANY TEST ON
0B08	3B 00 0DB2	114	DC	XL2*FE07* HALT ID
0B0C	3D FF 0DB2	115	MVI	TSTFLD,X*FF* SET ON ALL BITS IN TEST FIELD
0B10	F2 81 06	116	SBF	TSTFLD,0 SET NO BITS OFF
0B13	C0 87 0222	117	CLI	TSTFLD,X*FF* TEST FOR NO CHANGE
0B17	FE08	118	JE	**9 JUMP OVER HALT IF OK
0B19	C0 87 0D31	119	B	HALT TO HALT IF ANY TEST OFF
0B23	06 20 0DB8	120	DC	XL2*FE08* HALT ID
0B29	07 20 0C8B	121	B	EXIT TO SUPERVISOR
0B2F	3C F6 0DB2	122	ZAZ	WCRK+9(3),UNITS(1) ZERO THE WORK AREA
0B33	0A 00 0DE2	123	AZ	WCRK+9(3),DEONE(1) ADD DECIMAL ONE
0B39	3D F3 0DB2	124	SZ	WCRK+9(3),DEONE(1) SUBTRACT DECIMAL ONE
0B3D	C0 81 0B47	125	MVI	WORK,X*F6* SET WORK AREA TO F6
0B41	C0 87 0222	126	ZAZ	WORK(1),UNITS-7(1) ZERO & ADD DEC. 3
0B45	FE09	127	CLI	WCRK,X*F3* CHECK FOR DEC 3.
0B47	3C 00 0DEA	128	BE	**10 BYPASS HALT IF OK
0B4B	0C 07 0DB9	129	B	HALT TO HALT IF NOT EQUAL TO F3
0B51	06 08 0DBA	130	DC	XL2*FE09* HALT ID
0B57	00 08 0DBA	131	MVI	WORK+8,X*00*
0B5D	F2 81 06	132	MVC	WCRK+7(8),WORK+8
0B60	C0 87 0222	133	AZ	WCRK+8(9),UNITS-1(9)
0B64	FE0A	134	CLC	WCRK+8(9),UNITS-1
0B66	35 01 0D92	135	JE	**9
0B6A	35 02 0D90	136	B	HALT
0B6E	3A 01 0DB3	137	DC	XL2*FE0A* HALT ID
0B72	3A 02 0DB5	138	L	XFF,XR1 SET XR1 TO FF
0B76	0D 01 0DB3	139	L	ZERC,XR2 SET XR2 TO 00
0B7C	F2 81 06	140	ST	WCRK+1,XR1 STORE BOTH
0B7F	C0 87 0222	141	ST	WCRK+3,XR2 IN WORK AREA
0B83	FE0B	142	CLC	WCRK+1(2),XFF* CHECK VALUE FROM XR1
0B85	0D 01 0DB5	143	JE	**9 JUMP OVER HALT IF OK
0B8B	F2 81 06	144	B	HALT TO HALT IF NOT OK
0B8E	C0 87 0222	145	DC	XL2*FE0B* HALT ID
0B92	FE0C	146	E	HALT
0B94	35 01 0D9D	147	DC	XL2*FE0C* HALT ID
0B98	7C FD 00	148	MVI	WORK+5,X*FD* LOAD ADDRESS OF WORK+5 IN XR1
0B9B	3D FJ 0DB7	149	MVI	0(,XR1),X*FD* MOVE IMEADATE WITH INDEXING
0B9F	F2 81 06	150	CLI	WORK+5,X*FD* CHECK RESULT
0BA2	C0 87 0222	151	JE	**9 JUMP OVER HALT IF OK
0BA6	FE0D	152	B	HALT TO HALT IF NOT OK
0BA8	35 02 0D9D	153	DC	XL2*FE0D* HALT ID
0BAC	BC AA 00	154	L	WORKS,XR2 LOAD ADDRESS OF WORK+5 IN XR2
0BAF	3D AA 0DB7	155	MVI	0(,XR2),X*AA* MOVE IMEADATE WITH INDEXING
		156	CLI	WORK+5,X*AA* CHECK RESULT

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0BB3	F2 81 06	166	JE	**9 JUMP OVER HALT IF OK
0BB6	C0 87 0222	167	B	HALT TO HALT IF NOT OK
0BBA	FE0E	168	DC	XL2*FE0E* HALT ID
0BBE	C2 01 0000	169		
0BC0	3A 01 0DB3	170	LA	0,XR1 LOAD ZERO IN XR1
0BC4	0D 01 0DB3	171	ST	WCRK+1,XR1 STORE
0BCA	F2 81 06	172	CLC	WORK+1(2),ZERO CCMPCARE
0BCD	C0 87 0222	173	JE	**9 JUMP OVER HALT IF OK
0BD1	FE0F	174	B	HALT TO HALT IF NOT OK
0BD3	C2 01 0000	175	DC	XL2*FE0F* HALT ID
0BD7	D2 01 02	176		
0BDA	3A 01 0DA5	177	LA	0,XR1 ZERO XR1
0BDE	0D 01 0DA5	178	ST	2(,XR1),XR1 STEP BY 2
0BE4	C3 01 0BD7	179	LA	REGSAV,XR1 SAVE
0BE8	C2 02 0000	180	CLC	REGSAV(2),MINUS2 CCMPCARE
0BEA	E2 02 02	181	ST	REGSAV,XR1
0BEF	3A 02 0DA5	182	CLC	REGSAV(2),MINUS2 CCMPCARE
0BF3	0D 01 0DA5	183	BNE	LOAD1 LOOP TILL EQUAL TO 00FE
0BF9	C0 01 0BEC	184		
0BFC	C0 87 0D31	185	LA	0,XR2 ZERO XR2
0C01	3C 0F 0DB2	186	LA	2(,XR2),XR2 STEP BY 2
0C05	3C F0 0DB3	187	ST	REGSAV,XR2 SAVE
0C09	0B 00 0DB2	188	CLC	REGSAV(2),MINUS2 CCMPCARE
0C0F	3D FF 0DB2	189	BNE	LOAD1 LOOP TILL EQUAL TO 00FE
0C13	F2 81 06	190	B	EXIT
0C16	C0 87 0222	191		
0C1A	FE10	192	MVI	WORK,X*OF* SET WORK AREA
0C1C	0B 01 0DB2	193	MVI	WORK+1,X*F0*
0C22	3D 0F 0DB2	194	MZZ	WCRK,WORK+1
0C26	F2 81 06	195	CLC	WORK,X*FF*
0C29	C0 87 0222	196	JE	**9 JUMP OVER HALT IF OK
0C2D	FE11	197	B	HALT TO HALT IF ERROR
0C2F	0B 03 0DB2	198	DC	XL2*FE10* HALT
0C35	3D 00 0DB2	199	MZN	WORK,WORK+1
0C39	F2 81 06	200	CLC	WORK,X*OF*
0C3C	C0 87 0222	201	JE	**9 JUMP OVER HALT IF OK
0C40	FE12	202	B	HALT TO HALT IF ERROR
0C42	0B 02 0DB2	203	DC	XL2*FE11* HALT ID
0C48	3D 0F 0DB2	204		
0C4C	F2 81 06	205	MNN	WORK,WORK+1
0C4F	C0 87 0222	206	CLC	WORK,X*00*
0C53	FE13	207	JE	**9 JUMP OVER HALT IF OK
0C55	0C 01 0DA5	208	B	HALT TO HALT IF ERROR
0C5B	C2 01 0DB2	209	DC	XL2*FE12* HALT ID
0C5F	D2 02 00	210		
0C62	3A 02 0DA5	211	MNZ	WCRK,WORK+1
0C66	0D 01 0DA5	212	CLC	WORK,X*OF*
0C6C	F2 81 06	213	JE	**9 JUMP OVER HALT IF OK
0C6F	C0 87 0222	214	B	HALT TO HALT IF ERROR
0C73	FE14	215	DC	XL2*FE13* HALT ID
0C75	0C 01 0DA5	216	MVC	REGSAV(2),XFF
0C7B	C2 02 0DB2	217	LA	REGSAV,XR1
0C7F	E2 01 00	218	LA	0(,XR1),XR2
0C82	3A 01 0DA5	219	ST	REGSAV,XR2
0C86	0D 01 0DA5	220	CLC	REGSAV(2),WORK0
0C8C	F2 81 06	221	JE	**9 JUMP OVER HALT IF OK
0C8F	C0 87 0222	222	B	HALT TO HALT IF ERROR
0C93	FE15	223	DC	XL2*FE14* HALT ID
0C95	0C 01 0DA5	224		
0C9B	C2 02 0DB2	225	MVC	REGSAV(2),XFF
0C9F	E2 01 00	226	LA	WORK,XR2
0CA2	3A 01 0DA5	227	LA	0(,XR2),XR1
0CA6	0D 01 0DA5	228	ST	REGSAV,XR1
0CAC	F2 81 06	229	CLC	REGSAV(2),WORK0
0CAF	C0 87 0222	230	JE	**9 JUMP OVER HALT IF OK
0CB3	FE15	231	B	HALT TO HALT IF ERROR
		232	DC	XL2*FE15* HALT ID

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0C95	F2 88 00	234			JOZ **3 RESET DECIMAL OVERFLOW
0C98	3C D9 0DB2	235			MVI WORK,X'D9' SET WORK TO MINUS DECIMAL 9
0C9C	06 00 0DB2 0D93	236			AZ WORK(1),XD9(1) ADD MINUS DEC. 9 TO WCRK
0CA2	F2 88 06	237			JOZ **9 JUMP OVER HALT IF DECIMAL OVER FLOW
0CA5	C0 87 0222	238			B HALT TO HALT IF ERROR
0CA9	FE16	239	OCAA		DC XL2*FE16' HALT ID
		240			
0CAB	3C D9 0DB2	241			MVI WORK,X'D9' SET WORK TO MINUS DECIMAL 9
0CAF	06 00 0DB2 0D93	242			AZ WORK(1),XD9(1) ADD MINUS DEC. 9 TO WORK
0CB5	C0 88 0CBF	243			BOZ **10 BRANCH OVER HALT IF DECIMAL OVERFLOW
0CB9	C0 87 0222	244			B HALT TO HALT IF ERROR
0CBD	FE17	245	OCBE		DC XL2*FE17' HALT ID
		246			
0CBF	C0 08 0CC9	247			BNOZ **10 BRANCH OVER HALT IF NO OVERFLOW
0CC3	C0 87 0222	248			E HALT TO HALT IF ERROR
0CC7	FE18	249	OCCB		DC XL2*FE18' HALT ID
		250			
0CC9	F2 08 06	251			JNOZ **9 JUMP OVER HALT IF NO OVERFLOW
0CCC	C0 87 0222	252			B HALT TO HALT IF ERROR
0CD0	FE19	253	OC01		DC XL2*FE19' HALT ID
		254			
0CD2	0C 01 0DB3 0C99	255			MVC WORK+1(2),X2020 SET WORK TO HEX-2020-
0CD8	0A 01 0DB3 0D95	256			ED WCRK+1(2),XE1F0 EDIT
0CDE	0D 01 0DB3 0D97	257			CLC WCRK+1(2),XF1F0 CHECK RESULT
0CE4	F2 81 06	258			JE **9 JUMP OVER HALT IF OK
0CE7	C0 87 0222	259			B HALT TO HALT IF ERROR
0CEB	FE1A	260	OCEC		DC XL2*FE1A' HALT ID
		261			
0CED	3C F0 0DD2	262			MVI WORK+32,C'0' SET A NUMERIC VALUE AT END OF FLD
0CF1	0F 1F 0DD1 0DD1	263			SLC WORK+31(32),WORK+31 ZERO WORK
0CF7	3C FF 0DFB	264			MVI WORK+73,X'FF'
0CFB	0C 1D 0DFA 0DFB	265			MVC WORK+72(30),WORK+73 COMPARE FIELD
0DC1	0B 1E 0DB2 0D92	266			ITC WORK(31),XFF INSERT FF
0D07	34 08 0DD4	267			ST WCRK+34,ARR SAVE ARR
0D0B	0D 1E 0DD0 0DFB	268			CLC WORK+30(31),WCRK+73 CHECK
0D11	F2 81 06	269			JE **9 JUMP OVER HALT IF OK
0D14	C0 87 0222	270			B HALT TO HALT IF ERROR
0D18	FE1C	271	OD19		DC XL2*FE1C' HALT ID
0D1A	0D 01 0DD4 0D9F	272			CLC WCRK+34(2),WORK31 CHECK ARR VALUE AFTER THE ITC
0D20	F2 81 06	273			JE **9 JUMP OVER HALT IF SET CORRECTLY
0D23	C0 87 0222	274			E HALT TO HALT IF NOT
0D27	FE1E	275	OD28		DC XL2*FE1E' HALT ID
		276			
0D29	C0 87 0D31	277			B EXIT TO SUPERVISOR
0D2D	C0 87 0A0E	278			B TST01A
0D31	34 08 0D40	279	EXIT		ST BR+3,ARR SAVE EXIT ADDRESS
0D35	3D FE 0A00	280			CLI X'0A00',X'FE'
0D39	C0 01 0A0A	281			BNE ENTRY
0D3D	C0 87 0000	282	ER		B *-*
		283			
0D41	34 20 0D81	284	INTOK		ST P1SAV,X'20' SAVE P1-IAR
0D45	34 40 0D83	285			ST P2SAV,X'40' SAVE P2-IAR
		286			
0D49	35 60 0D7F	287			L BADINT,X'60' LOAD P1 & P2 IARS TO ADDR OF SETARR
		288			
0D4D	F1 00 00	289	AFL		0 TRY TO ADVANCE PROG LEVEL IN INT LEV
		290			
0D50	C0 80 0D69	291	NCCCP	EC	INTERR,X'80' NO-OP BRANCH TO TEST IAR/ARR SELECT
		292			
0D54	C0 87 0D5E	293	UNCND	B	NEWLD UNCONDITIONAL BRANCH TO TEST
0D58	F2 87 0E	294		J	INTERR IAR/ARR SELECT
		295			
0D5B	F3 00 06	296	NEWLD	SIO	6.0 ENABLE INTERRUPTS & DUAL PROG MODE
		297			
0D5E	35 20 0D81	298		L	P1SAV,X'20' RESTORE P1-IAR
0D62	35 40 0D83	299		L	P2SAV,X'40' RESTORE P2-IAR
		300			
0D66	F2 87 04	301		J	RESETT GO RESET THE INTERRUPT.

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0D69	35 60 0D7F	302			INTERR L BADINT,X'60'
		303	*		
		304			
0D6D	F3 00 05	305			RESETT SIC 5.0
		306			
0D70	C0 87 0222	307			SETARR B HALT
0D74	FE89	308	OD75		DC XL2*FE89'
		309			
0D76	C0 87 0D69	310			B INTERR
0D7A	0D41	0D7B			311 INTPT DC AL2(INTCK)
0D7C	0D69	0C7D			312 ERRINT DC AL2(INTERR)
0D7E	0D70	0C7F			313 BADINT DC AL2(SETARR)
0D80		0D81			314 P1SAV DS CL2
0D82		0C83			315 P2SAV DS CL2
0D84	F1F2F3F4F5F6F7F8	0D8D			316 LNITS DC CL10'1234567890'
		316			
0D8C	F9F0				
0D8E	F1	0D8E			317 CEONE DC CL1'1'
0D8F	0000	0D90			318 ZERC DC XL2'0'
0D91	FFFF	0D92			319 XFF DC XL2'FFFF'
0D93	D9	0D93			320 XCD DC XL1'D9'
0D94	E1F0	0D95			321 XE1F0 DC XL2'E1F0'
0D96	F1F0	0D97			322 XF1F0 DC XL2'F1F0'
0D98	2020	0D99			323 X2020 DC XL2'2020'
0D9A	0DE2	0D9B			324 WORK0 DC AL2(WORK)
0D9C	0DB7	0D9D			325 WORK5 DC AL2(WORK+5)
0D9E	0DD1	0D9F			326 WORK31 DC AL2(WORK+31)
0DA0	0DFF	0DA1			327 MINUS2 DC XL2'00FE'
0DA2	FF80	0DA3			328 NEG128 DC XL2'FF80'
0DA4	0000	0DA5			329 REGEAV DC XL2'0'
0DA6	0A36	0DA7			330 ACRX DC AL2(DPX)
0DAB	0A2C	0DA9			331 ADRY DC AL2(DPY)
0DAA	0A30	0DAB			332 ADZ DC AL2(DPZ)
0DAC	0A4F	0DAD			333 ACF DC AL2(DPA)
0DAE	0A60	0DAF			334 ADRE DC AL2(DPB)
0DB0	0A53	0DB1			335 ADRC DC AL2(DPC)
		0DB2			336 WORK EQU *
0DB2		0DFB			337 DS CL74
		0001			338 XR1 EQU 01
		0002			339 XR2 EQU 02
		0008			340 ARR EQU 08
		0080			341 IARO EQU X'80'
		0020			342 P1IAR EQU X'20'
		0040			343 P2IAR EQU X'40'
		0203			344 CORNIZ EQU X'203'
		0204			345 CPU EQU X'204'
		0A0A			346 ENTRY EQU X'A0A'
		0222			347 HALT EQU X'222'
		0212			348 TEST EQU X'212'
		0DE2			349 TSTFLD EQU WCRK
		0A0E			350 END TST01A

LOAD P1-IAR & P2-IAR WITH THE ADDRESS OF SETARR INSTRUCTION.

RESET & DISABLE INTERRUPTS

GO TO HALT -FE89- IF INT LEV 0 ERR

RESET FAILED. TRY AGAIN

PROGRAM LEVEL 1 IAR  
PROGRAM LEVEL 2 IAR



FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

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CROSS-REFERENCE

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
A	A	004	0A64	00E3	
ACRA	A	002	0DAD	0333	0048
ADRB	A	002	0DAF	0334	0049 0051
ACPC	A	002	0DB1	0335	0050
ADRX	A	002	0DA7	0330	0038
ADRY	A	002	0DA9	0331	0036
ACRZ	A	002	0DAE	0332	0037
ARR	C	001	0008	0340	0267 0279
B	A	004	0A73	00E7	0065 0071
BADINT	A	002	0D7F	0313	0287 0302
BR	A	004	0D3D	02E2	0279*
BRANCH	A	004	0A56	00E3	0034* 0055*
CCRSIZ	C	001	0203	0344	0063 0064
CPU	C	001	0204	0345	0031
CECNE	A	001	0D8E	0317	0124 0125
DFA	A	004	0A4F	0051	0333
DFB	A	004	0A60	0059	0334
DPC	A	003	0A53	0052	0053 0335
DPX	A	004	0A36	0042	0330
DPY	A	004	0A2C	0038	0331
DPZ	A	003	0A30	0039	0332
DP2	A	003	0A3C	0046	0040
ENTRY	C	001	0A0A	0346	0281
ERRINT	A	002	0D7D	0312	0033
EXIT	A	004	0D31	0279	0070 0121 0180 0277
FE1	A	001	0000	0005	
HALT	C	001	0222	0347	0042 0055 0076 0081 0087 0092 0099 0106 0113 0119 0130 0138 0147 0151 0159 0167 0174 0196 0202 0208 0214 0222 0231 0238 0244 0248 0252 0259 0270 0274 0307 0033* 0047*
IAR0	C	001	0080	0341	0291 0294 0310 0312
INTERR	A	004	0D69	0302	0311
INTOK	A	004	0D41	0284	0047
INTRPT	A	002	0D78	0311	0181
LOAD1	A	003	0BD7	0176	0187
LOAD2	A	003	0BEC	0184	0180 0186
MINUS2	A	002	0DA1	0327	
MVI1	A	003	0B98	0155	
MVI2	A	003	0BAC	01E3	
NEG128	A	002	0DA3	0328	0067
NEWLD	A	003	0D5B	023E	0293
NDDOP	A	004	0D5C	0291	
P1IAR	C	001	0020	0342	0036* 0048* 0049*
P1SAV	A	002	0D81	0314	02E4* 0298
P2IAR	C	001	0040	0343	0037* 0038* 0050* 0051*
P2SAV	A	002	0D83	0315	0285* 0299
PEGSAV	A	002	0DA5	0329	0179* 0180 0185* 0186 0216* 0219* 0220 0225* 0228* 0229
RESETT	A	003	0D6D	0305	0301
SETARR	A	004	0D70	0307	0313
TEST	C	001	0212	0348	0030
TEST2	A	001	0A86	0072	0068
TSTFLD	A	001	0DB2	0349	0073* 0074 0079 0084* 0085 0090 0095* 0096* 0097 0102* 0103* 0104 0109* 0110* 0111 0115* 0116* 0117
TST01	A	001	0A0A	0024	0018
TST01A	A	004	0A0E	0030	0278 0250
TST01B	A	001	0A64	0061	0032
UNCND	A	004	0D54	0293	
UNITS	A	010	0D8D	0216	0123 0127 0135 0136
WORK	A	001	0DB2	0336	0123* 0124* 0125* 0126* 0127* 0128 0133* 0134 0134* 0135* 0136 0143* 0144* 0145 0149 0157 0165 0171* 0172 0191* 0192* 0193 0193* 0194 0199 0199* 0200 0205 0205* 0206 0211 0211* 0212 0217 0226 0235* 0236* 0241* 0242* 0255* 0256* 0257 0262* 0263 0263* 0264* 0265 0265* 0266* 0267* 0268 0268 0272 0324 0325 0326 0349
WRK0	A	002	0D9E	0324	0220 0229
WRK31	A	002	0D9F	0326	0272
WRK5	A	002	0D9C	0325	0154 0162
XD9	A	001	0D93	0320	0236 0242

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
XE1F0	A	002	0D95	0321	0256
XFF	A	002	0D92	0319	0141 0145 0216 022E 0266
XF1F0	A	002	0D97	0322	0257
XR1	C	001	0001	0338	0069 0141* 0143 0154* 0155 0170* 0171 0177* 0178 0178* 0179 0217*
XR2	C	001	0002	0339	0218 0227* 022E 0069 0142* 0144 0162* 0163 0183* 0184 0184* 0185 0218* 0219 0226*
X2020	A	002	0D99	0323	0255
ZERO	A	002	0D90	0318	0066 0142 0149 0172

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

OBJECT CARD LISTING

THE CHARACTER . INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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.GBK GBD . . . . . PN 42 48253 EC 827836 . FE1 CPU MODULE 5 412 . . . . . MOD 12 84888488 . FE040 0 . . . . . FE100000
T( Y4*/E & B-. . . . . MOD . . . . . /OHK+H BA|HEK30 CP48- Z P80 (K (DLN CE% 5C 6X8E 8Y* .2% XHA0GRZ0FE100001
T<OZYAXEG S.=<?< . . . . . ATO CPXEH 6_(K (. 2N CSDEE E78E . . . . . OH*HM88G S.=<L2 GEV*5 OHC|C >IA4 REJD(#J-FE100002
T<OD*OHCE-DD(E< (UCOCCE|2-82)-7* . . . . . CH*(K*8GBXK8 . . . . . 2+|8(X7HEAXBG S. = LX*CS.2C 11B . . . . . F 4I68HFE100003
T<O.6AXBG S.= T3 . . . . . C8H9*0620I H_XB G S.= 3T*CS.2C 8 . . . . . /OHS*-EE 62+78 (XTT*CS. D 1.KU *D-8HEZ4FE100004
T<-XCB_X /OHS*-M . . . . . B*062+*8(XTX*CA. . . . . C . 70H*EH7BF| . . . . . (XTY C8H* 628YD FOM*BH78G BUVHJ* LC0XA3LDFE100005
T.OX3||F(XTX C8H . . . . . *062BYCFOM*EH78 HOF*(E6-C8X(TEQ -C8X(T-8-C8X(TT3 6C8HD B8DH8C8G/O QEO*CA* YFE100006
T.O_T . . . . . 62C00*806 2C+D.J28G S.=BL3 . . . . . EC8Y<AC8C8YFB 6 . . . . . :CGO(B 6:CO32-68 . . . . . /OHS B-WFS *F/O <E 8B*DOFE100007
T<E>N*-YE 66K(EH (UC6AC8<4 -65C8D (X06K8YDFOM*BH78 . . . . . .C6D(.668BYDFOM* EH78<(E6 BOUE1M JCEUE1J FE100008
T<O7ICRE8*E . . . . . *66 78YDFOM*BH78((EH (X82C C6CC8-2-68 . . . . . /OHS*-8E 6 ( D (X04AC8<(U 3K4 *E6-A7. FE100009
T<-78BYDFOM*BH78 |0-D . . . . . (HA T6ACEM ( 66VCEG 67P0-H . . . . . +HB T6CEM( 6E VCEG 67% CH>.B- )FJ*LIJ*FE100010
T<E0>OH*(L0|C8H 88 63E (X-63|-8 (X7FAAXBG S.=D - AC8H(X34|C8.2-08 . . . . . /OHS*/D HB8EJJD |B0*CP08FE100011
T<E1-B <(X-63|E (X7FAAXBG S.=D-- BC8+(X34|C8.2-68 . . . . . /OHS*/<< 66VCR. E 6624-M .2%ZGA- DE6MCOY<FE100012
T<E2K C8CEM( 66 VCR72-68 /OHS*/E < 66VCR.B -62E-D . . . . . ( D(ZE4ACEH(W*H AAXBG SH FS-UGJU PE--D)I<FE100013
T<-3E*/P25 8E66 2A- (X-6LBY-FOM* EH78C|(U(X-0 C8H (U8BHC.* /OHS*/- . . . . . B 3I0H*B 82VHJ8 SC-0H6TEFE100014
T<E37I7E08--FOM* BH78FC D(X06RE-D (X06NC6D(X06PEYD FOM*BH78E|| (4-B -C)D(4L0 <B88GJX PEJD|#AAFE100015
T< 4Y*07#CA4(-7 8E18(X-6K( -(5 4 :C) (=HAAAXBG S. =G 4AC)E(XHAAAXB G S.=G- XIJ-DD-B <E 8B48<FE100016
T<-580H*(K*8GB8-B 4B E |HEH < AB-. . . . . /C . . . . . (B (-LJ CO< 50 5*8E OH (E*B GCN72/O#3 E8DH18 8E0*CO#MFE100017
TH05* 05H 6A(H (-HNGACN-CP#3 P /CHS*YX /05ZCMD (E650 . . . . . THJ8 )D UE=B*FE100018
T.6618-. 2*|PE*NT 8B|D |**6:G08- -H 62C8*(4EC*8B . . . . . Y6BSOH< Z|EM HMO . . . . . .KXZ12M TF1UP;Z FE100019
EB-9*E7**=DC*PHS =*7#6F| | C F% ASC R A S0 Q . . . . . 09100630751 21975#.0FE100020

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LAST PAGE



FFA0 DCP BOOTSTRAP ONE SECTOR LOADER FOR 3340 - MOD 15

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		2	DECK	4
		3	SEQ	0
		4	TREP	
		5		
0000		0800	6	USING CFMAIN,XR1
			7	ZZZZ START 0
			8	**
			9	** THE IPL CODE IS FIRST MOVED TO 800, BRANCHED TO, AND EXECUTED
			10	** THERE.
0000	0C EF 08EF 00FE		11	LOAD MVC END(END+1-CFMAIN),END-CFMAIN+LOADAA
0006	C0 87 0810		12	B CLEAR TO BEGIN LOADING
000A	FFA0	000B	13	DC XL2'FFA0' MARKER FOR EASY
000C	C9D7D3	000E	14	DC CL3'IPL' IDENTIFICATION OF IPL SECTOR
		000F	15	LOADAA EQU *
0800			16	ORG X'0800'
			17	
		0800	18	CFMAIN EQU * FFCCCCHHHRRKLDLNLN
0800	0000030011030001	0809	19	DC XL10'00000300110300010000' FFB BEGINNING+1 (SKIPS HEADER)
0808	0000		20	CFMANS DC AL2(CFMAIN)
080A	0800	080B	21	INPUTS DC AL2(INPUT)
080C	0200	080D	22	ONE DC XL2'0001'
080E	0001	080F	23	
			24	****
			25	** CLEAR BK STORAGE
			26	***
		0810	27	CLEAR EQU *
			28	MVI X'1FFF',C'
0810	3C 40 1FFF		29	MVC X'1FFE'(255),X'1FFF'
0814	0C FE 1FFE 1FFF		30	ZRO MVC X'1EFF'(256),X'1FFF'
081A	0C FF 1EFF 1FFF		31	SLC ZRO+3(2),NUM256
0820	0F 01 081D 08E9		32	CLI ZRO+2,09
0826	3D 09 081C		33	BH ZRO
082A	C0 84 081A		34	ZROA MVC X'07FF'(256),X'1FFF'
082E	0C FF 07FF 1FFF		35	SLC ZROA+3(2),NUM256
0834	0F 01 0831 08E9		36	CLI ZROA+2,01
083A	3D 01 0830		37	BH ZROA
083E	C0 84 082E		38	
			39	LOOP LA CFMAIN,XR1 LOAD BASE VALUE
0842	C2 01 0800		40	L INPUTS(.XR1),XR2 SET XR2 TO POINT TO INPUT AREA
0846	75 02 0D		41	TIO DSKERR(.XR1),TMR TEST FOR IPL ERROR
0849	D1 C0 C0		42	SK1 JC DOSEEK,X'87' SEEK THE FIRST TIME THRU
084C	F2 87 06		43	CLI CFMAIN+5(.XR1),1 ARE WE READING RECORD ONE
084F	7D 01 05		44	JNE NOSEEK IF NOT, THEN NO NEED TO SEEK
0852	F2 01 24		45	
			46	DOSEEK MVI SK1+1(.XR1),X'07' FORCE SEEK ONLY ONCE
0855	7C 07 4D		47	LIO CFMANS(.XR1),LDDCR LOAD CONTROL REG FOR SEEK
0858	71 C6 08		48	B SIO(.XR1) SEEK TO FFB
085B	D0 87 C6		49	DC AL2(QSEEK)
085E	C000	085F	50	
			51	LIO CFMANS(.XR1),LDDCR LOAD CONTROL REGISTER
0860	71 C6 08		52	B SIO(.XR1) READ MA (TO SEE IF DEFECTIVE TRK)
0863	D0 87 C6		53	DC AL2(ORMA)
0866	C101	0867	54	
			55	CLI CFMAIN(.XR1),X'02' IS THIS DEFECTIVE TRACK
0868	7D 02 00		56	JNE NOSEEK IF NOT, JUST CONTINUE
086B	F2 01 08		57	* IF IT IS DEFECTIVE, SEEK TO ALT.
			58	MVI CFMAIN(.XR1),X'01' ALTER CF FLAG FOR ALTERNATE READING
086E	7C 01 00		59	LIO INPUTS(.XR1),LDDCR POINT CONTROL REG. TO INPUT AREA (MA)
0871	71 C6 00		60	B SIO(.XR1) SEEK TO ALTERNATE TRACK
0874	D0 87 C6		61	DC AL2(QSEEK)
0877	C000	0878	62	
			63	NOSEEK EQU * SET TO READ ONE SECTOR
0879	7C 00 09		64	MVI CFMAIN+9(.XR1),0
			65	
087C	71 C6 08		66	LIO CFMANS(.XR1),LDDCR LOAD CONTROL FIELD ADDRESS
087F	D0 87 C6		67	B SIO(.XR1) READ

FFA0 DCP BOOTSTRAP ONE SECTOR LOADER FOR 3340 - MOD 15

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
0882	C100	0883	68	DC AL2(OREAD)	
			69		
0884	BD C5 00		70	CLI 0(.XR2),C'E' HAS THE END CARD BEEN READ?	
0887	F2 01 09		71	JNE LOADE BRANCH IF NO	
088A	4C 01 92 01FF		72	MVC BR+3(2,XR1),X'1FF' PICK UP BEGINNING ADDRESS OF FFB	
088F	C0 87 0000		73	BR B *-*	
			74		
			75	* MOVE IN TEXT	
0893	6C 02 A2 03		76	LOADE MVC MOVE+3(3,XR1),3(.XR2) SET DESTINATION + COUNT	
0897	6C 00 A3 01		77	MVC MOVE+4(1,XR1),1(.XR2) PLACE DATA LENGTH IN TEXT MOVE	
089B	5E 00 A3 E7		78	ALC MOVE+4(1,XR1),ONESEC(.XR1) INCREASE SOURCE DISPLACE	
089F	2C 00 0000 00		79	MOVE MVC *-*(+*),*-*(.XR2) MOVE DATA TO CORE	
			80		
			81	* INCREMENT DISK CONTROL FIELD	
08A4	4E 00 05 080F		82	ALC CFMAIN+5(1,XR1),ONE GUMP RECORD # ONE.	
08A9	7D 31 05		83	CLI CFMAIN+5(.XR1),MAXREC REC # READY TO GO TO 1 ?	
08AC	F2 82 0E		84	JL CFINC	
08AF	7C 01 05		85	MVI CFMAIN+5(.XR1),1 FORCE REC # TO 1 AND	
08B2	4E 00 04 080F		86	ALC CFMAIN+4(1,XR1),ONE GUMP HEAD #	
08B7	7D 14 04		87	CLI CFMAIN+4(.XR1),20 DID HEAD GO TO 20 ?	
08BA	D0 81 C0		88	BE DSKERR(.XR1) IF .O. ERROR	
		08BD	89	CFINC EQU *	
			90	B LOOP(.XR1) READ UNTIL 'END' ENCOUNTERED	
08BD	D0 87 42		91		
			92	DSKERR MPL H7,MM LOAD ERROR HALT	
08C0	F0 38 07		93	B LOOP(.XR1) LOAD SAME TEST AGAIN.	
08C3	D0 87 42		94		
			95	*****	
			96	* SIO *	
			97	*****	
			98		
08C6	76 08 0F		99	SIO A ONE(.XR1),ARR ADJUST ARR TO POINT TO PARMS	
08C9	74 08 06		100	ST SIOSET+4(.XR1),ARR MOVE IN ADDRESS OF Q-R BYTE PARMS	
08CC	74 08 0F		101	A ONE(.XR1),ARR ADJUST ARR TO MISS PARMS	
08CF	74 08 E6		102	ST SIOR+3(.XR1),ARR MOVE IN RETURN ADDRESS	
			103		
08D2	4C 01 DC 0000		104	SIOSET MVC DOSIO+2(2,XR1),*-* MOVE IN Q-R BYTE AS PASSED	
			105		
08D7	71 C4 0D		106	LIO INPUTS(.XR1),LDDCR LOAD READIN ADDRESS	
08DA	F3 00 00		107	DOSIO SIO X'00',*-* READ	
08DD	D1 C0 C0		108	TIO DSKERR(.XR1),TMR BRANCH IF ERROR	
08E0	D1 C2 DD		109	TIO *-3(.XR1),TBUSY LOOP WHILE BUSY	
08E3	C0 87 0000		110	SIOR B *-*	
			111		
08E7	04	08E7	112	ONESEC DC XL1'04'	
08E8	0100	08E9	113	NUM256 DC XL2'100'	
08EA	00000000	08ED	114	DC XL4'00'	
08EE	0000	08EF	115	STATUS DC XL2'0'	
		0001	116	XR1 EQU 1	
		0002	117	XR2 EQU 2	
		0008	118	ARR EQU 8	
		0200	119	INPUT EQU X'200'	
		0007	120	H7 EQU X'07'	
		003B	121	MM EQU X'3B'	
			122	*****	
			123	*	
			124	* WINCHESTER INSTRUCTION EQUATES	
			125	*	
			126	*****	
			127		
C000	128	QSEEK	EQU	X'C000'	SEEK
C001	129	ORECAL	EQU	X'C001'	RECALIBRATE
C101	130	ORMA	EQU	X'C101'	READ MA, RO. COUNT EVEN
C10^	131	OREAD	EQU	X'C100'	READ KEY DATA
C107	132	ODIAG	EQU	X'C107'	READ DIAGNOSTIC SENSE (24 BYTES)
	133				
00C0	134	TNR	EQU	X'C0'	NOT READY / ERROR (UNIT CHECK)

FFA0 DCP BOOTSTRAP ONE SECTOR LOADER FOR 3340 - MOD 15

ERR LOC OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
00C2	135	TBUSY	EQU	X'C2'
	136			
00C4	137	LDDDR	EQU	X'C4'
00C6	138	LDDCR	EQU	X'C6'
0031	139	MAXREC	EQU	49
	140			
	140			
08EF	141	END	EQU	9-1
0842	142	END	END	LOOP

ATTACHMENT BUSY  
L10 DISK DRIVE DATA REGISTER  
L10 DISK DRIVE CONTROL REGISTER

FFA0 DCP BOOTSTRAP ONE SECTOR LOADER FOR 3340 - MOD 15

		CROSS-REFERENCE													
SYMBOL	T	LEN	VALUE	DEFN	REFERENCES										
ARR	C	001	0008	0118	0099* 0100 0101* 0102										
BR	A	004	088F	0073	0072*										
CFINC	A	001	08BD	0089	0084										
CFMAIN	A	001	0800	0018	0006 0011 0011 0020 0039 0043 0055 0058* 0064* 0082* 0083 0085*										
					0086* 0087										
CFMANS	A	002	080B	0020	0047 0051 0066										
CLEAR	A	001	0810	0027	0012										
DOSEEK	A	003	0855	0046	0042										
DOSIO	A	003	08DA	0107	0104*										
DSKERR	A	003	08C0	0092	0041 0088 0108										
END	A	001	08EF	0141	0011 0011 0011*										
MH	C	001	003B	0121	0092										
M7	C	001	0007	0120	0092										
INPUT	C	001	0200	0119	0021										
INPUTB	A	002	0E0D	0021	0040 0059 0106										
LDDCR	C	001	00C6	0138	0047* 0051* 0059* 0066*										
LDDDR	C	001	00C4	0137	0106*										
LOAD	A	006	0000	0011											
LOADAA	A	001	000F	0015	0011										
LOADE	A	004	0893	0076	0071										
LOOP	A	004	0842	0039	0090 0093 0142										
MAXREC	C	001	0031	0139	0083										
MOVE	A	005	089F	0079	0076* 0077* 0078*										
NOSEEK	A	001	0879	0063	0044 0056										
NUM256	A	002	08E9	0113	0031 0035										
ONE	A	002	080F	0022	0082 0086 0099 0101										
ONESEC	A	001	08E7	0112	0078										
QDIAG	C	001	C107	0132											
QREAD	C	001	C100	0131	0068										
QRECAL	C	001	C001	0129											
QRHA	C	001	C101	0130	0053										
QSEEK	C	001	C000	0128	0049 0061										
SIO	A	003	08C6	0099	0048 0052 0060 0067										
SIOR	A	004	08E3	0110	0102*										
SIOSET	A	005	0802	0104	0100*										
SKI	A	003	084C	0042	0046*										
STATUS	A	002	08EF	0115											
TBUSY	C	001	00C2	0135	0109										
TNR	C	001	00C0	0134	0041 0108										
XR1	C	001	0001	0116	0006 0039* 0040 0041 0043 0046 0047 0048 0051 0052 0055 0058 0059 0060 0064 0066 0067 0072 0076 0077 0078 0078 0082 0083 0085 0086 0087 0088 0090 0093 0099 0100 0101 0102 0104 0106 0108 0109										
XR2	C	001	0002	0117	0040* 0070 0076 0077 0079										
ZRO	A	006	081A	0030	0031* 0032 0033										
ZROA	A	006	082E	0034	0035* 0036 0037										
ZZZZ	A	001	00C0	0007											

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FFA0 DCP BOOTSTRAP CME SECTOR LOADER FOR 3340 - MOD 15

OBJECT CARD LISTING

THE CHARACTER . INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GED PN 55 58910 EC 824829 3340 DCP BCCTSTR AP LCADER-MOD 15 84888488 FFA00000

TC- +C+EM#OC=0+9 MD|=2)-L 00-FFA00001

T+--: C ACC D - - L1 G#B <"/#G#B<"/18#G#B ; (-)B+U#BE-#OHE HF-3#A#B-#08ABCD H:LA 2L<FFA00002

T+ /5 E-CCMEH.3M AB AE -7J0CC2/OR SP2 KJBA4511-7 E/E# GGFB#BG1XD A-EM B-D- D #\*0 (4H# =ZVFFA00003

T+5012 1#\*0 .4H#FOEE#18C2 EV < RMA#BEC AS CH CE ET NE Y#\*% DB AE-|-LDEBYH + D 2.#FFA00004

T+T.APE A -|-JE D4+G 4H#BCC3(4+) B)-|-) TO)-|-) T ML G# A11 73 C JOCCJO\_7 /0 A D MSYFFA00005

T DT? 19<FFA00006

EBD1#E7#=-DC#PH8 =#7#6F| | C FX ASC R A SO 0 13270908741 20474-8#FFA00007

----- LAST PAGE -----



FFB0 DCP LOADER FOR 3340 DISK - MOD 12

EPR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

2 \* LAST CHG :08:08 75

3 DECK 4

4 SEQ 0

5 FFB START 0

6 TREP

7 ORG X'017' TO MISS DCP'S RESTART ROUTINE

8 \*\*\*\*\*

9 \* CONTROL PROGRAM LOADER \*

10 \*\*\*\*\*

11 \*

12 \* THIS PROGRAM MODULE LOADS THE CONTROL PROGRAM, INCLUDING ITS SEC- \*

13 \* TION REFERENCE TABLE. A ONE SECTOR BOOTSTRAP LOADER READS THIS \*

14 \* LOADER INTO CORE & BRANCHES TO IT. LOAD CARDS RECOGNIZED BY THE \*

15 \* DCP LOADER INCLUDE \*

16 \*

17 \* TEXT \*

18 \* END \*

19 \* CPU \*

20 \* UDT \*

21 \*

22 \* OTHER CARDS CAUSE HC HALT \*

23 \*

24 \*\*\*\*\*

25

0017 40404040 001A 26 ID DC CL4' \*

001B 27 ENT2 EQU \* DCP ENTERS HERE FOR ALL B LOAD EXCEPT

28 \* READ A RECORD (BIT 3)

001B 34 08 0073 29 ST RETURN+3,ARR SAVE RETURN ADDRESS

001F C0 87 021E 30 B UNPACK UNPACK PROGRAM ID AS PASSED

0023 02 0023 31 DC IL1'2' BY PROGRAM VIA DCP.

0024 01FF 0025 32 DC AL2(PARMS)

0026 001A 0027 33 DC AL2(ID)

0028 0C 09 01C4 01CE 34 MVC CFMAIN+9(10),CFVTOC+9 FORCE SEEK TO VTOC

002E 38 02 01FD 35 TBN LDFLAG,BIT6 IF SEEK-TO-VTOC FLAG, THEN QUIT

0032 F2 10 38 36 JT RETURN RETURN TO DCP

37

0035 C0 87 0100 38 SCAN B READ \*READ\* SEEKS FIRST THEN READS

0039 0D 02 0886 001A 39 CLC INPUT+VID(3),ID COMPARE ID TO VTOC FOR A MATCH

003F F2 81 1C 40 JE IDFND JUMP IF PROPER VTOC IS FOUND

0042 0D FE 097E 097F 41 CLC INPUT+254(255),INPUT+255 IF ALL CHAR SAME, ASSUME THEY'RE

0048 C0 01 0035 42 BNE SCAN ALL ZERO MEANING END OF VTOC

43

004C 38 01 01FD 44 TBN LDFLAG,BIT7 SEE IF LOADING ALL SECTIONS FOR ONE

0050 F2 10 07 45 JT LDR DEVICE (EXAMPLE DE10)

46

0053 35 08 01FF 47 L PARMS,ARR PUT UNFOUND PROGRAM IN ARR FOR DISPLY

0057 F0 38 73 48 HPL HD,HH HD HALT, PROGRAM NOT FOUND

005A C0 87 000C 49 LDR B \*-+ | BRANCHES TO DCP TO LOAD NEXT PROGRAM

005D 50 XREF1 EQU \*-1 | REFERENCE FILLED IN WHEN DCP LOADS

51

52

005E 0C 04 01C0 088E 005E 53 IDFND EQU \* 54 MVC CFMAIN+5(5),INPUT+VADDR MOVE DISK ADDR INTO CTRL FLD

55

56 \*\*\*\*\*

57 \*

58 \* THIS LOOP READS AND LOADS RECORDS.

59 \* IF BIT 2 OR 3 IS ON, IT READS ONLY 1 RECORD AND RETURNS.

60 \*

61 \* NOTE ---

62 \* THE INSTRUCTION LABELED 'RETURN' FALLS THROUGH

63 \* DURING DCP LOADING. AFTER LOADING IT IS THE RETURN TO DCP.

64 \* IT IS SAVED AND RESTORED ONCE IN THE 'FIG' ROUTINE.

65 \*

66 \* THE INSTRUCTION LABELED 'CKCOMA' LINKS TO CKCOM1 DURING DCP

67 \* LOADING. AFTER LOADING IT IS ALTERED TO LINK TO NORMAL SECTION

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

68 \* LOADER.

69 \*

70

0064 C0 87 0100 71 PGMLOD B READ READ A RECORD

0068 39 30 01FD 72 LDFLAG,BIT2+BIT3 SHOULD ONLY 1 RECORD BE READ ?

006C C0 10 0074 73 BT CONTNU CONTINUE IF BIT2 AND 3 OFF.

0070 C0 87 0074 74 RETURN B \*\*4 (\*\*\*) BRANCH TO CALLER (SEE NOTE ABOVE)

75

76 \*

77 \* -----

78 \* - 'T' -

79

0074 7D E3 00 79 CONTNU CLI 0(,XR1),C'T' IS IT A TEXT RECORD ?

0077 C0 01 0A1F 80 CKCCMA BNE CKCOM1 (\*\*\*) IF NOT, TRY COMMENT. (SEE NOTE ABOVE)

81

007B 1C 02 0088 03 82 MVC MOVE+3(3),3(,XR1) PUT 'TO' ADDR AND LENGTH INTO MOVE

0080 1C 00 008C 01 83 MVC MOVE+4(1),1(,XR1) ALSO MOVE IN LENGTH AGAIN.

0085 D2 01 04 84 LA 4(,XR1),XR1 BUMP OVER THE 'T' ETC.

85

0088 1C 00 0000 00 86 MOVE MVC \*\*-(\*\*\*) \*\*-(,XR1) MOVES THE TEXT INTO STORAGE

87

008D C0 87 0064 88 B PGMLOD CONTINUE LOADING

89

90 \*\* THE FOLLOWING CODING COMPLETES THE SECTION LOADER. IT IS

91 \*\* BYPASSED DURING DCP LOADING. ONCE THE CONTROL PROGRAM IS LOADED,

92 \*\* LINKAGES ARE SET UP SO THAT A BRANCH TO THE END CARD ROUTINE WILL

93 \*\* BE SUBSTITUTED FOR THE DCP LOADER RESIDING AT HEX -A00-

94

95 \*

96 \* -----

97 \* - 'S' -

98

0091 7D 5C 00 98 CKCOM CLI 0(,XR1),C'\*' IS IT A COMMENT CARD ?

0094 F2 01 09 99 JNE CKSSWX IF NOT, TRY 'SSW' CARD

0097 C0 87 021A 100 B PRINT PRINT RECORD JUST READ

009B 21 009B 101 DC XLI'21'

009C C0 87 0064 102 B PGMLOD

103

104 \*

105 \* -----

106 \* - 'SSW' -

107

00A0 7D E2 00 107 CKSSWX CLI 0(,XR1),C'S' IS IT A SSW RECORD ?

00A3 F2 01 28 108 JNE CKE IF NO, CHECK FOR E (END)

00A6 0F 03 020D 02CD 109 SSWPD SLC SBYTES(4),SBYTES CLEAR SSW 10-2F

00AC 7D 40 04 110 CLI 4(,XR1),C' ' IF NO SSW'S, CLEAR ALL AND QUIT

00AF C0 81 0064 111 BE PGMLOD

112

113

00B3 D2 01 05 113 LA 5(,XR1),XR1 POINT AT 1ST SSW

00B6 34 01 00C0 114 SSLOOP ST SADDR,XR1 SET UP THAT ADDR IN PACK

00BA C0 87 0226 115 B PACK PACK SSW

00BE 02 00BE 116 DC IL1'2'

00BF 0000 00C0 117 SADDR DC AL2(\*\*\*) ADDR OF SSW IN RECORD JUST READ

00C1 0000 00C2 118 XREF5 DC AL2(\*\*\*) ADDR IN DCP TO PUT SSW FOR SSW

00C3 C0 87 0000 119 \* ROUTINE. FILLED IN AT LOAD TIME

120 B \*-+ | LINKS TO DCP TO TURN THAT SSW.

00C6 121 XREF4 EQU \*-1 | FILLED IN AT LOAD TIME.

122

123

00C7 7D 68 01 123 CLI 1(,XR1),C', ' IF COMMA, THEN HANDLE NEXT SSW

00CA D2 01 03 124 LA 3(,XR1),XR1 BUMP TO NEXT SSW (JUST IN CASE)

00CD C0 81 00B6 125 BE SSLOOP LOOK 'TIL ALL SSW HANDLED

126

127 \*

128 \* -----

129 \* - 'E' -

130

00D1 7D C5 00 130 CKE CLI 0(,XR1),C'E' IS IT AN END RECORD ?

00D4 C0 01 0064 131 BNE PGMLOD IGNORE IT IF IT IS NOT 'E' CARD

132

00D8 38 04 01FD 133 TBN LOFLAG,BIT5 SEE IF 'SKIP HA HALT' BIT IS ON

00DC C0 90 0901 134 BF X'90,' IF NOT, GO TO END CARD ROUTINE

00E0 C0 87 0070 135 B RETURN IF SO, RETURN TO DCP



FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

136
136
136
137 *****
138 * THIS ROUTINE ENTERED TO READ A SINGLE RECORD.
139 *
140 * HOWEVER, IF BIT 2, 4, OR 5 IS ON ALSO, THEN THE CALLING PROGRAM
141 * HAS PASSED THE ADDRESS OF A DISK CONTROL FIELD TO BE USED FOR THE
142 * FUNCTION.
143
00E4 34 08 0073 144 RECARD ST RETURN+3,ARR SAVE ADDRESS RECALL REGISTER
00E8 39 2C 01FD 145 TBF LDFLAG,BIT2+BIT4+BITS CHECK BITS WHICH SAY DISK ADR PASSED
00FC F2 10 0D 146 JT JUSTRD IF ALL OFF, READ RECORD AND RETURN
00E3 35 01 01FF 147 SBF LDFLAG,BIT3 TURN OFF BIT 3 SO IT WON'T CAUSE
00F7 1C 04 01C0 00 148 * JUST ONE RECORD TO BE READ.
00FC C0 87 0064 149 L PARMS,XR1 POINT AT HIS CONTROL FIELD (WITH XR1)
150 MVC CFMAIN+5(5),0(,XR1) PUT HIS CCHHR INTO DCP CONTROL FIELD
151 JUSTRD B PGMLOD GO READ.

```

```

153 *
154 * I/O FOR WINCHESTER
155 *
156 * READ
157 *
0100 158 READ EQU *
159 ST READR+3,ARR SET UP RETURN
160 LIO CFMANB,LDDCR POINT TO MAIN CONTROL FIELD
161 B SIO SEEK AS SPECIFIED IN CONTROL FIELD
010D 162 DC AL2(QSEEK)
163
164 MVI CFMAIN+9,0 FORCE READING OF ONLY ONE RECORD
165 B SIO READ THE RECORD
0117 166 DC AL2(QREAD)
167 ALC CFMAIN+5(1),ONE BUMP RECORD # ONE.
168 CLI CFMAIN+5,MAXREC REC # READY TO GO BACK TO 1 ?
169 JL CFINC
170 MVI CFMAIN+5,1 FORCE REC # TO 1 AND
171 ALC CFMAIN+4(1),ONE BUMP HEAD #
172 CLI CFMAIN+4,20 DID HEAD GO TO 20 ?
173 JL CFINC IF NOT, JUMP OUT
174 MVI CFMAIN+4,0 FORCE HEAD # TO ZERO AND
175 ALC CFMAIN+2(1),ONE BUMP CYLINDER
0140 176 CFINC EQU *
177 MVI CFMAIN,0 RESET *FLAG* IN CASE ALT TRK WAS READ
178 READR B ** RETURN TO CALLER
179
180 *
181 * SIO
182 *
0148 34 08 0171 183 SIO ST SIOR+3,ARR SAVE RETURN
014C 35 01 0171 184 L SIOR+3,XR1 POINT AT PARMS
0150 0E 01 0171 01D6 185 ALC SIOR+3(2),TWO BUMP PAST PARMS (FOR RETURN)
0156 1C 01 0165 01 186 MVC DOSIO+2(2),1(,XR1) SET UP SIO
015B C2 01 C880 187 LA INPUT,XR1 FORCE XR1 TO X'880'
015F 31 C4 01D2 188 LIO INPUTB,LDDDR POINT TO READ FIELD
189
0163 F3 00 00 190 DOSIO SIO **,*-** SIO TO WINCHESTER
0166 C1 C2 0166 191 TIO *,TBUSY HANG ON BUSY
016A C1 C0 0172 192 TIO WINERR,TNR CHECK FOR AN ERROR.
016E C0 87 0000 193 SIOR B ** RETURN TO CALLER
194
195 ***
196 * WINCHESTER ERROR (AND ALTERNATES) HANDLING ROUTINE.
197 *
198 ***
199 WINERR B **4
200 LIO INPUTB,LDDDR READ DIAG.
201 SIO X'07',X'C1' SIO DIAG
202 TIO *,TBUSY
203 TBF INPUT,TRKEND TRACK CONDITION CHECK OR
204 TBF INPUT+1,OPINC OPERATION INCOMPLETE ?
205 JF ALT IF EITHER IS ON, GO HANDLE ALT TRK
206 HTH7 HPL H7,HH H7 ERROR HALT, DUE TO TIO NR/ERR
207 B LDR GO BACK TO DCP LOADER
208 * HANDLE ALTERNATE ....
0193 209 ALT EQU *
210 MVC ALTR+3(2),SIOR+3 PICK UP RETURN ADDRESS FROM SIO SUB
211 B SIO READ HA RC COUNT (FOR ADDR OF ALT)
019E 212 DC AL2(QRHA) READS FCCMHR ...
213 LIO INPUTB,LDDCR POINT TO 'INPUT' AS CONTROL FIELD
214 B SIO SEEK TO ALTERNATE
01A8 215 DC AL2(QSEEK)
216 MVI CFMAIN,BIT7 FORCE FLAG PORTION OF CONTROL FIELD.
217 LIO CFMANB,LDDCR POINT TO MAIN CONTROL FIELD.
218 B SIO SIO TO READ (FROM ALTERNATE TRACK)

```

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

01B5 C100 01B6 219 DC AL2(QREAD)  
01B7 C0 87 0000 220 ALTR B \*--\*  
221  
221

RETURN AS IF FROM SID SUBROUTINE

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

223 \*\*\*\*\*  
224 \*  
225 \* LOADER DC'S \*  
226 \* \*  
227 \*\*\*\*\*  
228  
228  
01B8 0000030000010C01 01B8 229 CFMAIN EQU \* FFCCCHMMHRRKLDLNLN  
01C3 0000 01C4 230 DC XL10'00000300000100010000' STARTS AT DCP CYLINDER  
230  
231  
231  
01C5 0000020000010001 01C5 232 CFVTOC EQU \* FFCCCHMMHRRKLDLNLN POINTS TO FIRST VTOC  
01CD 0000 01CE 233 DC XL10'00000200000100010000'  
233  
234  
234  
01CF 01B8 01D0 235 CFMAN@ DC AL2(CFMAIN)  
01D1 0880 01D2 236 INPUT@ DC AL2(INPUT)  
01D3 0001 01D4 237 ONE DC XL2'0001'  
01D5 0002 01D6 238 TWO DC XL2'0002'  
239  
FFDD 240 ORG X'FFFF'-X'1F9'+\* IF ORG FLAGGED (E), STORAGE OVERLAY.  
01F9 01F9 241 ORG X'1F9' ORG FOR ABSOLUTE DC'S  
242  
01F9 0000 01FA 243 DC XL2'0000' RESERVED  
01FB 0000 01FC 244 DC XL2'0000' RESERVED  
01FD 00 01FD 245 LDFLAG DC XL1'00' FLAG AS PASSED TO DCP (B LOAD)  
01FE 0C74 01FF 246 PARMS DC AL2(BEGIN) (SEE NOTE BELOW)  
247  
248 \* 'PARMS' IS USED FOR THE FOLLOWING:  
249 \* 1. ONE TIME BY 'FFA' TO BRANCH TO 'BEGIN' IN 'FFB'  
250 \* 2. HOLDS TWO LINKAGE ADDRESSES TO BE PICKED UP BY DCP FOR LINKAGE  
251 \* INTO 'FFB'. THE ADDRESSES TAKE UP 4 BYTES AND ARE LOADED INTO  
252 \* X'1F0'-X'1FF' BY THE 'BEGIN' ROUTINE OF 'FFB'  
253 \* 3. FINALLY, DURING NORMAL OPERATION, 'PARMS' HOLDS PARAMETERS  
254 \* PASSED TO DCP (VIA B LOAD) OR IT MAY HOLD 'DXXX' TYPE ENTRIES  
255 \* FROM THE CONSOLE SWITCHES.

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

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ERR LOC OBJFCT CODE   ADDR STMT SOURCE STATEMENT
0A00                   257     ORG   X'A00'
                        258
                        259 *     DUMMY SECTION AND ROUTINE PREFACE
                        260
0A00 FFFB             0A01 261     DC    XL2'FFFB'      ID
0A02 80              0A02 262     DC    XL1'80'      FLAGS, NO SPUT
0A03 01              0A03 263     DC    XL1'01'      ROUTINE NO.
0A04 0000            0A05 264     DC    XL2'0'       RESERVED
0A06 0A0A            0A07 265     DC    AL2(7TN01)   ADDRESS OF 1ST ROUTINE
0A08 0000            0A09 266     DC    XL2'0'       RESERVED
                        267
0A0A 01              0A0A 268 RTN01  DC    XL1'01'      ROUTINE NO.
0A0B 00              0A0B 269     DC    XL1'0'      FLAGS
0A0C FFFF            0A0D 270     DC    XL2'FFFF'   LAST ROUTINE
                        271
0A0E C0 87 0216     272     B     LINK        RETURN TO DCP
                        273
0A12 00C1           0A13 274 DNEL  DC    IL2'1'
0A14 09              0A14 275 NINE  DC    XL1'09'
0A15 00              0A15 276 DEV   DC    XL1'0'
0A16 00C0            0A17 277 MASK  DC    XL2'0'
0A18 C3C8C1C9D5     0A1C 278 CHAIN DC    CL5'CHAIN'
0A1D 0889            0A1E 279 INADR1 DC   AL2(INPUT+9)
                        280
                        281 *
                        282 *
                        283 *     - 'E' -
                        284 *
0A1F 7D 5C 00       285 CKCOM1 CLI  0(.XR1).C**  BRANCH IF NOT COMMENT CARD
0A22 F2 01 15       286             JNE  CKEND
                        287 *     BEFORE GOING TO DO OVERLAYS, HANDLE CONFIGURATION RECORDS
                        288
0A25 C0 87 0A6C     289     B     FIG        DO CONFIGURATION.
                        290
0A29 38 01 0208     291     TBN   SBYTE0,SSW07
0A2D C0 10 0064     292     BT    PGMLOD      GO READ NEXT CARD
0A31 C0 87 021A     293     B     PRINT       PRINT THE COMMENT RECORD
0A35 21              0A35 294     DC    XL1'21'
0A36 C0 87 0064     295     B     PGMLOD
                        296 *
                        297 *
                        298 *
                        299 *
0A3A 7D C5 00       299 CKEND  CLI  0(.XR1).C'E'  JUMP IF END CARD
0A3D F2 81 0A       300     JE    ISEND
0A40 F0 39 6F       301     HPL   H0,HH      HALT H0 TO SHOW CARD READ WAS INVALID
0A43 F0 6F 03       302     HPL   H1,H0      SECONDARY HALT UNKNOWN RECORD READ
0A46 C0 87 0064     303     B     PGMLOD      GO GET NEXT RECORD
                        304
0A4A C0 87 0A6C     0A4A 304 ISEND EQU *      GO CONFIGURE IN CASE NO COMMENT CARDS
0A4E 0C 01 0050 1FFF 305     B     FIG
0A54 0C 01 00C6 1FF9 306 ISEND  MVC  XREF1(2),X'1FFF'
0A5A 0C 01 00C2 1FF7 307     MVC  XREF4(2),X'1FF9'
0A60 C2 01 0091     308     MVC  XREF5(2),X'1FF7'
0A64 34 01 007A     309     LA    CKCOM,XR1
0A68 35 10 1FFB     310     ST    CKCOMA+3,XR1
                        311     L     XREF3,IAR      GO BEGIN DCP
                        312
                        313 *****
                        314 *     FIG *
                        315 *
                        316 *
                        317 *****
0A69 *     THIS ROUTINE READS THE 4 CONFIG SECTORS *
0A70 *     FROM DISK AND PROCESSES THEM *
0A71 *     CYL 3 HEAD 0 REC 1 CPU RECORD *
0A72 *     2 UDT RECORD *
0A73 *     3 CHAIN IMAGE -OPTIONAL *
                        323 *

```

```

ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
                                324 *
                                325 *
                                326 *****
                                327
                                327
0A6C 34 08 0C38     0A6C 328 FIG   EQU *      * SSW RECORD -OPTIONAL *
0A70 C0 07 0C38     329     ST    FIGR+5,ARR      FOR RETURN
0A74 3C 87 0A71     330 FIG1  BC    FIGR,X'07'   DO CONFIG ONLY ONCE
0A78 0C 5F 7DFD 08DF 331     MVI   FIG1+1,X'87'
0A7E 0C 01 0C51 0073 332     MVC   ADDR2+95(96),INPUT+95  SAVE CONTENTS OF READ BUFFER
0A84 0C 09 0C4F 01C4 333     MVC   RTSAVE(2),RETURN+3   SAVE **4 ADDRESS OF 'RETURN'
0A8A 0C 09 01C4 0C45 334     MVC   CFSAVE+9(10),CFMAIN+9  SAVE THE PRESENT CONTROL FIELD
0A90 3C 10 01FD     335     MVC   CFMAIN+9(10),CFFIG+9  SET UP FOR READ FROM CONFIG AREA
0A94 C0 87 00E4     336     MVI   LDFLAG,X'10'      FORCE LOADER TO READ 1 REC & RETURN
                                337     B     RECARD          READ A RECORD
                                338
                                339 *
                                340 *     - 'CPU' -
                                341 *
0A98 7D C3 00       342 CKCPU  CLI  0(.XR1).C'C'  BRANCH IF NOT CPU DEFINITION CARD
0A9B F2 81 0E       343     JE    ISC
0A9E C0 87 0C52     344     B     LDRBAD
0AA2 F0 38 6F       345     HPL   H0,HH      BAD CPU RECORD
0AA5 F0 38 76       346     HPL   H2,HH
0AAB C0 87 0B0D     347     B     NEXT1
0AAC 1C 00 0200 04 348 ISC   MVC   SMOD(1),X'0'      PUT SYSTEM MODEL INTO SRT
0AB1 7D C6 0A       349     CLI  10(.XR1).C'F'   IS THIS 96 OR 128K
0AB4 F2 81 07       350     JE    NOX           IF SO NO EXPAND
0AB7 5C 18 1F 1E   351     MVC   31(25,XR1).30(.XR1)  FORCE CPU M,SSSS,P TO ...
0ABB 7C F0 06       352     MVI   6(.XR1).C'0'    ... CPU M,0SSSS,P
                                353
0ABE 353 NOX EQU *      FORCE 0 IN PLACE OF COMMA
                                354     MVI   5(.XR1).C'0'   PACK STORAGE SIZE
                                355     B     PACK
0AC5 06              0AC5 356     DC    IL1'6'
0AC6 088A            0AC7 357     DC    AL2(INPUT+10)
0AC8 0203            0AC9 358     DC    AL2(SIZE)
                                359 *     CPU MODEL AND STORAGE IS DONE, NOW DO OPTIONS
0ACA 3C 00 0204     360     MVI   CPU,0        CLEAR OUT CPU OPTIONS
0ACE 3C 01 0AE9     361 CPUOP  MVI   MASC+1,X'01'   BEGIN OPTION MASK AT 01
0AD2 46 00 0C 0AE7 362 CPULP  AZ    12(1,XR1).XF1     BUMP OPTION FIELD BY 1
0AD7 7D F9 0C       363     CLI  12(.XR1).X'F9'   MASK IS OK WHEN OPTION FIELD=F9
0ADA F2 81 0B       364     JE    MASC
0ADD 0E 00 0AE9 0AE9 365     ALC   MASC+1(1),MASC+1   SHIFT MASK BIT LEFT ONE.
0AE3 C0 87 0AD2     365     B     CPULP
0AE7 F1              0AE7 367 XF1  DC    XL1'F1'
0AE8 3A 00 0204     368 MASC  SBN   CPU,**-*   SET ON CPU OPTION (OR 0)
0AFC D2 01 01       369     LA    1(.XR1),XR1    INCREMENT TO NEXT OPTION, HANDLE
0AEF 7D 40 0C       370     CLI  12(.XR1).C' '   MULTIPLE OPTIONS.
0AF2 F2 81 04       371     JE    OPDON        QUIT IF BLANK.
0AF5 C0 87 0ACE     372     B     CPULP
0AF9 C2 01 0880     373 OPDON LA    INPUT,XR1   PUT XR1 BACK AS FOUND
0AFD 7D C7 04       374     CLI  4(.XR1).C'G'
0B00 F2 81 0A       375     JE    NEXT1
0B03 F0 38 6F       376     HPL   H0,HH      YES, GO READ NEXT CARD
0B06 F0 6F 7D       377     HPL   H6,H0      *NO. CARD SET UP IMPROPERLY
0B09 3C C7 0204     378     MVI   CPU,C'G'     SECONDARY HALT, CPU CARD SET UP WRONG
                                379 NEXT1 EQU *      FORCE MODEL G
                                380     B     RECARD          READ A RECORD
                                381
                                382 *
                                383 *     - 'UDT' -
                                384 *
0B11 7D E4 00       385 CKUDT  CLI  0(.XR1).C'U'  BRANCH IF NOT UDT CARD
0B14 F2 81 0E       386     JE    ISU
0B17 C0 87 0C52     387     B     LDRBAD
0B1B F0 38 6F       388     HPL   H0,HH      BAD UDT CARD
0B1E F0 38 76       389     HPL   H2,HH

```

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE, STATEMENT. Contains assembly code for DCP loader, including instructions like CLC, JNE, SLC, ST, DC, LA, etc.

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE, STATEMENT. Contains assembly code for DCP loader, including instructions like DC, CLI, JNE, MVI, EQU, etc.

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0002 522 TRKEND EQU X'02'
0001 524 OPINC EQU X'01'
006F 525 MD EQU X'6F'
0003 526 H1 EQU X'03'
0076 527 H2 EQU X'76'
0057 528 H3 EQU X'57'
0018 529 H4 EQU X'18'
005D 530 H5 EQU X'5D'
007D 531 H6 EQU X'7D'
0007 532 H7 EQU X'07'
007F 533 H8 EQU X'7F'
005F 534 H9 EQU X'5F'
006C 535 HC EQU X'6C'
0073 536 HD EQU X'73'
003B 537 HH EQU X'3B'
0080 538 BIT0 EQU X'80'
0040 539 BIT1 EQU X'40'
0020 540 BIT2 EQU X'20'
0010 541 BIT3 EQU X'10'
0008 542 BIT4 EQU X'08'
0004 543 BIT5 EQU X'04'
0002 544 BIT6 EQU X'02'
0001 545 BIT7 EQU X'01'
0006 546 VID EQU 6
000A 547 HLAST EQU 10
000E 548 VADDR EQU 14
7F80 549 ADDR2 EQU X'7F80'
550 *
020D 551 SBYTES EQU X'20D'
0031 552 MAXREC EQU 49
553
554 *****
555 *
556 *
557 *
558 *****
559
C000 560 QSEEK EQU X'C000'
C001 561 QRECAL EQU X'C001'
C101 562 QRMA EQU X'C101'
C100 563 QREAD EQU X'C100'
C107 564 QDIAG EQU X'C107'
565
00C0 566 TNR EQU X'C0'
00C2 567 TBSY EQU X'C2'
568
00C4 569 LDDDR EQU X'C4'
00C6 570 LDDCR EQU X'C6'
571
572 *
573 ** EXECUTION ENTRY POINT.
574 *
575 BEGIN MVI X'97F',C'
576 MVC X'97E'(255),X'97F'
577 MVC X'87F'(4),X'880'
578 B PGMLOD
0C89 579 DC AL2(RECARD)
0C8B 580 ENTRYS DC AL2(ENT2)
0C74 581 END BEGIN

```

MASK FOR TRACK CONDITION CHECK  
MASK FOR OPERATION INCOMPLETE

HALT DISPLAY CODE -H-

DISPLACEMENT IN VTOC FOR PROGRAM ID  
HE/D 0-9=VTOC, 10 IS PAST END  
DISPLACEMENT IN VTOC OF DISK ADDRESS  
FOR BUFFER SAVE DURING 'FIG'. SAME  
AS 2ND CARD BUFFER FOR FDO AND FEO  
SSW BYTE  
NUMBER +1 OF RECORDS USED PER TRACK

WINCHESTER INSTRUCTION EQUATES

SEEK  
RECALIBRATE  
READ HA, RO, COUNT EVEN  
READ KEY DATA  
READ DIAGNOSTIC SENSE (24 BYTES)

NOT READY / ERROR (UNIT CHECK)  
ATTACHMENT BUSY

LID DISK DRIVE DATA REGISTER  
LID DISK DRIVE CONTROL REGISTER

CLEAR PRINT IMAGE AND DATA FIELDS

GO BEGIN LOADING  
ENTRY POINT FOR DCP TO READ A RECORD  
ENTRY POINT FROM DCP TO LOAD PGM ETC

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ADDR2 C 001 7F80 0549 0332* 0477
ALT A 001 0193 0204 0205
ALTR A 004 0187 0220 0210*
ARR C 001 0008 0520 0029 0047* 0144 0159 0183 0329 0492
BEGIN A 004 0C71 0575 0246 0581
BIT0 C 001 0C80 0538 0496
BIT1 C 001 0040 0539
BIT2 C 001 0020 0540 0072 0145
BIT3 C 001 0010 0541 0072 0147 0403 0495
BIT4 C 001 0008 0542 0145
BIT5 C 001 0004 0543 0133 0145
BIT6 C 001 0002 0544 0035
BIT7 C 001 0001 0545 0044 0216
CFFIG A 001 0C3C 0483 0335
CFINC A 001 0140 0176 0169 0173
CFMAIN A 001 018B 0229 0034* 0054* 0150* 0164* 0167* 0168 0170* 0171* 0172 0174* 0175* 0177*
0216* 0235 0334 0335* 0475*
CFMANB A 002 01D0 0235 0160 0217
CFSAVE A 001 0C46 0485 0334* 0475
CFVTOC A 001 01C5 0232 0034
CHAIN A 005 0A1C 0278 0453
CHECKD A 004 0BCD 0440 0420
CKCHN A 005 0BE7 0453
CKCOM A 003 0091 0098 0309
CKCLMA A 004 0077 0080 0310*
CKCOM1 A 003 0A1F 0285 0080
CKCPU A 003 0A9B 0342
CKF A 003 00D1 0130 0108
CKEND A 003 0A3A 0299 0286
CKSSW A 003 0C06 0468
CKSSWX A 003 00A0 0107 0097
CKUDT A 003 0B11 0385
CONTNU A 003 0C74 0079 0073
CPU C 001 0204 0510 0360* 0368* 0378*
CPULP A 005 0AD2 0362 0366
CPUOP A 004 0ACE 0361 0372
DEFINE A 006 0C6A 0499 0479
DEV A 001 0A5 0276 0400 0408 0412
DOSIO A 003 0163 0190 0186*
ENTRYS A 002 0C8B 0580 0499
ENT2 A 001 001B 0027 0580
FFB A 001 0000 0005
FIG A 001 0A6C 0328 0289 0305
FIGR A 004 0C38 0481 0329* 0330
FIG1 A 004 0A70 0330 0331*
HC C 001 006C 0535
HD C 001 0073 0536 0048
HH C 001 003B 0537 0048 0206 0301 0345 0346 0376 0388 0389 0405 0444
HLAST C 001 000A 0547
HMH7 A 003 018C 0206
H0 C 001 006F 0525 0301 0302 0345 0376 0377 0388 0405 0406 0444 0445
H1 C 001 0003 0526 0302
H2 C 001 0076 0527 0346 0389
H3 C 001 0057 0528 0406
H4 C 001 001B 0529
H5 C 001 005D 0530 0445
H6 C 001 007D 0531 0377
H7 C 001 0007 0532 0205
H8 C 001 007F 0533
H9 C 001 005F 0534
IAR C 001 0010 0519 0311* 0500*
ID A 004 001A 0026 0033 0039
IDFND A 001 005E 0053 0040
INADR1 A 002 0A1E 0279
INPUT C 001 0880 0507 0039 0041 0041 0054 0187 0203 0204 0236 0279 0332 0357 0373
0457 0477*

```

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
INPUT0	A	002	01D2	0236	0188 0200 0213
ISC	A	005	0AAC	0348	0343
ISEND	A	001	0A4A	0304	0300
ISENDA	A	006	0A4E	0306	
ISU	A	003	0B25	0392	0386
JUSTRD	A	004	00FC	0151	0146
LDDCR	C	001	00C6	0570	0160* 0213* 0217*
LDDDR	C	001	00C4	0569	0188* 0200*
LDFLAG	A	001	01FD	0245	0035 0044 0072 0133 0145 0147* 0336*
LDR	A	004	005A	0049	0045 0207
LDRBAD	A	004	0052	0492	0344 0387 0443
LDRRTN	A	004	0066	0497	0492*
LDUDT	A	005	0B67	0412	0409
LINK	C	001	0216	0515	0272
MASC	A	004	0AEB	0368	0361* 0364 0365 0365*
MASK	A	002	0A17	0277	0429* 0432 0432* 0434 0435
MAXREC	C	001	0C31	0552	0168
MCVE	A	005	0088	0086	0082* 0083*
NEXT1	A	001	0B0D	0379	0347 0375
NEXT2	A	001	0BE3	0447	0390 0407 0442
NEXT3	A	001	0C02	0462	0454
NINE	A	001	0A14	0275	0427
NOX	A	001	0ABE	0353	0350
ONE	A	002	01D4	0237	0167 0171 0175
ONEL	A	002	0A13	0274	0429 0430
OPDON	A	004	0AF9	0373	0371
OPINC	C	001	0001	0524	0204
PACK	C	001	0226	0518	0115 0355 0397 0455
PARMS	A	002	01FF	0246	0032 0047 0149
PGML0D	A	004	0064	0071	0088 0102 0111 0131 0151 0292 0295 0303 0578
PRINT	C	001	021A	0516	0100 0293
PTFDC	A	003	0B31	0395	0393
QDIAG	C	001	0107	0564	
QREAD	C	001	0100	0563	0166 0219
QRECAL	C	001	0001	0561	
QRHA	C	001	0101	0562	0212
QSEEK	C	001	00C0	0560	0162 0215
READ	A	001	0100	0158	0038 0071
READR	A	004	0144	0178	0159*
RECARD	A	004	00E4	0144	0337 0380 0448 0463 0579
RESCF	A	006	0C22	0475	0469
RETURN	A	004	0070	0074	0029* 0036 0135 0144* 0333 0476*
RTN01	A	001	0A0A	0268	0265
RTSAVE	A	002	0C51	0487	0333* 0476
SADDR	A	002	00C0	0117	0114*
SBYTE0	C	001	0208	0511	0291
SBYTES	C	001	020D	0551	0109 0109* 0470 0470*
SCAN	A	004	0035	0038	0042
SIO	A	004	0148	0183	0161 0165 0211 0214 0218
SIOR	A	004	016E	0193	0183* 0184 0185* 0210
SIZE	C	001	0203	0509	0358
SMOD	C	001	0200	0508	0348*
SSLOOP	A	004	00B6	0114	0125
SSWRD	A	006	00A6	0109	0473
SSW07	C	001	0001	0512	0291
TBUSY	C	001	00C2	0567	0191 0202
TEST	C	001	0212	0514	
TNR	C	001	00C0	0566	0192
TRKCND	C	001	0002	0523	0203
TWO	A	002	01D6	0238	0185
UDTA	A	005	0B58	0408	0404
UDTB	A	003	0B91	0425	0422
UDTC	A	003	0B9C	0428	0426
UDTD	A	006	0BB7	0434	0431
ULP1	A	004	0B34	0396	0424
ULP2	A	003	0B45	0402	0411

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ULP3	A	005	0BA5	0430	0433
ULP4	A	003	0B70	0418	0438
UNPACK	C	001	021E	0517	0030
UPTR	A	002	0B3E	0399	0395*
USET1	A	003	0BC3	0436	0434*
USET2	A	003	0BC5	0437	0435*
UTAB	C	001	0232	0513	0394 0394* 0401 0440* 0441 0493* 0494* 0495* 0496*
VADDR	C	001	000E	0548	0054
VID	C	001	0006	0546	0039
WINERR	A	004	0172	0199	0192
XF1	A	001	0AE7	0367	0362
XREF1	A	001	005D	0050	0306*
XREF2	C	001	1FFD	0501	0500
XREF3	C	001	1FFB	0502	0311
XREF4	A	001	00C6	0121	0307* 0472*
XREF5	A	002	00C2	0118	0308* 0471*
XR1	C	001	0001	0521	0079 0082 0083 0084 0084* 0086 0098 0107 0110 0113 0113* 0114 0123 0124 0124* 0130 0149* 0150 0184* 0186 0187* 0285 0299 0309* 0310 0342 0348 0349 0351 0351 0352 0354 0362 0363 0369 0369* 0370 0373* 0374 0385 0392 0395 0395* 0396 0415 0415* 0416 0418 0418* 0419 0421 0423 0423* 0425 0427 0428 0430 0453 0459 0468
XR2	C	001	0002	0522	0401* 0402 0402* 0403 0408 0410 0412 0413 0414 0436 0437

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

OBJECT CARD LISTING

OBJECT CARD LISTING

THE CHARACTER . INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GBC PN 42 48237 EC 827804 FFB- DCP LOADER FOR 3340 MOD 12 84888488 FFB00000

T+-AJEDA EC6H G| /OH; -G\* AV<BEG D \*88 -G\*0/ #0H\* A 4BBHQ F?HAG 7 =BPBI-0 A CMB EG \*B/ M/HFFB00001

T+-BCA3MH ~"0+7| /O C EA0 S+0H\* A CU0 ~7 D A40H\* )G7T < AB/0\* -B . 10 H0A4-DDG S88FFB00002

T+-CG0H\* RGS\* |H AE\*BG /Y/OH\* RG7 S |HAPO2C -4BCP5 A<BA FLK EMA EC OH\*BI-H OH\* G4 E96FFB00003

T+-DBE0GK E| -EB 6~\*M 0 D RC-D ~7 U UA0H\* \*C6H GK 9. G\*2/ (+1 A\*LM A ~0\*A G <BG FE 4B D GB8FFB00004

T+-D+J3GF )C /OE HO 0 GD0H\*AK<D C- A0 GM|LDA0|H BF30A \* + F\* )G \*E F\*0YHH| A708 \$4 )S%FFB00005

T+-EB )E0 F#0H\* C6H PD5 E81C-D A\*EGOG DAR0GB &S <\*EA\*?< <GB 0S A0 E20H\* <BG PU 11 D \*L4FFB00006

T+-F347|AA0GB PA 9 -S +GDH~H&A\* #A88G EY< EF: PG /DEH06D11-GK0H\* AK< | DA>3GF )C /OD 6&MFFB00007

TH-GOK<D 0H\* 0 E A H D E S%M- A H \*-<FFB00008

TA-G\* <| E%FFB00009

T+-Y:"> E B-Y D \*M /OH0 D I 00TA2)MHSP5 \* |HAE\*BGW08 &H HDA R<BG /Y/OH\* RG4 NZ\*FFB00010

T+-Z516C2-E.0+6" 0S0| /0A0H\*H\* 0 A EA~"00A <Q~E0 A <H~"0HA ID4 EA :|J ~3EHC? A00 B|H\* \*Z<FFB00011

T+-D0BXDKP7"~B|0 < E1J G<<B&1| \*E <BEGDCDM&D G'0H\* 9G7C |HACXBGCE. 0+6"0+7S /OX(G B E \*DYFFB00012

T+-...\*QH&YDGP A- ~GX30AX30A\*BG SQ FBHYB 30 -E0 E. ZJ- <B>)\*=E32-EK + .ZB>X /0.K&LY -E ~HXFFB00013

T+-XW4-DA~M <2YD DCH\*H3XHABHA\*10L 2-E.0+6"0S74010H DOH\* 9G7U |HACXB GCE.0+6"0+7S /0? T~M :QUFFB00014

T+- / "HAA-0 V0 BP\*HAAL&AB3# /OH W - B/PB -H?E-H C>A ABZ HBC\_?0F' POH\*.884 YN&YD G7E 6.\*FFB00015

T+->\* < AB40C HE\$%| \$0 \_MA P5 - |HA \*HA P5 |H AKP5. |HAA\*HA %B GB3J\*0 C2 -N+ HEGX QB%FFB00016

T+-7P0 < EYPB/( | HD\*HBB-8AB/\* HE08GB:K< ?DB/Q < ?GB/;: F: . /0\_#+Y 8<37A T. -E% ESMFFB00017

T+-0K808GCE.0+6" 0S57 /OCUL&EGB/3 2 J| /OHW0 V#BG) \*0 72 E00"0/80H\* 9G7S |HAE-0E -4 BC&0 7J0FFB00018

T+-1( EC8G\*\*< EC FG\*X /0BWC UA1 1 |C D \*01JCE0H77\* ~CH\*\*<E%BG \*\*\*\*\* < COD E \*\*\*\*\* MA4FFB00019

T+-2H C&HCFU 0C&H2|+DB|LY& T0 :- H30H\* 0C ~0 <S3M&G\*40E V\*%|B 1~V\*% <H~05 OH\* R 504FFB00020

T -2.9 \$ \*\*\*\*\* SLOFFB00021

ECGJ\*E7\*~DC\*PH\$ =\*7M&F| | C F\* ASC R A S0 Q \*\*\*\*\* 09520630750 90375:RYFFB00022

----- LAST PAGE -----

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0060		75	ORG	X'60'
		76	***** DIAGNOSTIC LOADER *****	
		81	* A ONE CARD BOOTSTRAP READS THIS LOADER INTO CORE AND BRANCHES TO * IT. THE DIAGNOSTIC LOADER THEN LOADS THE CONTROL PROGRAM, * INCLUDING ITS SECTION REFERENCE TABLE. AFTER DCP IS LOADED, THIS * MODULE THEN TRANSFORMS ITSELF INTO A SECTION LOADER BY ALTERING A * BRANCH ADDRESS. OBJECT CARDS RECOGNIZED BY BOTH PHASES INCLUDE	
		87	TEXT	
		88	REPLACE	
		89	COMMENT	
		90	SENSE SWITCH	
		91	END	
		92	* THE DCP LOADER PORTION ALSO RECOGNIZES THE FOLLOWING CARDS--	
		94	CPU	
		95	UDT	
		96	CHAIN IMAGE CONTROL AND IMAGE CARDS	
		97	* OTHER CARDS ARE IGNORED.	
		99	*****	
0060	C2 02 005C	104	USING	CDREAD-4,XR2
0064	C2 01 0880	105	CDREAD	LA CDREAD-4,XR2
		106	LA	INPUT,XR1
0068	B4 08 24	107	AINPUT	EQU *-1
0068	E1 F0 25	108	ST	CDEXIT+3(,XR2),ARR
006E	B1 F5 08	109	TIO	ERR(,XR2),X'F0'
0071	F3 F1 00	110	DOLIO	LIO AINPUT(,XR2),X'F5'
0074	E1 F1 18	111	SIO	NORM,READ
0077	B0 F3 03	112	BUSY	TIO BUSY(,XR2),X'F1'
007A	B9 86 03	113	SMS	STATUS(,XR2),X'F3'
007D	C0 10 0000	114	TBF	STATUS(,XR2),X'86'
0081	F0 38 5D	115	CDEXIT	BT *-*
0084	E0 87 12	116	ERR	HPL H5,HH
		117	B	DOLIO(,XR2)
		118	EXIT SUBROUTINE IF NO ERRORS	
			*MFCU NOT READY OR ERROR	
			GO TRY START I/O	
0087	0001	119	M1	DC XL2'0001'
0089	FFFC	120	MEG4	DC XL2'FFFC'
		121		
		122	GO READ A CARD	
0088	C0 87 0060	123	NEXTR	B CDREAD
008F	7D E3 00	124	RED	CLI 0(,XR1),C'T'
0092	F2 81 06	125	JE	LOOP
0095	7D C5 00	126	CLI	0(,XR1),C'E'
0098	F2 01 71	127	JNE	CKREP
009B	7D 00 01	128	LOOP	CLI 1(,XR1),X'D0'
009E	F2 01 03	129	JNE	*+*
00A1	7C 2A 01	130	MVI	1(,XR1),X'2A'
00A4	02 01 01	131	LA	1(,XR1),XR1
00A7	B4 01 01	132	ST	LDWORK(,XR2),XR1
00AA	8D 08 01	133	CLI	LDWORK(,XR2),X'D8'
00AD	E0 82 3F	134	BL	LOOP(,XR2)
00B0	C2 01 08D7	135	LA	INPUT+87,XR1
00B4	C2 02 005C	136	LA	CDREAD-4,XR2
00B8	BC 01 7A	137	MVI	LABEL+2(,XR2),1
00BB	BC 00 67	138	LENGTH	MVI S1+1(,XR2),0
00BE	AC 00 68 67	139	CLOOP	MVC S2+1(1,XR2),S1+1(,XR2)
00C2	5E 00 01 01	140	S1	ALC 1(*-,XR1),1(,XR1)
00C6	5E 00 01 01	141	S2	ALC 1(*-,XR1),1(,XR1)
00CA	AE 00 67 2C	142	ALC	S1+1(1,XR2),N1(,XR2)
				PREPARE TO OPERATE ON NEXT BYTE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		143	CLI	S1+1(,XR2),4
		144	BNE	CLOOP(,XR2)
		145	LABEL	HVC *-*(3,XR1),0(,XR1)
		146	ALC	LABEL+2(1,XR2),S1+2(,XR2)
		147	A	NEG4(,XR2),XR1
		148	CLI	LABEL+2(,XR2),23
		149	BL	LENGTH(,XR2)
		150	*	XR1 = X'87F' AT THIS POINT
		151	CLI	1(,XR1),C'E'
		152	JE	CKREP
		153	CONTINUE UNTIL 4 BYTES COMPRESSED	
		154	MVC	MOVE+3(3,XR2),26(,XR1)
		155	LPTONE	MVC MOVE+4(1,XR2),24(,XR1)
		156	LA	27(,XR1),XR1
		157	CLI	MOVE+2(,XR2),X'20'
				SEE IF TOO BIG FOR 8K
		158	ADDRESS OF NEXT INSTRUCTION MUST NOT CHANGE. IF IT DOES, THE	
		159	REFERENCE TO IT WILL NOT WORK WITH THE 1442 OR OTHER CARD	
		160	LOADERS.	
		161		
		162	*JNL TOMUCH' PATCHED IN IF 8K DEFINED	
		163	TOMU	JC TOMUCH,X'07'
		164	MOVE	MVC *-*(+*,+*(,XR1)
		165	TOMUCH	EQU *
		166	B	X'108'
		167	DC	XL3'0'
		168	SEVEN BYTES OF FILLER.	
		169		
		170	IF FIRST 5 CARDS OF DCP ARE USED AS A LOADER, ADDR IN END	
		171	CARD WILL BE BRANCHED TO FROM HERE.	
		172	LOADER REQUIREMENTS-- FROM X'60' TO X'10F' AND	
		173	X'880' - 8DF AS BUFFER.	
		174	SPACE	
		175	THE NEXT INSTRUCTION BELOW MUST STAY AT X'108'	
		176	IN ORDER TO REMAIN COMPATIBLE WITH 1442 LOADER ETC.	
		177	B	NEXTR
		178	L	INPUT+2,XR1
		179	B	0(,XR1)
		180	(NOTE -- ADDRESS OF THIS INSTRUCTION IS THE SAME AS THAT OF CKREP)	
		181	* THE ABOVE 3 INSTRUCTIONS ARE OVERLAYED DURING NORMAL DCP LOADING.	
		182	* FIRST THE CLEAR CORE ROUTINE OVERLAYS THEM. THEN THE REST OF THE	
		183	* LOADER OVERLAYS THAT ROUTINE.	
		184	* IF THESE FIRST 5 CARDS ARE USED AS A GENERAL LOADER, THESE LAST TWO	
		185	* INSTRUCTIONS CAUSE A BRANCH TO THE END CARD ADDRESS, WHEN END CARD	
		186	* IS READ	
		187		
		188		
		189	** ALL ABOVE INSTRUCTIONS ARE CONTAINED IN IPL FORMAT BOOTSTRAP	
		190	** CARDS AT THE BEGINNING OF THE DCP OBJECT DECK. THE CODE IS CAPABLE	
		191	** OF HANDLING TEXT AND END CARDS AND IS USED TO GET THE REMAINDER OF	
		192	** THE DCP LOADER INTO CORE.	
		193		
		194		
		195	*****	
		196	ECOM	BEGIN GENERATING TEXT CARDS
		197	ORG	*-11
		198		
		199	* THE FOLLOWING IS A ROUTINE TO CLEAR CORE FROM 8K DOWN TO ITSELF.	
		200	* IT IS CONTAINED IN THE FIRST TEXT CARD OF DCP, AND IS EXECUTED	
		201	* AS SOON AS IT IS MOVED TO CORE.	
		202		
		203	CLRCOR	MVI X'1FFF',C'
		204	MVC	X'1FFE(255),X'1FFF'
		205	ZRO	MVC X'1EFF(256),X'1FFF'
		206	SLC	ZRO+3(2),NUM256
		207	CLI	ZRO+2,X'01'
		208	BH	ZRO
				CLEAR UPPER 256 BYTES OF FIRST 8K WITH BLANKS
				CLEAR NEXT 256 BYTE SEGMENT
				POINT TO NEXT 256 BYTE SEGMENT DOWN
				CONTINUE UNTIL READY FOR 100-1FF



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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0126	OC CD 01FF IFFF	209	MVC	X'1FF'(X200-ENDCLR),X'1FFF'	CLEAR REST OF THIS SEGMENT
012C	C2 07 0088	210	B	NEXTR	RE-ENTER LOADER
0130	0100	0131	211	NUM256 DC	XL2'0100'
		0132	212	ENDCLR EQU	*
			213	ORG	X'200'
0200		0200	214	X200 EQU	*
			215		
			216	ORG	CLRCOR
0108			217	B	NEXTR
0108	C0 87 0088		218	CKREP LA	INPUT,XR1
010C	C2 01 0080		219	CLI	0(,XR1),C'R'
0110	7D 09 00		220	CKCOM1 BNE	CKCOMA
0113	C0 01 0A0F		221	** NOTE -	BRANCH ADDRESS OF PREVIOUS BRANCH IS ALTERED AFTER DCP
			222	** LOADING COMPLETE.	THIS OVERLAY PREPARES THE LOADER FOR
			223	** HANDLING SECTIONS.	
			224	B	PACK
0117	C0 87 0226		225	DC	IL1'4'
011B	04	011B	226	DC	AL2(INPUT+5)
011C	0885	011D	227	DC	AL2(DEST)
011E	013A	011F	228	CLI	1(,XR1),C'E'
0120	7D C5 01		229	JNE	AJDEST
0123	F2 01 06		230	L	DEST(,XR2),XR1
0126	B5 01 DE		231	B	0(,XR1)
0129	D0 87 00		232	AJDEST LA	8(,XR1),XR1
012C	D2 01 08		233	NEXT ST	SRCE(,XR2),XR1
012F	B4 01 DC		234	B	PACK
0132	C0 87 0226		235	DC	IL1'2'
0136	02	0136	236	SRCE DC	AL2(*-*)
0137	0000	0138	237	DEST DC	AL2(*-*)
0139	0000	013A	238	ALC	DEST(2,XR2),N1(,XR2)
013B	AE 01 DE 2C		239	CKBLK CLI	1(,XR1),C' '
013F	7D 40 01		240	BE	NEXTR(,XR2)
0142	E0 81 2F		241	LA	1(,XR1),XR1
0145	D2 01 01		242	CLI	0(,XR1),C','
0148	7D 68 00		243	BE	CKBLK(,XR2)
014B	E0 81 E3		244	LA	1(,XR1),XR1
014E	D2 01 01		245	B	NEXT(,XR2)
0151	E0 87 D3		246		
			247	** THE FOLLOWING CODING COMPLETES THE SECTION LOADER.	IT IS
			248	** BYPASSED DURING DCP LOADING.	ONCE THE CONTROL PROGRAM IS LOADED,
			249	** LINKAGES ARE SET UP SO THAT THIS ROUTINE WILL BE SUBSTI-	
			250	** TUTED FOR THE DCP LOADER ROUTINE RESIDING AT HEX -A00--.	
			251		
0154	7D 5C 00		252	CKCOM CLI	0(,XR1),C'*
0157	F2 01 0F		253	JNE	CHKSSW
015A	38 01 0208		254	TBN	SBYTE0,SSW07
015E	E0 10 2F		255	BT	NEXTR(,XR2)
0161	C0 87 021A		256	B	PRINT
0165	21	0165	257	DC	XL1'21'
0166	E0 87 2F		258	B	NEXTR(,XR2)
			259		
0169	4D 02 02 05D2		260	CHKSSW CLC	2(3,XR1),SSW
016E	C0 01 019A		261	BNE	CHKEND
0172	0F 03 020D 020D		262	SLC	SBYTE5(4),SBYTES
0178	D2 01 05		263	ISSW LA	5(,XR1),XR1
017B	34 01 0185		264	CHKSSO ST	SADDR,XR1
017F	C0 87 0226		265	B	PACK
0183	02	0183	266	DC	IL1'2'
0184	0000	0185	267	SADDR DC	AL2(*-*)
0186	0412	0187	268	DC	AL2(DATSW)
0188	C0 87 0413		269	B	SETSSW

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
018C	7D 68 01		270	CLI	1(,XR1),C','
018F	D2 01 03		271	LA	3(,XR1),XR1
0192	C0 81 0178		272	BE	CHKSSO
0196	C0 87 0088		273	B	NEXTR
019A	7D C5 00		274	CHKEND CLI	0(,XR1),C'E'
019D	E0 01 2F		275	BNE	NEXTR(,XR2)
01A0	38 04 01FD		276	TBN	FLAG,BIT5
01A4	D0 90 81		277	BF	129(,XR1)
01A7	C0 87 0000		278	LDX B	*--*
		01AA	279	LDX@ EQU	*-1
			280	LDPT2 ST	LDX@,ARR
01AB	34 08 01AA		281	B	CDREAD
01AF	C0 87 0060		282	TBF	FLAG,BIT0+BIT2+BIT4+BIT5
01B3	39 AC 01FD		283	BT	RED(,XR2)
01B7	E0 10 33		284	B	UNPACK
01BA	C0 87 021E		285	DC	XL1'2'
01BE	02	01BE	286	DC	AL2(DTABLE+1)
01BF	01FF	01C0	287	DC	AL2(LDWORK)
01C1	005D	01C2	288	CLC	LDWORK(3),90(,XR1)
01C3	1D 02 005D 5A		289	JNE	HLTHD
01C8	F2 01 10		290	CLC	DECO(4),95(,XR1)
01CB	1D 03 01F4 5F		291	JE	OK
01D0	F2 81 13		292	CLC	DEC1(4),95(,XR1)
01D3	1D 03 01F5 5F		293	JE	OK
01D8	F2 81 08		294	HLTHD L	DTABLE+1,ARR
01DB	35 08 01FF		295	HPL	HD,HH
01DF	F0 38 73		296	B	LDPT2+4
01E2	C0 87 01AF		297	OK TBN	FLAG,BIT2
01E6	38 20 01FD		298	BT	LDX
01EA	C0 10 01A7		299	B	RED(,XR2)
01EE	E0 87 33	01F4	300	DECO DC	DL4'0'
01F1	F0F0F0F0	01F5	301	DEC1 DC	DL1'1'
01F5	F1		302	ORG	X'FFFF'-X'1FC'*
FFF9			303	ORG	X'1FC'
01FC	0060	01FD	304	DC	AL2(CDREAD)
01FE	01AB	01FF	305	DC	AL2(LDPT2)

CHECK FOR MORE ENTRIES  
POINT TO NEXT NUMBER  
CONTINUE UNTIL CARD DONE  
WHEN DONE, GO READ NEXT CARD  
GO READ NEXT CARD IF NOT END

BRANCH TO X'901'

CHECK ID (COL. 89-91)

CHECK FOR CARD 0

CHECK FOR CARD 1

DECO MUST START AT X'1F1'

IF THIS ORG FLAGGED, ORG OVERLAYED

MUST BE AT X'1FC'

MUST BE AT X'1FE'

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0A00		307	ORG	X'A00'
		308	*	THESE INSTRUCTIONS AND CONSTANTS ARE USED ONLY BY THE DCP LOADER.
		309	*	THE UNIQUE SECTIONS OF THE SECTION LOADER ARE LOADED INTO THE
		310	*	LOADER AREA, X'000' - X'1FF'.
		311		
0A00	F0F4F8	0A02	312	DO48 DC DL3'048'
0A03	F1F2FO	0A05	313	0120 DC DL3'120'
0A06	18	0A06	314	N24 DC IL1'24'
0A07	C3C8C1C9D5	0A0B	315	CHAIN DC CL5'CHAIN'
0A0C	0001	0A0D	316	ONEA DC XL2'0001'
0A0E	00	0A0E	317	CHCTR DC XL1'0'
		318		
0A0F	7D 5C 00	319	CKCOMA	CLI 0(,XR1),C** BRANCH IF NOT COMMENT CARD
0A12	F2 01 28	320	JNE	CKCPU
0A15	3D 00 0232	321	CLI	UTAB,0 IF NOT UDT CARD GO TO FIXMOD
0A19	C0 81 0A2A	322	BE	UOK WHICH WILL HALT APPROPRIATELY
0A1D	3D F0 0232	323	CLI	UTAB,X'FO' IF NOT MFCU THEN CE GOOFED
0A21	F2 81 06	324	JE	UOK
0A24	F0 38 6F	325	HPL	HO,HH NO INVALID RECORD ENCOUNTERED
0A27	F0 6F 5D	326	HPL	H5,HO SECONDARY HALT-- INVALID UDT LOADER DEV.
0A2A	C0 87 13C0	327	UOK	B FIXMOB
0A2E	38 01 0208	328	TBN	SBYTE0,SSW07 SKIP PRINTING IF SSW07 IS ON
0A32	E0 10 2F	329	BT	NEXTR(,XR2)
0A35	C0 87 021A	330	B	PRINT PRINT CONTENTS OF THIS CARD
0A39	21	0A39	331	DC XL1'21'
0A3A	E0 87 2F	332	B	NEXTR(,XR2) GO READ NEXT CARD
		333		
0A3D	7D C3 00	334	CKCPU	CLI 0(,XR1),C'C' BRANCH IF NOT CPU DEFINITION CARD
0A40	F2 01 65	335	JNE	CKUDT
0A43	1C 00 0200 04	336	SALLY	MVC SMOD(1),4(,XR1) PUT SYSTEM MODEL INTO SRT
0A48	7D C6 0A	337	CLI	10(,XR1),C'F' IS THIS 96 OR 128K
0A48	F2 81 07	338	JE	NOX IF SO NO EXPAND
0A4E	5C 18 1F 1E	339	MVC	31(25,XR1),30(,XR1) FORCE CPU M,SSSS,P TO ...
0A52	7C F0 06	340	MVI	6(,XR1),C'O' ... CPU M,0SSSS,P
		0A55	341	NOX EQU *
0A55	7C F0 05	342	MVI	5(,XR1),C'O' FORCE 0 IN PLACE OF COMMA
0A58	C0 87 0226	343	B	PACK PACK STORAGE SIZE
0A5C	06	0A5C	344	DC IL1'6'
0A5D	088A	0A5E	345	DC AL2(INPUT+10)
0A5F	0203	0A60	346	DC AL2(SIZE)
		347	*	CPU MODEL AND STORAGE IS DONE, NOW DO OPTIONS
0A61	3C 00 0204	348	MVI	CPU,0 CLEAR OUT CPU OPTIONS
0A65	3C 01 0A7F	349	CPUOP	MVI MASC+1,X'O1' BEGIN OPTION MASK AT 01
0A69	46 00 0C 0A96	350	CPULP	AZ 12(1,XR1),XF1 BUMP OPTION FIELD BY 1
0A6E	7D F9 0C	351	CLI	12(,XR1),X'F9' MASK IS OK WHEN OPTION FIELD=F9
0A71	F2 81 0A	352	JE	MASC
0A74	0E 00 0A7F 0A7F	353	ALC	MASC+1(1),MASC+1 SHIFT MASK BIT LEFT ONE.
0A7A	C0 87 0A69	354	B	CPULP
0A7E	3A 00 0204	355	MASC	SBN CPU,** SET ON CPU OPTION (OR 0)
0A82	D2 01 01	356	LA	1(,XR1),XR1 INCREMENT TO NEXT OPTION, HANDLE
0A85	7D 40 0C	357	CLI	12(,XR1),C' ' MULTIPLE OPTIONS.
0A88	F2 81 04	358	JE	OPDON QUIT IF BLANK.
0A88	C0 87 0A65	359	B	CPUOP
0A8F	C2 01 0880	360	OPDON	LA INPUT,XR1 PUT XR1 BACK AS FOUND
0A93	F2 87 01	361	J	**4
0A96	F1	0A96	362	XF1 DC XL1'F1'
0A97	7D C7 04	363	CLI	4(,XR1),C'G' YES, GO READ NEXT CARD
0A9A	E0 81 2F	364	BE	NEXTR(,XR2) *NO, CARD SET UP IMPROPERLY
0A9D	F0 38 6F	365	CDERRO	HPL HO,HH SECONDARY HALT - INVALID CPU CARD
0AA0	F0 6F 7D	366	HPL	H6,HO GO READ NEXT CARD AFTER HALT RESET
0AA3	E0 87 2F	367	B	NEXTR(,XR2)
		368		
0AA6	09	0AA6	369	N9 DC XL1'09'
0AA7	00	0AA7	370	DEV DC XL1'0'
0AAB	7D E4 00	371	CKUDT	CLI 0(,XR1),C'U' BRANCH IF NOT UDT CARD
0AAB	F2 01 AD	372	JNE	CKDCPS
0AAE	7D 40 03	373	CLI	3(,XR1),C' ' USE THIS CARD AS A CONTINUATION IF

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0AB1	F2 01 0A	374	JNE	PTFDC
0AB4	3C 00 025F	375	MVI	UTAB+45,X'0'
0AB8	0C 2C 025E 025F	376	MVC	UTAB+44(45),UTAB+45
0ABE	D2 01 05	377	PTFDC	LA 5(,XR1),XR1
0AC1	34 01 0ACB	378	ULP1	ST UPTR,XR1
0AC5	C0 87 0226	379	B	PACK
0AC9	02	0AC9	380	DC IL1'2'
0ACA	0000	0ACB	381	UPTR DC AL2(*-*)
0ACC	0AA7	0ACD	382	DC AL2(DEV)
0ACE	C2 02 022F	383	LA	UTAB-3,XR2 POINT AT DCP UNIT TABLE
0AD2	E2 02 03	384	ULP2	LA 3(,XR2),XR2 INCREMENT UNIT TABLE POINTER
0AD5	B8 10 01	385	TBN	1(,XR2),BIT3 BRANCH IF NOT LAST DCP ENTRY
0AD8	F2 90 0A	386	JF	UDTA
0ADB	F0 38 6F	387	HPL	HO,HH *RAN OUT ROOM IN UDT TABLE
0ADE	F0 6F 57	388	HPL	H3,HO SECONDARY HALT- MORE THEN 15 UDT ENTRIES
0AE1	C0 87 0088	389	B	NEXTR GO READ NEXT CARD
0AE5	8D 00 00 0AA7	390	UDTA	CLC 0(1,XR2),DEV BRANCH TO OVERLAY IF THIS IS SAME AS
0AEA	F2 81 07	391	JE	LDUOT PREVIOUS ENTRY
0AED	BD 00 00	392	CLI	0(,XR2),X'O' IS THIS AN UNUSED ENTRY
0AF0	C0 01 0AD2	393	BNE	ULP2 IF NOT UNUSED, GO CHECK NEXT
0AF4	BC 00 00 0AA7	394	LDUOT	MVC 0(1,XR2),DEV SET UP THIS UDT ENTRY DEVICE CODE
0AF9	BB 0F 01	395	SBF	1(,XR2),X'OF' CLEAR OPTION BITS
0AFC	BC 00 02	396	MVI	2(,XR2),X'O' POINT AT FIRST OPTION NUMBER, ALLOW
0AFF	D2 01 01	397	LA	1(,XR1),XR1 FOR DASH
0B02	7D 60 00	398	CLI	0(,XR1),C'-*
0B05	F2 01 03	399	JNE	**6
0B08	D2 01 01	400	ULP4	LA 1(,XR1),XR1 POINT AT NEXT OPTION NUMBER
0B0B	7D 40 00	401	CLI	0(,XR1),C' ' IF BLANK ENCOUNTERED, CARD IS DONE
0B0E	C0 81 0088	402	BE	NEXTR
0B12	7D 66 00	403	CLI	0(,XR1),C' ' IF COMMA ENCOUNTERED, GO TO NEXT
0B15	F2 01 07	404	JNE	UDTB DEVICE CODE
0B18	D2 01 02	405	LA	2(,XR1),XR1
0B1B	C0 87 0AC1	406	B	ULF1
0B1F	7D F0 00	407	UDTB	CLI 0(,XR1),X'FO' CHANGE EBCDIC 0-8 TO BINARY
0B22	F2 02 05	408	JNL	UDTC
0B25	4E 00 00 0AA6	409	ALC	0(1,XR1),N9
0B2A	7B F0 00	410	UDTC	SBF 0(,XR1),X'FO'
0B2D	0C 01 1203 0A0D	411	MVC	MASK(2),ONEA SHIFT BIT TO PROPER POSITION TO
0B33	4F 00 00 0A0D	412	ULP3	SLC 0(1,XR1),ONEA
0B38	F2 82 0A	413	JL	UDTD
0B3B	0E 01 1203 1203	414	ALC	MASK(2),MASK
0B41	C0 87 0B33	415	B	ULP3
0B45	0C 00 0852 1202	416	UDTD	MVC USER1+1(1),MASK-1
0B4B	0C 00 0855 1203	417	MVC	USER2+1(1),MASK INSTRUCTIONS
0B51	BA 00 01	418	USER1	SBN 1(,XR2),*-*
0B54	BA 00 02	419	USER2	SBN 2(,XR2),*-*
0B57	C0 87 0B08	420	B	ULP4
		421		
0B5B	4D 02 02 0BF7	422	CKDCPS	CLC 2(3,XR1),SSWD BRANCH IF NOT
0B60	F2 01 0C	423	JNE	CKCHN
0B63	3C 00 0206	424	MVI	SBYTE0,X'O' CLEAR COMMON SENSE SWITCHES
0B67	3C 00 0209	425	MVI	SBYTE1,X'O' GO SET PROPER SENSE SWITCHES
0B6B	C0 87 0178	426	B	ISSSW
		427		
0B6F	4D 04 07 0A0B	0B6F	428	CKCHN EQU *
0B74	F2 01 30	429	CLC	7(5,XR1),CHAIN CHECK IF '//' CHAIN' CARD
0B77	3C 17 0BDD	430	JNE	CKEND BRANCH IF NOT
0B78	3C 02 0A0E	431	ISCHM	MVI IMGADR,23 INITIALIZE IMAGE FIELD POINTER
0B7F	3C 00 0B78	432	MVI	CHCTR,2 SET UP FOR 48 POSITION LINE - 2 CDS
0B83	4D 02 0B 0A05	433	MVI	LPIMAG+120,X'O' SET FLAG FOR 48 CHAR CHAIN
0B88	F2 81 11	434	CLC	11(3,XR1),D120 BRANCH IF NOT 120 POSITION PRINTER
0B8B	4D 02 0B 0A02	435	JE	IS120
0B90	F2 81 11	436	CLC	11(3,XR1),D048 HAS EITHER 120 OR 048 IN IT
0B93	F0 38 6F	437	JE	NOCHG OTHERWISE HALT
0B96	F0 38 6F	438	HPL	HO,HH BAD CHAIN CARD
0B99	E0 87 2F	439	HPL	H7,HO SECONDARY HALT - CHAIN MUST BE 120 OR 048
0B9C	3C 05 0A0E	440	B	NEXTR(,XR2)
		441	IS120	MVI CHCTR,5 CHANGE TO 5 CARD COUNTER

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		442	MVI	LPIMAG+120,X'FF'
		443	MOCHG	J RDCD
		444		
		445	CKEND	CLI O(,XR1),C'E'
		446	BE	ISENL
		447	HPL	H0,HH
		448	HPL	H1,HO
		449	b	NEXTR
		450	ISEND	EQU *
		451	HGO	CL1 UTAB,X'AO'
		452	JNE	LDROK
		453	HPL	H0,HH
		454	HPL	H5,HO
		455	B	HGO
		456	LDROK	EQU *
		457		
		458	LA	CKCOM,XR1
		459	ST	CKCOM1+3,XR1
		460	B	BEGIN
		461		
		462	OKCTR	B PACK
		463	DC	IL1'48'
		464	DC	AL2(INPUT+47)
		465	IMGADR	DC XL2'800'
		466	ALC	IMGADR(1),N24
		467	SLC	CHCTR(1),ONE
		468	BNH	NEXTR(,XR2)
		469	RDCD	B CDREAD
		470	B	OKCTR
		471	SSWD	DC CL3'SSM'
		472	INADR1	DC AL2(INPUT+9)
		473		
		473		
		473		
		474		
		475	* EQUATES	*****
		476		
		477	INPUT	EQU X'880'
		478	STATUS	EQU CDREAD-1
		479	LDWORK	EQU CDREAD-3
		480	UDT1	EQU X'249'
		481	UDT2	EQU X'261'
		482	IPL	EQU X'40'
		483	NORM	EQU X'0'
		484	READ	EQU X'F1'

SET FLAG FOR 120 CHAR CHAIN  
ENTER LOOP TO LOAD CHAIN CARDS.

IF END CARD CONTINUE

UNDEFINED CARD ENCOUNTERED IN DCP  
SECONDARY HALT -- INVALID OR BLANK CARD  
TO GET NEXT RECORD

IF THIS IS DEFINED AS DISK, HALT HO

HO HALT FOR INVALID RECORD  
SECONDARY HALT FOR UDT LOADER WRONG AT END CARD

CONNECT REST OF LOADER

GO BEGIN DCP

PACK THIS PRINT IMAGE DATA CARD  
INTO PROPER LOCATION

ADJUST POINTER FOR NEXT CARD  
DECREMENT CARD COUNTER  
GO READ NEXT CARD IF IMAGE COMPLETE  
GO READ NEXT IMAGE CARD AND RETURN  
GO BACK AND PROCESS THE CARD

LAST BYTE OF 8TH UDT ENTRY  
LAST BYTE OF 16TH UDT ENTRY  
MFCU CONTROL CODE - IPL MODE  
MFCU CONTROL CODE - NORMAL MODE  
MFCU READ Q CODE

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		486	ORG	X'200'
		487		*****
		488	*	SECTION REFERENCE TABLE
		489		*****
		490	*	
		491	*	THE DATA IN THIS TABLE PROVIDES THE DIAGNOSTIC SECTION/CONTROL
		492	*	PROGRAM INTERFACE. IT IS LOADED BY THESE METHODS---
		493	*	
		494	*	CONTROL PROGRAM EXECUTION
		495	*	CONTROL PROGRAM ASSEMBLY
		496	*	UDT CARDS
		497	*	
		498		*****
		499		
		500	*	
		501	**	SRT DATA
		502	*	
		503	SMOD	DC XL1'0'
		504	DC	XL1'0'
		505	SIZE	DC XL2'0'
		506	CPU	DC XL1'0'
		507	DC	XL1'0'
		508	PGCKA	DC XL2'0'
		509	*	
		510	LBASE	EQU *
		511	SBYTE0	DC XL1'0'
		512	SBYTE1	DC XL1'0'
		513	SBYTE2	DC XL1'0'
		514	SBYTE3	DC XL1'0'
		515	SBYTE4	DC XL1'0'
		516	SBYTE5	DC XL1'0'
		517	RPFIX	DC XL4'0'
		518		
		519	*	
		520	**	ASSEMBLED TRANSFER TABLE
		521	*	
		522	TEST	L TRI,IAR
		523	LINK	L TR2,IAR
		524	PRINT	L TR3,IAR
		525	UNPACK	L TR4,IAR
		526	HALT	L TR5,IAR
		527	PACK	L TR6,IAR
		528	LOAD	L TR7,IAR
		529	LMSG@	DC AL2(LMSG)
		530	ITR6	DC AL2(IRPACK)
		531	*	
		532	**	UNIT DEFINITION TABLE
		533	*	
		534	UTAB	EQU *
		535	DC	XL54'00'
		535		18 X 3 = 54 USABLE UDT ENTRIES
		535		
		535		
		535		
		535		
		535		
		535		
		535		
		535		
		536	DC	XL2'0010'
				SIGNALS LAST ENTRY (NOT USABLE ITSELF)

SYSTEM MODEL  
USED FOR STORAGE BEYOND 64K  
CORE SIZE IN HEX  
CPU OPTIONAL FEATURES

ADDRESS OF RELOCATED PROGRAM  
CHECK ROUTINE.

COMMON (DCP) SENSE SWITCHES

SECTION SENSE SWITCHES

CURRENT ROUTINE PREFIX

LINKAGE TO READ CONSOLE SWITCHES  
LINKAGE TO CHAIN ROUTINE/SECTION  
LINKAGE TO PRINT MESSAGE  
LINKAGE TO UNPACK DATA  
LINKAGE TO HALT  
LINKAGE TO PACK DATA  
LINKAGE TO LOAD A NEW SECTION

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FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

538 *****
539 * LOAD ***** LOAD *
540 *****
541 *
542 * SUBROUTINE TO LOAD PROGRAMS OR DATA RECORDS FROM THE LOADING
543 * DEVICE. ENTRY TO THIS SUBROUTINE IS MADE AS FOLLOWS--
544 *
545 * B LOAD WHERE LOAD IS EQUATED TO X'22A'
546 * *DC XL1'FLAGS'
547 * **DC XL2'DXXX' XXX - PROGRAM ID (OR DISK ADDR)
548 *
549 * FLAG BIT ON
550 * NONE - NORMAL TERMINATION
551 * 0 - HE HALT,LOAD XXX, HA HALT AND GIVE XXX
552 * CONTROL
553 * 1 - ABNORMAL TERMINATION
554 * IF BIT 3 --- 2 - READ FIRST RECORD OF XXX INTO X'880' AND
555 * IS ON WITH RETURN CONTROL
556 * 2,4,OR 5, . . . 3 - READ NEXT SEQUENTIAL RECORD INTO X'880'
557 * THEN PARM AND RETURN CONTROL
558 * IS DISK --- 4 - LOAD XXX AND GIVE XXX CONTROL
559 * ADDR NOT --- 5 - LOAD XXX AND RETURN CONTROL
560 * PGM ID. 6 - SEEK TO VTOC AND RETURN CONTROL
561 * *NOTE FLAG BYTE, NOT MORE THAN ONE BIT CAN BE SET ON *
562 * A CALL TO THE LOAD ROUTINE IN DCP
563 * **NOTE PROGRAM ID IS ONLY INCLUDED IF BIT 0,2,4, OR 5 *
564 * IS ON
565 *
566 *****
0208 567 USING LBASE,XR2
00FD 568 FO EQU X'FD'
00FA 569 F1 EQU X'FA'
00F1 570 F4 EQU X'F1'
026A 34 02 02A4
026E C2 02 0208
0272 B4 08 A0
0275 B4 01 98
0278 E0 87 0A
027B B5 01 A0
027E 8E 01 A0 039F
0283 1C 02 01FF 02
0288 79 24 00
028B F2 10 05
028E 8E 01 A0 0341
0293 78 10 00
0296 F2 90 10
0299 C0 87 0000
029D C2 01 0000
02A1 C2 02 0000
02A5 C0 87 0000
02A9 590 LD1 EQU *
591 TBF 01,XR1,BIT2+BIT4+BITS+BIT6 FLAG BIT 2,4,5, OR 6 ON?
592 JF LE2 IF ANY ON, GO ENTER LOADER
593
594 SBN RLFLGS(,XR2),BIT0 SET ERROR BIT IF ABNORMAL
595 TBN 01,XR1,BIT1 TERMINATION
596 JT PTMSG
597 SFF RLFLGS(,XR2),BIT0 OTHERWISE, TURN IT OFF
598 TBN SBYTE0(,XR2),SSW01 LOOP ON ROUTINE IF SSW 01 IS ON
599 BT LNK1A
600 TBN SBYTE0(,XR2),SSW00 LOOP ON SECTION IF SSW00 SET
601 PTZERO BT 0
602 PTMSG B RPRINT
603 ITR3 EQU *-1 PRINT SECTION TERMINATE MSG
02CD 604 RLFLGS DC XL1'C7'
02CE 605 DC IL1'16'

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02CF 05A7 02D0 606 DC AL2(TMSG)
02D1 FF00 02D2 607 DC XL2'FF00'
02D3 3C 07 7ECF 608 MVI ERSSW+1,X'07' SET UP TO ERASE ON CRT
02D7 B8 01 00 609 TBN SBYTE0(,XR2),SSW07 BYPASS HALT IF SSW07 ON
02DA F2 10 06 610 JT RLD2
02DD F0 3B 7C 611 HLTF HPL HE,HH HALT TO INDICATE SECTION COMPLETED
02E0 E0 87 0A 612 B TEST(,XR2) GO CHECK DATA SWITCHES
02E3 B8 40 01 613 RLD2 TBN SBYTE1(,XR2),SSW09 IF SSW09 IS ON,
02E6 F2 10 04 614 JT LE1 THEN DON'T CLR SECT. SWITCHES
02E9 AF 03 05 05 615 SLC SBYTE5(4,XR2),SBYTE5(,XR2) CLEAR SECTION SSW
02EA 616 THREE EQU *-3
617 LE1 TBN 0(,XR1),BIT0 FLAG BIT 0 ON
618 JT LE2 IF ON
02F0 F2 10 41 619 XREF1 LA LBASE,XR2
02F3 C2 02 0208 620 B TEST(,XR2) FOR -HD- HALT
02F7 E0 87 0A 621 LX1 LA DTABLE-1,XR1 INSTRUCTION MAY BE ALTERED
02FA C2 01 01FD 622 PTR EQU *-1
02FE 78 01 00 623 TBN 0(,XR1),BIT7 FOR CARD SYS (J LE2) ....
0301 624 LX2 EQU * .. THIS REFERS TO PREVIOUS INSTRUCTION
625 JF CHKF4
626 ALC 2(1,XR1),LONE(,XR2)
627 TBN 2(,XR1),X'0F'
628 JF MOVID
629 SBF 2(,XR1),X'0F'
630 CHKF4 CLI PTR(,XR2),F4
631 JNE STEP
632 HLTC1 HPL HC,HH
633 B TEST(,XR2)
634 MVI PTR(,XR2),FO
635 STEP SLC PTR(1,XR2),THREE(,XR2)
636 MOVID L PTR(,XR2),XR1
637 CLC 2(2,XR1),PTZERO+3(,XR2)
638 BE HLTC1
639 MVC DTABLE+1(3),2(,XR1)
640 LE2 B *-1
0337 641 ENTRY2 EQU *-1
642 B LODEM

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ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
	0000	644	MZZ EQU 00
	0001	645	MZN EQU 01
	0002	646	MNZ EQU 02
	0003	647	MNN EQU 03
033C 00	033C	648	CTR DC XL1'0'
033D FFFF	033E	649	NEG1 DC XL2'FFFF'
033F 00	033F	650	DC XL1'00'
0340 0002	0341	651	TWO DC IL2'2'
	652	*	
0342 34 08 0368	653	CMPK ST CMPKX@,ARR	
0346 C0 87 03A6	654	B SAVREG	
034A 35 02 0408	655	L ARRSV,XR2	
034E C2 01 033C	656	LA CTR,XR1	
	033C	657	USING CTR,XR1
		658	ALC ARRSV(2,XR1),FIVE(,XR1)
0352 5E 01 CC 8D		659	MVC CTR(1,XR1),00(,XR2)
0356 6C 00 00 00		660	MVC DEST1(2,XR1),4(,XR2)
035A 6C 01 4C 04		661	MVC DEST2(2,XR1),4(,XR2)
035E 6C 01 A5 04		662	L 2(,XR2),XR2
0362 B5 02 02		663	B *-*
0365 C0 87 0000	0368	664	CMPKX@ EQU *-1
	0368	665	TEMP EQU *-1

SPARE BYTE NOT USED,MUST BE  
LOCATED HERE TO GENERATE  
THE CONSTANT FIVE

SAVE REGISTERS  
PICK UP RETURN @  
LOAD BASE @

AJUST RETURN @  
MOVE LENGTH BYTE  
MOVE TO @  
MOVE TO @  
PICK UP FROM @

ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
	667	*****	***** UNPACK *
	668	* UNPACK	***** UNPACK *
	669	*****	*****
	670	*	
	671	*	SUBROUTINE TO CONVERT PACKED HEXADECIMAL DATA TO PRINTABLE
	672	*	EBCDIC. TWO PRINT CHARACTERS, 0-F, RESULT FROM EACH SOURCE BYTE.
	673	*	LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS--
	674	*	
	675	*	b UNPACK WHERE UNPACK IS EQUATED TO X'21E'
	676	*	DC XL1'LENGTH OF HEX FIELD IN BYTES'
	677	*	DC AL2(FROM ADDRESS -RIGHTMOST BYTE-)
	678	*	DC AL2(TO ADDRESS -RIGHTMOST BYTE-)
	679	*	
	680	*****	*****
	681	RUNPK ST ARRSV,ARR	
	682	B CMPK	
	683	UNPK1 MVI MVX1(,XR1),MNN DO NUMERIC	
	684	UNPK2 MVX TEMPI(0,XR1),0(,XR2)	
0375	685	MVX1 EQU *-3	
	686	SBN TEMPI(,XR1),X'FO'	
	687	CLI TEMPI(,XR1),X'FA'	
	688	JL UNPK3	
	689	SLC TEMPI(1,XR1),X39(,XR1) SUBTRACT X'39' IF A-F	
	690	UNPK3 MVI *-*,0	
0386	691	TEMP1 EQU *-3	
0388	692	DEST1 EQU *-1	
	693	ALC DEST1(2,XR1),NEG1(,XR1) DECREMENT TO ADDRESS	
	694	CLI MVX1(,XR1),MNN CHECK FOR ZONE DONE	
038F	695	X39 EQU *-1	
	696	JE UNPK4	
	697	MVI MVX1(,XR1),MNN DO ZONE	
	698	B UNPK2(,XR1)	
	699	UNPK4 A NEG1(,XR1),XR2 DECREMENT FROM @	
	700	ALC CTR(1,XR1),NEG1-1(,XR1) DECREMENT LENGTH & CHECK FOR 0	
039F	701	ONE EQU *-1	
	702	BNZ UNPK1(,XR1) NO	
	703	B LDREG(,XR1) YES	
	704	*	
	705	SAVREG ST SR1+3,ARR	
	706	ST LDREG+3,XR1	
	707	ST SR2+3,XR2	
	708	B RTEST	
	709	SR1 B *-*	
			CHECK DATA SWITCHES

0369 34 08 0408  
036D C0 87 0342  
0371 7C 03 39  
0374 68 00 4A 00  
  
0378 7A F0 4A  
037B 7D FA 4A  
037E F2 82 04  
0381 5F 00 4A 53  
0385 3C 00 0000  
  
0389 5E 01 4C 02  
038D 7D 02 39  
  
0390 F2 81 06  
0393 7C 02 39  
0396 D0 87 38  
0399 76 02 02  
039C 5E 00 00 01  
  
03A0 D0 01 35  
03A3 D0 87 C1  
  
03A6 34 08 0389  
03AA 34 01 0400  
03AE 34 02 0404  
03B2 C0 87 0444  
03B6 C0 87 0000

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
711 *****
712 * PACK ***** PACK *
713 *****
714 *
715 * SUBROUTINE TO CONVERT EBCDIC DIGITS 0-F TO PACKED HEXADECIMAL
716 * DATA. LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS--
717 *
718 *      b      PACK
719 *      DC      XL1'LENGTH'
720 *      DC      AL2(FROM ADDRESS -RIGHTMOST BYTE-)
721 *      DC      AL2(TO ADDRESS -RIGHTMOST BYTE-)
722 *****
03BA 34 08 0408      723 RPACK ST      ARRSV,ARR
03BE C0 87 0342      724      B      CMPK
03C2 78 01 00        725      TBN     CTR(,XR1),X'01'      CHECK FOR ODD LENGTH
03C5 F2 90 05        726      JF      PK1      OKAY IF EVEN LENGTH
03C8 4F 00 00 039F   727      SLC     CTR(,XR1),ONE      SUBTRACT 1 IF ODD LENGTH
03CD 7C 03 A3        728 PK1 MVI     MVX2(,XR1),MNN      DO NUMERIC
03D0 6C 00 2C 00     729 PK2 MVC     TEMP(,XR1),O(1,XR2)    PACK BYTE INTO HIGH HALF BYTE
03D4 7D F0 2C        730      CLI     TEMP(,XR1),X'F0'      CHECK FOR 0-9
03D7 F2 02 04        731      JNL     PK3      JUMP IF 0-9
03DA 5E 00 2C E5     732      ALC     TEMP(1,XR1),NINE(,XR1)  AJUST FOR A-F
03DE 18 00 C000 2C   733 PK3 MVX     *-*(0),TEMP(,XR1)      MOVE HALF BYTE TO @
03DF 734 MVX2 EQU     *-4
03E1 735 DEST2 EQU    *-2
736      A      NEG1(,XR1),XR2      DECREMENT FROM @
737      CLI     MVX2(,XR1),MZN      CHECK FOR ZONE DONE
738      JE      PK4      JUMP IF DONE
739      MVI     MVX2(,XR1),MZN      DO ZONE
740      B      PK2(,XR1)
741 PK4 ALC     DEST2(2,XR1),NEG1(,XR1)  DECRGMENT TO @
742      SLC     CTR(1,XR1),TWO(,XR1)    CHECK FOR END
03F9 743 FIVE EQU     *-1
744      BNZ     PK1(,XR1)
745 LDREG LA      *-*,XR1
746 SR2 LA      *-*,XR2
747      B      *-*
0408 748 ARRSV EQU    *-1
RETURN TO SECTION

```

```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
750 *****
751 * TEST ***** TEST *
752 *****
753 *
754 * SUBROUTINE USED TO READ CONSOLE SWITCHES AND TEST FOR VALIDITY
755 * POSITIONS. ONCE ONE OF THE FOLLOWING VALIDITY CONDITIONS IS
756 * ENCOUNTERED, ENTRIES ARE ACCEPTED UNTIL THE VALIDITY SWITCH IS
757 * CHANGED.
758 *
759 *      FOXX - TURN OFF SSW XX.
760 *      F1XX - TURN ON SSW XX.
761 *      F2XX - GO TO ROUTINE XX.
762 *      EEXX - TERMINATE SECTION.
763 *      DXXO EXECUTE ALL PROGRAMS FOR DEVICE XX -DISK-.
764 *      DXXX - EXECUTE SECTION XXX
765 *
766 *****
0409 80      767 TBASE EQU     *
040A 402010080402    768 SETO DC      XL1'80'
0410 01      769      DC      XL6'402010080402' : ALL TOGETHER
0411 0000     770      DC      XL1'01' :
0412 771 DATSWS DC     XL2'0' : READIN AREA FOR DATA SWITCHES
0409 772 USING SETO,XR1
0414 773 TONE EQU     *-1
0412 774 XREF5 EQU    DATSWS
0413 775 XREF4 EQU     *
776 SETSSW ST      VXRI+3,XR1
777      LA      SETO,XR1
778      ST      SETSX(,XR1),ARR
779      MNN     CHKSS1+3(,XR1),DATSWS(,XR1) FORM CORRECT BIT PATTERN
0421 780 NINE EQU     *-1
781      SBF     CHKSS1+3(,XR1),X'F8'      TO SET A BIT ON IN
782 CHKSS1 MVC     C:KSS2+1(1,XR1),*-(,XR1)  SBYTE THRU SBYTES
783      ALC     DATSWS(,XR1),DATSWS(,XR1)
784      MNZ     CHKSS2+2(,XR1),DATSWS(,XR1)
785      LA      SBYTE0,XR1
0435 786 MODIFY EQU   *
787 CHKSS2 SBN     *-*(,XR1),*-*
788      SBF     MODIFY,X'01'
789 VXRI LA      *-*,XR1
790      B      *-*
0443 791 SETSX@ EQU   *-1
0001 792 DROP XR1
0411 793 USING DATSWS-1,XR2
794 RTEST ST      TEXIT1+3,XR2      SAVE INDEX REGS AND SET UP BASE
795      LA      DATSWS-1,XR2
796      ST      TEXIT+3(,XR2),XR1
797      ST      TESTE+3(,XR2),ARR
798      B      TRYFDD
799 TSTOVL J      TEXIT
800      CLI     DATSWS-1(,XR2),X'ED'
801      JH      TEST1
802      TBN     DATSWS-1(,XR2),X'DO'
803      JT      TEST1      FOR CARD SYS ( JT 0 )
0464 804 TSTDSK EQU    *-1
805 TEXIT LA      *-*,XR1
806 TEXIT1 LA     *-*,XR2
807 TESTE B      *-*
0471 808 DC      XL1'40'
0472 809 TEST1 EQU     *
810
811 HLTA MVI     THLT+2(,XR2),HF
812      J      THLT
813
814 TEST2 CLI     THLT+2(,XR2),HP
815      JE      TEST3
816 HLTB MVI     THLT+2(,XR2),HP
817      J      THLT
FORCE ALTERNATING HALT CODES OF
-HP- AND -HU- (HP FIRST)

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0484	BC 6B 78	0483	818	T3	EQU *-1
0487	FO 3B 00	819	TEST3	MVI	THLT+2(,XR2),HU
		820	THLT	HPL	*-*,HH HALT -HP- OR -HU- FOR SWITCH ENTRY
		821			
048A	B0 00 01	822		SNS	DATSW(,XR2),X'0' READ DATA SWITCHES
		048F	823	TSTCRD	EQU **2
048D	B8 D0 00	824	TBN	DATSW-1(,XR2),X'D0'	FOR CARD SYS ( J TEST7 )
0490	B9 20 00	825	TBF	DATSW-1(,XR2),X'20'	
0493	F2 90 23	826	JF	TEST7	
		827			
		828	*	D FOUND IN	LEFTMOST SWITCH SO ZERO TABLE
0496	C2 01 01FA	829	LA	FLAG-3,XR1	POINT AT TABLE
049A	3C FD 02FD	830	MVI	PTR,FO	
049E	5F 0B 02 02	831	SLC	02(12,XR1),02(,XR1)	
04A2	B4 01 97	832	ST	DADDR(,XR2),XR1	
04A5	C2 01 0000	833	TEST5A	LA *-*,XR1	LOAD DISK LOAD TABLE POINTER
		04A8	834	DADDR	EQU *-1
04A9	6C 02 02 01	835	TEST6	MVC	2(3,XR1),DATSW(,XR2) MOVE DATA TO DISK LOAD TABLE
04AD	79 0F 02	836	TBF	2(,XR1),X'0F'	CHECK FOR DX00
04B0	F2 10 03	837	JT	TEST6A	
04B3	7B 01 00	838	SBF	0(,XR1),X'01'	TURN BIT7 OFF
		04B6	839	TEST6A	EQU *
04B6	E0 87 67	840	B	TEST2(,XR2)	GO ALLOW NEXT ENTRY
04B9	BD EE 00	841	TEST7	CLI	DATSW-1(,XR2),X'EE'
04BC	F2 01 08	842	JNE	TEST7A	
04BF	8C 01 5F 055C	843	MVC	TESTE+3(2,XR2),ITR7	
04C4	E0 87 67	844	B	TEST2(,XR2)	GO ALLOW NEXT ENTRY
		04C7	845	TEST7A	EQU *
04C7	BD F1 00	846	CLI	DATSW-1(,XR2),X'F1'	
04CA	F2 81 09	847	JE	TEST8	
04CD	BD F0 00	848	CLI	DATSW-1(,XR2),X'F0'	
04D0	F2 01 15	849	JNE	TEST11	
04D3	BA 01 24	850	SBN	MODIFY(,XR2),X'01'	CHANGE TO SET BITS OFF
04D6	BD 30 01	851	TEST8	CLI	DATSW(,XR2),X'30'
04D9	F2 82 06	852	JL	TEST9	
04DC	F0 3B 76	853	HLTD	HPL	H2,HH *ERROR-SSW # HIGHER THAN X-2F- OR *INVALID RTN SELECT OPTION
		854	*		GO ALLOW NEXT ENTRY
04DF	E0 87 67	855	B	TEST2(,XR2)	
		04E2	856	TEST9	EQU *
04E2	E0 87 02	857	B	SETSSW(,XR2)	
04E5	E0 87 67	858	B	TEST2(,XR2)	GO ALLOW NEXT ENTRY
04E8	BD F2 00	859	TEST11	CLI	DATSW-1(,XR2),X'F2'
04EB	E0 01 54	860	BNE	TEXT(,XR2)	
04EE	35 01 0A07	861	L	FRTN,XR1	START CHECKING WITH FIRST ROUTINE
04F2	1C 00 0A03 00	862	MVC	RNUM(1),0(,XR1)	LOAD CURRENT RTN NUM WITH FIRST ONE
04F7	1D 00 0A03 00	863	TEST12	CLC	RNUM(1),0(,XR1) IS THIS RTN PREFIX CORRECT
04FC	F2 81 06	864	JE	TEST14	YES - BRANCH
04FF	F0 3B 57	865	TEST13	HPL	H3,HH *RTN NUMBER OUT OF SEQUENCE
0502	E0 87 67	866	B	TEST2(,XR2)	GO ALLOW ENTRY AGAIN
0505	9D 00 01 00	867	TEST14	CLC	DATSW(1,XR2),0(,XR1) BRANCH IF THIS IS SELECTED
0509	F2 81 12	868	JE	TEST16	ROUTINE
050C	7D FF 02	869	CLI	2(,XR1),X'FF'	CHECK FOR LAST ROUTINE INDICATION
050F	C0 81 04DC	870	BE	HLTD	YES, BRANCH TO ERROR HALT
0513	2E 00 0A03 03	871	ALC	RNUM(1),TONE(,XR2)	INCREMENT ROUTINE NUMBER
0518	75 01 03	872	L	3(,XR1),XR1	LOAD ADDRESS OF NEXT RTN PREFIX
051B	E0 87 E6	873	B	TEST12(,XR2)	GO CHECK THIS RTN NUM
051E	1C 03 0211 03	874	TEST16	MVC	RPFx(4),3(,XR1) SAVE ROUTINE PREFIX
0523	D2 01 04	875	LA	4(,XR1),XR1	LOAD ADDRESS OF FIRST INSTRUCTION
0526	B4 01 5F	876	ST	TESTE+3(,XR2),XR1	IN SUBROUTINE EXIT
0529	34 01 0595	877	ST	LNK6+3,XR1	SET UP LINK EXIT IN CASE LOOPING
052D	E0 87 67	878	B	TEST2(,XR2)	GO ALLOW NEXT ENTRY
		0002	879	DROP	XR2

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
881	*****				*****
882	* LINK				***** LINK *
883	*****				*****
884	*				*
885	*				SUBROUTINE TO PROVIDE ROUTINE TO ROUTINE AND SECTION TO SECTION *
886	*				LINKAGE. THE CONTROL PROGRAM USES THE ROUTINE PREFIX AS AN *
887	*				INTERFACE BETWEEN DIAGNOSTIC SECTION AND CONTROL PROGRAM. *
888	*				*
889	*****				*****
890					
0530	34 01 0591	891	RLINK	ST	LNK5+3,XR1 SAVE XR1
		892			
0534	C0 87 0444	893	LNK1	B	RTEST GO CHECK DATA SWITCHES
		0537	894	ITR1	EQU *-1
0538	38 40 0208	895	TBN	SBYTE0,SSW01	PROVIDE LOOP ON ROUTINE IF SSW01 ON
053C	F2 90 0B	896	JF	LNK2	
053F	3D 01 0A03	897	LNK1A	CLI	RNUM,X'01'
0543	C0 81 0000	898	BE	0	IF FIRST RTN BEING RUN, TO
0547	F2 87 44	899	J	LNK5	PROGRAM RESTART
		900			
054A	3D FF 0210	901	LNK2	CLI	RPFx-1,X'FF'
054E	F2 01 0D	902	JNE	LNK3	IS THIS LAST ROUTINE
		903			NO, GO ON TO CHECK FURTHER
0551	38 80 0208	904	TBN	SBYTE0,SSW00	TEST FOR LOOP ON SECTION
0555	C0 10 0000	905	BT	0	YES, GO RESTART PROGRAM
0559	C0 87 026A	906	B	RLOAD	NO, GO LOAD NEXT SECTION
		055C	907	ITR7	EQU *-1
055D	00	055D	908	DC	XL1'0'
		909			
055E	35 01 0211	910	LNK3	L	RPFx,XR1
0562	0E 00 0A03 039F	911	ALC	RNUM(1),ONE	SET UP TO GO TO NEXT ROUTINE
0568	1D 00 0A03 00	912	CLC	RNUM(1),0(,XR1)	INCREMENT ROUTINE NUMBER AND
056D	F2 81 07	913	JE	LNK4	CHECK AGAINST RTN PREFIX
0570	F0 3B 57	914	HLTE	HPL	H3,HH
0573	C0 87 0534	915	B	LNK1	*RTN NUM IN RTN PREFIX OUT OF ORDER
		916	*		GO CHECK FOR DATA SWITCH VERIFICA-
		917			TION
0577	1C 03 0211 03	918	LNK4	MVC	RPFx(4),3(,XR1)
057C	38 20 0208	919	TBN	SBYTE0,SSW02	SET UP CURRENT ROUTINE PREFIX
0580	78 80 01	920	TBN	1(,XR1),BIT0	CHECK FOR BYPASS MANUAL INTERV RTNS
0583	C0 10 054A	921	BT	LNK2	CHK RTN PREFIX MANUAL INTERV FLAG
		922			SKIP ROUTINE IF BOTH CONDITIONS TRUE
0587	D2 01 04	923	LA	4(,XR1),XR1	
058A	34 01 0595	924	ST	LNK6+3,XR1	LOAD ROUTINE STARTING ADDR
058E	C2 01 0000	925	LNK5	LA	RESTORE INDEX REGS
0592	C0 87 0000	926	LNK6	B	EXIT SUBROUTINE
		927			

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
929 *****
930 * PRINT *****
931 *****
932 * LINKAGE TO PRINT IS AS FOLLOWS--
933 *
934 *      b      PRINT      WHERE PRINT IS EQUATED TO 1304
935 *      DC      XL1'FLAGS'
936 *      1*DC    IL1'LENGTH -MAXIMUM OF 91-'
937 *      1*DC    AL2(ADDRESS OF LAST CHARACTER OF PRINT FIELD)
938 *      2,1*DC  XL2'MESSAGE IDENTIFICATION'
939 *      FLAGS
940 *      BIT 0 - DEFINES THIS AS AN ERROR PRINTOUT
941 *      1 - FIRST LINE OF MESSAGE -HEADING PRINTED-
942 *      2 - PRINT FROM DCP PRINT AREA.
943 *      3 - SPACE ONLY
944 *      4 - RESERVED
945 *      5 - BITS 5-7 MUST CONTAIN THE NUMBER OF
946 *      6 - SPACES DESIRED. FOR A PRINT, -001-
947 *      7 - MUST BE ENTERED TO PRINT AND SPACE TO
948 *          THE NEXT LINE. -000- MAY BE ENTERED
949 *          TO PROVIDE FOR MULTIPLE OPERATIONS ON
950 *          THE SAME LINE.
951 *
952 *      1*NOTE - THESE PARAMETERS MUST BE ABSENT FOR SPACE
953 *              ONLY OPERATIONS.
954 *
955 *      2*NOTE - THE MESSAGE IDENTIFICATION IS IMCLUDED
956 *              ONLY FOR A FIRST LINE PRINTOUT. THE FOUR
957 *              DIGIT IDENTIFICATION REFERS TO A TABLE OF
958 *              ERROR DESCRIPTIONS OR PRINTOUT DEFINITION.
959 *
960 *      OPTIONS-- SSW03 - BYPASS ERROR PRINT.
961 *                SSW04 - BYPASS NON-ERROR PRINT.
962 *                SSW05 - USE ALTERNATE PRINTER
963 *
964 *****
05B7 965 USING PR3,XR2
05A7 966 TMSG DC CL18'SECTION TERMINATED'
966
05B5 967 LMSG DC CL14'SECTION LOADED'
967
05B7 968 PR3 DC AL2(PLINE)
05B8 969 HDG1 EQU *
05D3 970 HDG DC CL28' ID XXXX. PROG UUXX-RR. SSW5'
970
05D2 971 SSW EQU *-2
05D4 972 NSPACE DC XL1'0'
05D6 973 SNUM DC XL2'0'
05D7 974 PTAGS DC XL1'0'
975 RPRINT ST PRTE2+3,XR2
976 LA PR3,XR2
977 RPONE ST PRTE1+3,XR1
978 ST PRINTE+3,ARR
979 L PRINTE+3,XR1
980 MVI LPDATA+132,C' '
981
982 MVC PTAGS(1,XR2),0(,XR1)
983 MVI HDG1(,XR2),C' '
984 TBN 0(,XR1),BIT0
985 JF PRT2
986 MVI HDG1(,XR2),C' *'
987 TBF SBYTE0,SSW03
988 J PRT2A
989 PRT2 TBF SBYTE0,SSW04
990 PRT2A JF PREFIX

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
060E 9C 00 1D 00      991      MVC      NSPACE(1,XR2),0(,XR1) LOAD SPACE COUNTER
0612 BB F8 1D        992      SBF      NSPACE(,XR2),X'F8' LIMIT TO SEVEN
0615 3C 60 06C9      993      MVI      PRT6+1,96 SET UP COUNT FOR CONSOLE I/O
994
995      TBN      0(,XR1),BIT3 BRANCH IF THIS IS SPACE ONLY OP
996      JT      PRT7
997      TBN      0(,XR1),BIT2 SKIP SETUP IF DATA FIELD READY
998      JT      PRT6A
999      B      PRTN DUMMY COMMAND TO MAKE SURE NO BUSY
062A 1000 DUMCOM DC XL2'E000'
1001 MVC LPDATA+131(132),LPDATA+132 BLANK PRINT BUF
1002 TBN 0(,XR1),BIT1 SKIP HDG PRINT IF NOT CALLED FOR
1003 JF PRT5
1004 LA 5(,XR1),XR1 SET UP TO UNPACK MESSAGE
1005 ST IDADDR(,XR2),XR1 IDENTIFIER
1006 B UNPACK UNPACK IT FOR PRINTING
0641 1007 DC IL1'2'
0643 1008 IDADDR DC XL2'0'
0645 1009 DC AL2(HDG1+7)
1010 B UNPACK PUT PROG IDENT IN PRINTOUT
064A 1011 DC IL1'2'
064C 1012 DC AL2(PROGID)
064E 1013 DC AL2(HDG1+18)
1014 B UNPACK PUT ROUTINE NUM IN HEADING LINE
0653 1015 DC IL1'1'
0655 1016 DC AL2(RNUM)
0657 1017 DC AL2(HDG1+21)
1018 B PRTN SPACE BEFORE PRINTING HEADING
065D 1019 SPBFHG DC XL2'E001'
1020 MVC PLINE+27(28),HDG(,XR2) MOVE HEADER LINE TO PRINT FIELD
1021
1022 ** SET UP SENSE SWITCH PRINTOUT
1023 LA 2(LINE+28,XR1) SET UP PRINT FIELD POINTER
1024 MVI SNUM(,XR2),0 SET SWITCH # TO 0
1025 CHKSWS ALC SBYTE5(6),SBYTE5 ADD SENSE BYTES
1026 JNOL NEXTSS TEST FOR NO OVERFLOW
1027 SBM SBYTES,X'01'
1028 LA 3(,XR1),XR1 SET UP PRINT FIELD #
1029 ST SSDEST(,XR2),XR1
1030 B RUMPK UNPACK SSW # INTO PRINT FIELD
0680 1031 ITR4 EQU *-1
0681 1032 XONE DC IL1'1'
0683 1033 DC AL2(SNUM)
0685 1034 SSDEST DC XL2'009A'
1035 MVI 1(,XR1),C', ' PLACE , INTO PRINT FIELD
1036 NEXTSS ALC SNUM(1,XR2),XONE(,XR2) UP SWITCH #
1037 CLI SNUM(,XR2),X'30' CHECK FOR LAST SSW
1038 BL CHKSWS(,XR2) BRANCH IF LOW
1039 MVI 1(,XR1),C' ' CLEAR THE LAST COMMA
1040 CRTCHG MVI PRT6+1,X'7F' - PUT ACTUAL LENGTH OF LINE INTO
1041 ALC PRT6+1(1),SSDEST(,XR2) - PRT6+1 FOR THE KEYBOARD PRINTER
1042 B PRTN GO PRINT THIS HEADING
06A4 1043 PRTHG DC XL2'E200'
1044 B PRTN
06AA 1045 DC XL2'E001'
1046
1047 PRT5 MVC PRT6+1(1),1(,XR1) SET UP MOVE WHICH WILL LOAD THE
1048 SLC PRT6+1(1),ONE PRINTOUT POINTED TO BY PARAMETER
1049 JL PRT7 SKIP PRINTING IF COUNT IS ZERO
1050 MVC PRT6+5(2),3(,XR1)
1051 MVC PRT6+3(2),PR3(,XR2)
1052 ALC PRT6+3(1),1(,XR1)
1053 PRT6 MVC PRT6+3(1),1(,XR1)
1054 PRT6A B *-(*-*),*-
1055 DC PRTN
06D3 1056 XL2'E200'
1057 PRT7 SLC NSPACE(1,XR2),RPONE+1(,XR2) SPACE PRINTER DESIRED
1058 JL PRT5 PREXIT NUMBER OF TIMES

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ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
06DB C0 87 0717	1059	B	PRTN
06DF E001	06E0 1060	SPAPRT DC	XL2'E001'
06E1 C0 87 06D4	1061	B	PRT7
	1062		
06E5 0C 84 08FF 0900	1063	PREXIT MVC	LPDATA+131(133),LPDATA+132 CLEAR PRINT BUF DOWN TO X'87B' FOR PTR SYSTEM TEST
	1064 *		ADJUST EXIT ADDR TO MISS
06EB 35 01 0716	1065	L	PRINTE+3,XR1
06EF D2 02 00	1066	LA	O(XR1),XR2
06F2 78 40 00	1067	TBM	O(XR1),BIT1
06F5 F2 90 03	1068	JF	PRT8
06F8 E2 02 02	1069	LA	2(XR2),XR2
06FB 79 30 00	1070	PRT8 TBF	O(XR1),X'30'
06FE F2 90 03	1071	JF	PRT9
0701 E2 02 03	1072	LA	3(XR2),XR2
0704 E2 02 01	1073	PRT9 LA	1(XR2),XR2
0707 34 02 0716	1074	ST	PRINTE+3,XR2
	1075		
070B C2 01 0000	1076	PRT1 LA	*-*,XR1
070F C2 02 0000	1077	PRT2 LA	*-*,XR2
0713 C0 87 0000	1078	PRINTE B	*-*
	1079		
1080 **			
1081 **			STANDARD INPUT/OUTPUT SUBROUTINE USED BY THE PRINT ROUTINE.
1082 **			THIS SUBROUTINE SUPPORTS THE 5203/1403 PRINTER AND THE ALTERNATE
1083 **			OUTPUT DEVICE UNDER CONTROL OF SENSE SWITCH 05. CODING FOR
1084 **			ALTERNATE PRINTERS FOLLOWS THIS SUBROUTINE. THE LOADER SELECTS
1085 **			THE PROPER SUBROUTINE.
1086 **			
	1087		
0717 C2 02 0717	1088	USING	PRTN,XR2
071B B4 08 70	1089	PRTN LA	PRTN,XR2
	1090	ST	PRTNE+3(XR2),ARR
	1091	ZONE EQU	**1
	1092	L	PRTNE+3(XR2),XR1
	1093	MVC	PRSI0+2(2,XR2),1(XR1)
	1094	ALC	PRTNE+3(2,XR2),TWO
	1095	PRTN1 B	TEST
	1096	TBM	PTAGS,BIT0
	1097	JF	PRTN2
	1098	TBF	SBYTE0,SSW03
	1099	J	PT90
	1100	PRTN2 TBF	SBYTE0,SSW04
	1101	PT90 BF	PREXIT
	1102		
	1103	TBF	SBYTE0,SSW05
	1104	JF	ALTPRT
	1105	NOALT TBM	SBYTE0,SSW05
	1106	BT	PRTEXT
	1107	J	PRIME
	1108		
0756 0000	0757	1109	MSTAT DC XL2'0'
	00E6	1110	LPBUSY EQU X'E6'
	00E0	1111	LPNRDY EQU X'E0'
0758 0800	0759	1112	PR1 DC AL2(LPIMAG)
075A 087C	075B	1113	PR2 DC AL2(LPDATA)
075C 7070	075D	1114	PR4 DC XL2'7070'
	1115 *		
	1116		
075E F0 38 7D	1117	LPERR2 HPL	H6,HH
0761 E0 87 13	1118	B	PRTN1(XR2)
0764 E1 E0 47	1119	PRIME TIO	LPERR2(XR2),LPNRDY
0767 B1 E0 46	1120	LIO	PR4(XR2),X'E0'
076A B1 E4 42	1121	LIO	PR1(XR2),X'E4'
076D B1 E6 43	1122	LIO	PR2(XR2),X'E6'
0770 BB 08 5D	1123	SBF	PRSI0+1(XR2),X'08'
0773 F3 00 00	1124	PRSI0 SIO	*-*,*-*
0776 E1 E6 5F	1125	BSYLP TIO	BSYLP1(XR2),LPBUSY
0779 E1 E0 47	1126	TIO	LPERR2(XR2),LPNRDY

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ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
077C C2 02 05B7	1127	PRTEXT LA	PR3,XR2
0780 35 01 0716	1128	L	PRINTE+3,XR1
0784 C0 87 0000	1129	PRTNE B	*-*
	1130		
0788 0530	0789	1131	ITR2 DC AL2(RLINK)
078A 0990	078B	1132	ITR5 DC AL2(RHALT)
	1133		
078C C2 01 0793	078C	1134	ALTPRT EQU *
0790 F2 87 06	1135	LA	ALTPRT+7,XR1
	1136	J	**9
	1137 *		ALTERNATE PRINTER DEVICE CODE BEGINS HERE
	1138		*****
	1139 *		5471 AS PRIMARY ALTERNATE
	1140		*****
	1141		
	0717	1142	USING PRTN,XR2
	0793	1143	PRTNA EQU *
	1144		
0793 F0 38 5F	1145	HPL	H9,HH
0796 E0 87 13	1146	B	PRTN1(XR2)
0799 2E 00 06C9 08	1147	PTCIO ALC	PRT6+1(1),ZONE(XR2)
079E 3B 80 06C9	1148	SBF	PRT6+1,X'80'
07A2 BC 81 B5	1149	MVI	CIO2X+2(XR2),X'81'
07A5 BD E0 5D	1150	CLI	PRSI0+1(XR2),X'E0'
07A8 F2 01 18	1151	JNE	CIO1
07AB BD 00 5E	1152	CLI	PRSI0+2(XR2),0
07AE E0 81 65	1153	BE	PRTEXT(XR2)
07B1 3D 02 05D4	1154	CLI	NSPACE,2
07B5 F2 82 04	1155	JL	**7
07B8 3C 02 05D4	1156	MVI	NSPACE,2
07BC 3C 00 06C9	1157	MVI	PRT6+1,0
07C0 BC 41 B5	1158	MVI	CIO2X+2(XR2),X'41'
07C3 C2 01 0880	1159	CIO1 LA	X'880',XR1
07C7 71 18 01	1160	CIO1B LIO	1(XR1),X'18'
07CA F3 18 00	1161	CIO2X SIO	*-*,X'18'
07CD B0 19 40	1162	SNS	CIOSTS(XR2),X'19'
07D0 B9 03 40	1163	TBF	CIOSTS(XR2),X'03'
07D3 E0 90 7C	1164	BF	CIOHLT(XR2)
07D6 7C 40 00	1165	MVI	O(XR1),C'
07D9 D2 01 01	1166	LA	1(XR1),XR1
07DC 2F 00 06C9 08	1167	SLC	PRT6+1(1),ZONE(XR2)
07E1 E0 02 80	1168	BNL	CIO1B(XR2)
07E4 E0 87 65	1169	B	PRTEXT(XR2)
	1170		
	0757	1171	CIOSTS EQU MSTAT
	07E6	1172	LAST EQU *-1
	07C0	1173	CIO1A EQU ALTPRT+CIO1B-PRTNA
	0793	1174	CIOHLT EQU PRTNA
	07C3	1175	CIO2 EQU ALTPRT+CIO2X-PRTNA
	1176		
FFE6	1177	ORG	X'FFFF'-X'800'+*
	1178		IF FLAGGED, X'800' BEING OVERLAYED
0800	1179	ORG	X'800'
	0800	1180	LPIMAG EQU *
0800 F1F2F3F4F5F6	0805	1181	DC XL6'F1F2F3F4F5F6'
0806 F7F8F9F07B7C	0808	1182	DC XL6'F7F8F9F07B7C'
080C 61E2E3E4E5E6	0811	1183	DC XL6'61E2E3E4E5E6'
0812 E7E8E9506B6C	0817	1184	DC XL6'E7E8E9506B6C'
0818 D1D2D3D4D5D6	081D	1185	DC XL6'D1D2D3D4D5D6'
081E D7D8D9605B5C	0823	1186	DC XL6'D7D8D9605B5C'
0824 C1C2C3C4C5C6	0829	1187	DC XL6'C1C2C3C4C5C6'
082A C7C8C94E4B7D	082F	1188	DC XL6'C7C8C94E4B7D'
	1189 *		
0830 0000000000000000	0877	1190	DC XL72'0'
0838 0000000000000000		1190	
0840 0000000000000000		1190	
0848 0000000000000000		1190	
0850 0000000000000000		1190	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0858	0000000000000000	1190		
0860	0000000000000000	1190		
0868	0000000000000000	1190		
0870	0000000000000000	1190		
		1191		
		1192	**	
		1193	**	THE FOLLOWING INSTRUCTIONS COMPLETE THE SECTION LOADER BY
		1194	**	HANDLING END CARDS. IT IS IN AN AREA THAT IS READ INTO BY
		1195	**	THE DISK LOADER.
0A03		1196	ORG	X'A03'
		1197	RNUM	EQU *
087F		1198	ORG	X'87F'
		1199	X87F	EQU *
		1200	USING	X87F,XR1
0900		1201	ORG	X'900'
0900 40		1202	DC	CL1'
		1203	ENDRTN	EQU *
		1204	MVC	22(23),RESTR+2
0901 0C 16 0016 097A		1205	TBN	SPFLGS,BIT0
0907 38 80 0A02		1206	JT	LOEND
0908 F2 10 3E		1207	LA	SPUDT,XR2
090E C2 02 0A0A		1208	UFIND1	LA UTAB,XR1
0912 C2 01 0232		1209	UFIND2	CLC 0(1,XR1),0(,XR2)
0916 6D 00 00 00		1210	JNE	UFIND4
091A F2 01 18		1211	MVC	2(1,XR2),2(,XR1)
091D 9C 00 02 02		1212	MNN	1(,XR2),1(,XR1)
0921 98 03 01 01		1213	SBN	1(,XR2),BIT2
0925 BA 20 01		1214	UFIND3	TBN 1(,XR2),BIT3
0928 B8 10 01		1215	LA	3(,XR2),XR2
092B E2 02 03		1216	BF	UFIND1
092E C0 90 0912		1217	J	LOEND
0932 F2 87 17		1218	UFIND4	TBN 1(,XR1),BIT3
0935 78 10 01		1219	LA	3(,XR1),XR1
0938 D2 01 03		1220	BF	UFIND2
093B C0 90 0916		1221	TBF	1(,XR2),BIT1
093F B9 40 01		1222	JT	**6
0942 F2 10 03		1223	HPL	H1,HH
0945 F0 38 03		1224	B	UFIND3
0948 C0 87 0928		1225	LDEND	B PRINT
094C C0 87 021A		1226	DC	XL1'47'
0950 47	0950	1227	DC	IL1'14'
0951 0E	0951	1228	LM3	DC AL2(LMSG)
0952 05B5	0952	1229	DC	XL2'FF00'
0954 FF00	0954	1230		
		1231	TBF	SBYTE0,SSW07
0956 39 01 0208		1232	TBF	FLAG,BIT4
095A 39 08 01FD		1233	JF	**06
095E F2 90 03		1234	HPL	HA,HH
0961 F0 38 3F		1235	**	
		1236	**	THE FOLLOWING FIVE INSTRUCTIONS ARE STORED AT LOCATION ZERO
		1237	**	(0000) AFTER LOADING OF EACH SECTION IS COMPLETED TO PROVIDE
		1238	**	A PROGRAM RESTART (SYSTEM RESET/START).
		1239		
0964 C2 02 0A03	0A03	1240	USING	RNUM,XR2
0968 B5 01 04		1241	LA	RNUM,XR2
096B 9C 00 00 00		1242	L	4(,XR2),XR1
096F 1C 03 0211 03		1243	MVC	RNUM(1,XR2),0(,XR1)
0974 C0 87 0212		1244	MVC	RPF(4),3(,XR1)
0978 D0 87 04		1245	B	TEST
097B 0000000000	097F	1246	RESTR	B 4(,XR1)
		1247	DC	XL5'0'

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
FFFF		1249	ORG	X'FFFF'-X'980'+* IF FLAGGED, CODE IS OVERLAYING ITSELF
0980		1250	ORG	X'980'
		1251	*	***** HALT MUST START AT X'980' *****
		1252		
		1253	*****	***** HALT *
		1254	* HALT	*****
		1255	*****	*****
		1256	*	
		1257	*	SUBROUTINE USED TO PROVIDE A COMMON HALT FUNCTION. ENTRY TO THIS
		1258	*	ROUTINE IS ACCOMPLISHED BY BRANCHING--
		1259	*	
		1260	B	HALT WHERE HALT IS EQUATED TO 1312
		1261	DC	XL2'UUXX' HEX ERROR IDENTIFIER
		1262	*	
		1263	*	NORMALLY, ONLY A HALT WITH CODE 'XX' WILL OCCUR. BUT WHEN THE
		1264	*	SYSTEM TEST IS RUNNING, HALT 'UU' WILL PRECEDE HALT 'XX' TO
		1265	*	IDENTIFY THE DEVICE IN ERROR.
		1266	*	
		1267	*	UU - UNIT IDENTIFICATION
		1268	*	XX - INDEX NUMBER
		1269	*	
		1270	*	IF THE INDEX NUMBER IS 01-9F, THE HALT WILL OCCUR UNLESS SENSE
		1271	*	SWITCH 06 IS ON. HALTS WITH INDICES A0-CF ARE PERFORMED ONLY
		1272	*	WHEN NON-ERROR PRINTOUTS ARE BEING BYPASSED -SSW 04-- HALTS
		1273	*	DO-FF ARE ALWAYS PERFORMED.
		1274	*****	*****
		1275	USING	HLTTAB,XR2
0980	1276	HLTTAB	EQU *	
0985	1277	DC	XL6'6F037657185D'	TABLE OF HALTS 0-F
098B	1278	DC	XL6'7D077F5F3F79'	
098F	1279	DC	XL4'6C737C3C'	
		1280		
		1281	RHALT	ST ARPSAV,ARR
		1282	B	SAVREG
		1283	LA	HLTTAB,XR2
		1284	L	ARRSAV,XR1
		1285	ALC	ARRSAV(2),TWO
		1286	CLI	1(,XR1),X'AO'
		1287	JL	HALT2
		1288	CLI	1(,XR1),X'CF'
		1289	JH	HALT3
		1290	TBN	SBYTE0,SSW04
		1291	JF	HEXIT
		1292	J	HALT3
		1293	HALT2	TBN SBYTE0,SSW06
		1294	JT	HEXIT
		1295		
		1296	HALT3	MNZ LHLT1+3(,XR2),0(,XR1) SET UP TO LOAD CODES FOR 1ST HALT
		1297	MNN	LHLT1A+3(,XR2),0(,XR1)
		1298	MNZ	LHLT2+3(,XR2),1(,XR1) SET UP FOR SECOND HALT
		1299	MNN	LHLT2A+3(,XR2),1(,XR1)
		1300	MVI	ERSSW+1,X'07'
		1301	CLI	X'AO0',X'FF'
		1302	TBF	X'AO1',X'CO'
		1303	JC	LHLT2,X'96'
		1304	LHLT1	MVC HALTA+1(1,XR2),--*(,XR2) LOAD FIRST HALT
		1305	LHLT1A	MVC HALTA+2(1,XR2),--*(,XR2)
		1306	HALTA	HPL *-*,*-*
		1307	LHLT2	MVC HALTB+1(1,XR2),--*(,XR2) LOAD SECOND HALT
		1308	LHLT2A	MVC HALTB+2(1,XR2),--*(,XR2)
		1309	HALTB	HPL *-*,*-*
		1310	HEXIT	B RTEST
		1311	B	LDREG
		1312	*****	*****
		1313	*	TRANSFER TABLE CONSTANTS *****
		1314	*****	*****
0537	1315	TR1	EQU	ITR1
0789	1316	TR2	EQU	ITR2

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		02CC	1317	TR3	EQU ITR3
		0480	1318	TR4	EQU ITR4
		078B	1319	TR5	EQU ITR5
		0231	1320	TR6	EQU ITR6
		055C	1321	TR7	EQU ITR7

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
FFF		1323		ORG	X'FFFF'-X'A00'+* IF FLAGGED, X'A00' BEING OVERLAYED
		1324		*****	
		1325		* XREF	*****
		1326		*****	
1FEE		1327		ORG	X'1FEE'
1FEE	0000	1328		DC	XL2'0000' USED TO PASS DISK ADDR OF 'FC0' TO '143' FOR THE CE TO CHANGE UDT AND CPU
		1329		*	
		1330			
1FF0	CO 87	1331		b	BEGIN IN CORE AT IPL TIME, AND THEN START AT THIS ADDRESS TO GET A NEW PRINT OUT OF THE SYSTEM DATA. THIS ADDRESS SHOULD NOT BE CHANGED, SINCE OTHER RELEASE DOCUMENTATION TELL THE CE TO USE THIS ADDRESS.
		1332		*	
		1333		*	
		1334		*	
		1335		*	
		1336		*	
1FF4	0000	1337		DC	XL2'0000' ADDRESS TO LINK FROM DCP CALLED PROGRAMS
1FF6	0412	1338		DC	AL2(XREF5) LOCATION FOR SSW VALUE
1FF8	0413	1339		DC	AL2(XREF4) SUBRTM TO SET SSW
1FFA	0E8C	1340		DC	AL2(XREF3) LOADER BRANCH @ WHEN DCP IS LOADED
1FFC	13C0	1341		DC	AL2(XREF2) LOADER BRANCH @ WHEN LOADING DCP
1FFE	02F3	1342		DC	AL2(XREF1) LOADER RETURN IF NOT IN VTCC
		1343			
OE8C		1344		ORG	ALTPRT+X'700' THIS ORG TIED TO ORG AT END OF ROUTINE
		1345			
		1346		*****	
		1347		* EQUATES	*****
		1348		*****	
0010	1349	IAR		EQU	X'10' INSTRUCTION ADDRESS REGISTER
0008	1350	ARR		EQU	X'08' ADDRESS RECALL REGISTER
0004	1351	PSR		EQU	X'04' PROGRAM STATUS REGISTER
0081	1352	P7IAR		EQU	X'81' PROGRAM CHECK REGISTER
0001	1353	XR1		EQU	1 INDEX REGISTER 1
0002	1354	XR2		EQU	2 INDEX REGISTER 2
087C	1355	LPDATA		EQU	X'7C' 22LC PRINT DATA AREA
0880	1356	PLINE		EQU	X'80' START OF DCP PRINT LINE
0A00	1357	SPT		EQU	X'A00' SECTION PREFACE TABLE
0A01	1358	PROGID		EQU	X'A01' SPT - 2ND BYTE OF PGH IDENTIFICATION
0A02	1359	SPFLGS		EQU	X'A02' SPT - FLAGS
0A07	1360	FRTN		EQU	X'A07' SPT - ADDR OF 1ST RTN PREFIX
0A0A	1361	SPUDT		EQU	X'A0A' SPT - UNIT DEFN TABLE
0018	1362	SIOI		EQU	X'18' SIO IMMEDIATE TO CRT
0879	1363	CRTFLG		EQU	X'879' FLAG SAYS 32XX MICRO LOADED OK
		1364			
		1365		**	COMMON SENSE SWITCHES
		1366			
0080	1367	SSW00		EQU	X'80' LOOP ON SECTION
0040	1368	SSW01		EQU	X'40' LOOP ON ROUTINE
0020	1369	SSW02		EQU	X'20' BYPASS MANUAL INTERV RTNS
0010	1370	SSW03		EQU	X'10' BYPASS ERROR PRINT
0008	1371	SSW04		EQU	X'08' BYPASS NON-ERROR PRINT
0004	1372	SSW05		EQU	X'04' USE MFCU AS PRINT DEVICE
0002	1373	SSW06		EQU	X'02' HALT ON ERROR
0001	1374	SSW07		EQU	X'01' LICKETY SPLIT
0080	1375	SSW08		EQU	X'80' USE 5203 RIGHT CARRIAGE
0040	1376	SSW09		EQU	X'40' INHIBIT SECT. SSW CLEARING
0020	1377	SSW0A		EQU	X'20'
0010	1378	SSW0B		EQU	X'10'
0008	1379	SSW0C		EQU	X'08'
0004	1380	SSW0D		EQU	X'04'
0002	1381	SSW0E		EQU	X'02'
0001	1382	SSW0F		EQU	X'01'
0001	1383	SSW2F		EQU	X'01'
		1384			
0080	1385	BIT0		EQU	X'80'
0040	1386	BIT1		EQU	X'40'
0020	1387	BIT2		EQU	X'20'
0010	1388	BIT3		EQU	X'10'
0008	1389	BIT4		EQU	X'08'
0004	1390	BIT5		EQU	X'04'

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ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0002	1391	BIT6	EQU X'02'
0001	1392	BIT7	EQU X'01'
	1393		
006F	1394	H0	EQU X'6F'
0003	1395	H1	EQU X'03'
0076	1396	H2	EQU X'76'
0057	1397	H3	EQU X'57'
001B	1398	H4	EQU X'1B'
005D	1399	H5	EQU X'5D'
007D	1400	H6	EQU X'7D'
0007	1401	H7	EQU X'07'
007F	1402	H8	EQU X'7F'
005F	1403	H9	EQU X'5F'
003F	1404	HA	EQU X'3F'
0079	1405	HB	EQU X'79'
006C	1406	HC	EQU X'6C'
0073	1407	HD	EQU X'73'
007C	1408	HE	EQU X'7C'
003C	1409	HF	EQU X'3C'
003B	1410	HH	EQU X'3B'
0068	1411	HL	EQU X'68'
006B	1412	HU	EQU X'6B'
003E	1413	HP	EQU X'3E'
	1414		
01FD	1415	FLAG	EQU X'1FD'
01FE	1416	DTABLE	EQU X'1FE'

TABLE OF HALT CODES - 0-F & H

HALT DISPLAY CODE -5-

HALT DISPLAY CODE -L-  
HALT DISPLAY CODE -U-  
HALT DISPLAY CODE -P-

ERR LOC OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
	1418	**	THE FOLLOWING INSTRUCTIONS ARE PERFORMED AFTER INITIAL DCP
	1419	**	LOADING ONLY. THEY ARE OVERLAID BY THE PROGRAM SECTIONS.
OE8C	1420	XREF3	EQU *
OE8C	1421	BEGIN	EQU *
	1422	MVC	16(17),GOLOAD+16 STORE A PROGRAM RESTART AT 0000
	1423	B	FIXMOB
OE96	1424	BEGINA	EQU *
	1425		
	1426	*	*****
	1427	*	
	1428	*	PRINT CPU AND UDT INFORMATION
	1429	*	
	1430	*	
	1431	*	*****
	1432		
	1433	B	PRINT SPACE PRINTER
	1434	DC	XL1'11'
OE9A	1435	MVC	LINE1-16(1),SMOD PUT MODEL ID IN PRINTOUT
	1436	MVI	CTR,X'0'
	1437	CLL	SIZE-1,X'FF'
	1438	JNE	NOT64
	1439	MVI	CTR,16
	1440	J	DOSZ
	1441	NOT64	MNZ CTR,SIZE-1 PUT CORE SIZE IN PRINTOUT
	1442		
	1443	DOSZ	ZAZ LINE1-1(3),DFOUR-1(1)
	1444	FINDSZ	AZ LINE1-1(3),DFOUR(2)
	1445	SLC	CTR(1),ONE
	1446	BNZ	FINDSZ
	1447	*	SET UP CPU OPTIONS IF ANY.
	1448	MVC	LINE1A(16),LINE1A+1 CLEAR OPTIONS IN LINE FOR 1FFO ENTRY
	1449	MVC	OPBUF(1),CPU PUT CPU OPTIONS IN WORK AREA
	1450	MVI	POP+1,X'87'
	1451	LA	LINE1A-15,XR2 ASSUME NO OPTIONS, THUS NO OPT PRINT
	1452	LA	OPTTAB,XR1 POINT AT PRINT LINE WHERE OPTS GO
	1453	OPLOOP	ALC OPBUF(1),OPBUF POINT AT OPT NUMBERS.
	1454	BNOL	NOTOP SHIFT LEFT 1
	1455	MVC	O(1,XR2),O(1,XR1) JUMP IF NO OPTION BIT
	1456	LA	2(1,XR2),XR2 MOVE OPT NUMBER INTO; LINE
	1457	MVI	POP+1,X'07'
	1458	NOTOP	EQU * BUMP TO NEXT OPTION NUMBER IN TAB
	1459	LA	1(1,XR1),XR1 IF IT IS A 'Q', QUIT
	1460	CLI	O(1,XR1),C'Q'
	1461	JE	POP
	1462	B	OPLOOP
	1463	POP	JC NOPOP,--* DO ALL 8
	1464	B	PRINT JUMP TO REGULAR ONLY OR FALL TO OPT
OF10	1465	DC	XL1'02'
OF11	1466	DC	IL1'59'
OF13	1467	DC	AL2(LINE1A)
	1468	J	WASPOP PRINT CPU LINE WITH OUT OPTIONS
OF17	1469	NOPOP	EQU * PRINT
	1470	B	PRINT
OF1B	1471	DC	XL1'01'
OF1C	1472	DC	IL1'23'
OF1E	1473	DC	AL2(LINE1)
	1474		
OF1F	1475	WASPOP	EQU * PRINT
	1476	B	PRINT
OF23	1477	DC	XL1'01'
OF24	1478	DC	IL1'51'
OF26	1479	DC	AL2(DASH)
	1480	B	PRINT
OF2B	1481	DC	XL1'01'
OF2C	1482	DC	IL1'51'
OF2E	1483	DC	AL2(LINE2)
	1484	B	PRINT
OF33	1485	DC	XL1'01'

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OF34	33	OF34	1486	DC	IL1'51'
OF35	12F7	OF36	1487	DC	AL2(DASH)
			1488		
OF37	C2 01 0232		1489	LA	UTAB,XR1
OF38	3C 01 1207		1490	MVI	FLAGS,1
OF3F	7D 00 00		1491	CLL	0(,XR1),X'0'
OF42	F2 81 8E		1492	JE	NOUNIT
OF45	34 01 0F4F		1493	ST	UADDR,XR1
OF49	C0 87 021E		1494	B	UNPACK
OF4D	01	OF4D	1495	DC	IL1'1'
OF4E	000G	OF4F	1496	UADDR	DC AL2(*-*)
OF50	0883	OF51	1497	DC	AL2(PLINE+3)
OF52	C2 02 0884		1498	LA	PLINE+4,XR2
OF56	BC 60 00		1499	MVI	0(,XR2),C'-'
OF59	0C 01 1203 039F		1500	MVC	MASK(2),ONE
OF5F	3C 00 1204		1501	MVI	OPNUM,0
OF63	0C 00 0F70 1202		1502	UDTLP1	MVC CHK1+1(1),MASK-1
OF69	0C 00 0F73 1203		1503	MVC	CHK2+1(1),MASK
OF6F	79 00 01		1504	CHK1	TBF 1(,XR1),*-*
OF72	79 00 02		1505	CHK2	TBF 2(,XR1),*-*
OF75	F2 10 16		1506	JT	NEXTOP
OF78	8C 00 01 1204		1507	MVC	1(1,XR2),OPNUM
OF7D	8A F0 01		1508	SBN	1(,XR2),X'F0'
OF80	8D FA 01		1509	CLI	1(,XR2),X'FA'
OF83	F2 82 05		1510	JL	**8
OF86	8E 00 01 11FB		1511	ALC	1(1,XR2),XC7
OF8B	E2 02 01		1512	LA	1(,XR2),XR2
OF8E	0E 01 1203 1203		1513	NEXTOP	ALC MASK(2),MASK
OF94	0E 00 1204 039F		1514	ALC	OPNUM(1),ONE
OF9A	3D 0C 1204		1515	CLI	OPNUM,X'0C'
OF9E	C0 82 0F63		1516	BL	UDTLP1
			1517		
OFA2	3D 01 1207		1518	CLI	FLAGS,1
OFA6	F2 01 0C		1519	JNE	CKPTR
OFA9	8C 05 09 1213		1520	MVC	9(6,XR2),LDR
OFAE	3C 02 1207		1521	MVI	FLAGS,2
OFB2	F2 87 10		1522	J	PRUDT
			1523		
OFB5	3D 02 1207		1524	CKPTR	CLI FLAGS,2
OFB9	F2 01 09		1525	JNE	PRUDT
OFBC	8C 06 0A 121A		1526	MVC	10(7,XR2),PRNTR
OFc1	3C 00 1207		1527	MVI	FLAGS,0
			1528		
OFc5	0C 19 12A3 089A		1529	PRUDT	MVC LINE3(26),PLINE+26
OFc8	C0 87 021A		1530	B	PRINT
OFcF	01	OFcF	1531	DC	XL1'01'
OFd0	1A	OFd0	1532	DC	IL1'26'
OFd1	12A3	OFd2	1533	DC	AL2(LINE3)
			1534		
OFd3	78 10 01		1535	NOUNIT	TBN 1(,XR1),X'10'
OFd6	D2 01 03		1536	LA	3(,XR1),XR1
OFd9	C0 90 0F3F		1537	BF	UDTLP
			1538		
			1539		
			1540	*	
			1541	*	DO MISCELLANEOUS DCP PRINTOUTS
			1542	*	
			1543	*	
			1544	*	
			1545		
OFdD	C0 87 021A		1546	B	PRINT SPACE PRINTER
OFe1	11	OFe1	1547	DC	XL1'11'
OFe2	C0 87 02'A		1548	B	PRINT
OFe6	05	OFe6	1549	DC	XL1'05'
OFe7	21	OFe7	1550	DC	IL1'33'
OFe8	12C4	OFe9	1551	DC	AL2(LINE4)
OFeA	C0 87 138D		1552	B	CHKID TEST FOR TAPE ON SYSTEM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OFEE	70	OFEE	1553	DC	XL1'70'
OFEF	F2 01 27		1554	JNE	TST07
			1555		
OFF2	C0 87 138D		1556	B	CHKID
OFF6	A0	OFF6	1557	DC	XL1'AO'
OFF7	F2 01 1F		1558	JNE	TST07
			1559		
OFFA	C2 01 0232		1560	LA	UTAB,XR1
OFFE	7D A0 00		1561	CLI	0(,XR1),X'AO'
1001	F2 01 15		1562	JNE	TST07
			1563		
1004	C0 87 1367		1564	XH	B PTX
1008	C0 87 021A		1565	B	PRINT
100C	01	100C	1566	DC	XL1'01'
100D	3C	100D	1567	DC	IL1'60'
100E	1332	100E	1568	DC	AL2(XM1)
1010	C0 87 1367		1569	B	PTX
1014	C0 87 021A		1570	B	PRINT
1018	14	1018	1571	DC	XL1'14'

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
1573 *****
1574 *
1575 *   CHECK FOR MODEL G
1576 *
1577 *****
1578
1019 1579 TST07 EQU *
1580 CLI SMOD,C'G' TEST FOR RUNNING ON MODEL 'G'
1581 BNE DOHA BRANCH IF NOT
1582 CLI UTAB,X'40' TEST FOR LOADING FROM 3741
1583 JE FD6D IF TRUE GO SET UP FOR LOADING
1584 TBN UTAB+1,X'80' TEST FOR LOADING FROM DISK
1585 BF DOHA IF NOT, HALT HA
1586
1587 *****
1588 *
1589 *   LOAD AND EXECUTE ANY PROGRAMS WHICH MUST BE
1590 *
1591 *   RUN AT DCP LOAD TIME
1592 *
1593 *   FD6 - RUNS ON ALL MODEL G SYSTEMS
1594 *
1595 *****
1596
1030 1597 ISAO LA X'0232',XR1 SET-UP XR1 ADDRESS FOR UTAB TABLE *GC*
1034 1598 CLI O(XR1),X'AO' SEE IF DISK IS A 5444 *GC*
1037 1599 JNE ISA1 JUMP IF NOT A 5444 DISK *GC*
103A 1600 MVI DKFLAG,X'AO' IDENTIFY IT A 5444 DISK *GC*
1601
103E 1602 ISA1 B SEARCH GO GET DISK ADDR OF PROGRAMS *GC*
1603
1042 1604 TBN SRFLAG,BIT2 SEE IF FD6 FOUND ON DISK
1046 1605 JF FD6RTN IF NOT, DON'T RUN
1606 *****
1607 *   TEST UDT TABLE FOR DISK FILE 3340 OR DISK FILE 5444
1608 *****
1609 CLI DKFLAG,X'AO' SEE IF DISK IS A 5444
1610 JE FD6D JUMP IF IS
1611 MVC ADR143(2),CCHH02 MOVE IN ADDRESS OF 3340 CCHHR (143)
1612 MVC X'1FEF'(2),CCHH12 MOVE IN ADDRESS OF 3340 CCHHR (FC0)
1613 MVC FD62(2),CCHH22 MOVE IN ADDRESS OF 3340 CCHHR (FD6)
1062 1614 FD6D EQU *
1615 *****
1616 MVC X'1FF5'(2),FD6ADR SET UP FOR FD6 TO COME BACK
1068 1617 SBN SBYTE5,SSW2F SET ON SSW 2F TO SHOW FD6 TO LINK BACK
106C 1618 B LOAD LOAD AND RUN LSR TESTS
1070 1619 FLG1 DC XL1'08'
1071 1620 FD62 DC XL2'DFD6' DISK ADDRESS FILLED IN BY 'SEARCH' RTN
1073 1621 FD6ADR DC AL2(FD6RTN)
1075 1622 FD6RTN EQU * RETURN HERE FROM FD6
1623 MVC 16(17),GOLOAD+16 STORE A PROGRAM RESTART AT 0000
107B 1624 TSTFD6 MVI X'1FD',X'10' RESET FLAG BIT FOR LOAD RTN

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FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
1626 *****
1627 *
1628 *   R U N   1 4 3   ( MICRO CODE LOADER )
1629 *
1630 *****
1631
107F 1632 TBN SRFLAG,BIT0+BIT1 IF 143 OR FC0 NOT FOUND DON'T RUN 143
1083 1633 BF DOHA IF NOT, DON'T RUN
1087 1634 MVC X'1FF5'(2),RTN143 SET UP FOR 143 TO COME BACK
108D 1635 SBN SBYTE5,SSW2F SET ON SSW 2F TO SHOW 143 TO LINK BACK
1636
1091 1637 B LOAD LOAD 143 AND EXECUTE
1095 1638 DC XL1'18' LOAD PGM AT SPECIFIED ADDR AND GIVE CONTROL
1097 1639 ADR143 DC AL2(*-*) DISK ADDR OF 143 FILLED IN ABOVE
1099 1640 RTN143 DC AL2(MICRTN)
109A 1641 MICRTN EQU * RETURN HERE FROM 143
1642 MVC 16(17),GOLOAD+16 STORE A PROGRAM RESTART AT 0000
109A 1643 B BLKCRD TO BLANK CRT
1644
1645 *****
1646 *
1647 *   S E A R C H   SEARCH VTOCS FOR FD6,143,FC0 AND INSERT
1648 *   DISK ADDRESSES IN 'B LOAD'
1649 *****
1650
1651 SEARCH ST SRX+3,ARR SET BRANCH TO LOAD FLAG BITS
1652 MVI FLG1,X'18' SET TO ZERO AS FLAG
1653 MVI X'1FEE',0 SET FLAG TO ZERO (SUPPORT INSTR AT '1FF0')
1654 MVI SRFLAG,0 SEEK TO VTOC AND CHECK FOR PROGRAM 143
1655 B LOAD
1088 1656 DC XL1'02'
1657 LA X'880',XR1 LOAD XR1 AS POINTER TO VTOC RECORD
1658
1659 READRC B LOAD TO READ NEXT RECORD INTO X'880'
10C1 1660 DC XL1'10'
1661 CLI O(XR1),X'FF' TEST FOR END OF VTOC
1662 BE NE2 JUMP IF YES
1663 CLI O(XR1),0 TEST FOR END OF VTOC
1664 BE NE2 JUMP IF YES
1665 CLC 2(3,XR1),ACTKON TEST FOR AN ACTIVE VTOC ENTRY
1666 BNE NE2 JUMP IF NOT 'ACT'
1667
1668 CLI UTAB,X'C1' CHANGE DISPLACEMENT OF ID IN VTOC
1669 JE ISWIN ENTRY IF THIS IS 5444.
1670 MVI MVID+4,ID5444 IF 3340, LEAVE DISPLACEMENT AS IS
10E4 1671 ISWIN EQU *
1672 MVID MVC VTID(3),ID3340(XR1) MOVE ID INTO TEMP AREA
1673
1674 TRYFD6 CLC VTID(3),FD6KON LOOK FOR ID OF FD6 *GCDP
1675 JNE TRYOUT
1676 MVC FD62(2),VTAD(XR1) MOVE IN DISK ADDR OF FD6 (5444)
1677 MVC CCHH2(5),VT33(XR1) MOVE IN CCHHR ADDR FROM VTOC (3340)
1678 SBN SRFLAG,BIT2 INDICATE FD6 FOUND
1100 1679 TRYOUT EQU *
1680 TBN SRFLAG,BIT2 SEE IF FOUND YET
1681 BF READRC GO LOAD 143 ETC
1682 SRX B *-* RETURN TO CALLER SECTION
1683 TRY143 CLC VTID(3),MICLDR ID OF MICROCODE LOADER (143) *GCDP
1684 JNE TRYFCO READ AGAIN IF ID NOT FOUND
1685 MVC ADR143(2),VTAD(XR1) MOVE IN DISK ADDR FROM VTOC (5444)
1686 MVC CCHH0(5),VT33(XR1) MOVE IN CCHHR ADDR FROM VTOC (3340)
1687 SBN SRFLAG,BIT0 INDICATE 143 FOUND
1688
1689 TRYFCO CLC VTID(3),MICDAT ID OF MICROCODE DATA (FC0) *GCDP
1690 BNE TRYFD6 READ AGAIN IF ID NOT FOUND
1691 MVC X'1FEF'(2),VTAD(XR1) MOVE IN DISK ADDR FROM VTOC (5444)
1692 MVC CCHH1(5),VT33(XR1) MOVE IN CCHHR ADDR FROM VTOC (3340)

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FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1137 3A 40 113C          1693 SBN SRFLAG,BIT1          INDICATE FCO FOUND
0007 1694 ID5444 EQU 7          DISPLACEMENT OF ID IN 5444 VTOC
0006 1695 ID3340 EQU 6          DISPLACEMENT OF ID IN 3340 VTOC
0004 1696 VTAD EQU 4           LOCATION IN VTOC OF 5444 ADDRESS
000E 1697 VT33 EQU 14          LOCATION IN VTOC OF 3340 ADDRESS CCHHR
113B FF                  113B 1698 DKFLAG DC XL1'FF'          *GC*
113C 00                  113C 1699 SRFLAG DC XL1'00'          BIT 0 - 143
1700 *                   BIT 1 - FCO
1701 *                   BIT 2 - FD6
1702
113D 1703 VTEND EQU *          ENTER HERE ON LAST VTOC AND NOT ALL PGMS FOUND
1704 TBN SRFLAG,BIT0          DID 143 GET IN ?
1705 JT NE1
1706 MVC IDLOST(3),MICLDR MOVE '143' INTO MESSAGE
1707 B PRINT
114E 02                  114E 1708 DC XL1'02'          PROGRAM XXX NOT FOUND ON DISK
114F 1E                  114F 1709 DC IL1'30'          PROGRAM XXX NOT FOUND ON DISK
1150 1350                1151 1710 DC AL2(NOTFND)
1711
1152 38 40 113C          1712 NE1 TBN SRFLAG,BIT1          DID FCO GET IN ?
1156 F2 10 0E           1713 JT NE2
1159 0C 02 133D 1360   1714 MVC IDLOST(3),MICDAT MOVE 'FCO' INTO MESSAGE
115F 0C 07 021A        1715 B PRINT
1163 02                  1163 1716 DC XL1'02'          PROGRAM XXX NOT FOUND ON DISK
1164 1E                  1164 1717 DC IL1'30'          PROGRAM XXX NOT FOUND ON DISK
1165 1350                1166 1718 DC AL2(NOTFND)
1719
1167 38 20 113C          1720 NE2 TBN SRFLAG,BIT2          DID FD6 GET IN
1168 F2 10 0E           1721 JT DOHO
116E 0C 02 133D 1366   1722 MVC IDLOST(3),FD6KDN MOVE 'FD6' INTO MESSAGE
1174 0C 07 021A        1723 B PRINT
1178 02                  1178 1724 DC XL1'02'          PROGRAM XXX NOT FOUND ON DISK
1179 1E                  1179 1725 DC IL1'30'          PROGRAM XXX NOT FOUND ON DISK
117A 1350                117B 1726 DC AL2(NOTFND)
117C 1727 DOHO EQU *
1728 B PRINT
1180 17                1180 1729 DC XL1'17'          SPACE 7 TIMES
1730 HPL HO,HH           HO HALT TO SHOW PGM'S MISSING
1181 F0 38 6F           1731 HPL H4,HO          SECONDARY HALT SAYS PGM'S MISSING
1184 F0 6F 1B           1732
1733 B SRX              RETURN TO CALLER
1187 0C 07 1108          1734 *****
1735 *
1736 * WRITE ON CRT      ( TO GET RID OF ATTRIBUTE CHARACTERS )
1737 *
1738 *****
1188 3D FF 0879          1188 1739 BLKCR7 EQU *
118F 0C 01 11C9          1740 CLI CRTFLG,X'FF'          IS CRT MICRO LOADED
1741 BNE DOHA           IF NOT, DON'T BLANK
1742
1193 3C 07 7ECF          1743 MVI ERSSW+1,X'07'          SET UP TO ERASE ON CRT
1197 F3 18 80           1744 SIO X'80',SIOI           DISABLE MICRO PROCESSOR
119A F3 18 E0           1745 SIO X'E0',SIOI           ENABLE/START MICRO PROCESSOR
119D 0D FF 119D 119D    1746 CLC *(256),*           WAIT FOR MICRO PROCESSOR
11A3 C1 18 11C9          1747 TIO DOHA,X'18'          READY ?
11A7 31 10 1209          1748 LIO X0000,X'10'          LOAD CRT BUFF ADDR
11A8 31 18 120B          1749 LIO FRST2,X'1B'          LOAD MAIN STORAGE BUFFER ADR
11AF 31 12 120D          1750 LIO D0480,X'12'          LOAD LENGTH OF WRITE TO 480
11B3 0C C7 15CA 15CB    1751 MVC LB(200),LB+1        PROPOGATE BLANK THRU 5 CRT LINES
11B9 F3 10 91           1752 SIO X'91',X'10'          WRITE BEGINNING MSG
11BC C1 1F 118C          1753 TIO *,X'1F'             HANG ON BUSY
11C0 0D 31 11C0 11C0    1754 CLC *(50),*           DELAY FOR INTERRUPT
11C6 F3 18 02           1755 SIO X'02',SIOI          RESET PENDING INTERRUPT

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
11C9 38 01 0208          1757 DOHA TBN SBYTE0,SSW07
11CD F2 10 03           1758 JT GOLOAD
1759
1760 *****
1761 *                   H H AAAAAAAAAA
1762 *                   H H A A
1763 *                   H H A A
1764 *                   HHHHHHHHHH AAAAAAAAAA
1765 *                   H H A A
1766 *                   H H A A
1767 *                   H H A A
1768 *****
1769
11D0 F0 38 3F           1770 HLTG HPL HA,HH          DCP LOADING COMPLETE
11D3 C0 87 0212          11D3 1771 GOLOAD EQU *
1772 B TEST              CHECK DATA SWITCHES
1773 B XREF1             GU LOAD SECTION
11D7 C0 87 02F3          1774 DROP XR2
0002 1774 *****
1775 *****
1776 *
1777 *                   STORAGE DC'S FOR DCP
1778 *
1779 *****
1780
11DB 00                  11DB 1781 TEMPA DC XL1'00'
11DC 08                  11DC 1782 X08 DC XL1'08'
11DD 0800                11DE 1783 TWOK DC XL2'0800'
11DF 000000              11E1 1784 VTID DC XL3'000000' TEMP STORAGE FOR ID FROM VTOC
11E2 0000000000         11E6 1785 CCHHO DC XL5'0000000000' CYL HED REC FOR 143 (3340)
11E7 0000000000         11EB 1786 CCHH1 DC XL5'0000000000' CYL HED REC FOR FCO
11EC 0000000000         11F0 1787 CCHH2 DC XL5'0000000000' CYL HED REC FOR FD6
11F1 11E6                11F2 1788 CCHH02 DC AL2(CCHH0)
11F3 11E8                11F4 1789 CCHH12 GC A'2(CCHH1)
11F5 11F0                11F6 1790 CCHH22 DC AL2(CCHH2)
11F7 0100                11F8 1791 X100 DC XL2'100'
11F9 0008                11FA 1792 PRIV DC XL2'0008' PRIVILEGE MODE ONLY
11FB C7                  11FB 1793 XC7 DC XL1'C7'
1794 J J                 TEST7-TSTCRD-1
1795 J1 J                 LE2-LX2
1203 1796 MASK DC XL2'0'
1204 00                  1204 1797 OPNUM DC XL1'0'
1205 F0F4                1206 1798 DFOUR DC DL2'4'
1207 00                  1207 1799 FLAGS DC XL1'0'
1208 0000                1209 1800 X0000 DC XL2'0000'
120A 1488                120B 1801 FRST2 DC AL2(FRST)
120C 01E0                120D 1802 D0480 DC IL2'480'

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1804 *****
1805 * PRINTOUTS *****
1806 *****
1807
120E D3D6C1C4C5D9      1213 1808 LDR   DC   CL6'LOADER'
1214 D7D9C9D5E3C5D9      121A 1809 PRNTR DC   CL7'PRINTER'
121B D4D6C4C5D340E74B  1231 1810 LINE1 DC   CL23'MODEL X. STORAGE XXXX'
1223 4040E2E3D6D9C1C7      1810
122B C54040E7E7E7D2      1810
1232 404040C3D7E440D6  1255 1811 LINE1A DC   CL36' CPU OPTIONS ARE X
123A D7E3C9D6D5E240C1      1811
1242 D9C54040E7404040      1811
124A 4040404040404040      1811
1252 40404040      1811
1256 40      1256 1812      DC   CL1' '
1257 E4D5C9E340C4C5C6  126C 1813      DC   CL22'UNIT DEFINITION TABLE '
125F C9D5C9E3C9D6D540      1813
1267 E3C1C2D3C540      1813
126D 4B4B4B4B40D4E4E2  1289 1814 LINE2 DC   CL29'..... MUST BE CORRECT --VERIFY--
1275 E340C2C540C3D6D9      1814
127D D9C5C3E34060E5C5      1814
1285 D9C9C6E860      1814
128A 4040404040404040  12A3 1815 LINE3 DC   CL26' '
1292 4040404040404040      1815
129A 4040404040404040      1815
12A2 4040      1815
12A4 4040404040404040  12C4 1816 LINE4 DC   CL33'          DCP IS LOADED'
12AC 4040404040404040      1816
12B4 40404040C4C3D740      1816
128C C9E240D3D6C1C4C5      1816
12C4 C4      1816
12C5 4040404040404040  12DA 1817      DC   CL22' '
12CD 4040404040404040      1817
12D5 404040404040      1817
12DB 6060606060606060  12F7 1818 DASH DC   29CL1'-'
12E3 6060606060606060      1818
12EB 6060606060606060      1818
12F3 6060606060      1818
12F8 C4E4D4D740E3C1D7  1325 1819      DC   CL46'DUMP TAPE ERROR STATISTICS BEFORE RUNNING DISK'
1300 C540C5D9D9D6D940      1819
1308 E2E3C1E3C9E2E3C9      1819
1310 C3E240C2C5C6D6D9      1819
1318 C540D9E4D5D5C9D5      1819
1320 C740C4C9E2D2      1819
1326 40C4C9C1C7D5D6E2  1332 1820 XM1  DC   CL13' DIAGNOSTICS-'
132E E3C9C3E260      1820
1333 D7D9D6C7D9C1D440  133D 1821 IDLOST DC   CL11'PROGRAM XXX'
133B E7E7E7      1821
133E 40D5D6E340C6D6E4  1350 1822 NOTFND DC   CL19' NOT FOUND ON DISK '
1346 D5C440D6D540C4C9      1822
134E E2D240      1822
1351 1823 OPTTAB EQU *          TABLE FOR CPU OPTIONS
1359 1824      DC   CL9'12345678Q'          Q SIGNALS END
1359 D8      1824
135A 00      135A 1825 OPBUF DC   XL1'00'
135B F1F4F3      135D 1826 MICLDR DC   CLO3'143'
135E C6C3F0      1360 1827 MICDAT DC   CLO3'FC0'
1361 C1C3E3      1363 1828 ACTKON DC   CLO3'ACT'
1364 C6C4F6      1366 1829 FD6KON DC   CLO3'FD6'
1830
1831 *****
1832 *          SUBROUTINE TO PRINT
1833 *****
1834
1367 34 08 133B      1835 PTX   ST   PTX@+3,ARR
1368 3C 02 138C      1836      MVI   CNT,2
136F 3C 40 088C      1837 XZ1  MVI   X'880'+60,C'-'
1373 0C 3A 088B 088C  1838      MVC   X'880'+59(59),X'880'+60

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1379 C0 87 021A      1839      B   PRINT
137D 21      137D 1840      DC   XL1'21'
137E 0F 00 138C 039F  1841      SLC  CNT,ONE
1384 C0 01 136F      1842      BNZ  XZ1
1388 C0 87 0000      1843 PTX@  B   *-
138C 00      138C 1844 CNT  DC   IL1'0'
1845
1846 *****
1847 *          CHECK IF PASSED ID IS IN UDT          ( SUBROUTINE )
1848 *****
1849
138D 1850 CHKID EQU *
1851      ST   CHKX@+3,ARR
1852      ST   CHKSRI+3,XR1
1853      L   CHKX@+3,XR1
1854      ALC  CHKX@+3(2),ONE
1855      MVC  SID(1),O(,XR1)
1856      LA   UTAB,XR1
1857 XTCHKL CLI  O(,XR1),O
13A9 1858 SID  EQU  *-2
1859      JE   CHKSRI
1860      TBN  1(,XR1),X'10'
1861      LA   3(,XR1),XR1
1862      BF   XTCHKL
1863 CHKSRI LA   *-*,XR1
1864 CHKX@  B   *-

```

SUBROUTINE TO CHECK IF A PASSED ID IS IN THE UDT TABLE. ON EXIT THE CONDITION CODE WILL BE SET TO EQUAL IF ID IS PRESENT, NOT EQUAL IF ID IS NOT PRESENT



FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
1866 *****
1867 *
1868 *          -- OVERLAYS --
1869 *
1870 * PERFORM VARIOUS OVERLAYS AND SET UP VARIOUS
1871 *
1872 * LINKAGES NECESSARY BASED ON MODEL AND PRINTERS
1873 *
1874 * ATTACHED FOR PROPER FUNCTIONING OF DCP
1875 *
1876 * THIS SUBROUTINE IS EXECUTED ONLY ONCE-- WHEN THE
1877 * FIRST COMMENT (*) CARD IS ENCOUNTERED OR WHEN
1878 * DCP'S END (E) CARD IS READ.
1879 *
1880 *****
1881
13C0 1882 XREF2 EQU *
1883 FIXMOB ST LEXIT+3,ARR
1884
1885 CLI X'880',C'*'
1886 JE TRYCPU
1887 CLI X'880',C'E'
1888 BNE LVMOB
1889 TRYCPU CLI X'200',X'00' IF A CPU CARD PROCESSED, THEN DO FIXMOB
1890 BNE TSTUDT -HO- HALT * CARD FOUND BEFORE CPU/UDT CARDS
1891 MOH HPL HO,HH
1892 HPL H2,HO SECONDARY HALT. * COMMENT OR END FOUND BUT NO CPU
1893 B LVMOB
13E5 1894 TSTUDT EQU *
1895 CLI UTAB,0 IF NO UDT CARD THEN HALT
1896 BE MOH
1897 ONCEXX BC LVMOB,X'07' DO THIS ROUTINE ONLY ONCE
1898 MVI ONCEXX+1,X'87'
1899
1900 MVC ENTRY1(2),X'1FD'
1901 MVC ENTRY2(2),X'1FF' MOVE ENTRIES POINTS 3 INTO LOAD RTN
1902 MVC TSTOVL+2(3),TSTINS+2
1903 TBN UTAB+1,X'80' IS THIS A DISK SYSTEM
1904 JT DSKSYS
1905 MVC LX2-1(3),J1+2
1906 MVI TSTDSK,0
1907 MVC TSTCRD(3),J+2
1908 SLC DTABLE+1(4),DTABLE+1 CLEAR CARD LOADER FLAGS.
1909 J NOTD NO DTABLE CLEAR ON CARD SYS
1427 1910 DSKSYS EQU *
1911 SLC DTABLE+1(6),DTABLE+1 CLEAR DTABLE FOR DISK SYS
1912 NOTD CLI SMOD,C'E' TEST FOR MODEL E
1913 JNE CKCID JUMP IF NOT
1914 *
1915 * OLD MOVE OF CRT OVERLAY WAS HERE
1916 J LVMOB
1437 1917 CKCID EQU *
1918 ST SAVE1+3,XR1 SAVE XR1
1919 B CKCID
143F 1920 DC XL1'10' ALT. PRINT RTN. WITH 5471 MODULE
1921 JNE TR5424 JUMP IF NOT 5471
1922 J SAVE1 IF 5471, THEN NO MORE CHECKING
1923 TR5424 B CKCID CHECK FOR A 5424 ATTACHED
144A 1924 DC XL1'F0' 5424 DEVICE CODE
1925 JNE TR3741 GO TO CHECK NEXT DEVICE
144E 1926 MVC PRTNA+59(60),MHLT2+59 OVERLAY ALT. CODE WITH 5424 CODE
1927 J SAVE1 EXIT THIS ROUTINE
1457 1928 TR3741 B CKCID CHECK FOR A 3741 ATTACHED
145B 1929 DC XL1'40' 3741 DEVICE CODE
1930 JNE TR1442 GO CHECK NEXT DEVICE
145F 1931 MVC PRTNA+66(67),DHALT+66 OVERLAY ALT. CODE WITH 3741 CODE
1932 J SAVE1 EXIT THIS ROUTINE
1468 1933 TR1442 B CKCID CHECK FOR A 1442 ATTACHED

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
146C 51
146D F2 01 09
1470 OC 48 07DE 18D3
1476 F2 87 03
1479 F0 3B 3B
147C C2 01 0000
1480 C0 87 0212
1484 C0 87 0000
1488 B0 00 01
146C 1934 DC XL1'51' 1442 DEVICE CODE
1935 JNE HHHALT GO HALT IF NO ALT. FOUND
1936 MVC PRTNA+75(76),PHALT+75 OVERLAY ALT. CODE WITH 1442 CODE
1937 J SAVE1 EXIT THIS ROUTINE
1938 HHHALT HPL HH,HH HALT TO INDICATE NO ALT. FOUND
1939 SAVE1 LA *-*,XR1 RESTORE XR1
1480 1940 LVMOB EQU *
1941 B TEST
1942 LEXIT B *-*
1943
0411 1944 USING DATSW-1,XR2
1945 TSTINS SNS DATSW(,XR2),0

```

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

148B	4040404060606050	1488 1947	FRST	EQU *	
149B	6060606060606060	1482 1948		DC	CL40'
149B	6060606060606060	1948			
14A3	6060606060606060	1948			
14AB	6060604040404040	1948			
14B3	404040404F404040	14DA 1949		DC	CL40'
14BB	40C440C340D74040	1949			
14C3	4040D340D640C140	1949			
14CB	C440C540C4404040	1949			
14D3	40404F4040404040	1949			
14DB	4040404060606060	1502 1950		DC	CL40'
14E3	6060606060606060	1950			
14EB	6060606060606060	1950			
14F3	6060606060606060	1950			
14FB	6060604040404040	1950			
1503		152A 1951		DS	CL40
152B		1552 1952		DS	CL40
1553		157A 1953		DS	CL40
157B		15A2 1954		DS	CL40
15A3		15CA 1955	LB	DS	CL40
15CB	404040404040F3F2	15F2 1956		DC	CL40'
15D3	F7F040D4C9C3D9D6	1956			
15DB	60C3D6C4C540D3D6	1956			
15E3	C1C4C5C440404040	1956			
15EB	4040404040404040	1956			
15F3	4040404040404040	161A 1957		DC	CL40'
15FB	4040404040404040	1957			
1603	4040404040404040	1957			
160B	4040404040404040	1957			
1613	4040404040404040	1957			
161B	40404040E4E2C540	1642 1958		DC	CL40'
1623	C3D6D5E2D6D3C540	1958			
162B	E2E6C9E3C3C8C5E2	1958			
1633	40E3D640E2C5D3C5	1958			
163B	C3E3404040404040	1958			
1643	40404040C4C5E2C9	166A 1959		DC	CL40'
164B	D9C5C440D7D9D6C7	1959			
1653	D9C1D44840404040	1959			
165B	4040404040404040	1959			
1663	4040404040404040	1959			

3270 MICRO-CODE LOADED

USE CONSOLE SWITCHES TO SELECT

DESIRED PROGRAM.

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

1661	*****				
1662	*	5424	ALTERNATE CODE	*	
1663	*****				
1664	ORG	X'FFFF'-X'1688'+*			IF FLAGGED, OVER LAY PROBLEM
1665	ORG	X'1688'			
0717 1666	USING	PRTN, XR2			
1688 1667	USING	MHLT2, XR1			
1668	MHLT2	HPL H9, HH			*MFCU NOT READY OR ERROR
1669	B	PRTN1(, XR2)			
1670	AL5424	CLI PRSIO+1(, XR2), X'E0'			GO EXIT IF THIS WAS SPACE OPERATION
1671	BE	PRTEXT(, XR2)			
1672	SNS	MSTAT(, XR2), X'F3'			READ MFCU STATUS
1673	TBN	MSTAT-1(, XR2), X'10'			IF NO CARD IN SEC WAIT STATION,
1674	JT	DOIT			ISSUE FEED COMMAND.
1675	TIO	MHLT2(, XR1), X'F8'			TEST FOR MFCU NOT READY
1676	SIO	X'0', X'F8'			GIVE WITH THE FEED COMMAND
1677	BSYLP0	TIO BSYLP0(, XR1), X'F1'			TEST UNTIL NOT BUSY
1678	DOIT	TIO MHLT2(, XR1), X'F8'			GO HALT IF MFCU NOT READY
1679	LIO	PR1(, XR2), X'F4'			LOAD MFCU PRINT ADDRESS REGISTER
1680	SIO	X'A4', X'FC'			PRINT ON MFCU CARD
1681	BSYLP1	SNS MSTAT(, XR2), X'F3'			WAIT FOR BUSY TO DROP
1682	TBN	MSTAT-1(, XR2), X'40'			TEST FOR BUSY
1683	BT	BSYLP1(, XR1)			
1684	TIO	MHLT2(, XR1), X'F8'			GO HALT IF ANY ERRORS
1685	MVC	LPDATA+131(132), LPDATA+132			BLANK PRINT BUFFER
1686	B	PRTEXT(, XR2)			RESTORE XR2 AND RETURN
1687	*****				*****
1688	*	3741	ALTERNATE CODE	*	
1689	*****				*****
1690	ORG	X'FFFF'-X'1788'+*			IF FLAGGED, OVER LAY PROBLEM
1691	ORG	X'1788'			
0717 1692	USING	PRTN, XR2			
1788 1693	USING	DHALT, XR1			
1788	DHALT	HPL H9, HH			*3741 NOT READY OR ERROR
1789	B	PRTN1(, XR2)			RETURN TO TRY AGAIN
1790	LIO	FUNCSH(, XR1), X'41'			LOAD FUNCTION REG
1791	CLI	PRSIO+1(, XR2), X'E0'			IS THIS A SPACE OPERATION
1792	BE	PRTEXT(, XR2)			RETURN IF IT IS
1793	SNS	XFRLIN(, XR1), X'43'			SENSE THE TRANSFER LINES
1794	TBN	XFRLIN-1(, XR1), X'04'			TEST FOR 3741 ON-LINE BIT ON
1795	BF	DHALT(, XR1)			GO HALT IF 3741 NOT ON-LINE
1796	TBN	XFRLIN-1(, XR1), X'01'			TEST FOR WRITE BIT ON
1797	BF	XFRSNS(, XR1)			LOOP IF WRITE BIT NOT ON
1798	SIO	X'08', X'43'			NORMAL RESPONSE TO 3741
1799	LIO	PR2, X'44'			LOAD DATA ADDRESS REGISTER
1800	LIO	RECLN(, XR1), X'42'			LOAD LENGTH COUNT REGISTER
1801	SIO	X'00', X'42'			WRITE A RECORD
1802	TIO	ISBIZ(, XR1), X'42'			WAIT TILL NOT BUSY
1803	SNS	MSTAT(, XR2), X'42'			GET THE STATUS BYTES
1804	TBN	MSTAT-1(, XR2), X'0A'			TEST FOR PARITY ERROR OR OVERFLOW
1805	BF	DHALT(, XR1)			IF ERROR, HALT AND TRY AGAIN
1806	SIO	X'08', X'43'			NORMAL RESPONSE TO THE 3741
1807	B	PRTEXT(, XR2)			RETURN TO RETURN ROUTINE
1808	DC	XL2'4000'			FUNCTION REGISTER DATA
1809	DC	XL2'00'			TRANSFER LINES DATA AREA
1810	DC	XL2'007F'			LENGTH OF RECORD TO BE WRITTEN
1811	*****				*****
1812	*	1442	ALTERNATE CODE	*	
1813	*****				*****
1814	ORG	X'FFFF'-X'1888'+*			IF FLAGGED, OVER LAY PROBLEM
1815	ORG	X'1888'			
0717 1816	USING	PRTN, XR2			
1888 1817	USING	PHALT, XR1			
1888	PHALT	HPL H9, HH			*1442 NOT READY OR ERROR
1889	B	PRTN1(, XR2)			TRY IT AGAIN
1890	CLI	PRSIO+1(, XR2), X'E0'			EXIT IF THIS WAS A SPACE OPERATION
1891	BE	PRTEXT(, XR2)			
1892	LIO	PR2(, XR2), X'54'			LOAD PUNCH DATA ADDRESS REGISTER

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT  
1897 71 50 4A 2029 LIO PUNNUM(,XR1),X'50'  
189A D1 50 00 2030 PUNERR TIO PHALT(,XR1),X'50'  
189D F3 54 00 2031 SIO X'00',X'54'  
18A0 D1 52 18 2032 BIZZEE TIO BIZZEE(,XR1),X'52'  
18A3 B0 53 40 2033 SNS MSTAT(,XR2),X'53'  
18A6 B9 36 40 2034 TBF MSTAT(,XR2),X'36'  
18A9 B9 0F 40 2035 TBF MSTAT(,XR2),X'0F'  
18AC D0 90 12 2036 BF PUNERR(,XR1)  
18AF 7D FF 4B 2037 CLI FLGTWO(,XR1),X'FF'  
18B2 F2 81 16 2038 JE PUNDUN  
18B5 3C 40 08CB 2039 MVI LPDATA+79,X'40'  
18B9 0C 1F 08CA 08CB 2040 MVC LPDATA+78(32),LPDATA+79  
18BF 0C 2E 08AA 08FA 2041 MVC LPDATA+46(47),LPDATA+126  
18C3 7C FF 4B 2042 MVI FLGTWO(,XR1),X'FF'  
18C8 D0 87 12 2043 B PUNERR(,XR1)  
18CB 7C 00 4B 2044 PUNDUN MVI FLGTWO(,XR1),X'0'  
18CE E0 87 65 2045 B PRTEXT(,XR2)  
18D1 0030 18D2 2046 PUNNUM DC XL2'0030'  
18D3 00 18D3 2047 FLGTWO DC XL1'0'  
2048  
2049 \*\*\*\*\*  
2050 \*  
2051 \* BEGINNING OF DCP RESERVED STORAGE. X'7800'-X'7FFF' (2K) \*  
2052 \*  
2053 \*  
2054 \*\*\*\*\*  
2055 ORG X'7800'  
2056 TRYFDD B TSTOVL THIS INST OVERLAYED BY FDD  
2057  
2057  
2057  
2057  
2057  
2058 \*\*\*\*\*  
2059 \*  
2060 \* SPACE 1403 34 TIMES RATHER THAN 6 OR 7  
2061 \*  
2062 \*\*\*\*\*  
2063 ORG X'FFFF'-X'7D00'+\* IF FLAGGED, OVER LAY PROBLEM  
2064 ORG X'7D00'  
7D00 2065 SPC34 EQU \*  
2066 TBN SBYTE1,X'04' SSWOD \*\* THESE INSTRUCTIONS  
2067 JF GWN \*\* FOR DUMP ONLY  
2068 SBF SBYTE1,X'04' GET SSWOD OFF NOW \*\*  
2069 B DDDUMP \*\*  
7D0F 2070 GWN EQU \*  
2071 TBN SBYTE1,X'01' IF SSW OF ON, AND SP 6 OR MORE DO 34  
2072 TBN NSPACE,X'06'  
2073 JF DOREG  
2074 MVI NSPACE,13 12 X 3 = 36  
2075 DOREG1 SLC NSPACE(1),OWN1 SPACE 36 LOOP  
2076 BL PREXIT  
2077 B PRTN  
7D2D 2078 DC XL2'E003' SPACE 3  
2079 B DOREG1  
7D32 2080 DOREG SLC NSPACE(1),OWN1 SPACE LOOP LIKE DCP  
2081 BL PREXIT  
2082 B PRTN  
7D41 2083 DC XL2'E001'  
2084 B DOREG  
2085  
2086 \*\*\*\*\*  
2087 \*  
2088 \* DUMP STORAGE ROUTINE  
2089 \*

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT  
2090 \*\*\*\*\*  
2091  
2092 \*\*\*\*\*  
7D46 2093 DODUMP EQU \*  
2094 B PRINT SPACE  
7D4A 2095 DC XL1'11'  
2096 B PRINT CLEAR BUF  
7D4F 2097 DC XL1'81'  
7D50 2098 DC IL1'40' CLEAR BUF  
7D52 2099 DC AL2(DPMG)  
2100 MVC X'087C'+120(116),DPMG1 MOVE HEADINGS FOR DUMP  
2101 B PRINT  
7D5D 2102 DC XL1'A1' OWN AREA  
2103 MVI SRC,X'0F' BEGIN DUMPING AT 0000  
2104 MVI SRC-1,X'00'  
2105 SNS OWNOLD,X'00' MAKE OLD = PRESENT (SENSE SWITCHES)  
2106  
7D6A 2107 DPLP EQU \* TOP OF DUMP LOOP  
2108 SNS OWN16,X'00' GET SWITCHES  
2109 CLC OWN16(2),OWN16 IF NO CHG TO SSW, GO ON  
2110 JE CONTU  
2111  
2112 \* MUST BE NEW VAL IN SW, SO INSERT IT  
2113 NEW MVC SRC(2),OWN16  
2114 MVI SRC,X'0F' START AT 256 BYTE BOUNDARY  
2115 MVC OWNOLD(2),OWN16 PUT NEW IN OLD  
2116 \* BEFORE PRINT SEE IF WE'VE CHANGED TO NEXT X'400' BYTES  
7D87 2117 CONTU EQU \*  
2118 ALC HDCTR(1),OWN16 BUMP CTR  
2119 JNOL NODPMG CAUSES HEADING ABOUT EVERY 16 LINES  
2120  
2121 B PRINT SPACE  
7D9A 2122 DC XL1'11'  
2123 MVC X'087C'+120(116),DPMG1 MOVE HEADINGS FOR DUMP  
2124 B PRINT  
7D9F 2125 DC XL1'A1' OWN AREA  
2126  
7DA0 2127 MODPMG EQU \*  
2128 \*  
2129 \*  
2130 \* SET UP DUMP PRINT LINE (3 UNPACKS AND THE ADDRESS)  
2131 B UNPACK  
7DA4 2132 DC IL1'16'  
7DA6 2133 SRC AL2(\*-\*)  
7DA8 2134 DC AL2(LPDATA+4+6+32)  
2135 MVC SRC1(2),SRC  
2136 ALC SRC1(2),OWN16  
2137 B UNPACK  
7D89 2138 DC IL1'16'  
7D8B 2139 SRC1 DC AL2(\*-\*)  
7D8D 2140 DC AL2(LPDATA+4+6+32+8+32)  
2141 MVC SRC2(2),SRC1  
2142 ALC SRC2(2),OWN16  
2143 B UNPACK  
7DCE 2144 DC IL1'16'  
7DD0 2145 SRC2 DC AL2(\*-\*)  
7DD2 2146 DC AL2(LPDATA+4+6+32+8+32+8+32)  
2147 B UNPACK PACK THE SOURCE ADDRESS  
7DD7 2148 DC IL1'2'  
7DD9 2149 DC AL2(SRC)  
7DDB 2150 DC AL2(LPDATA+4+4)  
2151 MVI LPDATA+4+4,C'0' ELIMINATE THE F FROM ADDRESS  
2152 B PRINT PRINT THE LINE OF DUMP  
7DE4 2153 DC XL1'A2' OWN AREA  
2154 ALC SRC(2),OWN48  
2155 B DPLP CONTINUE DUMP  
2156

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
7DEF	0001	7DF0	2157	OWN1 DC	XL2'0001'
7DF1	0010	7DF2	2158	OWN16 DC	XL2'0010'
7DF3	0030	7DF4	2159	OWN48 DC	XL2'0030'
7DF5	0000	7DF6	2160	OWN5W DC	XL2'0000'
7DF7	0000	7DF8	2161	OWNOLD DC	XL2'0000'
7DF9	00	7DF9	2162	OLDSRC DC	XL1'00'
7DFA	00	7DFA	2163	OLDTP DC	XL1'00'
7DFB	00	7DFB	2164	HDLCTR DC	XL1'00'
7DFC	0000	7DFD	2165	DC	XL2'0000' EXTRA
7DFE	C3C8C1D5C7C540E2	7E25	2166	DPHG DC	CL40'CHANGE SWITCH 1 AND 2 FOR NEW DUMP ADDR '
7E06	E6C9E3C3C840F140		2166		
7E0E	C1D5C440F240C6D6		2166		
7E16	D940D5C5E640C4E4		2166		
7E1E	D4D740C1C4C4D940		2166		
7E26	4040404040C1C4C4	7E54	2167	DC CL47'	ADDR 00 02 04 06 08 0A 0C 0E
7E2E	D94040F0F04040F0		2167		
7E36	F24040F0F44040F0		2167		
7E3E	F64040F0F84040F0		2167		
7E46	C14040F0C34040F0		2167		
7E4E	C5404040404040		2167		
7E55	40404040F0F04040	7E78	2168	DC	CL36' 00 02 04 06 08 0A 0C 0E
7E5D	F0F24040F0F44040		2168		
7E65	F0F64040F0F84040		2168		
7E6D	F0C14040F0C34040		2168		
7E75	F0C54040		2168		
7E79	4040404040404040	7E9E	2169	DPMG1 DC	CL38' 00 02 04 06 08 0A 0C 0E
7E81	F0F04040F0F24040		2169		
7E89	F0F44040F0F64040		2169		
7E91	F0F84040F0C14040		2169		
7E99	F0C34040F0C5		2169		

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
7E9F	F0 3B 7F				
7EA2	E0 87 13				
7EA5	34 08 7F59				
7EA9	F3 18 80				
7EAC	F3 18 E0				
7EAF	BD E0 5D				
7EB2	C0 81 7F56				
7EB6	3D FF 0879				
7EBA	3C FF 0879				
7EBE	C0 01 7E9F				
7EC2	C1 18 7E9F				
7EC6	31 18 0587				
7ECA	31 10 7F5F				
7ECE	F2 07 15				
7ED1	3C 87 7ECF				
7ED5	0F 01 7F5F 7F5F				
7EDB	31 10 7F5F				
7EDF	F3 10 C0				
7EE2	C1 1F 7EE2				
7EE6	31 12 7F61				
7EEA	F3 10 92				
7EED	C1 1F 7EED				
7EF1	B0 16 40				
7EF4	B8 08 40				
7EF7	C0 10 7E9F				
7EF8	0E 01 7F5F 7F5D				
7F01	3C 40 0900				
7F05	0D 57 08FF 0900				
7F08	F2 81 24				
7F0E	0E 01 7F5F 7F5D				
7F14	0D 2F 08FF 0900				
7F1A	F2 81 15				
7F1D	0E 01 7F5F 7F5D				
7F23	0D 07 08FF 0900				
7F29	F2 81 06				
7F2C	0E 01 7F5F 7F5D				
7F32	0D 01 7F5F 7F5B				
7F38	F2 04 0E				
7F3B	3C 07 7ECF				
7F3F	38 04 0208				
7F43	F2 90 03				
7F46	F0 38 71				
7F49	38 04 0208				
7F4D	F2 90 06				
7F50	0C 84 08FF 0900				
7F56	C0 87 0000				
2171	*****				
2172	*				3270 I/O OVERLAY BEGINS HERE
2173	*****				
2174					
0717	2175				USING PRTN,XR2
2176					
7E9F	2177 BGN327 EQU				*
2178	ERR327 HPL				H8,HH
2179	B				PRTN1(,XR2)
7EA5	2180 SECDRY EQU				*
2181	ST				RTN327+3,ARR
2182	SIO				X'80',X'18'
2183	SIO				X'EO',X'18'
2184	CLI				PRSI0+1(,XR2),X'EO'
2185	BE				RTN327
2186	CLI				CRTFLG,X'FF'
2187	MVI				CRTFLG,X'FF'
2188	BNE				ERR327
2189	TIO				ERR327,X'18'
2190	LIO				PR3,MSDATA
2191	*				
2192	LIO				LIODC,BUFADR
2193	ERSSW JC				NOERS,X'07'
2194	MVI				ERSSW+1,X'87'
2195	SLC				LIODC(2),LIODC
2196	LIO				LIODC,BUFADR
2197	SIO				X'CO',X'10'
2198	BSY32X TIO				BSY32X,X'1F'
7EE6	2199 NOERS EQU				*
2200	LIO				DC128,LMGREG
2201	SIO				X'92',X'10'
2202	BSY327 TIO				BSY327,X'1F'
2203	SNS				MSTAT(,XR2),X'16'
2204	TBN				MSTAT(,XR2),X'08'
2205	BT				ERR327
2206					
2207	ALC				LIODC(2),N40
2208	MVI				LN+129,C'
2209	CLC				LN+128(88),LN+129
2210	JE				NIC
2211					
2212	ALC				LIODC(2),N40
2213	CLC				LN+128(48),LN+129
2214	JE				NIC
2215	ALC				LIODC(2),N40
2216	CLC				LN+128(8),LN+129
2217	JE				NIC
2218	ALC				LIODC(2),N40
7F32	2219 NIC				*
2220	CLC				LIODC(2),LIN9
2221	JNH				FLYON
2222	MVI				ERSSW+1,X'07'
2223	TBN				SBYTE0,SSW05
2224	JF				FLYON
2225	HPL				X'71',HH
7F49	2226 FLYON EQU				*
2227	TBN				SBYTE0,SSW05
2228	JF				RTN327
2229	MVC				X'8FF'(133),X'90D'
2230	RTN327 B				**
2231					
2232	*****				
2233	*				
2234	* 1				40 * ← CRT SCREEN-
2235	* 41				80 * POSSIBLE 4 LINES
2236	* 81				120 * OF 1 DCP PRINT
2237	* 121 . . 128				* LINE

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

                2238 *
                2239 *
                2240 *****
7F5A 0140      7F5B 2241 LIN9 DC   IL2'320'
7F5C 0028      7F5D 2242 N40  DC   IL2'40'
7F5E 0000      7F5F 2243 LIODC DC   XL2'0000'  USED FOR CRT LIOS
7F60 0080      7F61 2244 DC128 DC   IL2'128'  USED FOR CRT LIOS
7F62 0050      7F63 2245 N8G  DC   IL2'80'   TO BUMP 2 LINES
                2246
001B 2247 MSDATA EQU  X'18'   EQUATES FOR CRT LIO'S
087F 2248 LN      EQU  X'87F'
0012 2249 LNGREG EQU  X'12'
0010 2250 BUFADR EQU  X'10'
0015 2251 CURSOR EQU  X'15'
                2252
7F63 2253 END327 EQU  *-1

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FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

FF63          2255      ORG      X'FFFF'-X'8000'+*  IF THIS ORG FLAGGED YOU'RE OVER
                2256 *
                2257
                2257
                2257
                2257
06D4          2258      ORG      PRT7      ORG AT END SO IF NOT ENOUGH CORE, LINKAGE NOT DONE
06D4 CO 87 7D00 2259      B        SPC34      INTERCEPT SPACE COMMANDS AND TRY TO SPC 34
                2260
                2261 *****
                2262 *
                2263 *
                2264 *
                2265 *****
                2266      TREP
                2267      TREP
                2268      TREP
                2269      TREP
                2270      TREP
                2271      TREP
                2272      TREP
                2273      TREP
                2274      TREP
                2275      TREP
                2276 *
                2277 *****
                2278 *****
                2279      TREP
                2280      TREP
                2281      TREP
                2282      TREP
                2283      TREP
                2284      TREP
                2285      TREP
                2286      TREP
                2287      TREP
                2288      TREP
                2289      TREP
                2290      TREP
                2291      TREP
                2292      TREP
                2293      TREP
                2294      TREP
                2295      TREP
                2296 *
OE8C 2297      END      BEGIN

```

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ACTKON	A	003	1363	1828	1665
ADR143	A	002	1097	1639	1611* 1685*
AINPUT	A	001	0067	0107	0110
AJDEST	A	003	012C	0232	0229
ALTPRT	A	001	078C	1134	1104 1135 1173 1175 1344
AL5424	A	003	168E	1970	
ARR	C	001	0008	1350	0108 0280 0294* 0573 0653 0681 0705 0723 0778 0797 0978 1090
ARRSAV	A	001	0408	0748	1281 1651 1835 1851 1883 2181
BEGIN	A	001	0E8C	1421	0655 0658* 0681* 0723* 1281* 1284 1285*
BEGINA	A	001	0E96	1424	0460 1331 2297
BGN327	A	001	7E9F	2177	
BIT0	C	001	0080	1385	0282 0594 0597 0617 0920 0984 1096 1205 1632 1687 1704
BIT1	C	001	0040	1386	0595 1002 1067 1221 1632 1693 1712
BIT2	C	001	0020	1387	0282 0297 0580 0591 0997 1213 1604 1678 1680 1720
BIT3	C	001	0010	1388	0385 0583 0995 1214 1218
BIT4	C	001	J008	1389	0282 0591 1232
BIT5	C	001	0004	1390	0276 0282 0580 0591
BIT6	C	001	0002	1391	0591
BIT7	C	001	0001	1392	0623
BIZZEE	A	003	18A0	2032	2032
BLKCR7	A	001	1188	1739	1643
BOOT1	A	004	0000	0022	0021 0031
BOOT1A	A	003	0000	0026	0026
BOOT1E	A	003	0017	0030	0023 0027
BOOT11	A	002	001E	0033	0024
BOOT2	A	004	0200	0054	0028 0052 0053 0054
BOOT2A	A	003	020D	0058	0056 0066
BOOT2B	A	003	0216	0061	0061
BOOT2E	A	003	J20A	0057	0058 0062
BOOT21	A	003	0205	0071	0065
BOOT22	A	001	0239	0072	0065*
BOOT23	A	002	023B	0073	0059
BSYLP	A	003	0776	1125	1125
BSYLP0	A	003	16A3	1977	1977
BSYLP1	A	003	16AF	1981	1983
BSY32X	A	004	7EE2	2198	2198
BSY327	A	004	7EED	2202	2202
BT2	A	003	0204	0055	0071
BUFADR	C	001	0010	2250	2192* 2196*
BUSY	A	003	0074	0112	0112
CCHHO	A	005	11E6	1785	1686* 1788
CCHHO2	A	002	11F2	1788	1611
CCHH1	A	005	11EB	1786	1692* 1789
CCHH12	A	002	11F4	1789	1612
CCHH2	A	005	11F0	1787	1677* 1790
CCHH22	A	002	11F6	1790	1613
CDERR0	A	003	0A9D	0365	
CDEXIT	A	004	007D	0115	0108*
CDREAD	A	004	0060	0105	0104 0105 0123 0136 0281 0304 0469 0478 0479
CHAIN	A	005	0A0B	0315	0429
CHCTR	A	001	0A0E	0317	0432* 0441* 0467*
CHKEND	A	003	019A	0274	0261
CHKF4	A	003	0311	0630	0625
CHKID	A	001	138D	1850	1552 1556 1919 1923 1928 1933
CHKSR1	A	004	1388	1863	1852* 1859
CHKSSW	A	005	0169	0260	0253
CHKSS0	A	004	017B	0264	0272
CHKSS1	A	004	0425	0782	0779* 0781*
CHKSS2	A	003	0435	0787	0782* 0784*
CHKSSWS	A	006	066A	1025	1038
CHKX2	A	004	13BC	1864	1851* 1853 1854*
CHK1	A	003	0F6F	1504	1502*
CHK2	A	003	0F72	1505	1503*
CIOHLT	A	001	0793	1174	1164
CIOSTS	A	002	0757	1171	1162* 1163

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
CIO1	A	004	07C3	1159	1151
CIO1A	A	001	07C0	1173	
CIO1B	A	003	07C7	1160	1168 1173
CIO2	A	001	07C3	1175	
CIO2X	A	003	07CA	1161	1149* 1158* 1175
CKBLK	A	003	013F	0239	0243
CKCHN	A	001	0B6F	0428	0423
CKCIO	A	001	1437	1917	1913
CKCOM	A	003	0154	0252	0458
CKCOMA	A	003	0A0F	0319	0220
CKCOM1	A	004	0113	0220	0459*
CKCPU	A	003	0A3D	0334	0320
CKDCPS	A	005	0B58	0422	0372
CKEND	A	003	0BA7	0445	0430
CKPTR	A	004	0F85	1524	1519
CKREP	A	004	010C	0218	0127 0152
CKUDT	A	003	0AA8	0371	0335
CLRCOR	A	004	0108	0203	0216
CMLOOP	A	004	00BE	0139	0144
CMPK	A	004	0342	0653	0682 0724
CMPKX2	A	001	0368	0664	0653*
CNT	A	001	138C	1844	1836* 1841*
CONTU	A	001	7D87	2117	2110
CPU	A	001	0204	0506	0348* 0355* 1449
CPULP	A	005	0A69	0350	0354
CPUOP	A	004	0A65	0349	0359
CRTCHG	A	004	0696	1040	
CRTFLG	C	001	0879	1363	1740 2186 2187*
CTR	A	001	033C	0648	0656 0657 0659* 0700* 0725 0727* 0742* 1436* 1439* 1441* 1445*
CURSOR	C	001	0015	2251	
DADDR	A	001	04A8	0834	0832*
DASH	A	001	12F7	1818	1479 1487
DATSW5	A	002	0412	0771	0268 0774 0779 0783 0783* 0784 0793 0795 0800 0802 0822* 0324
DC128	A	002	7F61	2244	0825 0835 0841 0846 0848 0851 0859 0867 1944 1945*
DECO	A	004	01F4	0300	2200
DEC1	A	001	01F5	0301	0290
DEST	A	002	013A	0237	0227 0230 0238*
DEST1	A	001	0388	0692	0660* 0693*
DEST2	A	001	03E1	0735	0661* 0741*
DEV	A	001	0AA7	0370	0382 0390 0394
DFOUR	A	002	1206	1798	1443 1444
DHALT	A	003	1788	1994	1931 1993 2001 2011
DKFLAG	A	001	1138	1698	1600* 1609
DDUMP	A	001	7D46	2093	2069
DOHA	A	004	11C9	1757	1581 1585 1633 1741 1747
DOHO	A	001	117C	1727	1721
DOIT	A	003	16A6	1978	1974
DOLIO	A	003	006E	0110	0117
DORIG	A	006	7D32	2080	2073 2084
DORIG1	A	006	7D1E	2075	2079
DOSZ	A	006	0EB9	1443	1440
DPLP	A	001	7D6A	2107	2155
DPMG	A	040	7E25	2166	2099
DPMG1	A	038	7E9E	2169	2100 2123
DSKSYS	A	001	1427	1910	1904
DTABLE	C	001	01FE	1416	0286 0294 0579* 0621 0639* 1908 1908* 1911 1911*
DUMCOM	A	002	062A	1000	
D048	A	003	0A02	0312	0436
D0480	A	002	120D	1802	1750
D120	A	003	0A05	0313	0434
ENDCLR	A	001	0132	0212	0209
ENDRTN	A	001	0901	1203	
END327	A	001	7F63	2253	
ENTRY1	A	001	029C	0586	1900*
ENTRY2	A	001	0337	0641	1901*

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ERR	A	003	0081	0116	0109
ERR327	A	003	7E9F	2178	2188 2189 2205
ERSSW	A	003	7ECE	2193	0608* 1300* 1743* 2194* 2222*
FD6a	A	002	1072	1620	1613* 1676*
FD6ADR	A	002	1074	1621	1616
FD6D	A	001	1062	1614	1583 1610
FD6KON	A	003	1366	1829	1674 1722
FD6RTN	A	001	1075	1622	1605 1621
FINDSZ	A	006	0EBF	1444	1446
FIVE	A	001	03F9	0743	0658
FIXMOB	A	004	13C0	1883	0327 1423
FLAG	C	001	01FD	1415	0276 0282 0297 0829 1232
FLAGS	A	001	1207	1799	1490* 1518 1521* 1524 1527*
FLGTWO	A	001	18D3	2047	2037 2042* 2044*
FLG1	A	001	1070	1619	1652*
FLYON	A	001	7F49	2226	2221 2224
FRST	A	001	148B	1947	1801
FRSTa	A	002	120B	1801	1749
FRTN	C	001	0A07	1360	0861
FUNCSH	A	002	17C6	2014	1996
FO	C	001	00FD	0568	0634 0830
F1	C	001	00FA	0569	
F4	C	001	00F1	0570	0630
GCLoad	A	001	11D3	1771	1422 1623 1642 1758
GWN	A	001	7D0F	2070	2067
HA	C	001	003F	1404	1234 1770
HALT	A	004	0222	0526	
HALTA	A	003	09EA	1306	1304* 1305*
HALTB	A	003	09F5	1309	1307* 1308*
HALT2	A	004	09BC	1293	1287
HALT3	A	004	09C3	1296	1289 1292
HB	C	001	0079	1405	
HC	C	001	006C	1406	0632
HD	C	001	0073	1407	0295
HDCTR	A	001	7DFB	2164	2118*
HOG	A	028	05D3	0970	1020
HOG1	A	001	0568	0969	0983* 0986* 1009 1013 1017
HE	C	001	007C	1408	0611
HEXIT	A	004	09F8	1310	1291 1294
HF	C	001	003C	1409	0811
HGO	A	004	08B8	0451	0455
HH	C	001	0038	1410	0030 0057 0116 0295 0325 0365 0387 0438 0447 0453 0611 0632
					0820 0853 0865 0914 1117 1145 1223 1234 1730 1770 1891 1938
					1938 1968 1994 2024 2178 2225
					1935
HHHALT	A	003	1479	1938	
HL	C	001	0068	1411	
HLTA	A	003	0472	0811	
HLTB	A	003	047E	0816	
HLYC1	A	003	0317	0632	0638
HLYD	A	003	04DC	0853	0870
HLYE	A	003	0570	0914	
HLYF	A	003	02DD	0611	
HLYG	A	003	11D0	1770	
HLYHD	A	004	0108	0294	0289
HLYTAB	A	001	0980	1276	1275 1283
HP	C	001	003E	1413	0814 0816
HU	C	001	0068	1412	0819
HO	C	001	006F	1394	0325 0326 0365 0366 0387 0388 0438 0439 0447 0448 0453 0454
					1730 1731 1891 1892
					1896
H0H	A	003	1308	1891	0448 1223
H1	C	001	0003	1395	0853 1892
H2	C	001	0076	1396	0853 1892
H3	C	001	0057	1397	0388 0865 0914
H4	C	001	0018	1398	1731
H5	C	001	005D	1399	0030 0057 0116 0326 045*
H6	C	001	007D	1400	0366 1117

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
H7	C	001	0007	1401	0439
H8	C	001	007F	1402	2178
H9	C	001	005F	1403	1145 1968 1994 2024
IAR	C	001	0010	1349	0522* 0523* 0524* 0525* 0526* 0527* 0528*
IDADDR	A	002	0643	1008	1005*
IDLOST	A	011	133D	1821	1706* 1714* 1722*
ID3340	C	001	0006	1695	1672
ID5444	C	001	0007	1694	1670
IMGADR	A	002	08DD	0465	0431* 0466*
INADR1	A	002	08F9	0472	
INPUT	C	001	0880	0477	0106 0135 0178 0218 0226 0345 0360 0464 0472
IPL	C	001	0040	0482	0025 0060
ISAO	A	004	1030	1597	
ISA1	A	004	103E	1602	1599
ISBIZ	A	003	1783	2008	2008
ISCHN	A	004	0877	0431	
ISEND	A	001	0888	0450	0446
ISSSW	A	003	0178	0263	0426
ISWIN	A	001	10E4	1671	1669
IS120	A	004	089C	0441	0435
ITR1	A	001	0537	0894	1315
ITR2	A	002	0789	1131	1316
ITR3	A	001	02CC	0603	1317
ITR4	A	001	0680	1031	1318
ITR5	A	002	0788	1132	1319
ITR6	A	002	0231	0530	1320
ITR7	A	001	055C	0907	0843 1321
J	A	003	11FC	1794	1907
J1	A	003	11FF	1795	1905
LABEL	A	004	00D4	0145	0137* 0146* 0148
LAST	A	001	07E6	1172	
LB	A	040	15CA	1955	1751 1751*
LBASE	A	001	0208	0510	0567 0572 0619
LDEND	A	004	094C	1225	1206 1217
LDPT2	A	004	01AB	0280	0296 0305
LDR	A	006	1213	1808	1520
LDREG	A	004	03FD	0745	0703 0706* 1311
LDROK	A	001	08C9	0456	0452
LDUDT	A	005	0AF4	0394	0391
LDWORK	A	004	005D	0479	0132* 0133 0287 0288
LDX	A	004	01A7	0278	0298
LDXa	A	001	01AA	0279	0280*
LD1	A	001	02A9	0590	0584
LENGTH	A	003	0088	0138	0149
LEXIT	A	004	1484	1942	1883*
LE1	A	003	02ED	0617	0614
LE2	A	004	0334	0640	0592 0618 1795
LHLT1	A	004	09E2	1304	1296*
LHLT1A	A	004	09E6	1305	1297*
LHLT2	A	004	09ED	1307	1298* 1303
LHLT2A	A	004	09F1	1308	1299*
LINE1	A	023	1231	1810	1435* 1443* 1444* 1473
LINE1A	A	036	1255	1811	1448 1448* 1451 1467
LINE2	A	029	1289	1814	1483
LINE3	A	026	12A3	1815	1529* 1533
LINE4	A	033	12C4	1816	1551
LINK	A	004	0216	0523	
LIN9	A	002	7F5b	2241	2220
LIODC	A	002	7F5F	2243	2192 2195 2195* 2196 2207* 2212* 2215* 2218* 2220
LMa	A	002	0953	1228	
LMSG	A	014	0585	0967	0529 1228
LMSGa	A	002	022F	0529	
LN	C	001	087F	2248	2208* 2209 2209 2213 2213 2216 2216
LNGREG	C	001	0012	2249	2200*
LNK1	A	004	0534	0893	0915
LNK1A	A	004	053F	0897	0599

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
LNK2	A	004	054A	0901	0896 0921
LNK3	A	004	055E	0910	0902
LNK4	A	005	0577	0918	0913
LNK5	A	004	058E	0925	0891* 0899
LNK6	A	004	0592	0926	0877* 0924*
LOAD	A	004	022A	0528	1618 1537 1655 1659
LODEM	A	004	029D	0587	0571* 0574* 0642
LONE	A	001	027F	0578	0626
LOOP	A	003	009B	0128	0125 0134
LPBUSY	C	001	00E6	1110	1125
LPDATA	C	001	087C	1355	0980* 1001 1001* 1063 1063* 1113 1985 1985* 2039* 2040 2040* 2041
LPERR2	A	003	075E	1117	2041* 2134 2140 2146 2150 2151*
LPIMAG	A	001	0800	1180	1119 1126
LPNRDY	C	001	00E0	1111	0433* 0442* 1112
LPTONE	A	004	00EF	0155	1119 1126
LVMOB	A	001	1480	1940	1888 1893 1897 1916
LX1	A	004	02FA	0621	
LX2	A	001	0301	0624	1795 1905*
MASC	A	004	0A7E	0355	0349* 0352 0353 0353*
MASK	A	002	1203	1796	0411* 0414 0414* 0416 0417 1500* 1502 1503 1513 1513*
MHLT2	A	003	1688	1968	1926 1967 1975 1978 1984
MICDAT	A	003	1360	1827	1689 1714
MICLDR	A	003	135D	1826	1683 1706
MICRTN	A	001	109A	1641	1640
MNN	C	001	0003	0647	0683 0728
MNZ	C	001	0002	0646	0694 0697
MODIFY	A	001	0435	0786	0788* 0850*
MOVE	A	005	00FC	0164	0154* 0155* 0157
MOVID	A	003	0324	0636	0628
MSDATA	C	001	0018	2247	2190*
MSTAT	A	002	0757	1109	1171 1972* 1973 1981* 1982 2009* 2010 2033* 2034 2035 2203* 2204
MVCID	A	005	10E4	1672	1670*
MVX1	A	001	0375	0685	0683* 0694 0697*
MVX2	A	001	03DF	0734	0728* 0737 0739*
MZN	C	001	0001	0645	0737 0739
MZZ	C	001	0000	0644	
NEG1	A	002	033E	0649	0693 0699 0700 0736 0741
NEG4	A	002	008A	0120	0147
NEWD	A	006	7D77	2113	
TEXT	A	003	012F	0233	0245
NEXTOP	A	006	0F8E	1513	1506
NEXTR	A	004	008B	0123	0069 0177 0210 0217 0240 0255 0258 0273 0275 0329 0332 0364
NEXTSS	A	004	0689	1036	0367 0389 0402 0440 0449 0468
NE1	A	004	1152	1712	1026
NE2	A	004	1167	1720	1705
NIC	A	001	7F32	2219	1662 1664 1666 1713
NINE	A	001	0421	0780	2210 2214 2217
NOALT	A	004	0748	1105	0732
NOBMP	A	003	0293	0583	
NOCHG	A	003	0BA4	0443	0581
NODPMG	A	001	7DA0	2127	0437
NOERS	A	001	7EE6	2199	2119
NOPOP	A	001	0F17	1469	2193
NORM	C	001	0000	0483	1463
NOTD	A	004	142D	1912	0111
NOTFND	A	019	1350	1822	1909
NOTOP	A	001	0EFC	1458	1710 1718 1726
NOT64	A	006	0EB3	1441	1454
NOUNIT	A	003	0FD3	1535	1438
NOX	A	001	0A55	0341	1492
NSPACE	A	001	05D4	0972	0338
NUM256	A	002	0131	0211	0991* 0992* 1057* 1154 1156* 2072 2074* 2075* 2080*
N1	A	002	0088	0119	0206
N24	A	001	0A06	0314	0142 0238

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
N40	A	002	7F5D	2242	2207 2212 2215 2218
N80	A	002	7F63	2245	
N9	A	001	0AA6	0369	0409
OK	A	004	01E6	0297	0291 0293
OKCTR	A	004	0BD5	0462	0470
OLDSRC	A	001	7DF9	2162	
OLDTP	A	001	7DFA	2163	
ONCEXX	A	004	13ED	1897	1898*
ONE	A	001	039F	0701	0467 0577 0727 0911 1048 1445 1500 1514 1841 1854
ONEA	A	002	0A0D	0316	0411 0412
OPBUF	A	001	135A	1825	1449* 1453 1453*
OPDON	A	004	0A8F	0360	0358
OPLOOP	A	006	0EE7	1453	1462
OPNUM	A	001	1204	1797	1501* 1507 1514* 1515
OPTTAB	A	001	1351	1823	1452
OWNOLD	A	002	7DF8	2161	2105* 2109 2115*
OWNSW	A	002	7DF6	2160	2108* 2109 2113 2115
OWN1	A	002	7DF0	2157	2075 2080
OWN16	A	002	7DF2	2158	2118 2136 2142
OWN48	A	002	7DF4	2159	2154
PACK	A	004	0226	0527	0224 0234 0265 0343 0379 0462
PAP	A	001	0000	0006	
PGCK@	A	002	0207	0508	
PHALT	A	003	1888	2024	1936 2023 2030
PK1	A	003	03CD	0728	0726 0744
PK2	A	004	03D0	0729	0740
PK3	A	005	03DE	0733	0731
PK4	A	004	03F2	0741	0738
PLINE	C	001	0880	1356	0968 1020* 1023 1497 1498 1529
POP	A	003	0F09	1463	1450* 1457* 1461
PREXIT	A	006	06E5	1063	0990 1058 1101 2076 2081
PRIME	A	003	0764	1119	1107
PRINT	A	004	021A	0524	0256 0330 1225 1433 1464 1470 1476 1480 1484 1530 1546 1548
PRINTE	A	004	0713	1078	1565 1570 1707 1715 1723 1728 1839 2094 2096 2101 2121 2124
PRIV	A	002	11FA	1792	2152
PRNTR	A	007	121A	1809	0978* 0979 1065 1074* 1128
PROGID	C	001	0A01	1358	1526
PRSI0	A	003	0773	1124	1012
PRTEXT	A	004	077C	1127	1093* 1123* 1150 1152 1970 1997 2026 2184
PRTE1	A	004	070B	1076	1106 1153 1169 1971 1986 1998 2013 2027 2045
PRTE2	A	004	070F	1077	0977*
PRTHG	A	002	06A4	1043	0975*
PRTN	A	004	0717	1089	0999 1018 1042 1044 1054 1059 1088 1089 1142 1966 1992 2022
PRTNA	A	001	0793	1143	2077 2082 2175
PRTNE	A	004	0784	1129	1173 1174 1175 1926* 1931* 1936*
PRTN1	A	004	072A	1095	1090* 1092 1094*
PRTN2	A	004	073C	1100	1118 1146 1969 1995 2025 2179
PRT2	A	004	0607	0989	1097
PRT2A	A	003	060B	0990	0985
PRT5	A	005	06AB	1047	0988
PRT6	A	006	06C8	1053	1003
PRT6A	A	004	06CE	1054	0993* 1040* 1041* 1047* 1048* 1050* 1051* 1052* 1147* 1148* 1157* 1167*
PRT7	A	004	06D4	1057	0998
PRT8	A	003	06FB	1070	0996 1049 1061 2258
PRT9	A	003	0704	1073	1068
PRUDT	A	006	0FC5	1529	1071
PR1	A	002	0759	1112	1522 1525
PR2	A	002	075B	1113	1121 1979
PR3	A	002	05B7	0968	1122 2005 2028
PR4	A	002	075D	1114	0965 0976 1051 1127 2190
PSR	C	001	0004	1351	1120
PTAGS	A	001	05D7	0974	0982* 1096
PTCIO	A	005	0799	1147	



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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
PTFDC	A	003	0ABE	0377	0374
PTMSG	A	004	02C9	0602	0596
PTR	A	001	02FD	0622	0630 0634* 0635* 0636 0830*
PTX	A	004	1367	1835	1564 1569
PTX2	A	004	1388	1843	1835*
PTZERO	A	004	02C5	0601	0637
PT90	A	004	0740	1101	1099
PUNDUN	A	003	18C8	2044	2038
PUNERR	A	003	189A	2030	2036 2043
PUNNUM	A	002	18D2	2046	2029
PUN42	A	003	188E	2026	
P7IAK	C	001	0C81	1352	
ROCD	A	004	0BED	0469	0443
READ	C	001	00F1	0484	0025 0060 0111
READRC	A	004	108D	1659	1681
RECLN	A	002	17CA	2016	2006
RED	A	003	008F	0124	0283 0299
RESTR	A	003	0978	1246	1204
RHALT	A	004	0990	1281	1132
RITREC	A	003	1791	1997	
RLDA	A	004	02A5	0589	0573* 0576 0577* 0582*
RLD2	A	003	02E3	0613	0610
RLFLGS	A	001	02CD	0604	0594* 0597*
RLINK	A	004	0530	0891	1131
RLOAD	A	004	026A	0571	0906
RNUM	A	001	0A03	1197	0862* 0863 0871* 0897 0911* 0912 1016 1240 1241 1243*
RPACK	A	004	038A	0723	0530
RPFX	A	004	0211	0517	0874* 0901 0910 0918* 1244*
RPONE	A	004	05E0	0977	1057
RPRINT	A	004	05D8	0975	0602
RTEST	A	004	0444	0794	0708 0893 1310
RTN143	A	002	1099	1640	1634
RTN327	A	004	7F56	2230	2181* 2185 2228
RUNPK	A	004	0369	0681	1030
SADDR	A	002	0185	0267	0264*
SALLY	A	005	0A43	0336	
SAVE1	A	004	147C	1939	1918* 1922 1927 1932 1937
SAVREG	A	004	03A6	0705	0654 1282
SBYTE0	A	001	0208	0511	0254 0328 0424* 0598 0600 0609 0785 0895 0904 0919 0987 0989
SBYTE1	A	001	0209	0512	1098 1100 1103 1105 1231 1290 1293 1757 2223 2227
SBYTE2	A	001	020A	0513	0425* 0613 2066 2068* 2071
SBYTE3	A	001	020B	0514	
SBYTE4	A	001	020C	0515	
SBYTE5	A	001	020D	0516	0262 0262* 0615 0615* 1025 1025* 1027* 1617* 1635*
SEARCH	A	004	10A4	1651	1602
SECDRY	A	001	7EA5	2180	
SETSSW	A	004	0413	0776	0269 0857
SETSX2	A	001	0443	0791	0778*
SETO	A	001	0409	0768	0772 0777
SID	A	001	13A9	1858	1855*
SIOI	C	001	0018	1362	1744 1745 1755
SIZE	A	002	0203	0505	0346 1437 1441
SMOD	A	001	0200	0503	0336* 1435 1580 1912
SNUM	A	002	05D6	0973	1024* 1033 1036* 1037
SPAPRT	A	002	06E0	1060	
SPBFHG	A	002	065D	1019	
SPC34	A	001	7D00	2065	2259
SPFLGS	C	001	0A02	1359	1205
SPT	C	001	0A00	1357	
SPUDT	C	001	0A0A	1361	1207
SRC	A	002	7DA6	2133	2103* 2104* 2113* 2114* 2135 2149 2154*
SRC2	A	002	0138	0236	0233*
SRC1	A	002	7DB8	2139	2135* 2136* 2141
SRC2	A	002	7DD0	2145	2141* 2142*
SRFLAG	A	001	113C	1699	1604 1632 1654* 1678* 1680 1687* 1693* 1704 1712 1720

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SRX	A	004	1108	1682	1651* 1733
SR1	A	004	0386	0709	0705*
SR2	A	004	0401	0746	0707*
SSDEST	A	002	0685	1034	1029* 1041
SSW	A	001	05D2	0971	0260
SSWD	A	003	0BF7	0471	0422
SSWOA	C	001	0020	1377	
SSWOB	C	001	0010	1378	
SSWOC	C	001	0008	1379	
SSWOD	C	001	0004	1380	
SSWOE	C	001	0002	1381	
SSWOF	C	001	0001	1382	
SSW00	C	001	0080	1367	0600 0904
SSW01	C	001	0040	1368	0598 0895
SSW02	C	001	0020	1369	0919
SSW03	C	001	0010	1370	0987 1098
SSW04	C	001	0008	1371	0989 1100 1290
SSW05	C	001	0004	1372	1103 1105 2223 2227
SSW06	C	001	0002	1373	1293
SSW07	C	001	0001	1374	0254 0328 0609 1231 1757
SSW08	C	001	0080	1375	
SSW09	C	001	0040	1376	0613
SSW2F	C	001	0001	1383	1617 1635
STATUS	A	004	005F	0478	0113* 0114
STEP	A	004	0320	0635	0631
S1	A	004	00C2	0140	0138* 0139 0142* 0143 0146
S2	A	004	00C6	0141	0139*
TBASE	A	001	0409	0767	
TEMP	A	001	0368	0665	0729* 0730 0732* 0733
TEMPA	A	001	11D8	1781	
TEMP1	A	001	0386	0691	0684* 0686* 0687 0689*
TEST	A	004	0212	0522	0575 0612 0620 0633 1095 1245 1772 1941
TESTE	A	004	046D	0807	0797* 0843* 0876*
TEST1	A	001	0472	0809	0801 0803
TEST11	A	003	04E8	0859	0849
TEST12	A	005	04F7	0863	0873
TEST13	A	003	04FF	0865	
TEST14	A	004	0505	0867	0864
TEST16	A	005	051E	0874	0868
TEST2	A	003	0478	0814	0840 0844 0855 0858 0866 0878
TEST3	A	003	0484	0819	0815
TEST5A	A	004	04A5	0833	
TEST6	A	004	04A9	0835	
TEST6A	A	001	0486	0839	0837
TEST7	A	003	0489	0841	0826 1794
TEST7A	A	001	04C7	0845	0842
TEST8	A	003	04D6	0851	0847
TEST9	A	001	04E2	0856	0852
TEXT	A	004	0465	0805	0796* 0799 0860
TEXT1	A	004	0469	0806	0794*
THLT	A	003	0487	0820	0811* 0812 0814 0816* 0817 0819*
THREE	A	001	02EA	0616	0635
TMSG	A	018	05A7	0966	0606
TOMU	A	003	00F9	0163	
TOMUCH	A	001	0101	0165	0163
TONE	A	001	0414	0773	0871
TRYCPU	A	004	13D3	1889	1886
TRYFCO	A	006	1123	1689	1684
TRYFDD	A	004	7800	2056	0798
TRYFD6	A	006	10E9	1674	1690
TRYOUT	A	001	1100	1679	1675
TRY143	A	006	110C	1683	
TRY64	A	004	0EA5	1437	
TR1	A	001	0537	1315	0522
TR1442	A	004	1468	1933	1930
TR2	A	002	0789	1316	0523

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
TR3	A	001	02CC	1317	0524
TR3741	A	004	1457	1928	1925
TR4	A	001	0680	1318	0525
TR5	A	002	0788	1319	0526
TR5424	A	004	1446	1923	1921
TR6	A	002	0231	1320	0527
TR7	A	001	055C	1321	0528
TSTCRD	A	001	048F	0823	1794 1907*
TSTDSK	A	001	0464	0804	1906*
TSTFD6	A	004	107B	1624	
TSTINS	A	003	1488	1945	1902
TSTOVL	A	003	0456	0799	1902* 2056
TSTUDT	A	001	13E5	1894	1890
TSTOT	A	001	1019	1579	1554 1558 1562
TWO	A	002	0341	0651	0582 0742 1094 1285
TWOK	A	002	110E	1783	
T3	A	001	0483	0818	
UADDR	A	002	0F4F	1496	1493*
UDTA	A	005	0AE5	0390	0386
UDTB	A	003	0B1F	0407	0404
UDTC	A	003	0B2A	0410	0408
UDTD	A	006	0B45	0416	0413
UDTLP	A	003	0F3F	1491	1537
UDTLP1	A	006	0F63	1502	1516
UDY1	C	001	0249	0480	
UDY2	C	001	0261	0481	
UFIND1	A	004	0912	1208	1216
UFIND2	A	004	0916	1209	1220
UFIND3	A	003	0928	1214	1224
UFIND4	A	003	0935	1218	1210
ULP1	A	004	0AC1	0378	0406
ULP2	A	003	0AD2	0384	0393
ULP3	A	005	0B33	0412	0415
ULP4	A	003	0B08	0400	0420
UNPACK	A	004	021E	0525	0284 1006 1010 1014 1494 2131 2137 2143 2147
UNPK1	A	003	0371	0683	0702
UNPK2	A	004	0374	0684	0698
UNPK3	A	004	0385	0690	0688
UNPK4	A	003	0399	0699	0696
UOK	A	004	0A2A	0327	0322 0324
UTR	A	002	0ACB	0381	0378*
USET1	A	003	0B51	0418	0416*
USET2	A	003	0B54	0419	0417*
UTAB	A	001	0232	0534	0321 0323 0375* 0376 0376* 0383 0451 1208 1489 1560 1582 1584 1668 1856 1895 1903 1676 1685 1691
VTAD	C	001	0004	1696	
VTEND	A	001	113D	1703	
VTID	A	003	11E1	1784	1672* 1674 1683 1689
VT33	C	001	000E	1697	1677 1686 1692
VXR1	A	004	043C	0789	0776*
WASPOP	A	001	0F1F	1475	1468
XC7	A	001	11F8	1793	1511
XFR1M	A	002	17C8	2015	1999* 2000 2002
XFRSNS	A	003	1797	1999	2003
XF1	A	001	0A96	0362	0350
XM	A	004	1004	1564	
XM1	A	013	1332	1820	1568
XONE	A	001	0681	1032	1036
XREF1	A	004	02F3	0619	1342 1773
XREF2	A	001	13C0	1882	1341
XREF3	A	001	0E8C	1420	1340
XREF4	A	001	0413	0775	1339
XREF5	A	002	0412	0774	1338
XR1	C	001	0001	1353	0021 0022* 0023 0024 0026 0027 0031 0052 0055 0055* 0063 0064 0064* 0106* 0124 0126 0128 0130 0131 0131* 0132 0135* 0140 0140 0141 0141 0145 0145 0147* 0151 0154 0155 0156 0156* 0164 0178*

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
0179			0218*	0219	0228
0242			0244*	0252	0260
0277			0288	0290	0292
0350			0351	0356	0357
0397			0397*	0398	0400
0412			0422	0429	0434
0583			0587*	0591	0595
0639			0656*	0657	0658
0689			0689	0693	0694
0706			0725	0727	0728
0740			0741	0741	0742
0779			0781	0782	0782
0796			0805*	0829*	0831
0863			0867	0869	0872
0912			0918	0920	0923
0995			0997	1002	1004
1047			1050	1052	1065*
1159*			1160	1165	1166
1219*			1242*	1243	1244
1452*			1455	1459	1459*
1536*			1560*	1561	1597*
1685			1686	1691	1692
1863*			1918	1939*	1967
2000			2001	2002	2003
2037			2042	2043	2044
0053			0054*	0058	0059
0109			0110	0112	0113
0139			0139	0142	0142
0155			0157	0230	0233
0283			0299	0329	0332
0394			0395	0396	0418
0575			0576	0577	0582
0615			0615	0619*	0620
0655*			0659	0660	0661
0793			0794	0795*	0796
0822			0824	0825	0832
0851			0855	0857	0858
0879			0965	0975	0976*
1029			1036	1036	1037
1072			1072*	1073	1073*
1118			1119	1120	1121
1149			1150	1152	1153
1209			1211	1212	1213
1275			1283*	1296	1297
1308			1308	1451*	1455
1512			1512*	1520	1526
1973			1979	1981	1982
2022			2025	2026	2027
2203			2203	2204	
XR2	C	001	0002	1354	
XTCHKL	A	003	13A8	1857	1862
XZ1	A	004	136F	1837	1842
X0000	A	002	1209	1800	1748
X08	A	001	11DC	1782	
X100	A	002	11F8	1791	
X200	A	001	0200	0214	0209
X39	A	001	038F	0695	0689
X87F	A	001	087F	1199	1200
ZONE	A	001	071F	1091	1147 1167
ZRO	A	006	0112	0205	0206* 0207 0208

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

THE CHARACTER ' ' INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96
TH&D11D ~03=G\*8 ~03\*G72~02A JH AKL4A JL / DKC<4 A\*1\*\*OH\* SOD ..... 09<FFF20006
T+-EBOH\* S&HABHA '6&C ' &Y10H\*BI-E H/&D:-\*MA2-DF\_&G ;4H\* 4-DH\_ G\*OH\* BI-H ..... -G;.G5 ; 05&FFF20007
T+-E1-K\*K &E'EOC --;IK &G-/('P C 2 &28 &HHBA ?OH\* BFGS-/2(' -HE4& A RY| OH| -7K &M 4 &D OKHFFF20008
T+-F8/\*BG SQB ... DD&BGAAL'E0GK &I -&E#OH\* S77E + A.3-D ~7&UNG /O (' -AD&BG F 9, G '8A 5T&FFF20009
T+-G3<2BG /8B ~2 PJ4B E5E2-D&G&K A'E=2-J<| OG5P\*H AB3MH ~\*0+7| /OF ?+B A\*\* & E~/3| 0a| 7ZMFFF20010
T &G52ID ..... K YFFF20011
T OG\* F ADD ..... 6SDFFF20012
T+-Y:2IL82~.0F<| HO\*XM 'D ~NO 2-D YI& B<3BABS Y'a H 22YDF2C\_?2F'1OH\* LOC-A -T-DB\* /OH EH: 5.0FFF20013
T+-Z5/2\*'0OC2 OM \* H AG7F8?HAA50 QG1922 R22 P /OH WA-SH -<2 HD| D H-4Q C DO~UK2YD HC- PYYFFF20014
T+-DOBX2H~2BGBWU : HD4-DA-M <2YD DOH\*HR\*HABHC2/OG 1~\*DBHD?2C\_?2F' 18H\*7&A'9 C2 E5 'E < ;, &FFF20015
T+-,2-DH| BPOO & V8BP\*HAAL&AB&? /OHM - BD-B -H ?8-HC>A A2Z H2C\_ ?2F'POH\* S84 'D K2YD 4& FFF20016
T+-ZMA#4 < AB\_H < HZ#2| SO \_H A P5- |HA 'HA P5 '<BA H\_ EOC2 &- K &. /O,A~ 2-H EL- EODFFF20017
T+-/\_ DM: ' C D K OYILO B-72~Y + JHCD-| /OZ3C ..H/HBC ..NJHC>- A>- BOH\*.BD4B -? ?2-D : AHFFF20018
T+->CCO --2 H IOH\*A;D4DAOY.2-D OIA\*.7LOBB-82 / 8L&H.B-P2-JE( -3 H ?HAD~ #S\*A?A=B G.30 ;TFFF20019
T+-?PA&Y+|12H:|H GJX7E <B&B#TQ+6\* 0\$0| /OB.1E B<?H AB? #S\*A?P\*BGB#T B &EM( DAE&BGCY3 /OH 284FFF20020
TH&79IT H,O-C- .7&YFCO HC~+~8 & ?OH\* Q<BGB\*PS8>Q H5& ..... #3FFF20021
T+-H: ..... (J E(3M&A8U5D .<(J F-CH&AB&5D H1(J EP 05 #Y ..... #3HFFF20022
T+-15 ..... A 4 -HU0-HBB-& HY.& #:-FFF20023
T+-HO RT-/OD5 EB + E CX10B ~2B;K& 2/ ET-F- 4E8D C 2UAC /O O-D <H B' C /O ;K8 2ZB E>Y P3&FFF20024
T+-,1P/ |HED\$> 1\$/ < &AL=B-C D 'OH\*E6<\*KAE~ \* COG~Z=B &C2D \$ 0+73-/OD8& G2D K ? OH 48HFFF20025
T+-<NAPS |H&G\*H 8 -T-/O.B &G's D 2Z (S- B)7-| ?H &EXZ| ,71'-HAB~ #S+BG8,3\*'E2 'H 5 -M NY&FFF20026

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96
T+-(/S&DBO<BA 1\* \* -G\* 2BG ' C /OH ) |\*\* ' B| -CE<B G :05 -&HO-DC|EB A3.5& ' \$ E<AFO AZ&& L\$4FFF20027
T+~\*~&HBOH\* CE HA T /O(B- <9E A H G,OKX7:K?HBAE2 'KV<2 ' P-E< X4 B+~HAAXOB+)BG+GQ B V8 75\*FFF20028
T+~|P ' A4 D54H- A| -C>L&AA ' 4 -& DOH\*DJ<BG ' 4B & HOH\*C&X-A |H&A#2 ' +~+T\$ ' 2 G7 0.1H P1<FFF20029
T+~EK -J; B3VF ' B16 -1' E|2-&R 2 E|E/9J; EMBPO ' A| AU\*HA ' CB - ' OH\* HA HA HA H A ' ' KC8FFF20030
T+~J(| DD|2HAA V 48CZQ 121;'~P ' E8AB&VQ S810-D B8GY ' C&AACPB & ' OH\* C&BAF3B -& J\_ D (JYFFF20031
T+~KH#&HP2BG; C 2/02'#&C2/A+84 C 2D 7B & ' O-H ' <B G ' A ?C122Y\*|?L9 82YDF?C982Y\*C?F\_ 82C& O:-FFF20032
T+~LC ' ' ST& .U - |H&H2HA -Y2#E. ' PO&B , &AV2HA ' A & -HA;&2B2/ C:OD 8H)X7;8 2-DHT E -AND ' :4FFF20033
T+~L=8HIX?~D 2YD 17~ 2-DN>-DU?L A2YHF2C\_68H)X8H\* B8H)X7~H 8 EM(&D HA10 B-< G& H OC 2-&Q 2/-FFF20034
T+~M92C\_P8H)XX& A |HADX7\* 2BAA(O > ' YC 7MA =BG9/O C /DC4-DD\_ E-( D EV;BGR3&AARG /OJ D+D ' =OQFFF20035
T+~N4 -T2U 2' &Y COHD ' |HGJC7\* /C 2 &48- 1:HOA ' <B G WY (&DBD&B B-< CX14 B-< 2YD&2C\_ POH\* :1&FFF20036
T+~O7AL&\* OHJ 3- - /8- G D NH4-D D( DEV\*HA ' C /O ' 8?PC82X05MCT1)X M2)PAB2P08&PC82X 05M ' &D0FFF20037
T+~PD4'SA1<PDBHA 2\*J 9~X94\_ 5'X 014CU9+~XQ1XRK4C S8>S ' C&BA1. B -07( DGCT&HA1Q 5 &# 78QFFF20038
T+~QVET1 B&B\* B ' ?D A;H ' 2Z H7E0 A+J B8|HGACUH -T 2U(;\* A4 >'~)|F F2P-& |H&\_P-- |H &D\* ' =4FFF20039
T+~R-/O\*P8 <-OT ' B&E8& C2UGLK &D 4 Q3 /OH; - ' AS' /OH; -YAA\*, /OH ; &YCA\*7 /O\*P8 D 2FO- \$ ' &FFF20040
T+~E\$W13B &S\*? -C-MBC&H(2S O+-D RC)HA #&A3&BG 6U AA)Q WX1, E8 G2D ' <A~-, (2& D2-0S 1.- ' ),UFFF20041
T+~\$D&X+OH\*GE=H OH\*GE= AG ' F2&D | ' \$I 9\*2-/Z\* &S ( 20AA&Z G- F2OD < ' ' ' C /O\*P8-B ? A4 RR<FFF20042
T+~\*JH?HBB&BGA1~ - \*BGA\_&</ T#B& 5 &\*Q4-H ;D 2Z C8-HB;L ' 2Z C8-H C8-HA( HGE&HA ' C B - ' :<FFF20043
T+~|< <BG CB -\* P\_ /O\_&EOX E; Q8 A\* (AOH\*BDTS A)~ 2U \*9D HH2Y\*D\*&- BB<B&A>H9A HH2ZA A+ & && FFF20044
T+~;G -T D |22Y\* + ' H ' /2\*GG0+77 -/1|/8D;18DE19DH 19UK#BE73 ' C/9V' /8D-B -07(&DGE&B G ' ' -DFFF20045
T+~BAL IUKHAA9| 2/0\$0+5~-/1< ' \$ IBC> AX22-20\*BE7 2 JS' E#-OM' -P M2YHDI HE5CO A&W 2&3M #2 FFF20046
T+~HO-WO-DH-GDQ ~< O . RE.UC&+BE-G1 ' (HA K2 AZUH8 H OBH)V ..... RLQFFF20047
T+~:2~.3'|P6'NT 92& 2Q;.T9+PW9=T ZMF\_24).L5(P05'T RQE\_\*0\*.C1<PF12T 1LU\_ ' ..... #ADFFF20048

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+--/5					*/HFFF20049
T & /7					&JMFFF20050
T+-U: & 00 AQI:TS	B-.2DC#B -YHO-D	BKW4 C2 JS* H	BW<A \$Y- \$-E H	B @B&BJ.2/118D G	K &< ECHFFF20051
T+-V50I IE.V -H	& " # @BGBKT /OH	EJ08E_~@ +&DBBCU	H -72U  0+3*B -Y	C_&DDX AOC /D	COH* M -FFF20052
T+-W0 /..&/0&	F&C1V*\$PP4G-5@	":013-C04B &HOH*	CZ%HBBO 5 &&HC-D	DB (A-E A@YHE~*@	A@YE \$3UFFF20053
T+-X,DL-H -T2UC	2/0#B -HH@/ 5W I	V I-C&E&BQ X AN (	4 LOG-@*HOY +*	H -HOB:0 EOB% FO	@ 7ZQFFF20054
TDOX* HO 1-B& G*	@ OH*DJCBG *4				MAQFFF20055
TDJ** C /O:<	DD-&LCYOLO .3				K04FFF20056
T+-#FCA DAGTOH*	LOCBG /YJC KH&H	I C C7* -2 &*	@D @@Y*FB HCl H	BAB K<AHEA/DK<AH	FCO 0#DFFF20057
T+-@A 30CX@ AC,@	<C1INDVQ< A(E -&	@/O@HO-HKJZHAD5D	+ A ED5, H @@X	+HB TOGCO,K &E	*6 LH&FFF20058
T+-@@YDDOH*+9"H	B&BG /YB+1IN@Y*	HOH*BF-DPDTG /OH	E L<K'@BG /YA<1H	IOH*BF-D3D?-B &H	2  D *0YFFF20059
T+-'7D-' C2-QB	4 &' OH*BG-D S	CO-HH/.1- OAD-<	CX30 D-&< 'OD-H	< '3D-(9 E9 .	2DAQ JSDFFF20060
T+-=2T AD-K:@ F	'=-G2--O+ DJ==H	B &BAD-<K 0B D-&	CX34CD-L -'T &D	KA"HACHOE&JHL  H	KA"H @-FFF20061
T+-_ /1 /HG@-D	IT QHD/Y@ AHGCAU	KY05E0H*BF-D&DDI	BD GK &  U @*OH*	BF/G /OH&AKD1<B	GDB4 5AMFFF20062
T+/ Y* HAI@BGD86	-@-D-O-DB<X6- IH	AE*BGD6~ /OHE LO	L<XBGD6~ /OHEEC7	G -C JGI H B<?H	A+T- &-HFFF20063
T+/AT- H30I J2*H	A TI'Y C2 &&@YAD	#OH*&ZC--DL32UBO	*YAD#@YDKC D&VIG	2C D-#1G4C D&*/G	6C D &I&FFF20064
T+/B;G*M&I CYA -7	/OHDB 'ODGM<D	&D;<@D G'+< J <B	&D*U< J*5DIU: &H	(OH*BH/- AB&CA	DAD &I&FFF20065
T+/CR8@BGDQ@4BAD	. A-&*CO G=8@ AD	@OH*BH-.B &S OH*	BH/A'OC -JEX-&	OHDJR44B /ITO D	JR34 OT FFF20066
T+/DMO&H2@YDDI *	&:A0BD:DFC&HJ8JI	W@-D+G D&*-&*AAG	OCTY-DLOBHAD@OI	&7*BG ( /G/D5T	2 &8 7E4FFF20067
T+/EIG D&VO&*AAG	WCTD DLOI /G/D6C	JCZG D-#0S*AAG	,CTZ DL3 CS DL3	2D 8< /<'D5T /OH	E /8 ;R*FFF20068
T+/FHDS &EAD@@/	+C HL JI-OH*BF-H	;D5 8HAD@@/ +C H	L J(WOH*BF-H;D5C	/OH&E* #&*A?F@B	GDE- :COFFF20069
T+/GEI-@H;* AD*U	@AT#@IS @IT-C-@	JXJF10J-JZLD&D-U	1F1H.<JHKC&3GE*Y	N2*=<EU*D-D\$O<JG	D* @SDFFF20070

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	
T+/H @1-B+ DBB H	& " # @BG /.. /O.	3 -H		AG WD:ZJ@ D	TG@Y* Z@Y* =I*FFF20071	
T+/H#<0 IC4	EHZAB( 00*LE6 ~	R2 PT1)XM5ZLE44C	XK4A 8> O6*GG1MA	'9=-X4UA &< P9DC	O5=< -S<FFF20072	
T+/162)NBUCA6*N	&+  &DA &DA &DA	&DA &DA 9(P184C	O1*#I5*XT2)N&+	AO_ E&D_.K4_ 5+L	S84 OSMFFF20073	
T+/H10XN O'SR6*P	C84A-9*PR2*\$YQDA	&DA &DA &DA &DA	&DA &DA &DA &DA	&DA &DA &DA &DA	&D 150FFF20074	
T+/..&DA &DA 1<	P&<XS&( 00*LE1DA	&DA &DA &DA &DA	&DA &DA &DA-QFA	-QFA-QFA-QFA-QFA	-QF 7SDFFF20075	
T+/<XQFA-QFA-QFA	-QFCD9(LP&+ A5@N	1)XR5_V 8> AB@X	S8@XC8UCB1*\$06*N	6;LN5*XN14CD2;.	K&&& 2Z-FFF20076	
T+/ S2*GG5)S8@X	C8WCP6)S66*GM6+~	X94CN5>( _S05*J	5_N 1<XS4UC1@?	4'~\$7=(- @-L31Z	00* <u>E</u> .*FFF20077	
T+/+ 8@SD'T&HD8X	@ /+< F H? 0:B-@	H7<BG /Y/CO LT +	-O DL\$@BG ( -	L73&AD#35 J+*C-D	L70< KC0FFF20078	
T+/ QX10 D:U O-D	B<X4 (HABX-& )H	A @B&D:TB & OH*	C&HEH*P S @YD	H *MH-< AEH ' H	O D KB-FFF20079	
T+/&LD=PO+6*0\$7\$	/1K  & B<@BAD?*	A1K  H*L#-0A ZO	A*EOA 3*A*00BAE-	MSTS T 2DAU<-<	D-D KL&FFF20080	
T+/J+  DR OBAHA	J#-@C -@A*HGA-@	E -@A*37E -C2 &	2/4U4 JJ*OH*LTJC	2 & 2/3\$ /1+ @ H	AB&O 1,YFFF20081	
T+/KI+0~+E& 2/2P	/1+(& HAB&1BA*M	P27HGE<BG0B5J@-D	ICD&G7/TL@Y*C@C&	@0-D <BG /.. /O	@ Q&FFF20082	
T+/LD MA &DA-QFA	-QFA-QFA-QFA-QFA	-QFA-QFA-QFA-QFA	-QFA-QFA-QFA-QFA	-QFA-&DA &DA &DA	L4A &DCD&&<  54A	&D *Z<FFF20083
T+/L*44C0&&E 1DC	E&&J &DA &D' &DA	&DA &DA-QFA-QFA	-QFA-QFA-QFA-QFA	-QFA-QFA-QFA-QFA	-&D 'YDFFF20084	
T /MB&DA					3C&FFF20085	
T+/QE&DA &DA @.	7@DCM2* R5MCC5ZL	E&( 00*LE1DA &DA	&DA &DA &DA &DA	&DA &DA &DA &DA	&D O OFFF20086	
T+/R &DA &DA &DA	&DA &DA &DA &DA	&DA &+LS1MCC5_P	S5_ E&+.H2: C2<P	S&+ O&+.E4@PC84A	&D M& FFF20087	
T+HJR&DA &DA 1<P	S2)XE1DCP6)S66*G	MK4A &DA &DA &DA	&DA &DA &DA		EK0FFF20088	
T+/SB@C_@H*L?;A	1BHEVZ(  >A *@/	14--@"-4-D\$4--	*-JB@2U& (  >D	*4A X4-- CHCH*OU	8H* *.4FFF20089	
T A\$CRE					=.QFFF20090	
T+/B@C_@H*L*MD	=?;A18HEV*D(  ; &	*41 ; D*41  @<	H<MEG07E&?( B (E	BH#AB&.UH 'B&  (	CB+ *YMFFF20091	
T A1-H/6N	G@				QB FFF20092	

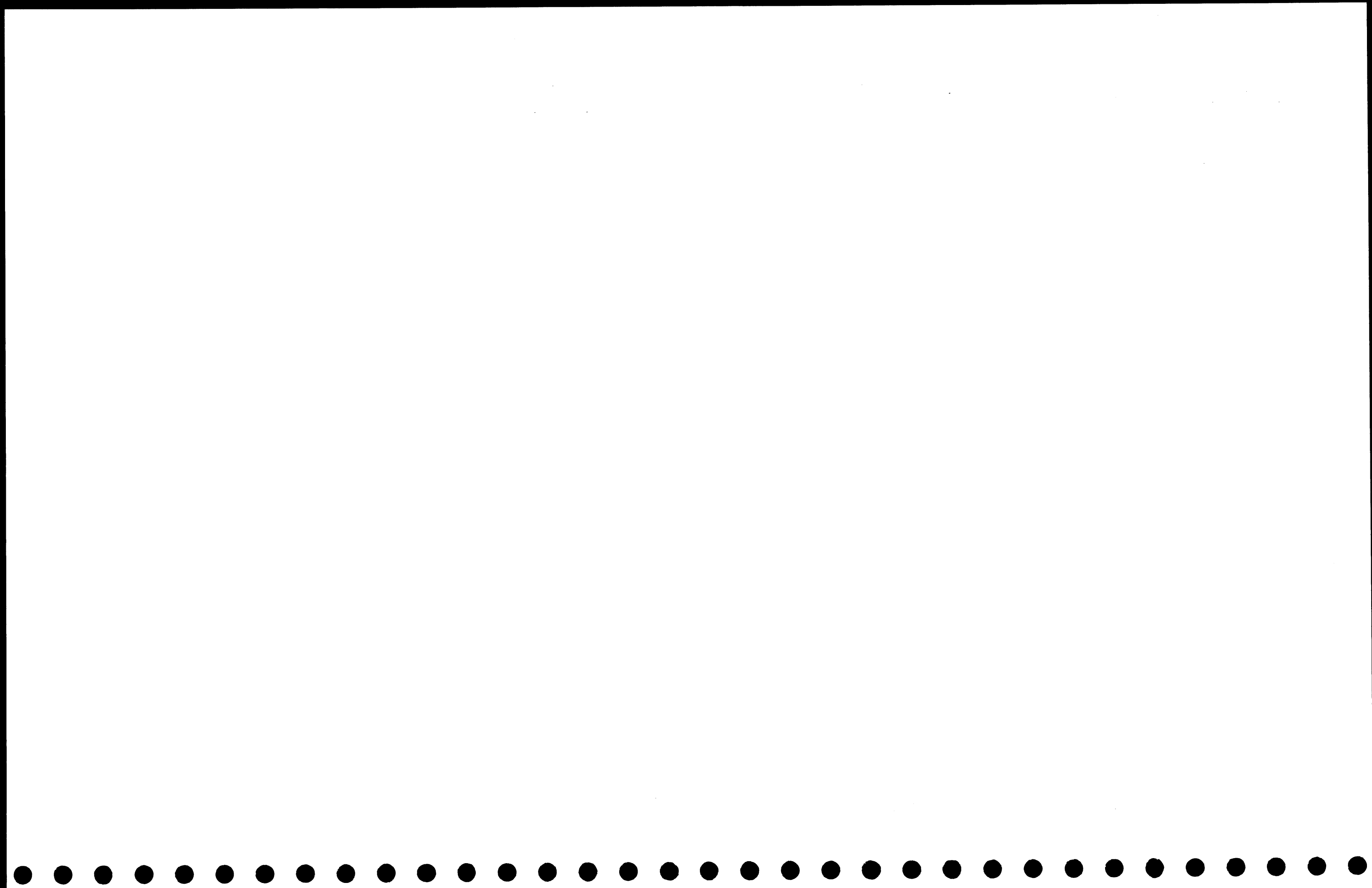
FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96	CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+T6@C~8H*L7;A	18HEVXNJ0*NAH4N	25& 4NHQXE(L >LR	>E' 4I K~.a2YD	01D H200-BCYH200	>EY 190FFF20093	CG-7 2)LA12N 02G	R1DC5&CXN&TE94A	-E(\$P82X05*GL&			;/&FF FFF20115
TDATLB1Z2"47&/1I	a D7-/6M <				2AHFFF20094	CG67:5<XS04CR1*I	06*J 1_\$R&(-A82I	H1:I,&<PT04A			E:2FF FFF20116
T 7-COH*DN-					2S-FFF20095	CF07:5<XS04CR1*I	06*J 1_\$R&(-A82I	H1:I,&<PT00			8 HFF FFF20117
T+X4:+ 88B-H&BC&	D -X /75F+ DBBL-	FA)1L2UA-a&CPMCO	E5G700HMF9*BGAI~	- 2BG-J8I PM~C	--O RE<FFF20096		DIAGNOSTIC CON	TROL PROGRAM			* FFF20118
T+X559*BGAI~*B	G-L /OHED*BG /D	AHG8VCG<H'G:;0M*	BFDD2C76W  A'ZL	~0 G76C&E'X7	82YD 0,8FFF20097						**** FFF20119
T+X60D OA-ER'IT0	1-EQ< P78~Q+ G7	#~.2HAC /OHED&1	3B1J=X&BG /D/OH*	BG/ SMC E'>76	WC-D PQ8FFF20098		COMMON S	ENSE SWITCHES		DATA SWITCH ENTR	Y * FFF20120
T+X7,~\$_2&BG /8	E H3-OA-1A'>08	A-1A'2&BG /8&	H'2BG /8B-EQH/C3	OBHL /OHEY-BA-ER	'< 4KMFFF20099						* FFF20121
T+X8W/75D D D	0	02T A5*-E&+.W2:1C2DC	1&&GN1DC2&&\$06MC	N1:R 1+LM54CA1<L	R&D 1E0FFF20100		00-LOOP ON SEC	TION.	* 1 2 3 4		* FFF20122
T+X9/EDA &<GD1IV	E(CO&DCO2UA 2IJ	E(C6&DCO=DA 2&E	E(CC&DCO1MA 2DA	2DA 2DCO2DA 2I:	EI 7LOFFF20101		01-LOOP ON ROU	TINE.	* * * * *		* FFF20123
T+X:*DA 2IR EIC	8&DCO0MA 2<I EIC	E&DA 2DA 2DA EIC	0&DCO2UA 2IJ EIC	6&DCO=DA 2&E EIC	C&D :84FFF20102		02-SKIP INTERV	ENTION ROUTINES.	* F 0 X	X - TURN OFF SE	NSE SWITCH XX. * FFF20124
T+X#P2CP0+7"-/1C	4BG'R21S 2IT-7;A	10HE"NT7"BGU2"0/	90 E=X2DQ-Z21F00	7<JAMP"HGEL2G~22	1 P2 E/&FFF20103		03-BYPASS ERRO	R PRINT.	* F 1 X	X - TURN ON SEN	SE SWITCH XX. * FFF20125
T+X2KP7~<JAMP<	20<D~>H1DX'/21B	KOJ'=#\$ 0&.-H&C	E~Z2+ P'~542& U	CN*H"OU 2YDUC-E	"P72 114FFF20104		04-BYPASS NON-	ERROR PRINT.	* F 2 X	X - GO TO ROUTI	NE XX. * FFF20126
T+X'(P&47B 2I IH	AE&8A-5'P&4GB 2	I IHAA-8A-5'P&4	A-5'0"HDCTOG~22	8A HH2Z C2C_1+ &	BB1H 7C-FFF20105		05-PRINT ON AL	TERNATE DEVICE.	*		* FFF20127
TEP' TU Q</ T"BB&C	/O M H H H				0H&FFF20106		06-BYPASS ERRO	R HALTS.	* E E X	X - TERMINATE S	ECTION. * FFF20128
T 0\$POH)'					*Q&FFF20107		07-LOAD AND GO		*		* FFF20129
TB&410'~UE(XE0'S	R1				4- FF FFF20108		08-NOT USED.		* D X X	X - DISK-RUN SE	CTION XXX. * FFF20130
TB&4L9<LT&(XE0'S	R1				=QQFF FFF20109		09-LEAVE SECT.	SWITCHES ON.	* D X X	0 - DISK-RUN DE	VICE XX SECTIONS * FFF20131
TE&4Z0QGC2<G15MC	X9=) QDC05=115_P	A40			"H&FF FFF20110		0D-SPEC. PURPO	SE STORAGE DUMP.	*		* FFF20132
TG&5G2)LA12N 02G	R1DC1&<XN&<TE94A	-E(\$P82X05*GL			@/YFF FFF20111		0F-SPACE 36 TI	MES INSTEAD OF 6	*		* FFF20133
TG&5V2)LA12N 02G	R1DC2&<XN&<TE94A	-E(\$P82X05*GL			M/2FF FFF20112						**** FFF20134
TG&6C2)LA12N 02G	R1DC3&<XN&<TE94A	-E(\$P82X05*GL			*/2FF FFF20113		ECY1*E7*-DC*PH&	=7M&F    C F& ASC R A SO Q		09320630750	311760.UFFF20135
TG&6/2)LA12N 02G	R1DC4&<XN&<TE94A	-E(\$P82X05*GL			O/YFF FFF20114						

LAST PAGE



FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 * DECK 4
3 * SEQ 0
4 * START X'A00'
5 * TREP
6 *
7 * *****
8 * SYSTEM/3 SYSTEM TEST RELOCATING LOADER
9 * *****
10 *
11 * *****
12 * DC XL2'FF10' PROGRAM IDENTIFICATION AND LEVEL
13 * DC XL1'80' FLAGS - NO SPUOT
14 * DC IL1'0' CURRENT ROUTINE NUMBER
15 * DC XL2'0' RESERVED
16 * DC AL2(RTN01) ADDRESS OF FIRST ROUTINE PREFIX
17 * DC XL2'0' RESERVED
18 * *****
19 * DC XL30'0' RESERVED FOR SYSTEM TEST SUPERVISOR
20 * *****
21 * TABLE EQU * TABLE CONTAINING CATALOG OF PROGRAM
22 * * MODULES IN CORE. PROVISIONS ARE
23 * * MADE FOR SUPERVISION OF UP TO 16
24 * * MODULES. INFORMATION IS CONTAINED
25 * * AS IN THE FOLLOWING DIAGRAM. *GC*
26 * ***** *GC*
27 * ***** TABLE EXAMPLES FOR NON INFORMED PROGRAMMER ***** *GC*
28 * DF0F * CC SS * * * * 0F00 * FO * * *GC*
29 * DE1F * CC SS * * * * 1300 * E1 * * *GC*
30 * ***** *GC*
31 * *****
32 * *****
33 * ARR | IAR | XR1 | XR2 | PSR | STARTING | DEVICE ID *
34 * * 0-1 | 2-3 | 4-5 | 6-7 | 8 | ADDRESS | IF INT 5 *
35 * * 9-10 | 11 *
36 * *****
37 * *****
38 * FORMAT OF AN ENTRY AT TIME OF BRANCH TO 'SETUP' TO LOAD MODULES
39 *
40 * BYTE 0-1 | BYTE 2-3 | BYTE 4-8 | BYTE 9-11
41 *
42 * DXXX OF | 5444 ADDR. | 3340 ADDR. | FFFFFF
43 * MODULE OF MODULE OF MODULE
44 *
45 * ***** THIS RELOCATING LOADER INITIALIZES THIS TABLE *****
46 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
47 *
48 * *****
49 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
50 *
51 * *****
52 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
53 *
54 * *****
55 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
56 *
57 * *****
58 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
59 *
60 * *****
61 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
62 *
63 * *****
64 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
65 *
66 * *****
67 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
68 *
69 * *****
70 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
71 *
72 * *****
73 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
74 *
75 * *****
76 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
77 *
78 * *****
79 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
80 *
81 * *****
82 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
83 *
84 * *****
85 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
86 *
87 * *****
88 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
89 *
90 * *****
91 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
92 *
93 * *****
94 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
95 *
96 * *****
97 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
98 *
99 * *****
100 * DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'

```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

51 OAAD FFFFFFFFFFFFFFFFFF
52 OAB5 FFFFFFFFFFFFFFFFFF
53 OABD FF
54 OABE FFFFFFFFFFFFFFFFFF OAD6 DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
55 OAC6 FFFFFFFFFFFFFFFFFF
56 OACE FFFFFFFFFFFFFFFFFF
57 OAD6 FF
58 OAD7 FFFFFFFFFFFFFFFFFF OAE8 DC XL18'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
59 OADF FFFFFFFFFFFFFFFFFF
60 OAE7 FFFF
61 * AND MODIFIES THESE CONSTANTS DURING LOADING.
62 * USING START,1
63 * USING START,2
64 * *****
65 OAE9 0F00 OAEA
66 OAE8 0000 OAEA
67 OAE8 0000 OAEA
68 OAE8 0000 OAEA
69 OAE8 0000 OAEA
70 OAE8 0000 OAEA
71 OAE8 0000 OAEA
72 OAE8 0000 OAEA
73 OAE8 0000 OAEA
74 OAE8 0000 OAEA
75 OAE8 0000 OAEA
76 OAE8 0000 OAEA
77 OAE8 0000 OAEA
78 OAE8 0000 OAEA
79 OAE8 0000 OAEA
80 OAE8 0000 OAEA
81 OAE8 0000 OAEA
82 OAE8 0000 OAEA
83 OAE8 0000 OAEA
84 OAE8 0000 OAEA
85 OAE8 0000 OAEA
86 OAE8 0000 OAEA
87 OAE8 0000 OAEA
88 OAE8 0000 OAEA
89 OAE8 0000 OAEA
90 OAE8 0000 OAEA
91 OAE8 0000 OAEA
92 OAE8 0000 OAEA
93 OAE8 0000 OAEA
94 OAE8 0000 OAEA
95 OAE8 0000 OAEA
96 OAE8 0000 OAEA
97 OAE8 0000 OAEA
98 OAE8 0000 OAEA
99 OAE8 0000 OAEA
100 OAE8 0000 OAEA

```

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
75	*****			
76	*****			
77	*****			
78	*****			
79	*****			
0801	80	SETUP	EQU	* *****
0801	81	TBN	UTAB+1,X'80'	CHECK FOR DISK LOADER JUMP IF IT IS
0805	82	JF	LOADC	CHECK FOR NOT LOADING THIS MODULE
0808	83	CLI	SKFLAG,X'FF'	IF YES, GET NEXT MODULE
0808	84	JE	BMPMOD	CHECK FOR END CARD
0808	85	CLI	INPUT,C'E'	JUMP IF IT IS NOT
0808	86	JNE	LOADC	BUMP POINTER TO NEXT MODULE AREA
0813	87	ALC	LPCR(2),TWLVE	LOAD POINTER TO BYTE 0 OF TABLE
0816	88	L	LPCR,XR1	TEST FOR 'D'
0816	89	TBN	O(,XR1),X'20'	JUMP IF IT IS A 'D'
0816	90	JF	RDC	LOAD POINTER TO BYTE 0 OF TABLE
0823	91	MVI	POINTR,XR1	SET 'LAST ENTRY' FLAG
0826	92	MVI	O(,XR1),X'FF'	JUMP TO LOAD SUPERVISOR
082A	93	J	LDSV	
082A	94	F2	87 35	
0830	95	RDC	EQU	* MOVE IN CYL/SECT ADDRESS OF MODULE IF 3444
0835	96	CL7	PID,3(2,XR1)	
0839	97	JE	DKFLAG,X'AO'	THEN JUMP OVER 3340 SET UP SET UP FOR 3340, MOVE IN CYL HED REC
083C	98	MVC	CCHHM(5),8(,XR1)	
0841	99	MVC	PID(2),CCHHM	MOVE IN ADDRESS OF CCHHR
0841	100	ISAO	EQU	* SEEK TO MODULE AND LOAD
0847	101			
0847	102	B	LOAD	
0848	103	DC	XL1'30'	
0848	104	DC	XL2'0000'	
084E	105	J	COMM	
0851	106			
0851	107	LOADC	EQU	* READ NEXT RECORD OF PGM. INTO X'80' AND RETURN HERE
0855	108	B	LOAD	
0855	109	DC	XL1'10'	
0856	110	COMM	EQU	* LOAD READIN ADDRESS IN XR1 LOAD BASE VALUE IN XR2 BRANCH IF NOT FIRST CARD OF SPRVSR
0856	111	LA	INPUT,XR1	
0856	112	LA	START,XR2	
0856	113	CLC	90(3,XR1),FF2(,XR2)	
0856	114	JNE	CHKEE	
0856	115			
0865	116	LDSV	EQU	* LOAD SYSTEM TEST SUPERVISOR ASSUME FROM CARDS, ALTERED FOR DISK.
0869	117	B	LOAD	
0869	118	DC	XL1'08'	
0869	119	DC	XL2'DFF2'	
0869	120	CHKEE	CLC	SKFLAG(,XR2),X'EE'
0869	121		SETUP(,XR2)	
0869	122	BE	7(8,XR1),GBK	BRANCH IF NOT HEADER CARD
0869	123	CLC	CKSKIP	
0869	124	JNE	76(2,XR1),CFE	IF DEVICE ID IS 'FE', THEN IT'S ... 'FE1' SO GO AHEAD AND LOAD IT
0869	125	JE	CLFLAG	PACK DEVICE IDENTIFICATION
0869	126	B	PACK	
0869	127	DC	IL1'2'	
0869	128	DC	AL2(INPUT+76)	
0869	129	DC	AL2(INPUT+7)	
0869	130	LA	UTAB,XR2	INITIALIZE POINTER TO DCP UNIT TABLE BRANCH IF UNIT IS ATTACHED TO SYSTEM
0869	131	CLC	O(1,XR2),7(,XR1)	
0869	132	JE	CLFLAG	
0869	133	TBN	1(,XR2),X'10'	CHECK FOR LAST DCP ENTRY INCREMENT TO NEXT UNIT ENTRY
0869	134	LA	3(,XR2),XR2	CONTINUE UNLESS DCP UNIT TABLE DONE
0869	135	BF	LOOPI	SET FLAG TO SKIP THIS MODULE
0869	136	MVI	SKFLAG,X'FF'	
0869	137	SETUP		
0869	138	EQU	*	
0869	139	CLFLAG	SKFLAG,0	CLEAR SKIP FLAG PACK SIZE OF MODULE
0869	140	MVI	PACK	
0869	141	B	IL1'4'	
0869	142	DC	AL2(INPUT+80)	

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
08B3	OAF0			
08B5	5C 1F 1F 3F			
08B9	7C 40 5F			
08BC	5C 3E 5E 5F			
08C0	35 01 0AF2			
08C4	4C 01 0A7			
08C9	7C 01 0A7			
08D0	02			
08D5	OAEA			
08D7	O8A4			
08D9	AC 01 02 00			
08DD	AF 01 02 00			
08E1	AC 01 13 00			
08E5	AE 01 13 06			
08E9	8D 01 13 0203			
08EE	F2 04 16			
08F1	BC EE 04			
08F4	CO 87 021A			
08F8	C6			
08F9	22			
08FA	0E61			
08FB	FF01			
08FE	CO 87 0222			
0C02	FF01			
0C04	ED 87 17			
0C07	CO 87 021A			
0C08	21			
0C0C	38 80 0208			
0C10	E0 90 17			
0C13	C7 87 021A			
0C17	18			
0C18	CO 87 0222			
0C1C	FFEO			
0C1E	80 00 13			
0C21	BD 0F 12			
0C24	BD A0 12			
0C27	E0 87 86			
0C2A	ED 87 17			
0C2D	ED FF 04			
0C30	ED 81 17			
0C33	7D E3 00			
0C36	F2 01 D6			
0C39	38 80 0233			
0C40	F2 10 55			
0C4D	7D D9 01			
0C4F	F2 01 03			
0C46	7C 2A 01			
0C49	D2 01 01			
0C4C	B4 01 13			
0C4F	BD D8 13			
0C52	CO 82 0C40			
0C56	C2 01 08D7			
0C5A	D2 02 09			
0C5D	3C 00 0C68			
0C61	OC 00 0C68			
0C67	AE 00 01 01			
0C68	AE 00 01 01			
0C6E	0E 00 0C68			
0C75	3D 04 0C68			
0C79	CO 01 0C61			
0C7D	6C 02 01 00			
0C81	36 01 0AF9			
0C85	36 02 0AF8			
0C89	34 01 0AFD			
0C8D	3D 07 0AFD			
0C91	CO 84 0C5D			
08B4	143	DC	AL2(MSIZE)	
08B4	144	MVC	31(32,XR1),63(,XR1)	
08B4	145	MVI	75(,XR1),C	
08B4	146	MVC	74(63,XR1),95(,XR1)	
08B4	147	L	POINTR,XR1	
08B4	148	MVC	10(2,XR1),START	
08B4	149	MVI	11(,XR1),X'FF'	
08B4	150	LA	START,XR2	
08B4	151	B	UNPACK	
08B4	152	DC	IL1'2'	
08B4	153	DC	AL2(START)	
08B4	154	MVC	AL2(INPUT+36)	
08B4	155	DC	BASE(2,XR2),START(,XR2)	
08B4	156	SLC	BASE(2,XR2),XA00(,XR2)	
08B4	157	MVC	WORK(2,XR2),START(,XR2)	
08B4	158	ALC	WORK(2,XR2),MSIZE(,XR2)	
08B4	159	CLC	WORK(2,XR2),SIZE	
08B4	160	JNH	PTITLE	
08B4	161	MVI	SKFLAG(,XR2),X'EE'	
08B4	162	B	PRINT	
08B4	163	DC	XL1'6'	
08B4	164	DC	IL1'34'	
08B4	165	DC	AL2(EMSG)	
08B4	166	DC	XL2'FF01'	
08B4	167	B	HALT	
08B4	168	DC	XL2'FF01'	
08B4	169	B	SETUP(,XR2)	
08B4	170	B	PRINT	
08B4	171	DC	PTITLE	
08B4	172	DC	XL1'21'	
08B4	173	TBN	SBYTE3,SSW18	
08B4	174	BF	SETUP(,XR2)	
08B4	175	B	PRINT	
08B4	176	DC	XL1'16'	
08B4	177	B	HALT	
08B4	178	DC	XL2'FFEO'	
08B4	179	SNS	WORK(,XR2),X'0'	
08B4	180	SBF	WORK-1(,XR2),X'OF'	
08B4	181	CLI	WORK-1(,XR2),X'AO'	
08B4	182	BE	SETSKIP,XR2	
08B4	183	B	SETUP(,XR2)	
08B4	184	B	SETUP(,XR2)	
08B4	185	CKSKIP	SKFLAG(,XR2),X'FF'	
08B4	186	BE	SETUP(,XR2)	
08B4	187	CLI	O(,XR1),C'T'	
08B4	188	BE	UTAB+1,X'80'	
08B4	189	TBN	TEODNE	
08B4	190	JT	1(,XR1),X'00'	
08B4	191	CLC	++6	
08B4	192	MVI	1(,XR1),X'2A'	
08B4	193	LA	1(,XR1),XR1	
08B4	194	ST	WORK(,XR2),XR1	
08B4	195	CLI	WORK(,XR2),X'D8'	
08B4	196	BL	LOOP2	
08B4	197	LA	INPUT+87,XR1	
08B4	198	LA	O(,XR1),XR2	
08B4	199	MVI	S1+1,0	
08B4	200	ALC	S2+1(1),S1+1	
08B4	201	ALC	1(+-,XR2),1(,XR2)	
08B4	202	ALC	1(+-,XR2),1(,XR2)	
08B4	203	CLI	S1+1(1),ONE	
08B4	204	CLC	S1+1,4	
08B4	205	BNE	CNLOOP	
08B4	206	MVC	1(3,XR1),0(,XR2)	
08B4	207	A	NEG3,XR1	
08B4	208	A	NEG4,XR2	
08B4	209	ST	WORK,XR1	
08B4	210	CLI	WORK,X'97'	
08B4	211	BH	LENGTH	

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FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
OC95	C2 01 0880	211	TEODNE LA	INPUT,XR1 POINT XR1 AT READ-IN FIELD
OC99	38 80 0233	212	TBN	UTAB+1,X*80 LOADING FROM DISK ?
OC9D	F2 90 27	213	JF	CDSTP JUMP IF YES
		214		
		215		* DISK SETUP FOR RELOCATION.
		216		
OCA0	D2 02 FF	217	REL544 EQU *	
OCA3	1C 02 0D09 03	218	LA	255(XR1),XR2 POINT XR2 AT LAST RELOCATION BYTE
OCA8	0E 01 0D09 0AEC	219	**	THE 255 RELOCATION FACTOR IS MODIFIED TO 63 FOR 3340 SYSTEM *GC*
OCAE	1C 00 0D0A 01	220	MVC	MOVE+3(3),3(XR1) SET UP DESTINATION ADDRESS
OCB3	7C 00 00	221	ALC	MOVE+3(2),BASE RELOCATE
OCB6	76 01 01	222	MVC	MOVE+4(1),1(XR1) SET UP SOURCE DISPLACEMENT
OCB9	02 01 04	223	MVI	0(XR1),X*0 SET UP LOWER LIMIT FOR RELOCATION
OCB2	34 01 0381	224	A	1(XR1),XR1 SEARCH
OCB0	C2 01 0884	225	LA	4(XR1),XR1
OC00	C2 01 0884	226	ST	INPUT+1,XR1
OC04	F2 87 23	227	LA	INPUT+4,XR1 POINT AT FIRST BYTE TEXT DATA
		228	J	LOOP3
		229		
		230		* 96 COLUMN CARD SETUP FOR RELOCATION
OC07	1C 02 0D09 19	231	CDSTP	MVC MOVE+3(3),25(XR1) SET UP DESTINATION ADDRESS
OC0C	0E 01 0D09 0AEC	232	ALC	MOVE+3(2),BASE RELOCATE
OC02	1C 00 0D0A 17	233	MVC	MOVE+4(1),231(XR1) SET UP SOURCE DISPLACEMENT
OC07	D2 02 55	234	LA	85(XR1),XR2 POINT XR2 AT TABLE OF RELOC BYTES
OC0A	4E 00 17 0CE9	235	ALC	23(1,XR1),PTXR1+2 SET UP COMPARE LIMIT FOR RELOCATION
		236		SEARCH
		237		
OCDF	7C 00 16	238	MVI	22(XR1),X*0
OC02	4E 01 17 0B04	239	ALC	23(2,XR1),SETUP+3
OC07	D2 01 1A	240	PTXR1	LA 26(XR1),XR1 POINT XR1 AT BEGINNING OF TEXT DATA
OC0A	BD 00 00	241	LOOP3	CLI 01,XR2,X*0 IF ZERO FILL, DONE
OC0D	F2 81 16	242	JE	MOVE
OC0F	2C 00 0CF7 00	243	MVC	RELOC+2(1),0(XR2) SET UP DISPLACEMENT FOR RELOC ADJUST
OC05	4E 01 00 0AEC	244	ALC	*-(2,XR1),BASE ADD RELOCATION FACTOR
OC0A	36 02 0EFF	245	A	NEG1,XR2 WORK,XR2 ADJUST TO LOOK AT NEXT RELOC BYTE
OC0E	34 02 0AFD	246	ST	WORK,XR2
OD02	C0 87 0CEA	247	B	LOOP3
OD06	1C 00 0000 00	248	MOVE	MVC *-*(X*),*-(XR1) MOVE TEXT DATA TO CORE
OD08	C0 87 0801	249	B	SETUP
OD0F	7D D9 00	250	CKREP	CLI 01,XR1,C*R GO READ NEXT CARD
OD12	F2 01 49	251	JNE	CKCOM BRANCH IF NOT REPLACE CARD
OD15	C0 87 0226	252	B	PACK
OD19	04	253	DC	11'4' PACK ADDRESS
OD1A	0885	254	DC	AL2(INPUT+5)
OD1B	0D40	255	DC	AL2(DEST)
OD1D	00	256	ALC	DEST(2),BASE ADD RELOCATION FACTOR
OD1E	0E 01 0D40 0AEC	257	CLI	1(XR1),C'E BRANCH IF NOT PATCH EXECUTE CARD
OD24	7D C5 01	258	JNE	A,DEST
OD27	F2 01 07	259	L	DEST,XR1
OD2A	35 01 0D40	260	B	01,XR1
OD2E	00 87 00	261	AJDEST	LA 8(XR1),XR1 POINT AT FIRST PAIR OF HEX DIGITS
OD31	D2 01 08	262	NEXT	ST SRCE,XR1 LOAD POINTER FOR THIS PAIR
OD34	34 01 0D3E	263	B	PACK
OD38	C0 87 0226	264	DC	11'2' GO PACK THIS BYTE
OD3C	02	265	DC	AL2(*-*)
OD3D	0000	266	DC	AL2(*-*)
OD3F	0000	267	ALC	DEST,ONE(2) INCREMENT DESTINATION POINTER
OD41	0E 01 0D40 0EFC	268	CKBLK	CLI 1(XR1),C' DONE WHEN BLANK ENCOUNTERED
OD47	7D 40 01	269	BE	SETUP,XR2
OD4A	E0 81 17	270	LA	1(XR1),XR1
OD4D	D2 01 01	271	CLI	01,XR1,C' INCREMENT TO NEXT POSITION
OD50	7D 66 00	272	BE	CKBLK BYPASS ANY COMMAS
OD53	C0 81 0D47	273	LA	1(XR1),XR1 INCREMENT POINTER TO RIGHT DIGIT
OD57	D2 01 01	274	B	NEXT
OD5A	C0 87 0D34	275	CKCOM	CLI 01,XR1,C** GO PACK ANOTHER BYTE
OD5E	7D 5C 00	276	JNE	CKEND BRANCH IF THIS IS NOT COMMENT
OD61	F2 01 0F	277	TBN	X*208,X*01' CARD
OD64	38 01 0208	278	BT	SETUP(XR2) SWS07 ON?
OD68	E0 10 17	278	BT	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
OD6B	C0 87 021A	279	B	PRINT PRINT CONTENTS OF THIS CARD
OD6F	21	280	DC	XL1'21'
OD70	E0 87 17	281	B	SETUP(XR2)
OD73	7D C5 00	282	CKEND	CLI 01,XR1,C'E GO READ NEXT CARD
OD76	E0 01 17	283	BNE	SETUP(XR2) BRANCH IF NOT END CARD
OD79	35 01 0AF2	284	L	POINTR,XR1
OD7D	75 01 0A	285	L	10(XR1),XR1
OD80	78 80 02	286	TBN	2(XR1),X*80' LCAD MODULE TABLE POINTER
OD83	F2 10 58	287	JT	LDEND BRANCH IF NO UDT ENTRIES
OD86	C2 02 0232	288	UFIND1	LA UTAB,XR2 POINT XR2 AT DCP UNIT TABLE
OD8A	9D 00 00 0A	289	UFIND2	CLC 0(1,XR2),10(XR1) BRANCH IF NOT PROPER UDT
OD8E	F2 01 18	290	JNE	UFIND4
OD91	6C 00 0C 02	291	MVC	12(1,XR1),2(XR2) LOAD SECTION PREFACE OPTION BITS
OD95	68 03 0B 01	292	MNN	11(XR1),1(XR2)
OD99	7A 20 08	293	SBN	11(XR1),X*20' SET ASSIGNED FLAG
OD9C	78 10 0B	294	UFIND3	TBN 1(XR1),X*10'
OD9F	D2 01 03	295	LA	3(XR1),XR1
ODA2	C0 90 0D86	296	UFIND1	JT
ODA6	F2 87 35	297	J	LDEND
ODA9	B8 10 01	298	UFIND4	TBN 1(XR2),X*10' INCREMENT SPUT POINTER
ODAC	E2 02 03	299	LA	3(XR2),XR2 IF NOT LAST ENTRY, GO LOAD NEXT
ODAF	C0 90 0D8A	300	BF	UFIND2 TEST FOR LAST DCP UNIT ENTRY
		301	*	MODULE UDT REQUIREMENT COULD NOT BE FULFILLED.
ODB3	78 40 0B	302	TBN	11(XR1),X*40' SKIP ERROR HALT IF REQUIRED FLAG NOT
ODB6	C0 90 0D9C	303	BF	UFIND3 ON
ODBA	D2 01 0A	304	LA	10(XR1),XR1 PUT UNIT IDENTIFICATION IN PRINTOUT
ODBD	34 01 0DC7	305	ST	DEVID,XR1
ODC1	C0 87 021E	306	B	UNPACK
ODC5	01	307	DC	11'1'
ODC8	0000	308	DC	AL2(*-*)
ODCA	C0 87 021A	309	DC	AL2(EMSG1-29)
ODCE	C1	310	DC	PRINT
ODCF	26	311	DC	XL1'C1' PRINT ERROR MESSAGE TO INDICATE
ODD0	0E3F	312	DC	11'3B' THAT UNIT NOT DEFINED IN UDT
ODD2	FF02	313	DC	AL2(EMSG1)
ODD4	C0 87 0222	314	DC	XL2'FF02' *HALT IF SSW06 IS OFF
ODD8	FF02	315	B	HALT
ODDA	C0 87 0B01	316	DC	XL2'FF02' GO TO READ NEXT MODULE
ODDE	0E 01 0AEA 0AFO	317	LDEND	ALC SETUP SET UP STARTING ADDRESS FOR
		318	*	NEXT MODULE
ODE4	35 01 0AF2	319	L	POINTR,XR1 LOAD POINTER TO THIS TABLE SLOT
ODE8	7C 00 00	320	MVI	01,XR1,X*0' INDICATE THAT ENTRY H'S BEEN FILLED
ODEB	0E 01 0AF2 0E03	321	ALC	POINTR(2),THLVE INCREMENT FOR NEXT MODULE
ODF1	0F 00 0AED 0EFC	322	SLC	NPROGS(1),ONE SET FLAG TO TERMINATE LOADING IF
ODF7	F2 01 04	323	JNZ	**7 16 MODULES HAVE BEEN LOADED
ODFA	3C EE 0AEE	324	MVI	SKFLAG,X*EE'
ODFE	C0 87 0B01	325	B	SETUP GO READ NEXT CARD
		326		
		327		
		328	*****	
		329	* CONSTANTS	
		330	*****	
OE02	000C	331	THLVE	DC 1L2'12'
OE04	40C7C2D240C7C2D0	332	GBK	DC XL8'40C7C2D240C7C2D0' HEADER CARD COL 1-8 ' GBK GB1'
OE0C	0000000000	333	CCHHM	DC XL5'0000000000' DISK ADDRESS OF MODULE (3340)
OE11	0000000000	334	CCHH2	DC XL5'0000000000' DISK ADDRESS OF FF2 (3340)
OE16	0E10	335	CCHHM	DC AL2(CCHHM)
OE18	0E15	336	CCHH2	DC AL2(CCHH2)
		337		
		338	*****	
		339	* PRINTOUTS	
		340	*****	
OE1A	C4C5E5C9C3C540E7	341	EMSG1	DC CL38'DEVICE XX NOT ATTACHED-MODULE BYPASSED'
OE22	E740D5D6E340C1E3	341		
OE2A	E31C3C8C5C460D4	341		
OE32	D6C'E4D3C540C2E8	341		
OE3A	D7C1E2E2C5C4	341		
OE40	C3D679C540D6E5C5	342	EMSG	DC CL34'CORE OVERFLOWED,LOADING TERMINATED'

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

OE48 D9C6D3D6F6C5C46B 342
OE50 D3D6C1C4C9D5C74D 342
OE58 E3C5D9D4C9D5C1E3 342
OE60 C5C4 342
OE62 C6C5 0E63 343 CFE DC CL2'FE'

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

FF68 345 ORG X'FFFF'-X'0EFB'+\* IF FLAGGED, STORAGE BEING OVERLAYED.
OEFB 346 ORG X'FO0'-5 (ORG TO X'0EFB')
347 \*\*\*\*\*
348 \* ROUTINE 01 - RELOCATING LOADER
349 \*
350 \* THE FOLLOWING CODE LOADS THE PROGRAM MODULES, RELOCATING THE
351 \* CONSECUTIVE PROGRAMS AND ALIGNING EACH ON A 256-BYTE BOUNDARY.
352 \* DCP LOADS THE SYSTEM TEST SUPERVISOR AND BRANCHES TO THIS LOADER.
353 \* CARDS RECOGNIZED BY THIS LOADER INCLUDE-
354 \*
355 \* HEADER
356 \* TEXT
357 \* REPLACE
358 \* COMMENT
359 \* END
360 \*\*\*\*\*
OEFB 00 361 DC XL1'0' CURRENT ROUTINE NUMBER
OEFC 01 362 RTN01 DC XL1'01'
OEFD 00 363 ONE EQU \*-1 FLAGS
OEFE FFFF 364 DC XL1'0' LAST ROUTINE PREFIX
OEFF 365 DC XL2'FFFF'
366 NEG1 EQU \*-1
367 \*\*\*\*\*GC\*
368 \*\*\*\*\*GC\*
369 \* UTAB TABLE (0232,0233) \*\*\*\*\*GC\*
370 \* C1 R0 DISK FILE 3340 \*\*\*\*\*GC\*
371 \* A0 R0 DISK FILE 5444 \*\*\*\*\*GC\*
372 \*\*\*\*\*GC\*
373 \*\*\*\*\*GC\*
374 TBN UTAB+1,X'80' LOADING FROM DISK \*\*\*\*\*GC\*
375 JF PRTHD JUMP IF NOT \*\*\*\*\*GC\*
376 LA X'0232',XR1 SET-UP XR1 UTAB ADDRESS \*\*\*\*\*GC\*
377 MVC DKFLAG(1),0(XR1) DKFLAG EQUAL CE MODULE TYPE \*\*\*\*\*GC\*
378 B LOAD
379 DC XL1'02' SEEK TO VTCC
380 MVI TCNT,16
381 LA TABLE+1,XR1
382 LA LPTR,XR1
383 STI DKFLAG,X'C1' TEST UDT FOR THE DISK FILE 5444 \*\*\*\*\*GC\*
384 JE SEEK2W JUMP FOR TYPE DISK 3340 \*\*\*\*\*GC\*
385 B LOAD
386 DC XL1'10'
387 CLC DBUF+2(3),ACT READ A RECORD
388 BNE VENT CHECK FOR ACTIVE ENTRY
389 CLC DBUF+7(3),OLD CHECK FOR OLD ENTRY
390 BE NEXTS
391 CLC DBUF+7(3),FF2
392 JNE NOTFF2
393 MVC FF2(2),DBUF+4 MOVE IN DISK ADDR OF FF2
394 MVI FF2(2),X'18' MOVE IN FLAG FOR B LOAD
395 NOTFF2 CLI DBUF+10,X'00' CHECK FOR SYSTEM TEST MOD.
396 BE NEXTS
397 CLI DBUF+10,X'FE' IS IT CPU MODULE ?
398 JE DOMOD
399 LA UTAB,XR2 INITIALIZE POINTER TO DCP UNIT TABLE
400 CLC 0(1,XR2),DBUF+10 BRANCH IF UNIT IS ATTACHED TO SYSTEM
401 JE DOMOD
402 TBN 1(XR2),X'10' CHECK FOR LAST DCP ENTRY
403 LA 3(XR2),XR2 INCREMENT TO NEXT UDT ENTRY
404 B LOOP1A CONTINUE UNLESS DCP UNIT TABLE DONE
405 B NEXTS
406 DOMOD EQU \*
407 LPTR,XR1
408 L TOB,XR1
409 MVC 2(2,XR1),DBUF+4 SAVE CYL/SECT ADDRESS
410 MVI DBUF+4,C'D'
411 B PACK
412 DC XL1'4'

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OF93	0887	OF94	413	DC	AL2(DBUF+7)
OF95	0000	OF96	414	DC	AL2(*-*)
OF97	0E 01 0AFF 0E03		415	ALC	LPTR(2),TMLVE
OF9D	CF 00 0FCD 0EFC		416	SLC	TCNT,ONE
0FA3	CO 81 0FAB		417	BZ	VEND
		0FA7	418	EQU	*SEEK2
0FA7	CO 87 0F28		419	B	
		0FAB	420	EQU	*SEEK2
0FAB	CO 87 021A		421	B	
0FAF	42	0FAF	422	DC	PRINT
0FB0	24	0FB0	423	DC	XL1'42'
0FB1	0FF9	0FB2	424	DC	IL1'36'
0FB3	FF00	0FB4	425	DC	AL2(HDG)
0FB5	C2 01 0A28		426	LA	XL2'FFJ0'
0FB9	C2 01 0AF2		427	ST	TABLE,XR1
0FBD	C2 01 0A1C		428	LA	POINTR,XR1
0FC1	34 01 0AFF		429	ST	TABLE-12,XR1
0FC5	3C C5 0880		430	MVI	LPTR,XR1
0FC9	CO 87 0B01		431	B	INPUT,C'E'
0FCD	10	0FCD	432	DC	SETUP
0FCE	0008	0FCF	433	DC	IL1'16'
0FDD	C1C3E3	0FD2	434	DC	XL2'0008'
0FD3	D6D3C4	0FD5	435	DC	CL3'ACT'
0FD6	D3C9E2E340D6C640	0FF9	436	DC	CL3'OLD'
0FDE	D4D6C4E4D3C5E240		436	DC	CL36*LIST OF MODULES & STARTING ADDRESSES'
0FE6	5040E2E3C1D9E3C9		436	DC	
0FE6	D5C740C1C4C4D9C5		436	DC	
0FF6	E2E2C5E2		436	DC	

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
OFFA	3C 3F 0CA2		438		* DUP SUB-SECTION FOR THE 3340 DISK APPLICATION ****
OFFE	CO 87 022A		439	SEEK2W MVI	REL544+2,63 MODIFY RELOCATION FACTOR LOCATION
1002			440	B	LOAD
1003	0D 02 0882 0FD2	1002	441	DC	XL1'10'
1009	F2 01 76		442	CLC	DBUF+VTACT(3),ACT CHECK FOR ACTIVE ENTRY 'ACT'
100C	0D 02 0886 0FD5		443	JNE	VENDW JUMP IF NOT
1012	F2 81 69		444	CLC	DBUF+VTID(3),OLD CHECK FOR OLD ID
1015	0D 02 0886 0AF5		445	JE	NEXTSW GO TO COMMON EXIT FOR NEXT READ RECORD
1018	F2 01 10		446	CLC	DBUF+VTID(3),FF2 CHECK FOR FF2 ID
101E	3C 18 0869		447	JNE	NOFF2W JUMP IF NOT FF2
1022	0C 01 0868 0E19		448	MVI	FF2-2,X'18'
1028	0C 04 0E15 088E		449	MVC	FF2(2),CCHH2
102E	3D 00 0897		450	MVC	CCHH2(5),DBUF+VTCC
1032	F2 81 49		451	NOFF2W CLI	DBUF+VTSYT,X'00' CHECK FOR SYSTEM TEST MODULE
1035	3D FE 0897		452	JE	NEXTSW GO TO COMMON EXIT FOR NEXT READ RECORD
1039	F2 81 19		453	CLI	DBUF+VTSYT,X'FE' CHECK FOR SYSTEM CPU MODULE
103C	C2 02 0232		454	JE	DOMODW JUMP IF SO
1040	8D 00 00 0897		455	LA	UTAB,XR2
1045	F2 81 0D		456	CLC	0(1,XR2),DBUF+VTSYT CK IF UNIT IS ATTACHED TO SYS
1048	B8 10 01		457	JE	DOMODW UNIT ATTACHED SO JUMP
104E	E2 02 03		458	TBN	1(XR2),X'10' CHECK FOR LAST DCP UDT TABLE ENTRY
104E	CO 90 1040		459	LA	3(XR2),XR2 INCREMENT TO NEXT UDT ENTRY
1052	F2 87 29		460	BF	LOPIAW CONTINUE UNLESS NO MORE ENTRIES IN UDT
			461	J	NEXTSW GO TO COMMON EXIT FOR NEXT READ RECORD
		1055	462	DOMODW EQU	*
			463	L	LPTR,XR1 RESTORE XR1 TO TABLE+1 ADDRESS
			464	ST	TOW,XR1 STORE XR1 INTO TOW
			465	MVC	7(5,XR1),DBUF+VTCC SAVE DISK ADDR OF MODULE IN TABLE
			466	MVI	DBUF+VTID-3,C'D' REPLACE D INTO INPUT DATA FOR D---
			467	B	PACK
		106A	468	DC	XL1'4'
		106C	469	DC	AL2(DBUF+VTID)
		106E	470	DC	AL2(*-*)
			471	ALC	LPTR(2),TMLVE
			472	SLC	TCNT,ONE
			473	BZ	VENDW
		107E	474	JE	NEXTSW
			475	B	SEEK2W
			476	B	
		1082	477	EQU	*PRTHD
			478	B	
			479	B	PRTHD

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481 *****
482 * EQUATES *****
483 *****
0001 484 XR1 EQU 1 INDEX REGISTER 1
0002 485 XR2 EQU 2 INDEX REGISTER 2
0008 486 ARR EQU X'08' ADDRESS RECALL REGISTER
0203 487 SIZE EQU X'203' SRT - CORE SIZE OF SYSTEM
020B 488 SBYTE3 EQU X'20B' SECOND BYTE OF SECTION SENSE SWS
021A 489 PRINT EQU X'21A' SRT - ENTRY TO PRINT
021E 490 UNPACK EQU X'21E' SRT - ENTRY TO CONVERT HEX TO EBCDIC
0222 491 HALT EQU X'222' SRT - ENTRY TO HALT
022A 492 PACK EQU X'22A' SRT - ENTRY TO PACK EBCDIC TO HEX
0232 493 LOAD EQU X'232' SRT - ENTRY TO LOAD
0880 494 UTAB EQU X'880' SRT - FIRST BYTE
0880 495 INPUT EQU X'880' ADDRESS OF READIN AREA
0880 496 DBUF EQU X'880'
0002 497 VTACT EQU 2 VTCC CONTROL ID FIELD *GC*
0006 498 VTID EQU 6 VTCC IDENTITY FIELD FOR 3340 *GC*
0017 499 VTSYT EQU 23 VTCC SYSTEM FIELD FOR 3340 *GC*
000E 500 VTCC EQU 14 VTCC DISK ADDRESS FEILD (CCHHR) FOR 3340
501 * SENSE SWITCH NUMBER
0080 502 SSW18 EQU X'80' SSW TO HALT BEFORE LOADING MODULE
503 TRREP
504 TRREP
505 TRREP
506 TRREP
507 TRREP
508 TRREP
FFFF 509 * END

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ACT	A	003	0FD2	0434	0387 0442
AJDEST	A	003	0D31	0261	0258
ARR	C	001	0008	0486	
BASE	A	002	0AEC	0058	0155* 0156* 0221 0233 0244 0256
BMPMOD	A	006	0B16	0087	0084
CCHHR	A	003	0E10	0333	0098* 0335
CCHHR2	A	002	0E17	0335	0099
CCHH2	A	005	0E15	0334	0336 0450*
CCHH2B	A	002	0E19	0336	0449
CDSTP	A	005	0CC7	0232	0213
CFE	A	002	0E63	0343	0124
CHKKEE	A	003	0B6C	0120	0114
CKBLK	A	003	0D47	0268	0272
CKCOM	A	003	0D5E	0275	0251
CKEND	A	003	0D73	0282	0276
CKREP	A	003	0D0F	0250	0186
CKSKIP	A	003	0C2D	0183	0123
CLFLAG	A	001	0B48	0138	0125 J132
CMLOOP	A	006	0C61	0199	0204
COMM	A	001	0B56	0110	0105
DBUF	C	001	0880	0496	0387 0389 0391 0393 0395 0397 0400 0409 0410* 0413 0442 0444
DEST	A	002	0D40	0266	0255 0256* 0259 0267*
DEVID	A	002	0DC7	0308	0305*
DKFLAG	A	001	0B00	0072	0096 0377* 0383
DOMOD	A	001	0F7D	0406	0398 0401
DOMODW	A	0C1	1055	0462	0454 0457
EMSG	A	034	0E61	0342	0165
EMSG1	A	038	0E3F	0341	0309 0313
FF1	A	001	0A00	0005	
FF2	A	003	0AF5	0066	0113 0391 0446
FF2B	A	002	0B6B	0119	0393* 0394* 0448* 0449*
GBK	A	008	0E04	0332	0122
HALT	C	001	0222	0491	0167 0176 0315
HOG	A	036	0FF9	0436	0424
INPUT	C	001	0880	0495	0085 0111 0128 0129 0142 0154 0196 0211 0226* 0227 0254 0430*
ISAO	A	001	0B47	0100	0097
LDEND	A	006	0D0E	0318	0287 0297
L' SW	A	001	0B65	0114	0093
LENGTH	A	004	0C5D	0198	0218
LOAD	C	001	022A	0493	0107 0108 0117 0378 0385 0440
LOADC	A	001	0B51	0107	0082 0086
LOOP1	A	004	0B8F	0131	0135
LOOP1A	A	005	0F67	0400	0406
LOOP2	A	003	0C40	0189	0199
LOOP3	A	003	0CEA	0241	0228 0247
LUP1AW	A	005	1040	0456	0460
LPTR	A	002	0AFF	0071	0087* 0088 0382* 0407 0415* 0429* 0463 0471*
MOVE	A	005	0D06	0248	0220* 0221* 0222* 0232* 0233* 0234* 0242
MSIZE	A	002	0AF0	0064	0143 0158 0318
NEG1	A	001	0EFF	0366	0245
NEG3	A	002	0AF9	0068	0206
NEG4	A	002	0AF8	0069	0207
NEXT	A	004	0D34	0262	0274
NEXTS	A	001	0FA7	0418	0398 0396 0405
NEXTSW	A	001	107E	0474	0445 0452 0461
NOFF2W	A	004	102E	0451	0447
NOTFF2	A	004	0F54	0398	0392
MPROGS	A	001	0AED	0059	0323*
OLD	A	003	0FD5	0433	0389 0444
ONE	A	001	0EFC	0363	0202 0267 0323 0416 0472
PACK	C	001	0226	0492	0126 0140 0232 0263 0411 0467
PID	A	002	0B4D	0104	0095* 0099*
POINTR	A	002	0A12	0065	0091 0147 0284 0320 0322* 0427*
PPINT	C	001	021A	0489	0162 0170 0174 0279 0310 0421
PRIV	A	002	0FCF	0433	

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
PRTHD	A	004	0FAB	0421	0375 0478
PTITLE	A	004	0C07	0170	0160
PTXRI	A	003	0CE7	0240	0236
RDC	A	001	0B30	0094	0J90
RELOC	A	005	0CF5	0244	0243*
REL544	A	001	0CA0	0217	0439*
RTN01	A	001	0EFC	0362	0016
SBYTE3	C	001	020B	0488	0172
SEEK2	A	004	0E28	0385	0419
SEEK2M	A	004	0FFA	0385	0384 0475
SETSKP	A	004	0BA0	0136	0181
SETUP	A	001	0B01	008C	0121 0137 0169 0173 0182 0184 0239 0249 0269 0278 0281 0283
SIZE	C	001	0203	0487	0159
SKFLAG	A	001	0AEE	0062	0083 0120 0136* 0139* 0161* 0183 0325*
SRCE	A	002	0D3E	0265	0262*
SSW18	C	001	0080	0502	0172
START	A	002	0AEA	0057	0055 0056 0112 0148 0150 0153 0155 0157 0318*
S1	A	004	0C67	0200	0198* 0199 0202*
S2	A	004	0C6B	0201	0199*
TABLE	A	001	0A28	0021	0065 0381 0426 0428
TCNT	A	001	0FCD	0432	0380* 0416* 0472*
TEDONE	A	004	0C95	0211	0188
T09	A	002	0E96	0414	0408*
T0W	A	002	106E	0470	0464*
TWLV	A	002	0E03	0331	0087 0322 0415 0471
UFIND1	A	004	0D86	0288	0296
UFIND2	A	004	0D8A	0289	0300
UFIND3	A	003	0D9C	0294	0303
UFIND4	A	003	0DA9	0298	0290
UNPACK	C	001	021E	0490	0151 0306
UTAP	C	001	0232	0494	0081 0130 0187 0212 0288 0374 0399 0455
VEND	A	001	0FAB	0420	0388 0417
VENDW	A	001	1082	0477	0443 0473
VFACT	C	001	0002	0497	0442
VTCC	C	001	000E	0500	0450 0465
VUID	C	001	0006	0498	0444 0446 0466* 0469
VTSY	C	001	0017	0499	0451 0453 0456
WORK	A	002	0AFD	0070	0157* 0158* 0159 0178* 0179* 0180 0193* 0194 0208* 0209 0246*
XA00	A	002	0AF7	0067	0156
XR1	C	001	0001	0484	0088* 0089 0091* 0092 0095 0098 0111* 0113 0122 0124 0131 0144
					0144 0145 0146 0146 0147* 0148 0149 0185 0189 0191 0192 0192*
					0193 0196* 0197 0205 0206* 0208 0211* 0218 0220 0222 0223 0224
					0224* 0225 0225* 0226 0227* 0232 0234 0235 0236 0238 0239 0240
					0240* 0244 0248 0250 0257 0259* 0260 0261 0261* 0262 0268 0270
					0270* 0271 0273 0273* 0275 0282 0284* 0285 0285* 0286 0289 0291
					0292 0293 0294 0295 0295* 0302 0304 0304* 0305 0320* 0321 0376*
					0377 0381* 0382 0407* 0408 0409 0426* 0427 0428* 0429 0463* 0464
XR2	C	001	0002	0485	0465
					0112* 0113 0120 0121 0130* 0131 0133 0134 0134* 0150* 0155 0155
					0156 0156 0157 0157 0158 0158 0159 0161 0169 0173 0178 0179
					0180 0181 0182 0183 0184 0193 0194 0197* 0200 0200 0201 0201
					0205 0207* 0218* 0235* 0241 0243 0245* 0246 0269 0278 0281 0283
					0288* 0289 0291 0292 0298 0299 0299* 0399* 0400 0402 0403 0403*
					0455* 0456 0458 0459 0459*

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GBD***PN*42	48232 EC 827804	SYS TEST RELOCAT	IMG LDR. MOD 12	84228422	FF100000
T+Y: *18 C70					P2<FF100001
T+Z5*****					Z<FF100002
T+D*****					;-FF100003
T+,,*****					#1&FF100004
T+ZM A *****HRK6	F2-Y**7**C	H B<R&K L7*B>#	2-6*1&S 2-D&C-D	H=08C(EDR7---)H	EBTM N:UFF100005
T+/_/c,2-12 2Y*	56 D.L&Y 2 2YD	.G &+D -< &_(C/-	/OHDC***2Y&E0H*	BR/CB &S 0-HR:W4	RO-Z JA*FF100006
T+>2-DG0H*BR-T	-2,7>A+BAE44GA08	.2-F3L&E<CW12-K&	/OHM -T<BH-B -H	2X& **A*HAD,-& ;H	B 2 2 9S-FF100007
T+?PU>   2R#2B	GB0D2 **,>OH*BI-&	H4 ,0PA2- 71 P50	=PV25 &,2L DRB>Z	2*07B -,DOM*BG-H	R:--=I&FF100008
T+OKZROA -B7 &H	(,DL HBAD0E1 J<	B *HDE,3>A<BG /,	FH-9/*OG /OHS*OG	-/1- /OHEHLS *-?	-UA*BL<FF100009
T+1(OH*BF/6 /OH	S*=B0 A+BC1R YA.	--3&-/1; *OL-J)	*80C2 1Q8-H32/A	M-1 A2-DC-BYA4-D	A_ D \$SHFF100010
T+2HD#7C02BBCDC	B &TP4-H I <E 0	*CF0<EH8 * &F>*D	AC-<E *2 &&<E<	ACFE& -D (-DR=LQ	BB7& #&FF100011
T+3C1 DR*L6P877	/ 110-DH-CS ** TI	2UB-K 72*-4I 08	AC&UH#A0 C&YA- **	I-DA4-DDI DH-H	ABH& C:ROFF100012
T+3=2Y*TG HIBJU	+ &41B>0* **4HE H	BNMB E03Z- **OL-D	PBU K JD * C2-JQ	* 37 DBA **,2(-H	+*3& Q24FF100013
T+49 -,OH*:/0	****OH*. P7R IH	AK*BG SQDBHMIE 8	ACH H*G7E -HAA3M	ACHC&/OCK &-4 &4	=OH* 6S-FF100014
T+54 SQB *****8	ACH * *G5 ** ;BAE H	A P5, <BACH-K &G	/044-NO 2-DI+ D	BB+ &E2BG /Y/BH*	P-*H 00-FF100015
T+67 * AE3MAB7I	5 &Z8- .2DET B -H	2X& **B7HAFFO C I	Y O&A;S .;A .4-D	COI (/7RG1&-& ;H	B 2 2 5 OFF100016
T+7DU 6R;D .0I*	(X(HABT&AC*- /OH	; & **CS. /OHEOKQ	+I *2BOM*BH?2BOM*	. &BAB YR2CMAB7I	2 **** 0&<FF100017
T+8VC-DR2-BCC0	H&E#22-DDI+8R#2B	GB00 CDCGO_1 12.	& *****8	SC/PD1:P102N 9=)	*51Q 294FF100018
T+9-84CA8=IA02T	E1FCM5ZLU42N O>T	PO; .S1*LC5_XE(1&	V11XF4 *\$W1*J,4*8	A1<XN14CT11XM21P	A82M *,OFF100019
T-9T1<6E*****					*****78HFF100020

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248233  
PAGE 8

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+25 D 28 H	32Z6UO-DB</O'BO	*OH*BR-HAD*(O-D	HRL&AB?2*0E%2Y6	KOH*BR/1*-SBC*	**22=00FF100021
T+0D04BBH*15*B	AC:*(1-SGB7P2'&Y	<'E.,BHE2F'_Z1E'	HS&BAC:*(1-SR2YD	EO-HB<Y6**SR2YD	+>A**SC2FF100022
T+,,;HB'2B&C6~	/O=X(6DR*3&AC9R	<'EMH/C3DBHL'/OH	MA*SG**+&,C-<	1***(C73'-&,OH*	IR<'R*HFF100023
T+~W/OHE&SEI=-2	*O-DHHC&AB?.'B'&Y	*('DR*33EBHC'/O%	AD**HO*(1Y_1D42X	S84CO1UCH5%LU42P	S&E**IR**FF100024
T+/ /E+.TO)XT21P	6&<GD1(XE8>.EBTO	*CR./OHDD'4BBHM	142HA1-4BBHQ15-TI	AE&4BBHQH'-HADCO	QB6U*JQFF100025
T+/A*C'D.EOBRC'6	+EES+1&HV=RAKL7	=B1-2-JXB'-H2T6'	*BI-2-66D'GS'-1	*UAA'2Y*Z(6DR*3&	ADF8'18HFF100026
THABEL'&GBH821'S	COM*BI-6H/-**C-D	R=08CCO'136222YD	DOH*1=2BGC:2****	*****	*****MH&FF100027
*****	*****	*****	*****	*****	*****FF100028
* IN ORDER TO BY	PASS LOADING CER	TAIN MODULES, TU	RN ON SSM 18. **W	HEN **MODULE **	*****FF100029
* PRINTS OUT, SE	T -A- INTO SWITC	H 1, TO BYPASS L	LOADING THAT MODU	LE **OR *****	*****FF100030
* SET -B- IN SWI	TCH TO ALLOW MOD	ULE TO LOAD. **TH	EN RESET FF AND	EO HALTS. *****	*****FF100031
*****	*****	*****	*****	*****	*****FF100032
E***E7*-DC*PH&	=7M&F1***1**C	**FR**ASC**R'A	SO**Q*****	*****1231063075G	828752Q8FF100033

LAST PAGE

DATE 29AUG75  
EC NO. 827804

PROG 10  
PAGE  
FF1-0

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
2 *                               LAST CHG 07 23 73
3      DECK 1
4      SEQ 0
OA00  5 FF2  START X'AO0'
6      TREP
7 *****
8 *
9 *      SYSTEM/3 SYSTEM TEST SUPERVISOR
1) *
11 *****
OA00 FF20  OA01 12 DC XL2'FF20' PROGRAM IDENTIFICATION AND LEVEL
OA02 80    OA02 13 DC XL1'80'  FLAGS - NO SPUOT
OA03 00    OA03 14 DC  IL1'0'  CURRENT ROUTINE NUMBER
OA04 0000  OA05 15 DC  XL2'0'  RESERVED
OA06 0AE9  OA07 16 DC  AL2(RTN01) ADDRESS OF FIRST ROUTINE PREFIX
OA08 0000  OA09 17 DC  XL2'0'  RESERVED
18
19 *****
20 *      TRANSFER TABLE
21 *****
22 *
23 *      THE SYSTEMS TEST SUPERVISOR PROVIDES THE FOLLOWING LINKAGE
24 *      FOR USE BY THE MODULES IT CONTROLS. EACH MODULE MUST BE WRITTEN
25 *      TO BRANCH TO THIS ENTRY WHENEVER THE DEVICE BEING TESTED IS BUSY
26 *      OR NOT READY.
27 *****
OA0A 35 10 OA1F 28 ENTRY L TR1,IAR ENTRY TO PASS CONTROL TO NEXT MODULE
OA0E 35 10 OA21 29 NOTME L TR2,IAR ENTRY FROM MODULE NOT CAUSING INT.
OA12 35 10 OA23 30 RESET L TR3,IAR 'ITS ME' ENTRY FROM MODULE CAUSING OP END INT
OA16 35 10 OA25 31 NEWINT L TR4,IAR ENTRY TO OP END INT. RTN FROM MODULE
OA1A 35 10 OA27 32 L TR5,IAR NOT USED
OA1F 0B26  OA1F 33 TR1 DC AL2(RENTRY)
OA20 0C58  OA21 34 TR2 DC AL2(RNOTME)
OA22 0C60  OA23 35 TR3 DC AL2(RRESTR)
OA24 0C03  OA25 36 TR4 DC AL2(RNXT)
OA26 0A26  OA27 37 TR5 DC AL2(*) NOT USED
38
OA28 39 TABLE EQU * TABLE CONTAINING CATALOG OF PROGRAM
OA28 40 DS CL193 MODULES IN CORE. PROVISIONS ARE
41 * MADE FOR SUPERVISION OF UP TO 16 *
42 * MODULES. INFORMATION IS CONTAINED *
43 * AS IN THE FOLLOWING DIAGRAM. *
44 *
45 *****
46 * ARR I IAR I XR1 I XR2 I PSR I STARTING I DEV ID IF *
47 * I I I I I I I I I I ADDRESS I INT LEV 5 *
48 * 0-1 I 2-3 I 4-5 I 6-7 I 8 I 9-10 I 11 *
49 *****
50
51 *****
52 *      ROUTINE 01 - SYSTEMS TEST SUPERVISOR
53 *****
54 *
55 *      THIS ROUTINE PROVIDES THE SUPERVISORY FUNCTION TO HANDLE THE
56 *      SIMULTANEOUS OPERATION OF UP TO 16 PROGRAM MODULES. THE INDY-
57 *      VIDUAL MODULES ARE REFERENCED BY 11 BYTE ENTRIES IN -TABLE-.
58 *      LINKAGE FROM MODULE TO SUPERVISOR MUST TAKE PLACE EACH TIME THE
59 *      DEVICE BEING TESTED IS BUSY OR NOT READY. TRANSFER MUST BE MADE
60 *      VIA A BRANCH TO LOCATION X'AOA'. THE SUPERVISOR SAVES THE PRO-
61 *      GRAM ARR, XR1 AND XR2, THEN PASSES CONTROL TO THE NEXT PROGRAM
62 *      BY BRANCHING VIA ITS PREVIOUSLY STORED ARR.
63 *****
OA09 01  OA09 64 RTN01 DC XL1'01' CURRENT ROUTINE NUMBER
OA0A 00  OA09 65 DC XL1'0'  FLAGS
OA0B 0D79  OA09 66 DC AL2(RTN02) ADDRESS OF NEXT ROUTINE PREFIX
67 *****
68 MVI MODKNT,0 ZERO COUNT OF MODULES WITH INT.
69 L OPEND,PSIAR LOAD UP END INTERRUPT IAR

```

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
OA05 C2 01 OA28 70 LA TABLE,XR1 SET UP TO RESTART ALL MODULES
OA09 7D FF 00 71 R1LOOP CLI 0(,XR1),X'FF' TEST FOR LAST ENTRY
OA0C F2 81 E2 72 JE FIRST JUMP IF IT IS
OA0F 75 02 0A 73 L 10(,XR1),XR2 LOAD MODULE'S ADDR. OF 1ST ROUTINE
OB02 B8 40 02 74 TBN 2(,XR2),X'40' TEST FOR OF END INT. FLAG
OB05 F2 90 0A 75 JF *+13 JUMP IF NOT DEFINED
OB08 6C 00 08 00 76 MVC 11(,XR1),0(,XR2) MOVE ID FROM MODULE TO TABLE
OB0C 0E 00 0C00 OEA2 77 ALC MODKNT(1),ONE COUNT MODULES
OB12 6C 01 01 07 78 MVC 1(2,XR1),7(,XR2) SET ADDRESS OF 1ST ROUTINE
79 * AS INITIAL ARR VALUE
OB16 4E 01 01 OEA4 80 ALC 1(2,XR1),FOUR BUMP PAST ROUTINE PREFIX
OB1B 5C 01 03 01 81 MVC 3(2,XR1),1(,XR1) SET IAP = ARR
OB1F D2 01 0C 82 LA 12(,XR1),XR1 STEP POINTER TO NEXT ENT.
OB22 C0 87 OAF9 83 B R1LOOP LOOP TILL ALL DONE
84 *****
85 *      MODULE LINKAGE TO THIS SUPERVISORY ROUTINE IS MADE AS FOLLOWS *
86 *
87 *      B ENTRY WHERE ENTRY EQU X'AOA' *
88 *****
OB26 34 01 0EF4 89 RENTRY ST SAVE1,XR1 SAVE XR1 TEMPORARILY
OB2A 35 84 0C02 90 L OPEND,PSIAR SET UP TO GO TO TOP OF OP END INT RTN
OB2E 35 01 0EF8 91 L POINTR,XR1 RELOAD TABLE POINTER
OB32 74 08 01 92 ST 1(,XR1),ARR PLACE RETURN ADDRESS IN TABLE SLOT
OB35 4C 01 05 0EF4 93 MVC 5(2,XR1),SAVE1 MOVE MODULE'S XR1 FROM TEMP TO SAVE
OB3A 74 02 07 94 ST 7(,XR1),XR2 SAVE MODULE'S XR2
OB3D 34 04 0EF4 95 ST SAVE1,PSR SAVE MODULE'S PSR
OB41 4C 00 08 0EF3 96 MVC 8(1,XR1),SAVE1-1 BITS 0-7
97
OB46 30 00 0EF4 98 CKLOG SNS SAVE1,X'0' CHECK DATA SWITCHES FOR LOGOUT
OB4A 3D 88 0EF3 99 CLI SAVE1-1,X'BB' INSTRUCTIONS
OB4E C0 81 0216 100 BE LINK
OB52 38 A0 0EF3 101 TBN SAVE1-1,X'AO' CONTINUE TEST IF NOT 'A' OR 'B'
OB56 39 40 0EF3 102 TBF SAVE1-1,X'40' IN DATA SWITCHES
OB5A F2 90 4C 103 JF CKDCP
OB5D 08 01 0EF5 0EF3 104 MZN WORK-1,SAVE1-1 ISOLATE ID OF MODULE TO BE ENABLED
OR63 08 02 0EF5 0EF4 105 MNZ WORK-1,SAVE1 OR DISABLED
OB69 08 01 0EF6 0EF4 106 MZN WORK,SAVE1
OB6F C2 01 OA1C 107 LA TABLE-12,XR1 GO THROUGH TABLE OF MODULES UNTIL
OB73 02 01 0C 108 FINDLP LA 12(,XR1),XR1 CORRECT ONE FOUND
OB76 7D FF 00 109 CLI 0(,XR1),X'FF'
OB79 F2 81 2D 110 JE CKDCP
OB7C 75 02 0A 111 L 10(,XR1),XR2 LOAD MODULE'S STARTING ADDR. IN XR2
OB7F 28 03 0EF6 01 112 MNN WORK,1(,XR2)
OB84 2D 01 0EF6 01 113 CLC WORK(2),1(,XR2)
OB89 C0 01 0B73 114 BNE FINDLP
115
OB8D 38 10 0EF3 116 TBN SAVE1-1,X'10' 'B' ENABLE ON ?
OB91 F2 90 12 117 JF TER
OB94 7D FE 00 118 CLI 0(,XR1),X'FE' THIS MODULE BEEN DISABLED ?
OB97 F2 01 0F 119 JNE CKDCP
OB9A 6C 01 01 07 120 MVC 1(2,XR1),7(,XR2) PUT ADDR. OF MODULE'S FIRST RTN IN
OB9E 4E 01 01 OEA4 121 ALC 1(2,XR1),FOUR BUMP PAST RTN. PREFACE
OBA3 F2 87 03 122 J CKDCP
123
OBA6 7C FE 00 124 TER MVI 0(,XR1),X'FE' DISABLE MODULE CUZ ENTRY WAS 'A'
OBA9 35 01 0EF8 125 CKDCP L POINTR,XR1 RELOAD TABLE POINTER
OBA0 3D 00 0EF3 126 CLI SAVE1-1,X'00' GO TO DCP IF POSSIBLE VALID ENTRY
OBB1 C0 02 0212 127 BNL TEST
128
129 * BEGIN SEQUENCING THRU TABLE OF MODULES ENTERING THEM ONE BY A TIME
130 *
131 MVC LASTME(2),ZEROS ZERO COUNTER FOR RESETS TO 1 DEVICE
132 * AND ID OF THAT DEVICE.
133 MVC 1DSAVE(1),ZEROS CLEAR PRESENT INT MODULE SAVE AREA
134 B *+4
135 B *+4
136 B *+4

```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	OBCD C0 87 0BD1	137	B	***	
	0BD1 D2 01 0C	138	NEXT	LA	12(,XR1),XR1 INCREMENT POINTER TO NEXT TABLE SLOT
	0BD4 7D FE 00	139	CKDSB	CLI	0(,XR1),X'FE' SKIP MODULE IF IT IS DISABLED
	0BD7 C0 81 0BD1	140		BE	NEXT
	0BDB 7D FF 00	141		CLI	0(,XR1),X'FF' BRANCH IF NOT LAST ENTRY
	0BDE F2 01 0C	142		JNE	GOTO
	0BE1 C2 01 0A1C	143	FIRST	LA	TABLE-12,XR1 RE-INITIALIZE TABLE POINTER IF THIS
	0BF5 34 01 0EF8	144		ST	POINTR,XR1 WAS LAST ENTRY
	0BE9 C0 87 0B46	145		B	CKLOG
	0BED 1C 01 0BFF 01	146	GOTO	MVC	RETURN+3(2),1(,XR1) LOAD RETURN ADDRESS WITH SAVED ARR
	0BF2 75 02 07	147		L	7(,XR1),XR2 RESTORE XR2 FOR THIS PROGRAM
	0BF5 34 01 0EF8	148		ST	POINTR,XR1 SAVE TABLE POINTER
	0BF9 75 01 05	149		L	5(,XR1),XR1 RESTORE XR1 FOR THIS PROGRAM
	0BFC C0 87 0000	150	RETURN	B	** GO TO NEXT MODULE
		151			
0C00	00	0C00	152	MODKNT	DC XL1'0' COUNTER FOR NUMBER OF MODULES

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
					154 *****
					155 * OPEND *
					156 *****
					157 *
					158 * COME HERE TO SERVICE OP END INTERRUPT WHETHER IT
					159 * OCCURS FROM SOME OTHER LEVEL OP IS SIMPLY NOT RESET
					160 * DUE TO ANY REASON ERROR OR NOT.
					161 *****
					162
0C01	0C03	0C02	163	OPEND	DC AL2(*+2) ADDRESS OF OP END INTERRUPT ROUTINE
					164
					165 * SAVE REG'S OF MODULE RUNNING AT TIME OF INTERRUPT ETC.
		0C03	166	RNXT	EQU * *
					167
					168 ST TXR1,XR1 SAVE XR1
					169 ST TXR2,XR2 SAVE XR2
					170 ST TPSR,PSR SAVE PSR
					171 L ZEROS,PSR INITIALIZE PSR
					172 FINDEM ALC ICTR(1),ONE INCREMENT COUNTER OF RESETS
					173 CLI ICTR,4
					174 BE NOBODY IF NOBODY RESET IN 4 REQUESTS QUIT
					175 B **4
					176 B **4
					177 B **4
					178 B **4
					179
					179
					179
					179
					179
					180
					181
					182 NXTMOD LA TABLE-12,XR1 LOAD POINTER TO MODULE TABLE
					183 INTR1 CLI 12(,XR1),XR1 BUMP TO NEXT ENTRY
					184 BE FINDEM TEST FOR END OF MODULE TABLE
					185 CLI 11(,XR1),X'FF' NO ONE WILL ADMIT TO THE INTERRUPT
					186 BE NXTMOD TEST FOR NON INTERRUPT TYPE
					187
					188 L 10(,XR1),XR2 BRANCH IF NOT
					189 * LOAD ADDRESS FROM TABLE THAT
					190 ST TABLEA,XR1 POINTS TO BEGINNING OF MODULE
					191 MVC TEMP(1),0(,XR2) SAVE TABLE POINTER
					192 * SAVE ID OF MODULE SO IF IT SAYS
					193 L 5(,XR2),XR2 IT IS HIS INT, WE'LL KNOW HIS ID
					194 * LOAD XR2 WITH ADDRESS OF INTERRUPT
					195 B 0(,XR2) ROUTINE IN TEST MODULE
					GO TO INTERRUPT ROUTINE IN MODULE



FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

197 *****
198 * NOTME *
199 *****
200 *
201 *           COME HERE FROM MODULE WHEN THAT MODULE SAYS THAT
202 *           THE INTERRUPT PENDING IS NOT HIS.
203 *****
204
OC58 35 01 0D61 205 RNOTME L   TABLE,XR1   RESTORE TABLE POINTER
OC5C 00 87 0C35 206         B   NXTMOD      CONTINUE THROUGH TABLE TIL WE FIND
207 *           WHICH ONE CAUSED THE INTERRUPT.
208
209 *****
210 * RESTOR *
211 *****
212 *
213 *           COME HERE FROM MODULE IN PREPARATION TO RESET
214 *           THE INTERRUPT.
215 *           THAT IS, RESTORE XR1,XR2,PSR. THEN RETURN TO
216 *           THE MODULE AT THE ARR VALUE.
217 *
218 *
219 *
220 *
221 *****
222
OC60 34 08 0C91 223 RRESTP EQU *
OC64 00 00 0D74 224         ST   DORES+3,ARR  STORE LOCATION OF MODULE'S RESET RTN
OC6A 00 00 0D74 225         MVC  LASTME(1),IDSAVE PUT LAST ID IN LASTME
OC6B 00 00 0D74 226         MVC  IDSAVE(1),TEMP  SHOW THAT THIS MODULE RECOGIZED THE INT
OC70 00 00 0D74 227         CLC  IDSAVE(1),LASTME IF LAST MODULE IS DIFFERENT THAN THIS
OC76 00 81 0C7E 228         BE   SAME1        ONE, ZERO THE COUNTER
OC7A 3C 00 0D75 229         MVI  ICTR,0
OC7E 00 87 0C82 230 SAME1 EQU *
231         B   **4
232
OC82 35 01 0D59 233         L   TXR1,XR1
OC86 35 02 0D5B 234         L   TXR2,XR2   RESTORE COMMON REGISTERS BEFORE ALLOWING
OC8A 35 04 0D5D 235         L   TPSR,PSR   THE RESET
OC8E 00 87 0D00 236 DORES  B   *-*        GO DO RESET

```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

236 *****
239 * NOBODY *
240 *****
241 *           PRESENT INTERRUPT NOT RESET BY ANY MODULE.
242 *
243 *****
244
OC92 245 NOBODY EQU *
246 *           FIND OUT IF DURING THE LAST 4 TIMES THROUGH LOOP CLAIMED
247 *           THAT THE INT WAS HIS
248
OC92 0D 00 0D74 249 CLC  IDSAVE(1),LASTME
OC98 00 01 0CAB 250 BNE  UNEXP  IF NOT EQUAL THEN NO ONE CLAIMED AN INTERRUPT
251
252
OC9C 3D 00 0D74 252 CLC  IDSAVE,0   IF 0, THEN SOMEBODY CAUSED AN INTERRUPT
253 *           AND WE CAN'T FIGURE WHO IT IS
254         BE   UNEXP  ASSUME UNEXPECTED INT.
255         B   FAIL   IF = 0 THEN THE ID = WHO EVER ADMITTED
256 *           TO THE LAST 4 INTERRUPTS DIDN'T RESET
257 *           SUCCESSFULLY
258
OCAB 260 UNEXP EQU *           ENTER HERE WHEN IDSAVE = 0
261         B   UNPACK  UNPACK ID OF LAST MODULE WHO SHOULD
262         DC  IL1'1'   HAVE RESET HIS INTERRUPT
OCAC 262         DC  AL2(LASTME) SOURCE
OCAE 263         DC  AL2(UNEXPM) DESTINATION
OCB0 264         B   **4
265
OCB1 00 87 0CB5 266 PTIT  B   PRINT
OCB9 00 87 0CB5 267         DC  XL1'C6'
OCBA 4C           268         DC  IL1'76'
OCBB 0D0E        269         DC  AL2(UNEXPM)
OCBD FF00        270         DC  XL2'FF00'
OCBF 00 87 0CB5 271         B   PTIT           48+28=76
OCF2 272         DC  CL48'INTERRPT NOT RESET, SOURCE OF INTERRUPT UNKNOWN.'
273
OCF3 40D3C1E2E340D4D6 273 OD0E UNEXPM DC CL28' LAST MODULE TO RESET WAS XX'
OCFB C4E4D3C540E3D640 273
OD00? D9C5E2C5E340E6C1 273
OD0B E240E7E7 273
274
275 *****
276 *
277 *           COME HERE IF OP END INTERRUPT NOT RESET BUT MODULE XX
278 *           SAYS HE HAS ONE PENDING BUT SEEMS UNABLE TO RESET IT.
279 *           THAT IS, WHEN COUNT IN 'LASTME' IS 4.
280 *****
281
OD0F 00 87 021E 282 FAIL  B   UNPACK           TO UNPACK THE PASSED ID
OD13 01           283         DC  XL1'1'   LENGTH
OD14 0D76        284         DC  AL2(LASTME) SOURCE ADDRESS
OD16 0D3A        285         DC  AL2(IDFLD) DESTINATION
OD18 00 87 0D1C 286         B   **4
287
OD1C 00 87 021A 288 CANTR B   PRINT           TO PRINT ERROR MSG THAT INT NOT RES.
OD20 C6           289         DC  XL1'C6'   FLAGS
OD21 2A           290         DC  IL1'42'   LENGTH
OD22 0D53        291         DC  AL2(NOREST) MESSAGE ADDRESS
OD24 FF00        292         DC  XL2'FF00' MESSAGE ID
OD26 00 87 0D1C 293         B   CANTR     LOOP TO INDICATE ERROR
OD2A D4D6C4E4D3C540E6 294 OD3A ILFLD DC CL17'MODULE WITH ID XX'
OD32 C9E3C840C9C440E7 294
OD3A E7           294

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FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0D3B	40C4C9C440D5D6E3	0D53	295	NOREST DC CL25' DID NOT RESET INTERRUPT'
0D43	40D9C5E2C5E340C9		295	
0D4B	D5E3C5D9D9E4D7E3		295	
0D53	40		295	
			296	
0D54	0000	0D55	297	TAR2 DC XL2'0'
0D56	0000	0D57	298	TIAR DC XL2'0'
0D58	0000	0D59	299	TXR1 DC XL2'0'
0D5A	0000	0D5B	300	TXR2 DC XL2'0'
0D5C	0000	0D5D	301	TPSR DC XL2'0'
0D5E	0000	0D5F	302	ZEROS DC XL2'0'
0D60	0000	0D61	303	TARLEA DC XL2'0'
0D62	0000	0D63	304	STATUS DC XL2'0'
0D64	0100	0D65	305	MASK1 DC XL2'0100'
0D66	0000	0D67	306	MASK2 DC XL2'0000'
0D68	6F6F	0D69	307	UNKWN DC CL2'??'
0D6A	0000	0D6B	308	TEMP DC XL2'0'
0D6C	0000	0D6D	309	RESADD DC XL2'00'
0D6E	FFFF	0D6F	310	NEG1 DC XL2'FFFF'
0D70	00	0D70	311	INTFLG DC XL1'0'
0D71	0C60	0D72	312	OPENDX DC AL2(RRESTR)
0D73	00	0D73	313	INTKNT DC XL1'0'
0D74	00	0D74	314	IDSAVE DC XL1'0'
		0D75	315	ICTR EQU *
0D75	0000	0D76	316	LASTME DC XL2'0'
			317	*
			318	*
			319	*
0D77	0100	0D78	320	X100 DC XL2'0100'

COUNTER FOR NUMBER OF INTERRUPTS

RIGHT BYTE-- ID OF MODULE WHICH  
LAST ADMITTED THAT HE CAUSED AN OP END  
INT. LEFT BYTE-- NUMBER OF TIMES THAT  
THAT MODULE WAS ENTERED TO RESFT HIS INT

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
			322	*****
			323	* ROUTINE 2 - LOGOUT *
			324	*****
			325	*
			326	* THIS ROUTINE LOGS THE ERROR RECORDING TABLE FROM EACH MODULE. *
			327	* LOGOUT OCCURS ONLY UPON DATA SWITCH SELECTION OF THIS ROUTINE. *
			328	* RECORDING TABLE ENTRIES HAVE THE FOLLOWING FORMAT *
			329	*
			330	*****
			331	* CODE * LENGTH * N BYTES OF FORMAT SPECIFIED *
			332	* BYTE * -N- * BY THE CODE BYTE *
			333	*****
			334	*
			335	*
			336	*
			337	* BIT 0 - PRINTABLE DATA - PRINT AS IS. *
			338	* 1 - PACKED HEX DATA - UNPACK BEFORE PRINTING. *
			339	*
			340	* A CODE BYTE OF X'FF' TERMINATES LOGOUT. *
			341	*****
0D79	02	0D79	342	RTN02 DC XL1'02' CURRENT ROUTINE NUMBER
0D7A	00	0D7A	343	DC XL1'0' FLAGS
0D7B	FFFF	0D7C	344	DC XL2'FFFF' LAST ROUTINE PREFIX
			345	*****
0D7D	C0 87 021A		346	B PRINT SPACE PRINTER
0D81	13	0D81	347	DC XL1'13'
0D82	3C 5C 0CDA		348	MVI PLINE+90,C'*' PRINT A LINE OF ASTERISKS AS A
0D86	0C 59 08D9 08DA		349	MVC PLINE+89(90),PLINE+90 SEPARATION
0D8C	C0 87 021A		350	B PRINT
0D90	22	0D90	351	DC XL1'22'
0D91	C2 01 0A28		352	LA TABLE,XR1 POINT XR1 AT TABLE OF MODULES
0D95	7D FF 00		353	CKMOD CLI 0(XR1),X'FF' BRANCH IF LAST ENTRY
0D98	F2 81 E3		354	JE LOGEND
0D9B	75 02 0A		355	L 10(XR1),XR2 LOAD POINTER TO MODULE SPT
0D9E	BD FF 08		356	CLI 8(XR2),X'FF' BRANCH IF NO RECORDING TABLE
0DA1	F2 81 D3		357	JE NXMOD1
0DA4	B5 02 09		358	L 9(XR2),XR2 LOAD ADDRESS OF TABLE INTO XR2
0DA7	R9 3F 00		359	LOOP5 TBF 0(XR2),B'00111111' IF INVALID BITS - TERMINATE LOGOUT
0DAA	F2 90 86		360	JF NXMOD OF THIS MODULE
			361	* IF X'FF' CODE BYTE - MODULE DONE
0DAD	2C 00 0EAA 01		362	MVC ADR(1),1(XR2)
0DB2	3C 00 0EA9		363	MVI ADR-1,X'0'
0DB6	2C 00 0E55 01		364	MVC PLEN(1),1(XR2) MOVE LENGTH OF FIELD TO PRINT LINK
0DBB	34 02 0E57		365	ST PADR,XR2 SET UP ADDRESS PARAMETER
0DBF	C0 87 0E00		366	B X'E00' BRANCH ABSOLUTE DC'S
			367	
0DFC			368	ORG X'0DFC'
0DFC	0000	0DFD	369	BSCAX DC XL2'0000' DC'S USED FOR BSCA 80F AND 88F.
0DFE	0000	0DFE	370	BSCAY DC XL2'0000' MUST BE AT 0DFC-0DFE.
		0E00	371	XE00 EQU * THIS IS E00
0E00	0E 01 0E57 0EA2		372	ALC PADR(2),ONE
0E06	0E 01 0E57 0EAA		373	ALC PADR(2),ADR
0E0C	0C 01 0E45 0E57		374	MVC UADR1(2),PADR SET UP UNPACK SOURCE ADDR
0E12	B8 80 00		375	TBN 0(XR2),X'80' GO PRINT IF THIS IS PRINTABLE ENTRY
0E15	F2 10 38		376	JT PRTEXT
0E18	B8 40 00		377	TBN 0(XR2),X'40' IF NOT HEX DATA, MUST BE CODE ERROR
0E1B	F2 90 45		378	JF NXMOD TERMINATE LOGOUT OF THIS MODULE
0E1E	2C 00 0E43 01		379	MVC ULEN(1),1(XR2) SET UP PARAMETERS TO UNPACK HEX DATA
0E23	0C 01 0E47 0EA8		380	MVC UADR2(2),X881
0E29	0E 00 0EAA 0EAA		381	ALC ADR(1),ADR
0E2F	0E 01 0E47 0EAA		382	ALC UADR2(2),ADR
0E35	3C 40 08FF		383	MVI PLINE+127,C' ' CLEAR DCP PRINT AREA
0E39	0C 83 08FE 08FF		384	MVC PLINE+126(132),PLINE+127
0E3F	C0 87 021E		385	B UNPACK UNPACK HEX DATA
0E43	00	0E43	386	ULEN DC I1'0'
0E44	0000	0E45	387	UADR1 DC AL2(*-*)
0E46	0000	0E47	388	UADR2 DC AL2(*-*)
0E48	C0 87 021A		389	B PRINT PRINT OUT HEX DATA

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
OE4C 21                   OE4C 390      DC      XL1'21'
OE4D F2 87 08             391          J        NXCODE
OE50 C0 87 021A           392          B        PRTEXT      GO CHECK NEXT CODE BYTE
OE54 01                   OE54 393      DC      XL1'01'      PRINT OUT THIS ENTRY
OE55 00                   OE55 394      DC      PLEN      DC      IL1'0'
OE56 0000                 OE57 395      DC      PADR      DC      AL2(*-*)
OE58 35 02 0E45           396          L        NXCODE    UADR1,XR2      MODIFY XR2 TO POINT AT NEXT
OE5C F2 02 01             397          LA      1(,XR2),XR2  CODE BYTE
OE5F C0 87 0DA7           398          I        LOOP5      GO CHECK THIS ENTRY
OE63 C0 87 021A           399          B        NXMOD
OE67 11                   OE67 400      DC      XL1'11'
OE68 2C 60 08DA           401          MVI     PLINE+90,C'-*'  PRINT LINE OF DASHES TO SEPARATE
OE6C 0C 59 08D9 08DA     402          MVC     PLINE+89(90),PLINE+90  MODULES
OE72 C0 87 021A           403          B
OE76 22                   OE76 404      DC      XL1'22'
OE77 D2 01 0C             405          LA      12(,XR1),XR1  INCREMENT TO NEXT MODULE
OE7A C0 87 0D95           406          B        CKMOD      GO PRINT LOGOUT OF NEXT MODULE
OE7E C0 87 021A           407          B        LOGEND    PRINT ENDING MSG AND INSTRUCTIONS
OE82 42                   OE82 408      DC      XL1'42'
OE83 48                   OE83 409      DC      IL1'72'
OE84 0FF2                 OE85 410      DC      AL2(ENDMMSG)
OE86 FFE1                 OE87 411      DC      XL2'FFE1'
OE88 3C 5C 08DA           412          MVI     PLINE+90,C'*'  PRINT A LINE OF ASTERISKS
OE8C 0C 59 08D9 08DA     413          MVC     PLINE+89(90),PLINE+90
OE92 C0 87 021A           414          B
OE96 26                   OE96 415      DC      XL1'26'
OE97 C0 87 0222           416          B        HALT
OE98 FFE1                 OE9C 417      DC      XL2'FFE1'      HALT TO ALLOW INTERVENTION
OE9D C0 87 0000           418          B        G          GO RESTART PROGRAM
419
420 *****
421 * CONSTANTS *****
422 *****
OEA1 0001                 OEA2 423      DC      ONE      DC      IL2'1'
OEA3 0004                 OEA4 424      DC      FOUR     DC      IL2'4'
OEA5 0005                 OEA6 425      DC      FIVE     DC      IL2'5'
OEA7 0881                 OEA8 426      DC      X881    DC      XL2'881'
OEA9 0000                 OEA9 427      DC      ADR      DC      XL2'0'
428
429 *****
430 * PRINTOUTS *****
431 *****
OEAB D2D6C7D6E4E340C3  OEDD 432      DC      CL51'LOGOUT COMPLETE - REMOVE -BB- FROM LEFT 2 SWS THEN '
OE83 D6D4D7D5E3C540    432
OE8B 6040E9C5D4D6E5C5  432
OEC3 406CC2C26D40C6D9  432
OECB D6D440D3C5C6E340  432
OED3 F240E2E6E240E3C8  432
OEDB C5D540             432
OEDE D9C5E2C5E340C8C1  DEF2 433      ENDMMSG DC  CL21'RESET HALT TO RESTART'
OEE6 D3E340E3D640D9C5  433
OEEE E2E3C1D9E3        433
434
435 *****
436 * RESERVED STORAGE *****
437 *****
OFF3 438 SAVE1 DS CL2      TEMPORARY SAVE AREA FOR XR1
OFF5 439 WORK DS CL2
OFF7 440 POINTR DS CL2    TABLE POINTER FOR NEXT MODULE
OFF9 441 TEMPI DS CL2
442
443 *****
444 * EQUATES *****
445 *****
0001 446 XR1 EQU 1        INDEX REGISTER 1
0002 447 XR2 EQU 2        INDEX REGISTER 2
0004 448 PSR EQU X'04'    PROGRAM STATUS REGISTER
0008 449 ARR EQU X'08'    ADDRESS RECALL REGISTER

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FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
0010 450 IAR EQU X'10'
0084 451 IAR5 EQU X'84'
0020 452 PIAR EQU X'20'
0040 453 PARR EQU X'40'
0088 454 P4IAR EQU X'88'
0084 455 P5IAR EQU X'84'
0010 456 PLMR EQU X'10'
0212 457 TEST EQU X'212'
0216 458 LINK EQU X'216'
021A 459 PRINT EQU X'21A'
021E 460 UNPACK EQU X'21E'
0222 461 HALT EQU X'222'
0880 462 PLINE EQU X'880'
463 TREP
464 TREP
465 TREP
466 TREP
467 TREP
FFFF 468 END

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INSTRUCTION ADDRESS REGISTER

PROGRAM LEVEL IAR  
PROGRAM LEVEL ARR  
INTERRUPT LEVEL 4 IAR  
INTERRUPT LEVEL 5 IAR

SRT -ENTRY TO CHECK CONSOLE SWITCHES  
SRT -ENTRY TO CHAIN ROUTINE  
SRT -ENTRY TO PRINT  
SRT -ENTRY TO CONVERT HEX TO FBCDIC  
SRT -ENTRY TO HALT  
START OF DCP PRINT LINE

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADR	A	002	0EAA	0427	0362* 0363* 0373 0381 0381* 0382
ARR	C	001	0008	0449	0092 0224
BSCAX	A	002	0DFD	0369	
BSCAY	A	002	0DFF	0370	
CANTR	A	004	0D1C	0288	0293
CKDCP	A	004	0BA9	0125	0103 0110 0119 0122
CKDSR	A	003	0RD4	0139	
CKLOG	A	004	0B46	0098	0145
CKMOD	A	003	0D95	0353	0406
DDRES	A	004	0C8E	0236	0224*
ENDMSG	A	021	0EF2	0433	0410
ENTRY	A	004	0A0A	0028	
FAIL	A	004	0D0F	0282	0255
FF2	A	001	0A00	0005	
FINDEX	A	006	0C13	0172	0184
FINDLP	A	003	0B73	0108	0114
FIPST	A	004	0BE1	0143	0072
FIVE	A	002	0EA6	0425	
FOUR	A	002	0EA4	0424	0080 0121
GOTO	A	005	0BED	0146	0142
HALT	C	001	0222	0461	0416
IAP	C	001	0010	0450	0028* 0029* 0030* 0031* 0032*
IARS	C	001	0084	0451	
ICTR	A	001	0D75	0315	0172* 0173 0229*
IDFLD	A	017	0D3A	0294	0285
IDSAVE	A	001	0374	0314	0133* 0225 0226* 0227 0249 0252
INTFLG	A	001	0D70	0311	
INTRNT	A	001	0D73	0313	
INTR1	A	003	0C38	0183	
LASTME	A	002	0D76	0316	0131* 0225* 0227 0249 0263 0284
LINK	C	001	0216	0458	0100
LOGEND	A	004	0E7E	0407	0354
LOOPS	A	003	0DA7	0359	0398
MASK1	A	002	0D65	0305	
MASK2	A	002	0D67	0306	
MODKNT	A	001	0C00	0152	0068* 0077*
NEG1	A	002	0D6F	0310	
NEWINT	A	004	0A16	0031	
NEXT	A	003	0BD1	0138	0140
NOBODY	A	001	0C92	0245	0174
NOREST	A	025	0D53	0295	0291
NOTME	A	004	0A0E	0029	
NXCODE	A	004	0E58	0396	0391
NXMOD	A	004	0E63	0399	0360 0378
NXMOD1	A	003	0E77	0405	0357
NXTMOD	A	003	0C35	0182	0186 0206
ONE	A	002	0EA2	0423	0077 0172 0372
OPEND	A	002	0C02	0163	0069 0090
OPENDX	A	002	0D72	0312	
PADR	A	002	0E57	0395	0365* 0372* 0373* 0374
PAPR	C	001	0040	0453	
PIAR	C	001	0020	0452	
PLEN	A	001	0E55	0394	0364*
PLINE	C	001	0880	0462	0348* 0349 0349* 0383* 0384 0384* 0401* 0402 0402* 0412* 0413 0413*
PLMP	C	001	0010	0456	
POINTR	A	002	0EF8	0440	0091 0125 0144* 0148*
PRINT	C	001	021A	0459	0266 0288 0346 0350 0389 0392 0399 0403 0407 0414
PRTEXT	A	004	0E50	0392	0376
PSR	C	001	0004	0448	0095 0170 0171* 0235*
PTIT	A	004	0CB5	0266	0271
P4IAR	C	001	0088	0454	
P5IAR	C	001	0084	0455	0069* 0090*
PENTRY	A	004	0B26	0089	0033
RESADD	A	002	0D6D	0309	
RESET	A	004	0A12	0030	
RETURN	A	004	0BFC	0150	0146*

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
RNOTME	A	004	0C58	0205	0034
RNXT	A	001	0C03	0166	0036
RRESTR	A	001	0C60	0223	0035 0312
RTNO1	A	001	0AE9	0064	0016
RTNO2	A	001	0D79	0342	0066
R1LOOP	A	003	0AF9	0071	0083
SAME1	A	001	0C7E	0230	0228
SAVE1	A	002	0EF4	0438	0089* 0093 0095* 0096 0098* 0099 0101 0102 0104 0105 0106 0116
STATUS	A	002	0D63	0304	0126
TABLE	A	001	0A28	0039	0070 0107 0143 0180 0352
TABLEA	A	002	0D61	0303	0190* 0205
TARR	A	002	0D55	0297	
TEMP	A	002	0D68	0308	0191* 0226
TEMP1	A	002	0EFA	0441	
TEP	A	003	0BA6	0124	0117
TEST	C	001	0212	0457	0127
TIAR	A	002	0D57	0298	
TPSP	A	002	0D5D	0301	0170* 0235
TR1	A	002	0A1F	0033	0028
TR2	A	002	0A21	0034	0029
TR3	A	002	0A23	0035	0030
TR4	A	002	0A25	0036	0031
TR5	A	002	0A27	0037	0032
TXR1	A	002	0759	0299	0168* 0233
TXR2	A	002	0D5B	0300	0169* 0234
UADR1	A	002	0E45	0387	0374* 0396
UADR2	A	002	0E47	0388	0380* 0382*
ULEN	A	001	0E43	0386	0379*
UNEXP	A	001	0CA8	0260	0250 0254
UNEXPM	A	028	0D0E	0273	0264 0269
UNKWN	A	002	0D69	0307	
UNPACK	C	001	021E	0460	0261 0282 0385
WORK	A	002	0EF6	0439	0104* 0105* 0106* 0112* 0113
XE00	A	001	0E00	0371	
XRI	C	001	0001	0446	0070* 0071 0073 0076 0078 0080 0081 0081 0082 0082* 0089 0091* 0092 0093 0094 0096 0107* 0108 0108* 0109 0111 0118 0120 0121 0124 0125* 0138 0138* 0139 0141 0143* 0144 0146 0147 0148 0149 0149* 0168 0180* 0182 0182* 0183 0185 0188 0190 0205* 0233* 0352* 0353 0355 0405 0405*
XR2	C	001	0002	0447	0073* 0074 0076 0078 0094 0111* 0112 0113 0120 0147* 0169 0188* 0191 0193 0193* 0195 0234* 0355* 0356 0358 0358* 0359 0362 0364 0365 0375 0377 0379 0396* 0397 0397*
X10J	A	002	0D78	0320	
X881	A	002	0EA8	0426	0380
ZEROS	A	002	0D5F	0302	0131 0133 0171

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

OBJECT CARD LISTING

THE CHARACTER ' ' INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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GBK GBD PN 55 55573 EC 821490 SYSTEM TEST SUPERVISOR MOD 15 84008400 FF200000
TIOYX*2B B>U CM&B/25D Y/IJ HM3M&PSM5D YXB2Q <D 1-C <HI- B*VH2D-GJU ND&4GP9-FF200001
T<O& * & ( ;LO C 5/ 0B0-DHMG7* IH ABXMBB, / ?H&BWO B0 + 0 CDI& ED GL-DACDJ* & 1HBQ 1B0*#SUFF200002
T<E_+ OGK &3 /0, 9( D+ CDDC H5 &# B) -AL DEC?J4 -* 4A #4L HC?<0 # 41&+20 <BOYH10 MD OHNB8FF200003
T<E> -&HDH +23V C?12UDOH &#5C?< H -#5C?EH &#6C?L B &Y*4-D<-2 @YD )&HH < H12)FJ* LD&YF1AHFF200004
T<O>4C?QA.&D+ -G &_3+A +2H&DX7 = HAC60A &1) &D +2IHG 73= CMAC?- 4 #30 HBD- ?H2D 1B0QA0#XFF200005
T< ?VC D( )-5-C ( ) 5-OH*.1*BGB&X /0?1OH*.4)HACG7 = <BAB'E*0C2 &3 B &Y*( ?IJ&PDO2 .B&MC-E<FF200006
T< 00 &#80H*.J/0 AB*2A)&HG( D+=GM AA*BG C<4 &5 R( H(03&DCN45A 5 -C- (1& 0.B-UHA0 KB-QBMZ4FF200007
T< 1GCDH*A 550HD <U?BGCBP /00ZOH* <.B&CCGB &Y*4-D <-2 OHD<D77*B&B ACCN5 - >114REJD (B&MA*QYFF200008
T.017BT&ACD& 5 .MBA;BG CMACOG /005( -<UE0 CPO ( ) 0 CP&(E04 CP& ( )&BA B4,12H/G1& PDO-DMK&FF200009
T.&2VCG8& 550H* <-TMACNU5 -5&(E& (P*BG ( 54CP& &2YI& ( )<BACHT /0 B&XH12)EJD (B&MA&-HFF200010
T( 3&E& /OH; &5 6CE# /025OH*BF&R <CE#< <BGC.PI5;| E6)XP84CN5>( 6*P S1;1,&+.09(U GAQ +B--A89DFF200011
T+ 4LO2N 5&R 2)P T1)XR9(-TE+LN4_P D9_N,&(1A8)( 5( $ D91|E&+|0&(XE&R& T&+$A8UCX9&BG /8 A LA-FF200012
T(651CP2(+&BGCJ3 /OHE1SY(M& OH* (G(LD1+LL1MCW2;| H&CXDE+-X&CL11DC N5>( 6*P>1; ( )AM |AO<A)/HFF200013
T+&6C2)PT1)XR9(- TE ..... A $62 ..... "2 CF & B |"OH*BF/< 2P Y&S0FF200014
T( -6:B(Y<O&TRB(, /OHEH&HABS/'OC 2-;(5 -D*OT2-)+ 5 -W9|OC2U.O& : D LO CDUR 9N & 5<K0&-TUFF200015
TA07B( H+N&BGC- ..... C2/*FF200016
T< 8& ..... BACV* +Y-BACV*+D-OACUM +N&S |HE+./ IH EJK9 CUCAC D+JO: YC- +D- 0.BYVEJ< |C&UG4IOFF200017
T(69SCDY+ &9GCDY 2& T*CH<H-T*OH* BG- ..... GH*BFSG 2/OT /OHE & CM BCUPS -G /06X CM >A0MA)2&FF200018
T+ :$OH*BF/D20 T ECEUM6&TEOH*BFS. K &3 /06NOM*BFUI HC?.9L1*B(Y<O&T RB(, /OHE1&BG S. "BH&2A0FF200019
T+ -#08*BG & D MH-& 4*$G5>L T&<|05(-L1;|E&FA 6*PM5>PE&FCBOWA 1_X05DCL1*$T&|1 8>Q E&OFF200020

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FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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TFO#28UCT2<PN&(X EB&PT&<TA4=( B'R 6*PS8&GR80 ..... E8DFF200021
***** FF200022
* FF2 - SYSTEM TEST SUPERVISOR. FF200023
* TO OBTAIN A LOGOUT SET SWIT CH 1 AND 2 TO -B B- WHEN LOGOUT IS COMPLETE, FF200024
* REMOVE -BB- FROM SWITCHES. FF200025
***** FF200026
E***E7*=-DC*PH$ =*7M&F| | C F& ASC R A SO Q ..... 18230608730 809732YVFF200027

```

LAST PAGE



FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

1 *****
2 *$
3 *$
4 *$      FF7 AND DATA DECK OCF MUST BE AT THE SAME LEVEL.
5 *$
6 *$
7 *****
8
9 * TO ADD AN SDR DEVICE:
10 * 1. ADD TO END OF 'SDRTAB'
11 * 2. GO TO OCF SOURCE, ADD NEW SYNC POINT TO END OF SDR SYNC'S
12 * 3. EC FF7, OCF (SO LEVELS STAY SAME)
13 * 4. ADD TO SDR LIST IN BLOCK 04

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0A00
0A01 FF71
0A02 00
0A03 01
0A04 0000
0A06 0A16
0A08 FFFF
0A0A C10000
0A0D E10000
0A10 890000
0A13 511000

```

```

15 *
16      DECK 4
17      SEQ 0
18 ERAP  START X'A00'
19      TREP
0001 20 XR1      EQU 1
0002 21 XR2      EQU 2
0008 22 ARR      EQU 8
0080 23 SSW20    EQU X'80'
0010 24 SSW23    EQU X'10'
0008 25 SSW24    EQU X'08'
0200 26 MODEL    EQU X'200'
020C 27 SBYTE4   EQU X'20C'
0216 28 LINK     EQU X'216'
021A 29 PRINT    EQU X'21A'
021E 30 UNPACK   EQU X'21E'
0222 31 HALT     EQU X'222'
022A 32 LOAD     EQU X'22A'
0232 33 UDT      EQU X'232'
0880 34 PRTBUF   EQU X'880'
2020 35 DUMP      EQU X'2020'
36 ***** SECTION PREFACE *****
37 *****
38 PID      DC      XL2'FF71'      * PROGRAM ID
39          DC      XL1'0'        * SECTION FLAGS
40          DC      XL1'1'        * CURRENT ROUTINE #
41          DC      XL2'0'        * N/A
42          DC      AL2(RTN1)     * FIRST ROUTINE
43          DC      XL2'FFFF'     * ERROR RECORDING
44          DC      XL3'C10000'   * DISK
45          DC      XL3'E10000'   * 1403 PRINTER
46 FLG14    EQU      *-2
47          DC      XL3'890000'   * DISPLAY ACAPTER
48 FLGDA    EQU      *-2
49 D51      DC      XL3'511000'
50 *****
51 *****

```

LAST CHG:08 08 75

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

53 ***** ROUTINE 1 *****
54 *****
55 *
0A16 01 0A16 56 RTN1 DC XL1'1' * ROUTINE #
0A17 00 0A17 57 DC XL1'0' * FLAG
0A18 ODFO 0A19 58 DC AL2(RTN2) * NEXT ROUTINE
59 *
60 *****
61 *****
0A1A C0 87 021A 62 B PRINT PRINT SSW
0A1E 43 0A1E 63 DC XL1'43'
0A1F 00000FF00 0A23 64 DC XL5'FF00'
0A24 3C AB 134C 65 MVI DSKDRV,X'AB'
0A28 C0 87 021A 66 B PRINT MESSAGE
0A2C 07 0A2C 67 DC XL1'07'
0A2D 4F 0A2D 68 DC AL1(DSKM33-DSKM32) TO
0A2E 0A87 0A2F 69 DC AL2(DSKM33) LOAD
0A30 C0 87 0222 70 B HALT DRIVE 2
0A34 FFFF 0A35 71 DC XL2'FFFF' THEN START
0A36 F2 87 4F 72 J DSKM33+1 JUMP DC'S
0A39 40D4C1D2C540E2E8 0A55 74 DC CL29' MAKE SYSTEM PACK CONTAINING '
0A41 E2E3C5D440D7C1C3 74
0A49 D240C3D6D5E3C1C9 74
0A51 D5C9D5C740 74
0A56 C5D9D9D6D940C9D5 0A70 75 DC CL27'ERROR INFORMATION READY ON '
0A5E C6D6D9D4C1E3C9D6 75
0A66 D540D9C5C1C4E840 75
0A6E D6D540 75
0A71 C4D9C9E5C540F24B 0A87 76 DSKM33 DC CL23'DRIVE 2. DEPRESS START.'
0A79 40C4C5D7D9C5E2E2 76
0A81 40E2E3C1D9E348 76
0A88 C2 02 0001 0A88 77 MODELG EQU *
78 LA 1,XR2 SYNC PT 1
0A88 79 ONE EQU *-1
80 B SYNMOV
81 B SCAN
82 * PRINT HEADERS OF OBR TABLE
83 * SET UP COLUMN TABS
84 * READ FIRST HALF OF OBR IN DBUF
85 * TURN OFF SFLG
0A94 0C FF 2622 2722 86 MVC DBUF-1(256),DBUF+255 MOVE FIRST HALF
87 * READ SECCND HALF INTO DBUF
0A9A C0 87 0EF6 88 B SCAN
0A9E 0C 5F 24F8 08DF 89 MVC PBUF+95(96),PRTBUF+95 SAVE PRTBUF
90 * ROTATE TABLE DOWN UNTIL LAST ENTRY IS AT BOTTOM
0AA4 0C 01 2513 0D95 91 MVC TEMP,OBR1 PLACE X'01FF' IN TEMP
0AAA 0F 01 2513 2524 92 SLC TEMP,DBUF+1-256 COMPUTE SHIFT COUNT
0AB0 F2 81 24 93 JZ RTN103 TEMP CONTAIN THE # OF BYTE TO
0AB3 39 07 2513 94 TBF TEMP,X'07'
0AB7 C0 90 0D05 95 BF ERMSG
96 * SHIFT DOWN.
0ABB 0C 07 252A 2722 97 RTN102 MVC DBUF+7-256(8),DBUF+255 SHIFT OBR TABLE DOWN 1 ENTRY
0AC1 0C F7 2722 271A 98 MVC DBUF+255(256-8),DBUF+255-8 (EIGHT BYTES- ONE ENTRY)
0AC7 0C FF 262A 2622 99 MVC DBUF+7(256),DBUF-1
0ACD 0F 01 2513 239B 100 SLC TEMP,EIGHT
0AD3 C0 01 0A88 101 BNZ RTN102
102 *
0AD7 0C 01 251A 238F 0AD7 103 RTN103 EQU * WORK FROM BOTTOM UP TO FIND OLDEST ENTRY
104 MVC OBRNT(2),OBRND(2)
105 MVI DBUF-256,0
0AE1 35 01 251A 106 RTN104 L OBRNT,XR1
0AE5 1C 00 2513 00 107 MVC TEMP(1),O(,XR1)
0AEA 38 0F 2513 108 SBF TEMP,X'0F'
0AEE 3D 00 2513 109 CLI TEMP,X'00'
0AF2 F2 81 3D 110 JE RTN106 FOUND STR OF TABLE
0AF5 3D A0 2513 111 CLI TEMP,X'A0' CHECK FOR DISK ENTRY
0AF9 F2 82 07 112 JL LABEL

```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0AFC 3D 00 2513 113 CLI TEMP,X'D0'
0B00 F2 04 14 114 JNH RTN105
0B03 3C 08 23AD 115 LABEL MVI OBRTP,8 NOT DISK ENTRY
0B07 0E 07 2522 2522 116 ALC ENTADD,ENTADD
0B0D 0F 01 251A 23AD 117 RTN109 SLC OBRNT,OBRTP
0B13 C0 87 0AE1 118 B RTH104
0B17 0D 01 251A 238D 0B17 119 RTN105 EQU *
120 CLC OBRNT,OBRST(2) CHECK FOR HALF ENTRY
0B1D F2 81 12 121 JE HALFNT
0B20 3C 10 23AD 122 MVI OBRTP,16 DISK ENTRY
0B24 0E 07 2522 2522 123 ALC ENTADD,ENTADD
0B2A 3A 01 2522 124 SBN ENTADD,1
0B2E C0 87 0B0D 125 B RTN109
0B32 126 HALFNT EQU *
0B32 127 RTN106 EQU *
128 ALC OBRNT,OBRTP
129 * OBRNT2 NOW CONTAIN THE ADDRESS 0 BYTES
130 * OF OLDEST ENTRY
0B38 0D 01 251A 238F 131 CLC OBRNT,OBRND(2)
0B3E C0 84 0D10 132 BH EMPTY CHECK FOR EMPTY TABLE
133 * COMPUTE ADDRESS IN OBRBL
0B42 0C 01 0C05 2397 134 MVC BYTE,ENTADD
0B48 3C 01 0C03 135 MVI MASK,X'01'
0B4C 0C 5F 08DF 24F8 0B4C 136 RTN108 EQU *
137 MVC PRTBUF+95(96),PBUF+95 TO BRANCH ON
0B52 0C 01 2513 23A1 138 MVC TEMP,ZERO
0B58 35 01 251A 139 L OBRNT,XR1
0B5C 18 02 2513 00 140 MNZ TEMP,O(,XR1)
0B61 0E 01 2513 2513 141 ALC TEMP,TEMP
0B67 C2 02 0D95 142 LA BRTBL-2,XR2
0B6B 36 02 2513 143 A TEMP,XR2
0B6F 85 02 00 144 L O(,XR2),XR2
0B72 34 02 0889 145 ST BR(2+3,XR2)
146 * MOVE DEVICE # INTO HISTORY TABLE
0B76 0E 01 2513 2513 147 ALC TEMP,TEMP
0B7C C2 02 0DB3 148 LA DVTBL-1,XR2
0B80 36 02 2513 149 A TEMP,XR2
0B84 78 89 00 150 TBN O(,XR1),X'89' CHECK FOR DA ENTRY
0B87 F2 90 04 151 JF *-7 NO
0B8A C2 02 0D04 152 LA DACON,XR2 YES
0B8E 2C 03 0885 00 153 MVC PRTBUF+5(4),O(,XR2)
0B93 3C 01 2388 154 MVI TABIDX,1
0B97 34 01 2387 155 ST CNTOFS,XR1 COMPUTE COUNT OFFSET
0B9B 0F 01 2387 1354 156 SLC CNTOFS,DBUF(2) COULD BE NEGATIVE
157 * SAVE Q,R,SNSBYTES 0,1
0BA1 1C 03 24FC 03 158 MVC QRSNS+3(4),J(,XR1)
0BA6 C0 87 1273 159 B HEXHEX G BYTE
0BAA C0 87 1273 160 B HEXHEX R BYTE
0BAE C0 87 12AF 161 B CVTBIN SENSE BYTE 0
0BB2 C0 87 12AF 162 B CVTBIN SENSE BYTE 1
0BB6 C0 87 0000 163 BR(2)
164
164
164
164
0BBA 165 Q80 0BBA 165 Q80 EQU * BSCA
166 SBN DVFLG-1,X'20'
167 B HEXHEX COMPLETION CODE
168 MVI TABIDX,2 BACKUP
169 * AND
0BC6 C2 02 2623 170 LA DBUF,XR2 RECONVERT
0BCA 36 02 2387 171 A CNTOFS,XR2 BYTE 2 (RETRY COUNT)
0BCE 8C 00 00 24FA 172 MVC O(1,XR2),QRSMS+1 TO
0BD3 C0 87 11C2 173 B HEXDEC DECIMAL
0BD7 C0 87 0CA2 174 B RTN107
175 *
0BDB 176 Q10 0BDB 176 Q10 EQU *
177 SBN DVFLG-1,X'80' 5471 - CONSOLE-KEYBOARD

```



FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
OBD5	35 01 238F	178	L	OBRNDQ,XR1
OBE3	38 08 24F9	179	TBN	QRSNS,X'08'
OBE7	C0 90 OCA2	180	BF	RTN107
OBE8	C0 87 1273	181	B	HEXHEX
OBEF	C0 87 OCA2	182	B	RTN107
OBF3	3A 40 OD90	183 Q50	EQU	*
OBF7	C0 87 OCA2	184	SBN	DVFLG-1,X'40'
		185	B	RTN107
		186		
OBF8	3A 04 OD90	187 QE0	EQU	*
OBF8	38 20 OAOE	188	SBN	DVFLG-1,X'04'
OC03	F2 90 08	189	TBN	FLG14,X'20'
OC06	3C F1 0882	190	JF	P1403
OC0A	3C F4 0883	191	MVI	PRTBUF+2,C'1'
OC0E	38 04 24FB	192	MVI	PRTBUF+3,C'4'
OC12	C0 90 OCA2	193 P1403	TBN	QRSNS+2,X'04'
OC16	0E 01 2387 OAB8	194	BF	RTN107
OC1C	C2 02 2623	195	ALC	CNTOFS,ONE
OC20	36 02 2387	196	LA	DBUF,XR2
OC24	BD 7C 00	197	A	CNTOFS,XR2
OC27	F2 82 65	198	CLI	0(,XR2),X'7C'
OC2A	38 20 OAOE	199	JL	INVALID
OC2E	F2 10 39	200	TBN	FLG14,X'20'
OC31	8F 00 00 238C	201	JT	PT1403
OC36	BD 18 00	202	SLC	0(,XR2),I123
OC39	F2 84 22	203	CLI	0(,XR2),24
OC3C	BD 10 00	204	JH	S21
OC3F	F2 94 14	205	CLI	0(,XR2),16
OC42	BD 0C 00	206	JH	A107
OC45	F2 84 06	207	CLI	0(,XR2),12
OC48	BD 05 00	208	JH	A119
		209	CLI	0(,XR2),5
OC4B	F2 02 08	210 I5	EQU	*-2
OC4E	8E 00 00 23BE	211	JNL	A107
OC53	F2 87 00	212 A119	ALC	0(,XR2),I119
OC56	8E 00 00 238D	213	J	DIVBY4
OC58	F2 87 05	214 A107	ALC	0(,XR2),I107
OC5E	8F 00 00 23C0	215	J	DIVBY4
OC63	C0 87 1199	216 S21	SLC	0(,XR2),I21
OC67	F2 87 1E	217 DIVBY4	B	RSHIFT
		218	J	BOTH
OC6A	F2 81 0E	219 PT1403	EQU	*
OC6D	BD 7E 00	220	JE	ADD8
OC70	F2 84 10	221	CLI	0(,XR2),X'7E'
OC73	8E 00 00 OC49	222	JH	SUB126
OC78	F2 87 00	223	ALC	0(1,XR2),15
OC7B	8E 00 00 2398	224	J	BOTH
OC80	F2 87 05	225 ADD8	ALC	0(1,XR2),EIGHT
OC83	8F 00 00 238F	226	J	BOTH
		227 SUB126	SLC	0(1,XR2),I126
		228		
OC88	C0 87 11C2	229 BOTH	B	HEXDEC
OC8C	F2 87 13	230	J	RTN107
OC8F	C0 87 12F4	231 INVALID	EQU	*
OC93	4C 06 00 23C7	232	B	PRTPOS
OC98	F2 87 07	233	MVC	0(7,XR1),INV
		234	J	RTN107
		235		
OC9B	3A 08 OD90	236 QF0	EQU	*
OC9F	F2 87 00	237	SBN	DVFLG-1,X'08'
		238	J	RTN107
		239		
OCA2	C0 87 021A	240 RTN107	EQU	*
OCA6	21	241	B	PRINT
OCA7	0D 01 238F 251A	242	DC	XL1'21'
OCA9	F2 81 6C	243	CLC	OBRNDQ,OBRNTQ
OCAD	0E 01 251A 2398	244	JE	RTNIX
		245	ALC	OBRNTQ,EIGHT

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
OCB6	0D 01 238F 251A	246	CLC	OBRNDQ,OBRNTQ
OCB8	F2 81 20	247	JE	RTN11X
OCBF	0E 00 0CD3 0CD3	248	ALC	MASK,MASK
OCC5	F2 01 0A	249	JMZ	TBN
OCC8	0F 01 0CD5 0A88	250	SLC	BYTEQ,ONE
OCCE	3C 01 0CD3	251	MVI	MASK,X'01'
		252	EQU	*+1
OC02	38 00 0000	253 TBN	TBN	*-*,*-*
OC06	F2 90 06	254 BYTEQ	DS	OAL2
OC09	0E 01 251A 2398	255	JF	RTN11X
OCDF	C0 87 084C	256	ALC	OBRNTQ,EIGHT
OCE3	C5D9D9D6D940C8C9	257 RTN11X	B	RTN108
OCEB	E2E3D6D9E840E3C1	258	DC	CL30'ERROR HISTORY TABLE IS INVALID'
OCF3	C2D3C540C9E240C9	258		
OCFB	D5E5C1D3C9C4	258		
OD01	40C4C140	258		
		259	DACON	DC CL4' DA'
		260	Q20	EQU *
		261	Q30	EQU *
		262	Q40	EQU *
		263	Q60	EQU *
		264	Q70	EQU *
		265	Q90	EQU *
		266	QA0	EQU *
		267	QB0	EQU *
		268	QC0	EQU *
		269	QD0	EQU *
OD05	C0 87 021A	270 ERMSG	B	PRINT
OD09	07	271	DC	XL1'07'
OD0A	1E	272	DC	IL1'30'
OD0B	OD00	273	DC	AL2(MSGX)
OD0D	F2 87 1F	274	J	RTN1XX
		275		
OD10	C2 02 0003	276 EMPTY	EQU	*
OD14	3A 10 0EF5	277	LA	3,XR2
OD18	C0 87 0EF6	278	SBN	SCNFLG,SFLG
OD1C	C2 02 0004	279	B	SCAN
OD20	3A 10 0EF5	280 RTNIX	LA	4,XR2
OD24	C0 87 0EF6	281	SBN	SCNFLG,SFLG
		282	B	SCAN
		283	*	
		284	*	
OD28	39 80 020C	285	TBF	CHECK SSW20 TO RE-INITIALIZE OBR TBL
OD2C	F2 90 2E	286	JF	SBYTE4,SSW20
		287	RTN1XX	RTN1X1
OD2F	3C 00 2722	288	EQU	*
OD33	0C FE 2721 2722	289	MVI	DBUF+255,X'00'
OD39	C0 87 1333	290	MVC	DBUF+254(255),DBUF+255
OD3D	02	291	B	DISKIO
OD3E	3C 1C 134F	292	DC	XL1'02' WRITE
OD42	0C 03 2626 OD95	293	MVI	DSKSEC,X'1C'
OD48	C0 87 1333	294	MVC	DBUF+3(4),OBR1
OD4C	02	295	B	DISKIO
		296	DC	XL1'02' WRITE
		297	*	*****
		298	*	IF 3340 ATTACHED, REMIND CE THAT OBR,SDR PRINTED LATER *
		299	*	*****
OD4D	C0 87 021A	300 RTN334	B	PRINT
OD51	02	301	DC	XL1'02'
OD52	14	302	DC	AL1(MSG3-MSG3B)
OD53	13A2	303	DC	AL2(MSG3)
		304		
OD55	C0 87 021A	305	B	PRINT
OD59	06	306	DC	XL1'06'
OD5A	50	307	DC	AL1(MSG4-MSG4B)
OD58	13F2	308	DC	AL2(MSG4)
		309	RTN1X1	EQU *
		310	*	

PRINT OUT MEANINGS OF ENTRIES THAT WERE IN OBR TBL

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

OD5D	OC	01	23AF	23A4	311	MVC	SYNC#,FIVE	
OD63	3C	10	2514		312	MVI	CNT,16	
OD67	0E	01	0D91	0D91	313	RTN111	ALC	DVFLG,DVFLG
OD6D	F2	20	0C		314	JNDL	RTN112	
OD70	35	02	23AF		315	L	SYNC#,XR2	
OD74	3A	10	0EF5		316	SBN	SCNFLG,SFLG	
OD78	CO	87	0EF6		317	B	SCAN	
OD7C	0E	01	23AF	0A8B	318	RTN112	ALC	SYNC#,ONE
OD82	0F	00	2514	0A8B	319		SLC	CNT,ONE
OD88	CO	01	0D67		320		BNZ	RTN111
OD8C	CO	87	0216		321		B	LINK

SYNC PT 5

END ROUTINE 1

OBR DEVICE FLAGS

0D90	0000	0D91	324	DVFLG	DC	XL2'0'				
0D92	01FF01FF	0D95	325	OBR1	DC	XL4'01FF01FF'				
			326	*	DEVICE	BIT	BYTE			
			327	*	5471	0	1			5
			328	*	1442	1	1			6
			329	*	BSCA	2	1			7
			330	*		3	1			8
			331	*	5424	4	1			9
			332	*	5203/1403	5	1			10
			333	*		6	1			11
			334	*		7	1			12
			335	*		8	2			13
			336	*		9	2			14
			337	*		10	2			15
			338	*		11	2			16
0D96	08D8	0D97	339	BRTBL	DC	AL2(Q10)				5471,
0D98	0D05	0D99	340		DC	AL2(Q20)				N/A
0D9A	0D05	0D9B	341		DC	AL2(Q30)				N/A
0D9C	0D05	0D9D	342		DC	AL2(Q40)				N/A
0D9E	0BF3	0D9F	343		DC	AL2(Q50)				1442
0DA0	0D05	0DA1	344		DC	AL2(Q60)				N/A
0DA2	0D05	0DA3	345		DC	AL2(Q70)				N/A
0DA4	0B8A	0DA5	346		DC	AL2(Q80)				BSCA
0DA6	0D05	0DA7	347		DC	AL2(Q90)				N/A
0DA8	0D05	0DA9	348		DC	AL2(QA0)				N/A
0DAA	0D05	0DAB	349		DC	AL2(QB0)				N/A
ODAC	0D05	ODAD	350		DC	AL2(QC0)				N/A
ODAE	0D05	ODAF	351		DC	AL2(QD0)				N/A
0DB0	0BFB	0DB1	352		DC	AL2(QE0)				5203/1403
0DB2	0C9B	0DB3	353		DC	AL2(QF0)				5424
		0DB4	354	DVTBL	EQU	*				5471
0DB4	F5F4F7F1	0DB7	355		DC	CL4'5471'				N/A
0DB8	40404040	0DB8	356		DC	CL4'				N/A
		0DB8	357	BLANK	EQU	*-1				N/A
0DBC	40404040	0DBF	358		DC	CL4'				N/A
0DC0	40404040	0DC3	359		DC	CL4'				1442
0DC4	F1F4F4F2	0DC7	360		DC	CL4'1442'				N/A
0DC8	40404040	0DCB	361		DC	CL4'				N/A
0DCC	40404040	0DCF	362		DC	CL4'				N/A
0DD0	C2E2C3C1	0DD3	363		DC	CL4'BSCA'				BSCA
0DD4	40404040	0DD7	364		DC	CL4'				N/A
0DD8	40404040	0DD8	365		DC	CL4'				N/A
0DDC	40404040	0DDF	366		DC	CL4'				N/A
0DE0	40404040	0DE3	367		DC	CL4'				N/A
0DE4	40404040	0DE7	368		DC	CL4'				N/A
0DE8	F5F2F0F3	0DEB	369		DC	CL4'5203'				5203
0DEC	F5F4F2F4	0DEF	370		DC	CL4'5424'				5424

KEYBOARD

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
      372 ***** ROUTINE 2 *****
      373 *****
      374 *
ODF0 02      ODF0 375 RTN2      DC      XL1'2'      * ROUTINE #
ODF1 00      ODF1 376      DC      XL1'0'      * FLAG
ODF2 1770    ODF3 377      DC      AL2(SRTN3) * NEXT ROUTINE
      378 *
      379 *****
      380 *****
      381      B      PRINT      PRINT SSW
ODF4 C0 87 021A      ODF8 382      DC      XL1'41'
ODF8 41      ODFD 383      DC      XL5'FF00'
ODF9 000000FF00      ODFD 384      TBM      FLG14,X'20'      1403 ATTACHED?
ODFE 38 20 0A0E      385      JF      *+7      NO
OE02 F2 90 04      386      MVI      E1,X'E1'      YES
OE05 3C E1 0EFO      387      TBF      D51-1,X'20'      51 PRESENT?
OE09 39 20 0A14      388      JT      *+7      NO
OE0D F2 10 04      389      MVI      DD51,X'51'      YES
OE10 3C 51 0EEF      390      TBM      FLGDA,X'20'      DA ATTACHED?
OE14 38 20 0A11      391      JF      *+7      NO
OE18 F2 90 04      392      MVI      DA89,X'89'      YES
OE1B 3C 89 0EF3      393      MVI      DSKDRV,X'A8'
OE1F 3C A8 134C      394      LA      2,XR2
OE23 C2 02 0002      OE26 395 TWO      EQU      *-1
      396      B      SYNMOV      SYNC PT # 2
OE27 C0 87 1311      OE2B 397 SDRNXT      EQU      *
      398      MVI      CNT,SDRLEN-SDRTBL NUMBER OF DEVICES IN SDR TABLE
OE2B 3C 07 2514      399      MVI      SYNC#,3
OE2F 3C 03 23AF      400      LA      SDRTBL,XR2
OE33 C2 02 0EEE      401      ST      SDRIDX,XR2
OE37 34 02 2518      402 SDR6      L      SDRIDX,XR1
OE3B 35 01 2518      403      LA      UDT,XR2
OE3F C2 02 0232      404 SDR2      CLC      0(1,XR1),0(1,XR2)      SEARCH UDT FOR CODE
OE43 6D 00 00 00      405      JE      SDRFND
OE47 F2 81 0D      406      TBM      1(,XR2),X'10'      CHECK FOR END
OE4A B8 10 01      407      JT      SDR1
OE4D F2 10 84      408      LA      3(,XR2),XR2
OE50 E2 02 03      409      B      SDR2
OE53 C0 87 0E43      410 *
      411 SDRFND      EQU      *
OE57 35 02 23AF      412      L      SYNC#,XR2
OE5B 3A 10 0EF5      413      SBN      SCNFLG,SFLG
OE5F C0 87 0EF6      414      B      SCAN
OE63 38 02 0EF5      415      SBF      SCNFLG,BSFLG
OE67 35 01 2518      416      L      SDRIDX,XR1
OE6B 7D 80 00      417      CLI      0(,XR1),X'80'      CHECK FOR BSCA
OE6E F2 81 26      418      JE      SDRBSC
OE71 7D 88 00      419      CLI      0(,XR1),X'88'
OE74 F2 81 20      420      JE      SDRBSC
OE77 7D 89 00      421      CLI      0(,XR1),X'89'      CHECK FOR DA
OE7A F2 81 1A      422      JE      SDRBSC
      423 SDR5      EQU      *
OE7D C0 87 11C2      424 SDR3      B      HEXDEC
OE81 0F 00 2428 0A88      425      SLC      TABTBL(1),ONE
OE87 C0 01 0E7D      426      BNZ      SDR3
OE8B C0 87 021A      427      B      PRINT
OE8F 21      OE8F 428      DC      XL1'21'
OE90 C0 87 0EF6      429      B      SCAN
OE94 F2 87 31      430      J      SDR4
      431 *
OE97 3C 30 23A2      OE97 432 SDRBSC      EQU      *
OE9B C0 87 11C2      433      MVI      CCNT,48
OE9F 3C 02 2389      434 SDRBS      B      HEXDEC
OEAB 0E 01 2387 23A2      435      MVI      CNTLNG,2
OEAD C0 87 11C2      436      ALC      CNTOFS,CCNT
OEB1 21      437      B      HEXDEC
      438      B      PRINT
      439      DC      XL1'21'

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
OEB2 C0 87 0EF6      440      B      SCAN
OEB6 3C 01 2388      441      MVI      TABIDX,1
OEBA 0F 00 23A2 0E26      442      SLC      CCNT,TWO      CHECK FOR LAST LINE
OECO 3D 16 23A2      443      CLI      CCNT,48-26
OEC4 C0 01 0E9B      444      BNE      SDRBS
      445 SDR4      EQU      *
OEC8 39 80 020C      446      TBF      S8YTE4,SSW20
OECF F2 90 05      447      JF      SDR1
OECF C0 87 1333      448      B      DISK10
OED3 02      OE23 449      DC      XL1'02'      WRITE
OED4 0E 01 23AF 0A8B      450 SDR1      ALC      SYNC#,ONE
OEDA 0E 01 2518 0A8B      451      ALC      SDRIDX,ONE
OEE0 0F 00 2514 0A8B      452      SLC      CNT,ONE
OEE6 C0 01 0E3B      453      BNZ      SDR6
OEEA C0 87 0216      454      B      LINK
      455
      455
OEEE 456 SDRTBL      EQU      *      SYNC #
OEEE 457      DC      XL1'10'      5471
OEEF 458 DD51      DC      XL1'51'      1442
OEF0 E0      OEF0 459 E1      DC      XL1'E0'      5203/1403
OEF1 F0      OEF1 460      DC      XL1'F0'      5424
OEF2 80      OEF2 461      DC      XL1'80'      BSCA
OEF3 88      OEF3 462 DA89      DC      XL1'88'      BSCA 2/DA
OEF4 40      OEF4 463      DC      XL1'40'      3741
      464
OEF5 465 SDRLEN      EQU      *      THIS EQU MUST AT END OF SORTAB
      466
      467 *      END ROUTINE 2

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
469	*****			*****
470	* SCAN *			
471	*****			*****
472	* CONTROL CHAR			
473	*	(	PRINT LINE	?-BLANKS,EXCM-ASTERISK
474	*	<	DISK INF.	
475	*	CENT	COUNTER INF	
476	*	>	TAB INF.	
477	*	%	RETURN	
478	*	+	LINE SPACE	
479	*****			*****
OE5 80	OE5	480	SCNFLG DC	XL1'80'
		481	*	*BIT*
		482	FFLG EQU	X'80' 0 FIRST FLAG
		483	* EQU	X'40' 1
		0020	484	NFLG EQU X'20' 2 NON-STANDARD PACK
		0010	485	SFLG EQU X'10' 3 SYNC FLAG
		0008	486	ZFLG EQU X'08' 4 ZERO FLAG
		0004	487	UFLG EQU X'04' 5 USED FLAG
		0002	488	BSFLG EQU X'02' 6 PRINTER FOR SDR TABLES
		489	* EQU	X'01' 7
	OE6	490	SCAN	EQU *
		491	ST	SCNEXT,ARR
		492	LA	SYNTBL-6,XR1
		493	SC1	A SIX,XR1
		494	A	FFFF,XR2
		495	BWZ	SC1
		496	TBN	SCNFLG,SFLG
		497	JF	SC3
		498	TBN	SCNFLG,FFLG
		499	JT	SC2
		500	SYN1	CLC CRDNM8(4),3(XR1)
		501	JE	SYN2
		502	JH	RELOAD
	OF23	503	SC2	EQU *
		504	B	READ
		505	B	SYN1
		506	SYN2	MZN 5(XR1),4(XR1)
		507	MVC	H24(1),5(XR1)
		508	L	H24,XR2
		509	A	CBUF2,XR2
		510	ST	CSTR2,XR2
		511	J	NEXT
	OF43	512	RELOAD	EQU *
		513	CLI	X'232',X'C1'
		514	JE	SC4
		515	B	PRINT
	OF4E	516	DC	XL1'87'
	OF4F	517	DC	IL1'17'
	OF51	518	DC	AL2(RLDMSG)
		519	B	HALT
	OF57	520	DC	XL2'00EA'
	OF58	521	SC4	EQU *
		522	SBN	SCNFLG,FFLG
		523	B	SC2
	OF70	524	RLDMSG	DC CL1'RELOAD DATA CARDS'
		524		
		524		
	OF71	525	SC3	EQU *
	OF71	526	NEXT	EQU *
		527	LA	PBUF-1,XR1
		528	L	CSTR2,XR2
		529	NXT1	ST PEND2,XR1
		530	ST	CSTR2,XR2
		531	CLC	CSTR2,CEND2
	OF88	532	CHKSW	EQU **1
		533	JL	NXT2
		534	B	READ

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
OF8E	35 02 2502	535	L	CSTR2,XR2
OF92	BD 00 00	536	NXT2	CLI O(XR2),X'DD'
OF95	F2 81 83	537	JE	MSG
OF98	BD 4C 00	538	CLI	O(XR2),C'<'
OF9B	F2 81 4C	539	JE	DSK
OF9E	BD 4A 00	540	CLI	O(XR2),C' '
OFA1	F2 81 63	541	JE	CNTR
OFA4	BD 6E 00	542	CLI	O(XR2),C'>'
OFA7	F2 81 28	543	JE	TAB
OFAA	BD 6C 00	544	CLI	O(XR2),C'%'
OFAD	F2 81 14	545	JE	RETURN
OFB0	BD 4E 00	546	CLI	O(XR2),C'+'
OFB3	F2 81 47	547	JE	LINE
OFB6	D2 01 01	548	LA	1(XR1),XR1
OFB9	6C 00 00 00	549	MVC	O(XR1),O(XR2)
OFBD	E2 02 01	550	LA	1(XR2),XR2
OFCD	CO 87 0F79	551	B	NXT1
		552		
OF4	0E 01 2502 0A8B	553	RETURN	EQU *
OFCA	3B 10 0EF5	554	ALC	CSTR2,ONE
OFCE	CO 87 0000	555	SBF	SCNFLG,SFLG
		556	B	*-*
		557	SCNEXT	EQU *-1
		558		
		559	TAB	EQU *
		560	B	PACK
OFD2	CO 87 116D	561	MVC	TABTBL+16(17),PBUF+16
OFD6	OC 10 2438 24A9	562	MVI	TABIDX,1
OFDC	3C 01 238B	563	ALC	CSTR2,ONE
OFE0	0E 01 2502 0A8B	564	B	NEXT
OFE6	CO 87 0F71	565		
		566	DSK	EQU *
		567	B	PACK
OFEA	CO 87 116D	568	MVC	DSKSEC(1),PBUF
OFEE	OC 00 134F 2499	569	B	DISKIO
OFF4	CO 87 1333	570	DC	XL1'01' READ
OFF8	01	571	B	INC
OFF9	CO 87 0FE0	572		
		573	LINE	EQU *
		574	MNN	SPCNT,PBUF
		575	B	INC
OFFD	08 03 107D 2499	576	CNTR	EQU *
1003	CO 87 0FE0	577	B	PACK
		578	MVC	CNTOFS(1),PBUF
		579	MVC	CNTLNG(1),PBUF+1
		580	B	INC
		581		
		582	MSG	EQU *
		583	LA	PRTBUF,XR1
		584	MVI	95(XR1),C' '
		585	MVC	94(95,XR1),95(XR1)
		586	LA	PBUF,XR2
		587	MSG1	EQU *
		588	CLI	O(XR2),C'?'
		589	JE	SPACE
		590	CLI	O(XR2),C' '
		591	JE	ASTER
		592	MVC	O(XR1),O(XR2)
		593	LA	1(XR1),XR1
		594	LA	1(XR2),XR2
		595	MSGCK	ST PSTR2,XR2
		596	CLC	PSTR2,PEND2
		597	BWZ	MSG1
		598	ALC	CSTR2,ONE
		599	CLC	CSTR2,CEND2
		600	CHKSW	EQU **1
		601	BL	MSG2
		602	MVC	PBUF+95(96),PRTBUF+95
105A	CO 82 106E			
105E	OC 5F 24F8 08DF			

UP PBUF ADDR.  
MOVE CHAR  
UP PTR TO DATA CARD CHAR.

UP PTR TO DATA CARD CHAR.  
TURN OFF SYNC FLAG  
SCAN EXIT

SET CNTOFS  
SET CNTLNG

MOVE CHAR TO PRTBUF  
INCR. PTR TO PRTBUF  
INCR. PTR TO PBUF

END OF COMMENT  
CHECK FOR RETURN CHAR

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1064	CO	87	10A9	603 B READ
1068	OC	5F	08DF 24F8	604 MVC PRTBUF+95(96),PBUF+95
106E	35	02	2502	605 MSG2 L CSTR0,XR2
1072	BD	6C	00	606 CLI 0(,XR2),C'0'
1075	CO	81	0F71	607 BE NEXT
1079	CO	87	021A	608 B PRINT
107D	20	107D	609 SPCMT DC XL1'20'	
107E	CO	87	0F71	610 B NEXT
		1082	611 ASTER EQU *	
1082	AB	01	02 01	612 MZN 2(,XR2),1(,XR2)
1086	7C	5C	00	613 AST1 MVI 0(,XR1),C'0'
1089	D2	01	01	614 LA 1(,XR1),XR1
108C	8F	00	02 0A8B	615 SLC 2(1,XR2),ONE
1091	CO	01	1086	616 BNZ AST1
1095	F2	87	0A	617 J SP1
		1098	618 EQU *	
1098	AB	01	02 01	619 SPACE MZN 2(,XR2),1(,XR2)
109C	8C	00	01	620 MVI 1(,XR2),X'00'
109F	B6	01	02	621 A 2(,XR2),XR1
10A2	E2	02	03	622 LA 3(,XR2),XR2
10A5	CO	87	1040	624 B MSGCK

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
626	*****			*****
627	* READ *			1. READS DATA CARDS INTO PRTBUF *
628	*****			2. CHECK SEQUENCE OF DATA CARDS *
629	*			4. MOVES DATA CARD FROM PRTBUF TO CBUF *
630	*			5. RESETS CSTR0 *
631	*			6. PROVIDE A MESSAGE AND HALT TO USER IF DATA CARDS ARE *
632	*			NOT IN ORDER *
633	*			*****
634	*****			*****
10A9	34	08	1112	635 READ EQU *
10AD	38	80	0EF5	636 ST REXT0,ARR
10B1	F2	90	25	637 RST TBM SCNFLG,FFLG
				638 JF RD1
				639 * READ HEADER CARD
10B4	04	30	2498 239C	640 ZAZ CRDNMB(4),DZERO SET CRDNMB TO 0
10BA	3D	C1	0232	641 CLI X'232',X'C1' TEST FOR DISK OCF
10BE	F2	01	0A	642 JNE RD2
10C1	CO	87	022A	643 B LOAD
10C5	20	10C5	644 DC XL1'20'	
10C6	DCCF	10C7	645 DC XL2'DCCF' POSITION DISK HEAD	
10C8	F2	87	05	646 J RD4
10CB	CO	87	022A	647 RD2 B LOAD
10CF	10	10CF	648 DC XL1'10'	
10D0	0D	03	08DF 2498	649 RD4 CLC PRTBUF+95(4),CRDNMB TEST FOR HEADER CARD
10D6	F2	01	05	650 JNE RD3
		10D9	651 RD1 EQU *	
			652 B LOAD	
		10DD	653 DC XL1'10'	
		10DE	654 RD3 EQU *	
			655 B UNPACK	
10DE	CO	87	021E	656 DC XL1'01'
10E2	01	10E2	657 DC AL2(PID)	
10E3	0A01	10E4	658 DC AL2(LEVEL)	
10E5	115B	10E6	659 CLC PRTBUF+91(11),LEVEL CHECK LEVEL OF OCF (DATA CARDS)	
10E7	0D	00	08DB 115B	660 JNE NSLEV
10ED	F2	01	58	661 AZ CRDNMB(4),DONE
10FD	00	30	2498 239D	662 CLC CRDNMB(4),PRTBUF+95
10F6	0D	03	2498 08DF	663 JNE UNORD
10FC	F2	01	14	664 MVC CBUF+95(96),PRTBUF+95
10FF	OC	5F	2498 08DF	665 MVC CSTR0,CBUF0
1105	OC	01	2502 2391	666 SBF SCNFLG,FFLG
110B	3B	80	0EF5	667 B *-*
110F	CO	87	0000	668 REXT0 EQU *-1
		1112	669 UNORD B PRINT	
1113	CO	87	021A	670 DC XL1'87'
1117	87	1117	671 DC IL1'35'	
1118	23	1118	672 DC AL2(RMSG)	
1119	1147	111A	673 B HALT	
111B	CO	87	0222	674 DC XL2'00EE' DATA CARDS NOT IN ORDER
111F	00EE	1120	675 B UNORD	
1121	CO	87	1113	676 DC CL35'DATA CARDS NOT IN ORDER,RE-RUN ERAP'
1125	C4C1E3C140C3C1D9	1147	676 RMSG	
112D	C4E240D5D6E340C9	676		
1135	D540D6D9C4C5D96B	676		
113D	D9C560D9E4D540C5	676		
1145	D9C1D7	676		
1148	CO	87	021A	677 NSLEV B PRINT
114C	87	114C	678 DC XL1'87'	
114D	12	114D	679 DC IL1'18'	
114E	116C	114F	680 DC AL2(LVLMSG)	
1150	CO	87	0222	681 B HALT
1154	00EE	1155	682 DC XL2'00EE'	
1156	CO	87	10AD	683 B RST
115A	0000	1158	684 LEVEL DC XL2'00'	
115C	60D7D9D6D7C5D940	116C	685 LVLMSG DC CL17'--PROPER LEVEL OCF'	
1164	D3C5E5C5D340F0C3	685		
116C	C6	685		

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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687 *****
688 * PACK * PACKS DATA IN PBUF BACK INTO PBUF FROM LEFT TO RIGHT *
689 *****
690 *
691 *****
692
116D 34 08 1198 693 PACK ST PEXT@,ARR
1171 35 01 2395 694 L PBUF@,XR1
1175 35 02 2395 695 L PBUF@,XR2
1179 98 01 00 00 696 PCK1 MZN O(,XR2),O(,XR1)
117D 98 03 00 01 697 MNN O(,XR2),I(,XR1)
1181 D2 01 02 698 LA 2(,XR1),XR1
1184 E2 02 01 699 LA 1(,XR2),XR2
1187 34 01 2513 700 ST TEMP,XR1
118B OD 01 2513 24FE 701 CLC TEMP,PEND@
1191 C0 82 1179 702 BL PCK1
1195 C0 87 0000 703 B *-
1198 704 PEXT@ EQU *-1
705
705
705
705
705
705
705
705
705
705
706 *****
707 * RSHIFT * SHIFTS A BYTE 2 BINARY PLACES TO THE RIGHT *
708 ***** END OFF *
709 *
710 *****
1199 711 RSHIFT EQU *
712 ST RSHFX@,ARR
713 LA DBUF,XR2
714 A CNTOFS,XR2
715 LA 6,XR1
716 RSHF1 ALC O(1,XR2),O(,XR2)
717 JNOL RSHF2
718 SBN O(,XR2),X'01'
719 RSHF2 A FFFF,XR1
720 BNZ RSHF1
721 SBF O(,XR2),X'CO'
722 B *-
11C1 723 RSHFX@ EQU *-1

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725 *****
726 * HEXDEC * CONVERTS A HEX # TO A PRINTABLE DECIMAL # IN PRTBUF *
727 ***** WITH LEADING ZEROS SUPPRESSED *
728 *
729 * LENGTH OF HEX # IS CONTAINED IN CNTLNG *
730 * LOCATION OF RIGHT BYTE POSITION OF THE HEX # IS *
731 * @ (DBUF)+CNTPOS+CNTLNG-1 *
732 * LOCATION OF PRINT POSITION (RIGHT MOST) IS *
733 * @ (PRTBUF-1) + TABTBL(TABIDX) *
734 * ON EXIT *
735 * HEX # WILL BE ZERO *
736 * CNTOFS IS INCREASED BY (CNTLNG) *
737 * TABIDX IS INCREASED BY 1 *
738 *****
11C2 739 HEXDEC EQU *
740 ST CVTX@,ARR SAVE RETURN @
741 LA LNGTBL-1,XR2
742 A CNTLNG,XR2
743 MVC MVCL(1),O(,XR2) SET LNG OF DEC #
744 * SET LOOP COUNT (CNTLNG*8)
745 LA CVTCNT,XR1
746 MVC O(2,XR1),CNTLNG
747 ALC O(2,XR1),O(,XR1)
748 ALC O(2,XR1),O(,XR1)
749 ALC O(2,XR1),O(,XR1)
750 * SET LENGTH OF HEX # INSTR.
751 MVC TEMP,CNTLNG
752 SLC TEMP,ONE
753 MVC ALCL(1),TEMP
754 MVC CLCL(1),TEMP
755 * SET XR2 TO RIGHT POS OF HEX #
756 LA DBUF,XR2
757 A CNTOFS,XR2
758 A TEMP,XR2
759 ZAZ DEC,DZERO ZERO DEC #
760 *
1213 761 CLCL EQU **1
762 CLC O(1,XR2),$ZERO TEST FOR ZERO
763 JE HEXD0
764 HEXD1 AZ DEC,DEC DOUBLE DEC #
1221 765 ALCL EQU **1
766 ALC O(1,XR2),O(,XR2) SHIFT HEX NUM
767 JNOL HEXD2 TEST FOR OVERFLOW
768 AZ DEC,DONE ADD 1 TO DEC #
769 HEXD2 SLC CVTCNT,ONE TEST FOR END
770 BNZ HEXD1
771 HEXD5 ITC DEC-14(15),BLANK
772 TBN SCNFLG,ZFLG
773 BF HEXD3
774 MVI DEC,C'0'
775 HEXD3 SBF SCNFLG,ZFLG
776 * SET XR1 TO RIGHT POS OF PRINT POS.
777 B PRTPOS
1252 778 MVCL EQU **1
779 MVC O(1,XR1),DEC MOVE DEC # TO PRTBUF
780 ALC CNTOFS,CNTLNG
781 J CVTX
782 HEXD0 SBN SCNFLG,ZFLG
783 B HEXD5
1267 784 LNGTBL EQU * CNTLNG
1267 785 DC IL1'2' 1
1268 786 DC IL1'4' 2
1269 787 DC IL1'7' 3
126A 788 DC IL1'9' 4
126B 789 DC IL1'12' 5
126C 790 DC IL1'14' 6
126D 000000000000 1272 791 $ZERO DC XL6'00'
792

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1273	34 08 12F3	793	*****	*****
1277	C2 92 2623	794	* HEXHEX *	CONVERT HEX BYTE TO A PRINTABLE HEX NUMBER
1278	36 02 23B7	795	*****	*****
127F	CD 87 12F4	796	*	*****
1283	36 01 23AA	797	*****	*****
1287	3B 01 128C	1273	798 HEXHEX EQU *	
		799	ST CVTX2,ARR	
1288	68 02 00 00	800	LA DBUF,XR2	
128F	7A F0 00	801	A CNTOFS,XR2	
1292	7D F9 00	802	B PRTPOS	
1295	F 04 05	803	A FFFF,XR1	FORM MNZ
1298	4F 00 00 12A0	804	SBF SWITCH,X'01'	
129D	D2 01 01	128C	805 SWITCH EQU **1	
12A0	39 01 128C	806	HNZ O(,XR1),O(,XR2)	
12A4	F2 90 3A	807	SBN O(,XR1),X'F0'	
12A7	3A 01 128C	808	CLI O(,XR1),X'F9'	
12AB	CD 87 128B	809	JNH HEX3	
		810	SLC O(1,XR1),X39	
		811	HEX3 LA 1(,XR1),XR1	
		812	X39 TBF SWITCH,X'01'	
		813	JF CVTX1	FROM MZZ
		814	SBN SWITCH,X'01'	
		815	B HEX2	

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
12AF	34 08 12F3	817	*****	*****
12B3	C2 02 2623	818	* CVTBIN *	CONVERTS A HEX BYTE TO PRINTABLE BINARY NUMBER IN
12B7	36 02 23B7	819	*****	PRTBUF
		820	*	
		821	*	LOCATION OF HEX BYTE IS 2(DBUF) + CNTOFS
		822	*	
		823	*	LOCATION OF PRINT POSITION (LEFT MOST POSITION) IS
		824	*	2(PRTBUF)-1 + TABTBL(TABIDX) - 7
		825	*	
		826	*	ON EXIT
		827	*	HEX BYTE WILL BE ZERO
		828	*	CNTOFS IS INCREASED BY 1
		829	*	TABIDX IS INCREASED BY 1
		830	*****	*****
12AF	34 08 12F3	831	CVTBIN EQU *	SAVE EXIT 2
12B3	C2 02 2623	832	ST CVTX2,ARR	COMPUTE POSITION OF HEX BYTS
12B7	36 02 23B7	833	LA DBUF,XR2	
		834	A CNTOFS,XR2	COMPUTE POSITION OF PRINT POS.
		835	*	
		836	B PRTPOS	
		837	A NEG7,XR1	
		838	*	
		839	MVI CVTCNT,8	SET LOOP CNT
		840	CVTB2 MVI O(,XR1),C'0'	SET PRINT CHAR 0,BY DEFAULT
		841	ALC O(,XR2),O(,XR2)	
		842	JNOL CVTB1	TEST FOR BIT ON
		843	MVI O(,XR1),C'1'	BIT ON,SET PRINT CHAR 1
		844	CVTB1 LA 1(,XR1),XR1	
		845	SLC CVTCNT,ONE	
		846	BNZ CVTB2	
		847	CVTX1 EQU *	
12E1	8C 00 00	848	MVI O(,XR2),0	
12E4	0E 01 23B7 0A8B	849	ALC CNTOFS,ONE	
		850	*	
		851	CVTX EQU *	
12EA	0E 01 23B8 0A8B	852	ALC TABIDX,ONE	
12F0	CD 87 0000	853	B *-*	
		854	CVTX2 EQU *-1	
		855	PRTPOS EQU *	
		856	ST PRTX2,ARR	
		857	LA TABTBL,XR1	
		858	A TABIDX,XR1	
		859	MVC H24(1),O(,XR1)	
		860	LA PRTBUF-1,XR1	
		861	A H24,XR1	
		862	B *-*	
1310	863 PRTX2 EQU *-1			
		864		
		864		
		864		
		864		
		864		
		865	SYNMOV EQU *	LOAD SYNC PTS FOR RTNX
		866	*	
		867	ST SYNMX2,ARR	
1311	34 08 1332	868	SYNR EQU *	
		869	MVI CHKSW1,X'82'	
		870	MVI CHKSW,X'82'	
		871	SBN SCNFLG,SFLG	
		872	B SCAN	
		873	MVC SYNTBL+12+83(84),CBUF+84	
		874	B READ	
		875	B *-*	
		876	SYNMX2 EQU *-1	
		877		
		878		
		879		
		880		
		881		
		882		
		883		
		884		
		885		
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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
      878
      879 *****
      880 * DISKIO *          CALLING SEQUENCE *
      881 *                  B   DISKIO          *
      882 *                  DC  XL1'XX'        XX=01 - READ *
      883 *                  XX=02 - WRITE      *
      884 * DISKIO *READ OR WRITE A SECTOR ON CYL 0  OF DRIVE THAT IS *
      885 *          CONTAINED IN DSKDRV, THE SECTOR NUMBER IS CONTAINED *
      886 *          IN DSKSEC. *
      887 *          *A FX (X=1-4) HALT WILL OCCUR IF DISK IS NOT READY OR ERROR *
      888 *          OCCURS ON A READ OR WRITE. TEN RETRYs ARE MADE BEFORE *
      889 *          A HALT IS GIVEN. A RESET HALT WILL RETRY THE FUNCTION. *
      890 *
      891 *
      892 *****
1333 C: 01 1333      1333 893 DISKIO EQU *
      894 LA DISKIO,XR1
      1333 895 USING DISKIO,XR1
      896 ST DISKX2(,XR1),ARR STORE ARR ADDRESS INTO DISKX2 *GC*
      897 L DISKX2(,XR1),XR2 LAOD ARR VALUE INTO XR2 *GC*
      898 MVC DSKFCT(1,XR1),0(,XR2) MOVE (READ/WRITE) FUN N BITS *GC*
      899 B DISK33 BRANCH TO 3340 SECTION FOR TEST *GC*
1345 F3 00 00      1346 900 DSKFCT EQU *+1
1348 0000          901 SIO2 SID 0,0 READ OR WRITE DATA
      1349 902 DISKX2 DC AL2(*-*) SAVE CALLERS ARR VALUE
      903
      904 *****
      905 * DISK FLAG IN SEEK
      906 * BIT 0 = 0 HEAD 0 UPPER SURFACE
      907 * = 1 HEAD 1 LOWER SURFACE
      908 * BIT 1 - 6 NOT USED
      909 * BIT 7 = 0 SELECT DIRECTION TOWARD DECREASING CYL #
      910 * = 1 SELECT DIRECTION TOWARD INCREASING CYL #
      911 * DISK FLAG FOR ALL OTHER OPERATIONS
      912 * BIT 0 - 5 HOLD THE BINARY REPRESENTATION OF THE SECTOR
      913 * ID NUMBER
      914 * BIT 6 , 7 NOT USED ** MUST BE 00 **
      915 *****
134A 0000          1348 916 STATUS DC XL2'0'
134C A8           134C 917 DSKDRV EQU *
1340 00           134C 918 DC XL1'A8' DA & M BIT FOR DISK
134E 00           134D 919 DSKFLG DC XL1'0' FLAG *****
134F 00           134E 920 DSKCYL DC XL1'0' CYLINDER * DISK CONTROL FIELD *
1350 00           134F 921 DSKSEC DC XL1'0' SECTOR *
1351 1340        1350 922 DSKNUM DC XL1'0' # TC MOVE *****
1353 2623        1352 923 DCR DC AL2(DSKFLG) DISK CONTROL ADDRESS REG FOR RD/WRT
      1354 924 DBUF2 DC AL2(DBUF) START ADDRESS OF DATA BUFFER
      1354 925 DAR EQU *-1
      926 *
1355 F2           1355 927 HLT TBL EQU * HALT CODE VOLUME DEVICE ADDR.
1356 F1           1355 928 DC XL1'F2' 2 AO
1357 F4           1356 929 DC XL1'F1' 1 AB
1358 F3           1357 930 DC XL1'F4' 4 B0
1359 40C8C1D3E34060C6 138A 931 DC XL1'F3' 3 B8
1361 E76040E77EF160F4 932 DC CL50' HALT -FX- X=1-4, VOL X IS NOT READY OR ERROR ON V'
1369 6840E5D6D340E740 932
1371 C9E240D5D6E340D9 932
1379 C5C1C4E840D6D940 932
1381 C5D9D9D6D940D6D5 932
1389 40E5 932
138B D6D340E7 138E 933 DSKMSG DC CL04'OL X'
138E 934 MSG3B EQU *-1
138F 404060606040F3F3 13A2 935 MSG3 DC CL20' --- 3340 ---
1397 F4F0406060604040 935
139F 40404040 935
13A3 40404040F3F3F4F0 13A2 936 MSG4B EQU *-1
13CA 937 DC CL40' 3340 ERROR HISTORY AND OTHER ERROR D'

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
13AB 40C5D9D6D940C8 937
13B3 C9E2E3D6D9E840C1 937
13B8 D5C440D6E3C8C5D9 937
13C3 40C5D9D6D940C4 937
13CB C1E3C140E6C9D3D3 13F2 938 MSG4 DC CL40'ATA WILL BE PRINTED BY LATER ROUTINES.
13D3 40C2C540D7D9C9D5 938
13DB E3C5C440C2E840D3 938
13E3 C1E3C5D940D9D6E4 938
13EB E3C9D5C5E24B4040 938
      0001 939 DROP XR1

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
13F3 0C 09 1704 1725
13F9 30 CD 134B
13FD C1 C8 15AF
1401 3C 00 16F8
941 *****
942 ***** TITLE ' DISK TYPE 334C I/O ROUTINE *****
943 *****
944
944
944
944
944
944
945 DISK33 MVC DDCFE(10),DDCFB INITIAL DDCF FIELD
946 SNS STATUS,X'CD' RESET HISTORY UNIT CHECK BITS
947 TIO DKNR,X'CB' NOT READY/UNIT CHECK ERROR TEST
948 MVI DDCF,X'00' CLEAR FLAG BYTE
949
949
950 *****
951 ***** SUB-ROUTINE TO CONVERT *****
952 ***** 5444 ADDRESS INTO 3340 ADDRESS *****
953 *****
954 *
955 * INPUT: DSKORV --> IOBQB
956 * DSKCYL --> IOBCHN-2
957 * DSKSEC --> IOBCHN-1
958 * OUTPUT: DDCF FIELD CYLINDER,HEAD,RECORD NUMBER FOR 3340 SYSTEM
959 *
960 * * * * *
961 * THE FOLLOWING AREA IS SET ASIDE FOR USE AS CONSTANTS IN THE 5444
962 * CONVERSION ROUTINE.
963 * * * * *
964
965 J GPCS
1408 966 HEX20 DC XL1'20'
1409 967 FOUR DC XL1'04'
140A 968 FORTEN DC XL1'14'
140B 969 SVNTEN DC XL1'17'
140C 970 TABLES EQU *
140D 971 DC XL2'COA9' TABLE ENTRY FOR A F1 REQUEST
140E 972 DC XL2'COB3' TABLE ENTRY FOR A R1 REQUEST
1410 973 DC XL2'CBA9' TABLE ENTRY FOR A F2 REQUEST
1412 974 DC XL2'CBB3' TABLE ENTRY FOR A R2 REQUEST
1414 975 HEADWA DC XL1'00' WORK AREA
1415 976 STARTN EQU *
1418 977 IOBCHN DC XL4'00' BUFFER AREA FOR SUB-ROUTINE
1419 978 IOBQB DC XL1'00' BUFFER WORK AREA
979
980 *****
981 ERRMSG B PRINT PRINT THAT ROUTINE UNABLE TO CONVERT
141E 982 DC XL1'87' THE 5444 ADDRESS INTO A 3340 ADDRESS
141F 983 DC IL1'51'
1420 984 DC AL2(ERRMSL)
1422 985 B HALT
1426 986 DC XL2'FF0F'
1428 987 B LINK
142C 988 ERRMSL DC CL51'UNABLE TO CONVERT 5444 ADDRESS INTO A 3340 ADDRESS.'
1434 988
143C 988
1444 988
144C 988
1454 988
145C 988
989
989
145F 990 GPCS EQU *
1415 991 USING STARTN,XR1
992 LA STARTN,XR1
993 MVC IOBCHN-1(2),DSKSEC
994 MVC IOBQB(1,XR1),DSKORV SAVE THE 5444 Q CODE
995 MVC IOBCHN(1,XR1),IOBQB(XR1) SAVE THE 5444 Q CODE

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
140C 996 USING TABLES,XR2
997 LA TABLES,XR2 LOAD REG 2 WITH ADDRESS OF TABLE
998 TBN IOBCHN(XR1),X'10' Q CODE FOR SPINDLE 1?
999 JF CKFIXD JUMP IF REG 2 IS OK
1000 LA 4(XR2),XR2 BUMP TO POINT TO SECOND HALF
1001 CKFIXD TBN IOBCHN(XR1),X'08' Q CODE FOR FIXED DRIVE?
1002 JF NEWDRV JUMP IF FOR F1 OR F2
1003 LA 2(XR2),XR2 BUMP IF FOR REMOVABLE
1004
1004
1004
1005 * * * * *
1006 * REGISTER 2 NOW POINTS TO THE TABLE ENTRY COORESPONDING TO THE *
1007 * REQUESTED 5444 DRIVE. *
1008 * * * * *
1009
1010 NEWDRV MVC CYSTRT(1),1(XR2) SET MOVE INSTRUCTION TO PICKUP START
CYLINDER OF SIMULATED AREA
1011 *
1012 MZZ IOBQB(XR1),0(XR2) MOVE IN THE ZONE OF OPERATION CODE
FOR 3340 DRIVE 2 OR 4?
1013 TBN 0(XR2),X'08' ASSUME 3340 DRIVE 2 OR 4
1014 SBN IOBQB(XR1),X'08' GC START THE CONVERSION
1015 JT CVTCTH CORRECT A BAD ASSUMPTION
1016 SBF IOBQB(XR1),X'08' MOVE IN START OF SIMULATION AREA
1017 CVTCTH MVI IOBCHN-3(XR1),0 *-2
149E 1018 CYSTRT EQU *-2
1019 CLI IOBCHN-2(XR1),X'04' CHECK FOR 5444 CYL 0,1,2, OR 3
IF LOW GO CHECK FOR CYL 0
1020 JL CKCYLO
1021 CLI IOBCHN-2(XR1),X'CB' CHECK FOR CYLINDER 203?
CYLINDER 203 OR GREATER IS INVALID
1022 BNL ERRMSG
1023 SLC IOBCHN-2(1,XR1),SVNTEN NUMBER OF 44 TRACKS
POSSIBLE ON FIRST 3340 CYLINDER
1024 * JUMP IF 44 CYLINDER IS ON FIRST
SIMULATED 3340 CYLINDER
1025 JM ADDBAK
1026 *
1027 CKZERO CLI IOBCHN-2(XR1),X'00' SEE IF CYLINDER WENT ZERO
IF ZERO CONVERSION OF CYL IS
ALMOST DONE.
1028 JE UPCYLN
1029 *
1030 ALC IOBCHN-3(1,XR1),ONE ADD ONE TO 3340 CYLINDER
1031 SLC IOBCHN-2(1,XR1),FORTEN SUBTRACT NUMBER OF 44 CYLINDERS
POSSIBLE ON NEXT 3340 CYLINDER
1032 *
1033 JM ADDBAK JUMP IF RESULT WENT NEGATIVE
1034 B CKZERO LOOP BACK AND CHECK AGAIN
1035
1035
1036 CKCYLO CLI IOBCHN-2(XR1),X'00' IS THE REQUEST FOR CYLINDER ZERO?
IF NOT FOR ZERO, ERROR
1037 BNE ERRMSG GO TO CONVERT SECTOR TO RECORD
1038 J CVTSTR
1039
1039
1040 UPCYLN ALC IOBCHN-3(1,XR1),ONE UPDATE TO NEXT 3340 CYLINDER
GO CONVERT SECTOR TO RECORD
1041 J CVTSTR
1042
1043 ADDBAK ALC IOBCHN-2(1,XR1),FORTEN ADD BACK FOURTEEN WHEN RESULT
GOES MINUS.
1044 *
1045
1046 CVTSTR MVI HEADWA,X'01' INITIALIZE WORK AREA WITH A 1
REQUEST FOR A 5444 SECTOR ZERO?
1047 CLI IOBCHN-1(XR1),X'00' CONVERSION IS DONE
1048 JE EXIT
1049 TBN IOBCHN-1(XR1),X'80' TRACK 2 OF 5444 REQUESTED?
1050 JF BUMP JUMP IF TRACK 1 WAS REQUESTED
1051 SLC IOBCHN-1(1,XR1),HEX20 MAKE TRACK 2 AND 1 CONTIGIOUS
1052
1052
1053 BUMP CLI IOBCHN-1(XR1),X'FC' DID SECTOR NUMBER GO MINUS?
ERROR IF SECTOR IS MINUS
1054 BH ERRMSG ADD ONE TO RECORD NUMBER
1055 ALC HEADWA(1),ONE DECREMENT SECTOR COUNT
1056 SLC IOBCHN-1(1,XR1),FOUR
1057 BNZ BUMP LOOP BACK IF NOT ZERO
1058
1058
1472 C2 02 140C
1475 78 10 03
1479 F2 90 03
147C E2 02 04
147F 78 08 03
1482 F2 10 03
1485 E2 02 02
1480 68 00 04 00
1491 88 08 00
1494 7A C8 04
1497 F2 10 03
149A 7B 08 04
149D 7C 00 00
14A0 7D 04 01
14A3 F2 82 26
14A6 7D CB 01
14A9 C0 02 141A
14AD 4F 00 01 140B
14B2 F2 82 29
14B5 7D 00 01
14B8 F2 81 18
14BB 4E 00 00 0A8B
14C0 4F 00 01 140A
14C5 F2 82 16
14C8 C0 87 14B5
14CC 7D 00 01
14CF C0 01 141A
14D3 F2 87 0D
14D6 4E 00 00 0A8B
14D8 F2 87 05
14DE 4E 00 01 140A
14E3 3C 01 1414
14E7 7D 00 02
14EA F2 81 21
14ED 78 80 02
14F0 F2 90 05
14F3 4F 00 02 140B
14F8 7D FC 02
14FB C0 84 141A
14FF 0E 00 1414 0A8B
1505 4F 00 02 1409
150A C0 01 14F8

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
150E	4C 00 02 1414	1059	EXIT	MVC IOBCHN-1(1,XR1),HEADWA	MOVE RECORD COUNT TO IOB
1513	0C 00 16FD 1415	1060		MVC DDCF+2(1),IOBCHN-3	MOVE CYLINDER NUMBER
1519	0C 00 16FF 1416	1061		MVC DDCF+4(1),IOBCHN-2	MOVE HEAD NUMBER
151F	0C 00 1700 1417	1062		MVC DDCF+5(1),IOBCHN-1	MOVE RECORD NUMBER
		1063		*****	
		1064		* END OF 5444 TO 3340 SIMULATION CONVERSION ROUTINE *	
		1065		*****	
		1066		*****	
		1066		*****	
		1066		*****	
1525	0C 00 157B 1346	1067		MVC RDWRT+1(1),DSKFCT	MOVE DISK FUNCTION READ/WRITE INTO SIO
1529	0E 00 157B 1718	1068		ALC RDWRT+1(1),DRV32	INSERT DRIVE NUMBER INTO SIO
1531	C1 CA 1531	1069		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
1535	31 CE 16F2	1070		LIO LDCF,X'CE'	LOAD DDCR WITH ADDRESS OF DDCF
1539	31 CC 16F4	1071		LIO LDDF,X'CC'	LOAD DDDR WITH ADDRESS OF DDDF
153D	F3 C8 00	1072		SIO O,X'C8'	SEEK COMMAND PRIMARY TRACK
1540	C1 C9 1540	1073		TIO *,X'C9'	SEEK BUSY (WAIT)
1544	C1 CA 1544	1074		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
1548	C1 C8 15C4	1075		TIO DKER9,X'C8'	NOT READY / UNIT CHECK AFTER SEEK CMD
154C	0C 09 1718 1704	1076		MVC DDCZ(10),DDCFE	
1552	0C 01 1717 171A	1077		MVC DDCZ-1(2),DDZL	
1558	31 CE 16F6	1078		LIO LDCX,X'CE'	LOAD DDCR WITH ADDRESS OF DDCX (DDCF)
155C	C1 CC 16F4	1079		LIO LDDF,X'CC'	LOAD DDDR WITH ADDRESS OF DDDF
1560	F3 C9 01	1080	SIO33	SIO X'O1',X'C9'	RD HA & RO EVEN COMMAND
1563	C1 CA 1563	1081		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
1567	C1 C8 1582	1082		TIO DKER2,X'C8'	NOT READY/UNIT CHECK ???
		1083			
		1083			
		1083			
156B	58 02 1705	1084		TBN DDDF,X'O2'	CHECK FOR DEFECTIVE PRIMARY TRACK
156F	F2 10 1A	1085		JT PRIDEF	JUMP TO ALTERNATE TRACK
		1086			
		1086			
		1086			
		1086			
1572	31 CE 16F2	1087	LIO33	EQU *	
1576	31 CC 16F8	1088		LIO LDCF,X'CE'	LOAD DDCR WITH ADDRESS OF DDCF
157A	F3 C9 00	1089		LIO LBUF,X'CC'	LOAD DDDR WITH ADDRESS OF DBUF
157D	C1 CA 157D	1090	RDWRT	SIO O,X'C9'	RD/WRT KEY DATA (C9/CA)
1581	C1 C8 158B	1091		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
1585	35 02 1349	1092		TIO DKER4,X'C8'	NOT READY/UNIT CHECK
1589	E0 87 01	1093		L DISKX2,XR2	SET-UP XR2 FOR RETURN TO CALLER
		1094		B 1(,XR2)	RETURN TO CALLER
		1095			
		1095			
		1095			
		1095			
158C	3C 01 1705	1096	PRIDEF	EQU *	
1590	3C 01 16F8	1097		MVI DDDF,X'O1'	SET-UP FLAG BYTE FOR ALTERNATE
1594	C1 CA 1594	1098		MVI DDCF,X'O1'	SET-UP FLAG BYTE FOR ALTERNATE
1598	31 CE 16F4	1099		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
159C	F3 C8 00	1100		LIO LDDF,X'CE'	LOAD DDCR WITH ADDRESS OF DDDF
159F	C1 C9 159F	1101		SIO O,X'C8'	SEEK COMMAND ON ALTERNATE
15A3	C1 CA 15A3	1102		TIO *,X'C9'	SEEK BUSY ??? (WAIT)
15A7	C1 C8 15C4	1103		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
15AB	C0 87 1560	1104		TIO DKER9,X'C8'	NOT READY / UNIT CHECK AFTER SEEK CMD
		1105		B SIO33	GO TO RD HA & RO ALTERNATE
		1106			
		1106			
15AF	F2 87 21	1107	DKNR	J PRTRN	* PRINT NOT READY / UNIT CHECK
		1108			
		1108			
		1108			
1582	0C 13 16A0 1684	1109	DKER2	MVC PD31(20),PD35	* MOVE AFTER READ HA & RO
1588	F2 87 18	1110		J PRTRN	* NOT READY / UNIT CHECK
		1111			
		1111			
		1111			
158B	0C 13 16A0 16C8	1112	DKER4	MVC PD31(20),PD43	* MOVE AFTER READ RD/WRT CMD
15C1	F2 87 0F	1113		J PRTRN	* NOT READY / UNIT CHECK
		1114			
		1114			
		1114			
15C4	0C 13 16A0 16DC	1115	DKER9	MVC PD31(20),PD46	* MOVE AFTER SEEK COMMAND
15CA	F2 87 06	1116		J PRTRN	* NOT READY / UNIT CHECK
		1117			
		1117			

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
15CD	0C 13 16A0 16F0	1118	DKERA	MVC PD31(20),PD48	* MOVE AFTER READ DIAG CMD
		1119			
		1119			
15D3	C0 87 021A	1120	PRTRN	B PRINT	* PRINT THAT UNIT
15D7	87	1121		DC XL1'87'	* NOT READY / UNIT CHECK OCCURRED
15D8	3A	1122		DC AL1(PD31-PD30)	* DRIVE
15D9	16A0	1123		DC AL2(PD31)	* IS
15DB	3C 40 16A0	1124		MVI PD31,X'40'	* PLACE " "
15DF	0C 12 169F 16A0	1125		MVC PD31-1(19),PD31	* BLANK PD31 WORK AREA
15E5	30 C0 1348	1126		SNS STATUS,X'CD'	SENSE STATUS BYTES 0,1
15E9	C0 87 021E	1127		B UNPACK	* UNPACK
15ED	02	1128		DC XL1'02'	* STATUS
15EE	1348	1129		DC AL2(STATUS)	* BYTES
15F0	1649	1130		DC AL2(STATOT)	* 0,1
15F2	C0 87 021A	1131		B PRINT	* PRINT
15F6	82	1132		DC XL1'82'	* STATUS
15F7	1A	1133		DC AL1(STATOT-STATS)	* BYTES
15F8	1649	1134		DC AL2(STATOT)	* 0,1
		1135		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
15FA	C1 CA 15FA	1136		LIO LSNS,X'CC'	LOAD DDDR WITH ADDRESS OF DSNS
15FE	31 CC 16FA	1137		SIO 7,X'C9'	RD DIAG BYTES
1602	F3 C9 07	1138		TIO *,X'CA'	ATTACHMENT BUSY (WAIT)
1605	C1 CA 1605	1139		TIO DKERA,X'C8'	NOT READY / UNIT CHECK AFTER READ DIAG CMD
1609	C1 C8 15CD	1140		B UNPACK	* UNPACK
160D	C0 87 021E	1141		DC IL1'24'	* READ DIAG
1611	18	1142		DC AL2(DSNSE)	* BYTES
1612	173F	1143		DC AL2(PSNS)	* 0-23
1614	176F	1144		B PRINT	* PRINT HEADING FOR
1616	C0 87 021A	1145		DC XL1'83'	* READ DIAG
161A	83	1146		DC AL1(RDDGE-RDDGS)	* BYTES
1618	1D	1147		DC AL2(RDDGE)	* 0-23
161C	1666	1148		B PRINT	* PRINT
161E	C0 87 021A	1149		DC XL1'82'	* READ DIAG
1622	82	1150		DC IL1'48'	* BYTES
1623	30	1151		DC AL2(PSNS)	* 0-23
1624	176F	1152		B HALT	
1626	C0 87 0222	1153		DC XL2'FF0F'	
162A	FF0F	1154		B LINK	
162C	C0 87 021E	1155			
		1155			
		1155			
		1155			
		1155			
1630	40E2E3C1E3E4E240	162F	1156	STATST EQU *-1	
1638	C2E8E3C5E240F06B	1649	1157	STATOT DC CL26'	STATUS BYTES 0,1 ARE XXXX'
1640	F140C1D9C540E7E7	1157			
1648	E7E7	1157			
		1157			
		1157			
164A	40D9C5C1C440C4C9	1649	1158	RDDGS EQU *-1	
1652	C1C740E2E3C1E3E4	1666	1159	RDDGE DC CL29'	READ DIAG STATUS BYTES ARE *
165A	E240C2E8E3C5E240	1159			
1662	C1D9C54040	1159			
		1159			
		1159			
		1159			
1667	40C4C9E2D240C4D9	1666	1160	PD30 EQU *-1	
166F	C9E5C54040F2	1674	1161	DC CL14'	DISK DRIVE 2'
1675	40D5D6E340D9C5C1	1161			
167D	C4E8406140E4D5C9	1162		DC CL24'	NOT READY / UNIT CHECK *
1685	E340C3C8C5C3D240	1162			
168D	4040404040404040	1162			
1695	4040404040404040	16A0	1163	PD31 DC CL20'	
169D	40404040	1163			
16A1	40C1C6E3C5D940D9	1163			
16A9	C5C1C440C8C14050	16B4	1164	PD35 DC CL20'	AFTER READ HA & RO.*
16B1	40D9F048	1164			
16B5	40C1C6E3C5D940D9	1164			
16BD	C461E6D9E340C4C1	16C8	1165	PD43 DC CL20'	AFTER RD/WRT DATA .*
16C5	E3C14048	1165			
16C9	40C1C6E3C5D940E2	1165			
16D1	C5C5D240C3D6D4D4	16DC	1166	PD46 DC CL20'	AFTER SEEK COMMAND.*
16D9	C1D5C448	1166			

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
16DD	40C1C6E3C5D940D9	16F0	1167	PD48 DC	CL20 AFTER READ DIAG CMD*
16E5	C5C1C440C4C9C1C7	1167			
16ED	40C3D4C4	1167			
		1168			
		1168			
16F1	16FB	16F2	1169	LDCF DC	AL2(DDCF) ADDRESS LEFT-MOST BYTE OF DDCF
16F3	1705	16F4	1170	LDDF DC	AL2(DDDF) ADDRESS LEFT-MOST BYTE OF DDDF
16F5	170F	16F6	1171	LDCX DC	AL2(DDCX) ADDRESS LEFT-MOST BYTE OF DDCX (DDCF)
16F7	2623	16F8	1172	LBUF DC	AL2(DBUF) ADDRESS LEFT-MOST BYTE OF DBUF
16F9	1728	16FA	1173	LSNS DC	AL2(DSNS) ADDRESS LEFT-MOST BYTE OF DSNS
		1174			*****READ/WRITE KEY-DATA*****
		1175			* F * CC * HH * R * KL * DL * N * DISK DRIVE
		1176			***** CONTROL FIELD
		16FB	1177	DDCF EQU *	
16FB	00	16FB	1178	DC	XL1'0' FLAG R W
16FC	0000	16FD	1179	DC	XL2'00' CYLINDER E R
16FE	0000	16FF	1180	DC	XL2'00' HEAD ADDRESS A I
1700	00	1700	1181	DC	XL1'0' RECORD D T
1701	00	1701	1182	DC	XL1'0' KEY LENGTH E
1702	0000	1703	1183	DC	XL2'00' DATA LENGTH CONTROL
1704	00	1704	1184	DC	XL1'0' COUNT FIELD
		1704	1185	DDCFE EQU	*-1
		1186			***** READ HA & RO *****
		1705	1187	DDDF EQU *	
1705	0000000000000000	170E	1188	DC	XL10'0' * DISK DRIVE DATA FIELD FOR READ HA & RO
170D	0000	1188			
		1189			*****
		170F	1190	DDCX EQU *	* DISK DRIVE
170F	00	170F	1191	DC	XL1'0' FLAG C
1710	0000	1711	1192	DC	XL2'00' CYLINDER D N
1712	0000	1713	1193	DC	XL2'00' HEAD ADDRESS F
1714	00	1714	1194	DC	XL1'0' RECORD I
1715	00	1715	1195	DC	XL1'0' KEY LENGTH E
1716	0000	1717	1196	DC	XL2'00' DATA LENGTH O L
1718	00	1718	1197	DC	XL1'0' COUNT D
		1718	1198	DDCZ EQU	*-1
		171A	1199	DDZL DC	XL2'0008' **DATA LENGTH** FOR READ HA & RO
1719	0008	1200			*****
171B	C8	171B	1201	DRV32 DC	XL1'C8' * DISK DRIVE ADDRESS BITS DRIVE 2
171C	0000000000000000	1725	1202	DDCFB DC	XL10'00000000000000000000 * INITIAL VALUE FOR DDCF
1724	0000	1202			
1726	170A	1727	1203	AREC# DC	AL2(DDDF+5) * ADDRESS FOR ALTERNATE RECORD # USED.
		1204			*****
		1205			
		1205			
		1205			
1728		1728	1206	DSNS EQU *	
173F		173F	1207	DSNSE DS	XL24
1740		176F	1208	PSNS DS	XL48
		1209			***** END OF DISK I/O FOR 3340 *****

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		1211			*****
		1212			*
		1213			ROUTINE 3 - PRINT 3340 USAGE AND ERROR SUMMARY TABLE
		1214			*
		1215			*****
		1216			*
		1217			ROUTINE PREFACE
		1218			*
1770	03	1770	1219	\$RTN3 DC	XL1'03' ROUTINE NUMBER
1771	00	1771	1220	DC	XL1'00' ROUTINE FLAGS
1772	180E	1773	1221	DC	AL2(\$RTN4) ADDRESS OF NEXT ROUTINE
		1222			*
		1223			*
		1224			ROUTINE INITIALIZATION
		1225			*
1774	3C 00 2188	1226		MVI	\$IND,0 RESET ALL PRGAM INDICTORS
		1227			*
1778	C0 87 102D	1228	\$R5	B	\$REGIN PERFORM COMMON INITIALIZATION
		1229			*
177C	0C 01 218C 21A9	1230		MVC	\$CYL(2),\$P209 INITIALIZE 3340 CYLINDER ADDRESS
1782	0C 01 218E 21A6	1231		MVC	\$HD(2),\$PI INITIALIZE 3340 HEAD ADDRESS
1788	3C 00 218F	1232		MVI	\$PTR,0 INITIALIZE LOG RECORD POINTER
		1233			*
178C	C0 87 10D5	1234		B	\$IO READ FIRST LOG RECORD FROM 3340
		1235			*
1790	C2 01 2201	1236		LA	\$PBUF,\$XR1 PRINT BUFFER ADDRESS TO INDEX REG 1
		1237			*
		1238			*
		1239			PRINT SUMMARY TABLE TITLE AND INPUT DRIVE IDENTIFIER
		1240			*
1794	4C 23 23 20C2	1241		MVC	35(36,\$XR1),\$M04N BUILD
1799	4C 15 39 20EE	1242		MVC	57(22,\$XR1),\$M06N TITLE
179E	4C 00 39 2189	1243		MVC	57(1,\$XR1),\$DRVID LINE
		1244			*
17A3	C0 87 021A	1245		B	\$SPRINT PRINT
17A7	42	17A7	1246	DC	XL1'42' TITLE
17A8	3A	17A8	1247	DC	IL1'58' LINE
17A9	223A	17AA	1248	DC	AL2(\$PBUF+57)
17AB	FF00	17AC	1249	DC	AL2(\$HLT00)
		1250			*
		1251			*
		1252			PRINT SUMMARY TABLE HEADING LINES
		1253			*
17AD	7C 5C 68	1254		MVI	104(,\$XR1),C' * BUILD FIRST
1780	5C 67 67 68	1255		MVC	103(104,\$XR1),104(,\$XR1) LINE OF SUMMARY TABLE
		1256			*
1784	C0 87 021A	1257		B	\$SPRINT PRINT FIRST
1788	01	1788	1258	DC	XL1'01' LINE OF SUMMARY TABLE
1789	69	1789	1259	DC	IL1'105'
178A	2269	178B	1260	DC	AL2(\$PBUF+104)
		1261			*
178C	7C 40 67	1262		MVI	103(,\$XR1),C' * CLEAR
178F	5C 65 66 67	1263		MVC	102(102,\$XR1),103(,\$XR1) PRINT BUFFER
		1264			*
17C3	7C 5C 06	1265		MVI	6(,\$XR1),C' * BUILD
17C6	7C 5C 0F	1266		MVI	15(,\$XR1),C' * SECOND
17C9	7C 5C 18	1267		MVI	24(,\$XR1),C' * LINE OF
17CC	7C 5C 32	1268		MVI	50(,\$XR1),C' * SUMMARY
17CF	7C 5C 3F	1269		MVI	63(,\$XR1),C' * TABLE
1702	7C 5C 52	1270		MVI	82(,\$XR1),C' *
17D5	7C 5C 5C	1271		MVI	92(,\$XR1),C' *
17D8	4C 04 15 20F3	1272		MVC	21(5,\$XR1),\$M07H
17DD	4C 0F 2C 2103	1273		MVC	44(16,\$XR1),\$M08N
17E2	4C 03 3A 2107	1274		MVC	58(4,\$XR1),\$M09+3
17E7	4C 03 4A 210C	1275		MVC	74(4,\$XR1),\$M10H
17EC	4C 04 59 2111	1276		MVC	89(5,\$XR1),\$M11N
17F1	4C 04 64 2111	1277		MVC	100(5,\$XR1),\$M11N
		1278			*

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FF/1 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
17F6	CO 87 021A		1279	B \$PRINT	PRINT SECOND
17FA	01	17FA	1280	DC XL1'01'	LINE OF SUMMARY TABLE
17FB	69	17FB	1281	DC IL1'105'	
17FC	2269	17FD	1282	DC AL2(\$PBUF+104)	
			1283 *		
17FE	4C 02 04 2114		1284	MVC 4(3,\$XR1),\$M12N	BUILD
1803	4C 05 0D 211A		1285	MVC 13(6,\$XR1),\$M13N	THIRD
1808	4C 05 16 2120		1286	MVC 22(6,\$XR1),\$M14N	LINE OF
180D	4C 16 30 2137		1287	MVC 48(23,\$XR1),\$M15N	SUMMARY
1812	4C 05 3B 2103		1288	MVC 59(6,\$XR1),\$M08N	TABLE
1817	4C 05 4B 2103		1289	MVC 75(6,\$XR1),\$M08N	
181C	4C 04 59 2108		1290	MVC 89(5,\$XR1),\$M09N	
1821	4C 08 66 2140		1291	MVC 102(9,\$XR1),\$M16N	
			1292 *		
1826	CO 87 021A		1293	B \$PRINT	PRINT THIRD
182A	01	182A	1294	DC XL1'01'	LINE OF SUMMARY TABLE
182B	69	182B	1295	DC IL1'105'	
182C	2269	182D	1296	DC AL2(\$PBUF+104)	
			1297 *		
182E	5C 02 04 05		1298	MVC 4(3,\$XR1),5(,\$XR1)	BUILD
1832	5C 05 0D 0E		1299	MVC 13(6,\$XR1),14(,\$XR1)	FOURTH
1836	4C 05 16 2146		1300	MVC 22(6,\$XR1),\$M17N	LINE OF
183B	4C 09 23 2156		1301	MVC 35(10,\$XR1),\$M18N	SUMMARY
1840	4C 09 30 2156		1302	MVC 48(10,\$XR1),\$M18N	TABLE
1845	4C 09 3D 2156		1303	MVC 61(10,\$XR1),\$M18N	
184A	4C 0F 50 2156		1304	MVC 80(16,\$XR1),\$M18N	
184F	4C 06 5A 215D		1305	MVC 90(7,\$XR1),\$M19N	
1854	5C 08 66 67		1306	MVC 102(9,\$XR1),103(,\$XR1)	
1858	4C 03 63 2161		1307	MVC 99(4,\$XR1),\$M20N	
			1308 *		
185D	CO 87 021A		1309	B \$PRINT	PRINT FOURTH
1861	01	1861	1310	DC XL1'01'	LINE OF SUMMARY TABLE
1862	69	1862	1311	DC IL1'105'	
1863	2269	1864	1312	DC AL2(\$PBUF+104)	
			1313 *		
1865	5C 66 67 68		1314	MVC 103(103,\$XR1),104(,\$XR1)	BUILD LAST HEADING LINE
			1315 *		
1869	CO 87 021A		1316	B \$PRINT	PRINT LAST LINE
186D	01	186D	1317	DC XL1'01'	OF SUMMARY TABLE HEADING
186E	69	186E	1318	DC IL1'105'	
186F	2269	1870	1319	DC AL2(\$PBUF+104)	
			1320 *		
1871	3C F1 2193		1321	MVI \$DRV,C'1'	INITIALIZE DRIVE IDENTIFIER
			1322 *		
			1323 *		
			1324 *		
			1325 *		
1875	7C 40 67		1326	MVI 103(,\$XR1),C'1'	CLEAR
1878	5C 65 66 67		1327	MVC 102(102,\$XR1),103(,\$XR1)	PRINT BUFFER
			1328 *		
187C	7C 5C 06		1329	MVI 6(,\$XR1),C'*	POSITION
187F	7C 5C 0F		1330	MVI 15(,\$XR1),C'*	ASTERISKS
1882	7C 5C 18		1331	MVI 24(,\$XR1),C'*	IN PRINT
1885	7C 5C 25		1332	MVI 37(,\$XR1),C'*	BUFFER
1888	7C 5C 32		1333	MVI 50(,\$XR1),C'*	
188B	7C 5C 3F		1334	MVI 63(,\$XR1),C'*	
188E	7C 5C 52		1335	MVI 82(,\$XR1),C'*	
1891	7C 5C 5C		1336	MVI 92(,\$XR1),C'*	
			1337 *		
1894	CO 87 021A		1338	B \$PRINT	PRINT SPACE LINE
1898	01	1898	1339	DC XL1'01'	
1899	69	1899	1340	DC IL1'105'	
189A	2269	189B	1341	DC AL2(\$PBUF+104)	
			1342 *		
			1343 *		
			1344 *		
			1345 *		
189C	4C 00 03 2193		1346	MVC 3(1,\$XR1),\$DRV	MOVE DRIVE ID TO PRINT BUFFER

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
18A1	3D F2 2193		1347 *		
18A5	F2 04 10		1348	CLI \$DRV,C'2'	CONTINUE PRINTOUT IF DRIVE 4
			1349	JNH \$R5B	SUMMARY HAS NOT YET BEEN PRINTED
			1350 *		
18A8	5C 66 67 68		1351	MVC 103(103,\$XR1),104(,\$XR1)	BUILD LAST LINE OF SUMMARY TBL
			1352 *		
18AC	CO 87 021A		1353	B \$PRINT	PRINT LAST LINE
18B0	06	18B0	1354	DC XL1'06'	OF SUMMARY TABLE
18B1	69	18B1	1355	DC IL1'105'	
18B2	2269	18B3	1356	DC AL2(\$PBUF+104)	
			1357 *		
18B4	CO 87 1778		1358	B \$R5	GO CHECK FOR MORE INPUT DRIVES
			1359 *		
			1360 *		
			1361 *		
			1362 *		
18B8	3C 00 218F		1363	\$R5B MVI \$PTR,0	LOCATE AN UNUSED LOG ENTRY FIELD
			1364 *		
18B8	CO 87 10D5		1365	\$R5B1 B \$IO	POINT TO FIRST LOG ENTRY FIELD
			1366 *		
18C0	3D 00 21C1		1367	CLI \$REC,0	READ LOG ENTRY
18C4	F2 81 12		1368	JE \$R5C	BRANCH IF ENTRY IS UNUSED
			1369 *		
18C7	0E 00 218F 21A6		1370	ALC \$PTR(1),\$P1	ADVANCE LOG ENTRY POINTER
			1371 *		
18C0	3D BF 218F		1372	CLI \$PTR,191	BRANCH IF NOT
18D1	CO 82 18BC		1373	BL \$R5B1	YET END OF LOG AREA
			1374 *		
18D5	3C 00 218F		1375	MVI \$PTR,0	ASSUME LOG AREA IS FULL
			1376 *		
			1377 *		
			1378 *		
			1379 *		
18D9	3C 00 2198		1380	\$R5C MVI \$CTR,0	LOCATE OLDEST LOG ENTRY
			1381 *		
18DD	CO 87 10D5		1382	\$R5C1 B \$IO	INITIALIZE LOG ENTRY COUNTER
			1383 *		
18E1	3D 00 21C1		1384	CLI \$REC,0	READ LOG ENTRY
18E5	F2 01 30		1385	JNE \$R5C3	BRANCH IF ENTRY IS USED
			1386 *		
18E8	0E 00 218F 21A6		1387	ALC \$PTR(1),\$P1	ADVANCE LOG ENTRY POINTER
18EE	0E 00 2198 21A6		1388	ALC \$CTR(1),\$P1	ADVANCE LOG ENTRY COUNTER
			1389 *		
18F4	3D BF 218F		1390	CLI \$PTR,191	BRANCH IF NOT
18FB	F2 82 04		1391	JL \$R5C2	YET END OF LOG AREA
			1392 *		
18FB	3C 00 218F		1393	MVI \$PTR,0	WRAP BACK TO FIRST LOG ENTRY
			1394 *		
18FF	3D BF 2198		1395	\$R5C2 CLI \$CTR,191	GO TO CHECK NEXT LOG IF ALL
1903	CO 82 18DD		1396	BL \$R'1	ENTRIES HAVE NOT YET BEEN CHECKED
			1397 *		
1907	4C 05 0D 2167		1398	MVC 13(6,\$XR1),\$M21N	BUILD 'NO LOG' MESSAGE
			1399 *		
190C	CO 87 021A		1400	B \$PRINT	PRINT 'NO LOG' MESSAGE IN TABLE
1910	01	1910	1401	DC XL1'01'	
1911	69	1911	1402	DC IL1'105'	
1912	2269	1913	1403	DC AL2(\$PBUF+104)	
			1404 *		
1914	CO 87 1AF4		1405	B \$R5N	GO TO PROCESS DATA FOR NEXT DRIVE
			1406 *		
1918	OC 00 2194 218F		1407	\$R5C3 MVC \$PTRF(1),\$PTR	SAVE POINTER TO OLDEST LOG ENTRY
			1408 *		
			1409 *		
			1410 *		
			1411 *		
191E	OC 00 2195 218F		1412	\$R5D MVI \$PTRX(1),\$PTR	CHECK FOR NEW VOLUME IDENTIFIER
			1413 *		
1924	4C 05 0D 21C6		1414	MVC 13(6,\$XR1),\$REC+5	SAVE CURRENT LOG ENTRY POINTER
					MOVE VOLUME ID TO PRINT BUFFER

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1929	OC 00	218F 2194	1415 * 1416 MVC \$PTR(1), \$PTRF	POINT TO OLDEST LOG ENTRY
192F	OD 00	218F 2195	1417 * 1418 \$R5D1 CLC \$PTR(1), \$PTRX	BRANCH IF NEW VOLUME ID
1935	F2 81	23	1419 JE \$R5E	
1938	CO 87	1DD5	1420 * 1421 B \$I0	READ LOG ENTRY
193C	4D 05	OD 21C6	1422 * 1423 CLC 13(6, \$XR1), \$REC+5	BRANCH IF VOLUME WAS PREVIOUSLY PROCESSED
1941	CO 81	1ABB	1424 BE \$R5F	
1945	OE 00	218F 21A6	1425 * 1426 ALC \$PTR(1), \$P1	ADVANCE LOG ENTRY POINTER
194B	3D 8F	218F	1427 * 1428 CLI \$PTR, 191	BRANCH IF NOT YET END OF LOG AREA
194F	CO 82	192F	1429 BL \$R5D1	
1953	3C 03	218F	1430 * 1431 MVI \$PTR, 0	WRAP BACK TO FIRST LOG ENTRY
1957	CO 87	192F	1432 B \$R5D1	GO TO CHECK NEXT LOG ENTRY
1433	*		1433 *	
1434	*		1434 *	
1435	*		1435 * COMPILE AND PRINT SUMMARY DATA LINE	
1436	*		1436 *	
195B	7C FO	64	1437 \$R5E MVI 100(, \$XR1), C'0'	INITIALIZE ALL SUMMARY LINE COUNTERS TO ZEROS
195E	5C 03	63 64	1438 MVC 99(4, \$XR1), 100(, \$XR1)	
1962	5C 04	59 64	1439 MVC 89(5, \$XR1), 100(, \$XR1)	
1966	5C 03	50 64	1440 MVC 80(4, \$XR1), 100(, \$XR1)	
196A	5C 03	4A 50	1441 MVC 74(4, \$XR1), 80(, \$XR1)	
196C	5C 03	44 50	1442 MVC 68(4, \$XR1), 80(, \$XR1)	
1972	5C 09	3D 50	1443 MVC 61(10, \$XR1), 80(, \$XR1)	
1976	5C 16	30 4A	1444 MVC 48(23, \$XR1), 74(, \$XR1)	
197A	5C 03	15 50	1445 MVC 21(4, \$XR1), 80(, \$XR1)	
197E	CO 87	1DD5	1446 * 1447 B \$I0	READ LOG ENTRY
1982	3C 00	219E	1448 MVI \$RDCNT, 0	CLEAR
1986	OC 04	219D 219E	1449 MVC \$RDCNT-1(5), \$RDCNT	READ AND SEEK
198C	OC 03	21A2 219E	1450 MVC \$\$SKCNT(4), \$RDCNT	USAGE COUNTERS
1992	OE 05	219E 21CC	1451 * 1452 \$R5E1 ALC \$RDCNT(6), \$REC+11	UPDATE READ AND SEEK USAGE COUNTERS
1998	OE 03	21A2 21D0	1453 ALC \$\$SKCNT(4), \$REC+15	
199E	38 OF	21D8	1454 * 1455 SBF \$REC+23, X'0F'	CLEAR MSG BITS IN SNS BYTE 7
19A2	D2 02	15	1456 * 1457 LA 21(, \$XR1), \$XR2	POINT TO 'FMT 0' COUNTER
19A5	3D 10	21D8	1458 * 1459 CLI \$REC+23, X'10'	CHECK LOGGED SENSE BYTE 7
19A9	F2 82	37	1460 JL \$R5E4	BRANCH IF SNS FORMAT 0
19AC	F2 84	10	1461 JH \$R5E2	BRANCH IF NOT SNS FORMAT 1
19AF	D2 02	2A	1462 * 1463 LA 42(, \$XR1), \$XR2	POINT TO 'EQUIP CK' COUNTER
19B2	38 01	21D1	1464 * 1465 TBM \$REC+16, \$BIT7	BRANCH IF NOT SEEK CHECK
19B6	F2 90	20	1466 JF \$R5E3	
19B9	D2 02	37	1467 * 1468 LA 55(, \$XR1), \$XR2	POINT TO 'SEEK CK' COUNTER
198C	F2 87	1A	1469 J \$R5E3	GO TO INCREMENT COUNTER
19BF	D2 02	44	1470 * 1471 \$R5E2 LA 68(, \$XR1), \$XR2	POINT TO 'CORR DATA CK' COUNTER
19C2	3D 50	21D8	1472 * 1473 CLI \$REC+23, X'50'	CHECK LOGGED SENSE BYTE 7
19C6	F2 81	1A	1474 JE \$R5E4	BRANCH IF SNS FORMAT 5
19C9	F2 84	1C	1475 JH \$R5E5	BRANCH IF SNS FORMAT 6
19CC	D2 02	1D	1476 * 1477 LA 29(, \$XR1), \$XR2	POINT TO 'EQUIP CK' COUNTER
19CF	3D 40	21D8	1478 * 1479 CLI \$REC+23, X'40'	CHECK LOGGED SNS BYTE 7
19D3	F2 01	03	1480 JNE \$R5E3	BRANCH IF NOT SNS FORMAT 4
19D6	D2 02	4A	1481 * 1482 LA 74(, \$XR1), \$XR2	POINT TO 'DATA CK' COUNTER

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1909	38 80	21D2	1483 * 1484 \$R5E3 TBN \$REC+17, \$BIT0	CHECKED LOGGED SNS BYTE 1
19DD	F2 90	03	1485 JF \$R5E4	BRANCH IF NOT PERMANENT ERROR
19E0	E2 02	06	1486 * 1487 LA 6(, \$XR2), \$XR2	ADVANCE POINTER TO 'PERM' COUNTER
19E3	86 30	00 21AD	1488 * 1489 \$R5E4 AZ 0(4, \$XR2), \$D1(1)	INCREMENT ERROR COUNTER
19E8	0E 00	218F 21A6	1490 * 1491 \$R5E5 ALC \$PTR(1), \$P1	ADVANCE LOG ENTRY POINTER
19EE	3D 8F	218F	1492 * 1493 CLI \$PTR, 191	BRANCH IF NOT YET END OF LOG AREA
19F2	F2 82	04	1494 JL \$R5E6	
19F5	3C 00	218F	1495 * 1496 MVI \$PTR, 0	WRAP BACK TO FIRST LOG ENTRY
19F9	OD 00	218F 2194	1497 * 1498 \$R5E6 CLC \$PTR(1), \$PTRF	BRANCH IF ALL LOG ENTRIES HAVE BEEN CHECKED
19FF	F2 81	19	1499 JE \$R5E7	
1A02	CO 87	1DD5	1500 * 1501 B \$I0	READ NEXT LOG ENTRY
1A06	3D 00	21C1	1502 * 1503 CLI \$REC, 0	BRANCH IF UNUSED ENTRY
1A0A	CO 81	19E8	1504 BE \$R5E5	
1A0E	4D 05	OD 21C6	1505 * 1506 CLC 13(6, \$XR1), \$REC+5	BRANCH IF ENTRY CONTAINS A DIFFERENT VOLUME ID
1A13	CO 01	19E8	1507 BNE \$R5E5	
1A17	CO 87	1992	1508 * 1509 B \$R5E1	GO TO UPDATE SUMMARY COUNTERS
1A18	3C 0F	2428	1510 * 1A18 1511 \$R5E7 EQU *	SETUP TABLE FOR OUTPUT
1A1F	OC 01	238B 23A1	1512 MVI TABTBL, 15	
1A25	3C 04	2389	1513 MVC TABIDX(2), ZERO	
1A29	OC 01	2387 23A1	1514 MVI CNTLNG, X'04'	SEEK COUNT IS 4 HEX BYTES LONG
1A2F	34 01	1A6A	1515 MVC CNTOFS(2), ZERO	
1A33	34 02	1A6E	1516 ST \$\$SAVR1+3, XR1	SAVE XR1
1A37	OC 03	2626 21A2	1517 ST \$\$SAVR2+3, XR2	SAVE XR2
1A3D	CO 87	11C2	1518 MVC DBUF+3(4), \$\$SKCNT	PUT SEEK COUNT INTO BUFFER
1A41	OC 04	1808 088B	1519 B HEXDEC	FOR THE HEX TO DEC SUBROUTINE
1A47	3C 06	2389	1520 MVC SAVSEK(5), PRTBUF+11	DIVIDE SEEK COUNT BY 1000
1A48	OC 01	238B 23A1	1521 MVI CNTLNG, X'06'	READ COUNT IS 6 HEX BYTES LONG
1A51	OC 01	2387 23A1	1522 MVC TABIDX(2), ZERO	
1A57	OC 05	2628 219E	1523 MVC CNTOFS(2), ZERO	
1A5D	CO 87	11C2	1524 MVC DBUF+5(6), \$RDCNT	READ COUNT IS NOW CONVERTED TO DEC
1A61	OC 04	180D 088B	1525 B HEXDEC	
1A67	C2 01	0000	1526 MVC SAVRD(5), PRTBUF+8	DIVIDE READ COUNT BY 1000000
1A68	C2 02	0000	1527 MVI CNTLNG, X'06'	
1A6F	4C 04	59 1808	1528 MVI TABIDX(2), ZERO	RESTORE XR1
1A74	4C 04	64 180D	1529 \$SAVR1 LA *-*, XR1	RESTORE XR2
1A79	7D 40	59	1530 \$SAVR2 LA *-*, XR2	PUT THE SEEK COUNT IN MSG BUFFER
1A7C	F2 01	03	1531 MVC 89(5, XR1), SAVSEK	PUT THE READ COUNT IN MSG BUFFER
1A7F	7C FO	59	1532 MVC 100(5, XR1), SAVRD	IF THERE IS A BLANK IN THE SEEK COUNT, PUT A ZERO THERE
1A82	7D 40	64	1533 CLI 89(, XR1), X'40'	
1A85	F2 01	03	1534 JNE **6	
1A88	7C FO	64	1535 MVI 89(, XR1), X'FO'	
1A8B	CO 87	1A28	1536 * 1537 CLI 100(, XR1), X'40'	CHECK THE READ FIELD FOR BLANKS ALSO
1A8F	OF 03	21A2 21B2	1538 JNE **6	
1A95	F2 82	09	1539 MVI 100(, XR1), X'FO'	
1540	*		1540 *	
1541	*		1541 *	
1542	*		1542 *	
1543	*		1543 *	
1544	*		1544 *	
1545	*		1545 *	
1546	*		1546 *	
1547	*		1547 *	
1548	*		1548 *	
1549	*		1549 *	
1550	*		1550 *	
1551	*		1551 *	
1552	*		1552 *	
1553	*		1553 *	
1554	*		1554 *	
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1568	*		1568 *	
1569	*		1569 *	
1570	*		1570 *	
1571	*		1571 *	
1572	*		1572 *	
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1597	*		1597 *	
1598	*		1598 *	
1599	*		1599 *	
1600	*		1600 *	
1601	*		1601 *	
1602	*		1602 *	
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1630	*		1630 *	
1631	*		1631 *	
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1671	*		1671 *	
1672	*		1672 *	
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1693	*		1693 *	
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1699	*		1699 *	
1700	*		1700 *	
1701	*		1701 *	
1702	*		1702 *	
1703	*		1703 *	
1704	*		1704 *	
1705	*		1705 *	
1706	*		1706 *	
1707	*		1707 *	
1708	*		1708 *	
1709	*		1709 *	
1710	*		1710 *	
1711	*		1711 *	

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1A98	46 40 59 21AD	1551	AZ	89(5,\$XR1),SD1(1) DECIMAL AND MOVE
1A9D	C0 87 1A1B	1552	B	\$R5E7 TO PRINT BUFFER
		1553	*	
1AA1	0F 05 219E 2188	1554	\$R5E8 SLC	\$RDCNT(6),SMEG CONVERT READ
1AA7	F2 82 09	1555	JM	\$R5E9 USAGE COUNT TO
1AAA	46 40 64 21AD	1556	AZ	100(5,\$XR1),SD1(1) DECIMAL AND MOVE
1AAF	C0 87 1AA1	1557	B	\$R5E8 TO PRINT BUFFER
		1558	*	
1AB3	C0 87 021A	1559	\$R5E9 B	\$PRJNT PRINT
1AB7	01	1560	DC	XL1'01' SUMMARY LINE
1AB8	69	1561	DC	IL1'105'
1AB9	2269	1562	DC	AL2(\$PBUF+104)
		1563	*	
		1564	*	
		1565	*	SEARCH FOR NEXT VOLUME ID TO BE PROCESSED
		1566	*	
1ABB	0C 00 218F 2195	1567	\$R5F MVC	\$PTR(1),\$PTRX RESTORE LOG ENTRY POINTER
		1568	*	
1AC1	0E 00 218F 21A6	1569	\$R5F1 ALC	\$PTR(1),\$P1 ADVANCE LOG ENTRY POINTER
		1570	*	
1AC7	3D 8F 218F	1571	CLI	\$PTR,191 BRANCH IF NOT
1ACB	F2 82 04	1572	JL	\$R5F2 YET END OF LOG AREA
		1573	*	
1ACE	3C 00 218F	1574	MVI	\$PTR,0 WRAP BACK TO FIRST LOG ENTRY
		1575	*	
1AD2	0D 00 218F 2194	1576	\$R5F2 CLC	\$PTR(1),\$PTRF BRANCH IF ALL LOG
1AD8	F2 81 19	1577	JE	\$R5N ENTRIES HAVE BEEN CHECKED
		1578	*	
1ADB	C0 87 1DD5	1579	B	\$I0 READ NEXT LOG ENTRY
		1580	*	
1ADF	3D 00 21C1	1581	CLI	\$REC,0 BRANCH IF
1AE3	C0 81 1AC1	1582	BE	\$R5F1 UNUSED ENTRY
		1583	*	
1AET	4D 05 0D 21C6	1584	CLC	13(6,\$XR1),\$REC+5 BRANCH IF ENTRY
1AEC	C0 81 1AC1	1585	BE	\$R5F1 CONTAINS SAME VOLUME ID
		1586	*	
1AF0	C0 87 191E	1587	B	\$R5D GO TO CHECK IF NEW VOLUME ID
		1588	*	
		1589	*	
		1590	*	PREPARE TO PRINT SUMMARY FOR NEXT DRIVE ID
		1591	*	
1AF4	0E 00 218E 21A6	1592	\$R5N ALC	\$HD(1),\$P1 ADVANCE HEAD ADDRESS
1AFA	06 00 2193 21AD	1593	AZ	\$DRV(1),SD1(1) ADVANCE DRIVE IDENTIFIER
		1594	*	
1800	C0 87 1875	1595	B	\$R5A GO TO COMPLETE SUMMARY TABLE
		1596	*	
1804	0000000000	1808	1597 SAVSEK DC	XL5'00'
1809	0000000000	1809	1598 SAVRD DC	XL5'00'

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
		1600	*	*****
		1601	*	
		1602	*	ROUTINE 4 - PRINT 3340 ERROR HISTORY TABLE
		1603	*	
		1604	*	*****
		1605	*	
		1606	*	ROUTINE PREFACE
		1607	*	
180E	04	1608	\$RTN4 DC	XL1'04' ROUTINE NUMBER
180F	00	1609	DC	XL1'00' ROUTINE FLAGS
1810	FFFF	1610	DC	XL2'FFFF' LAST ROUTINE
		1611	*	
		1612	*	
		1613	*	ROUTINE INITIALIZATION
		1614	*	
1812	3C 00 2188	1615	MVI	\$IND,0 RESET ALL PROGRAM INDICATORS
		1616	*	
1816	C0 87 1D2D	1617	\$R6 B	\$BEGIN PERFORM COMMON INITIALIZATION
		1618	*	
181A	0C 01 218C 21A9	1619	MVC	\$CYL(2),\$P209 INITIALIZE 3340 CYLINDER ADDRESS
1820	0C 01 218E 21A6	1620	MVC	\$HD(2),\$P1 INITIALIZE 3340 HEAD ADDRESS
1826	3C 00 218F	1621	MVI	\$PTR,0 INITIALIZE LOG RECORD POINTER
		1622	*	
182A	C0 87 1DD5	1623	B	\$I0 READ FIRST LOG RECORD FROM 3340
		1624	*	
182E	C2 01 2201	1625	LA	\$PBUF,\$XR1 PRINT BUFFER ADDRESS TO INDEX REG 1
		1626	*	
		1627	*	
		1628	*	PRINT HISTORY TABLE TITLE AND INPUT DRIVE IDENTIFIER
		1629	*	
1832	4C 15 15 20D8	1630	MVC	21(22,\$XR1),\$M05N BUILD
1837	4C 15 2B 20EE	1631	MVC	43(22,\$XR1),\$M06N TITLE
183C	4C 00 2B 2189	1632	MVC	43(1,\$XR1),\$DRVID LINE
		1633	*	
1841	C0 87 021A	1634	B	\$PRINT PRINT
1845	42	1635	DC	XL1'42' TITLE
1846	2C	1636	DC	IL1'44' LINE
1847	222C	1637	DC	AL2(\$PBUF+43)
1849	FF00	1638	DC	AL2(\$HLT00)
		1639	*	
		1640	*	
		1641	*	PRINT HISTORY TABLE HEADING LINES
		1642	*	
184B	7C 5C 5D	1643	MVI	93(,\$XR1),C** BUILD FIRST
184E	5C 5C 5C 5D	1644	MVC	92(93,\$XR1),93(,\$XR1) LINE OF HISTORY TABLE
		1645	*	
1852	C0 87 021A	1646	B	\$PRINT PRINT FIRST
1856	01	1647	DC	XL1'01' LINE OF HISTORY TABLE
1857	5E	1648	DC	IL1'94'
1858	225E	1649	DC	AL2(\$PBUF+93)
		1650	*	
185A	7C 40 5C	1651	MVI	92(,\$XR1),C' CLEAR
185D	5C 5A 5B 5C	1652	MVC	91(91,\$XR1),92(,\$XR1) PRINT BUFFER
		1653	*	
1861	7C 5C 06	1654	MVI	6(,\$XR1),C** BUILD
1864	7C 5C 0F	1655	MVI	15(,\$XR1),C** SECOND
1867	7C 5C 1A	1656	MVI	26(,\$XR1),C** LINE OF
186A	7C 5C 25	1657	MVI	37(,\$XR1),C** HISTORY TABLE
		1658	*	
186D	C0 87 021A	1659	B	\$PRINT PRINT SECOND
1871	01	1660	DC	XL1'01' LINE OF HISTORY TABLE
1872	5E	1661	DC	IL1'94'
1873	225E	1662	DC	AL2(\$PBUF+93)
		1663	*	
1875	4C 02 04 2114	1664	MVC	4(3,\$XR1),\$M12N BUILD
187A	4C 05 0D 211A	1665	MVC	13(6,\$XR1),\$M13N THIRD
187F	4C 03 16 2168	1666	MVC	22(4,\$XR1),\$M22N LINE OF
1884	4C 03 21 216F	1667	MVC	33(4,\$XR1),\$M23N HISTORY

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1889	4C 1A 4E 2069	1668		MVC	78(27,\$XR1),\$M02N
		1669	*		TABLE
189E	C0 87 021A	1670		B	\$PRINT
1892	01	1892 1671		DC	XL1'01'
1893	5E	1893 1672		DC	IL1'94'
1894	225E	1895 1673		DC	AL2(\$PBUF+93)
		1674	*		
1896	5C 02 04 05	1675		MVC	4(3,\$XR1),5(\$XR1)
189A	5C 05 0D 0E	1676		MVC	13(6,\$XR1),14(\$XR1)
189E	4C 07 18 217F	1677		MVC	24(8,\$XR1),\$M25N
18A3	4C 07 23 2187	1678		MVC	35(8,\$XR1),\$M26N
18A8	4C 34 5B 209E	1679		MVC	91(53,\$XR1),\$M03N
		1680	*		
18AD	C0 87 021A	1681		B	\$PRINT
18B1	01	18B1 1682		DC	XL1'01'
18B2	5E	18B2 1683		DC	IL1'94'
18B3	225E	18B4 1684		DC	AL2(\$PBUF+93)
		1685	*		
18B5	5C 5B 5C 5D	1686		MVC	92(92,\$XR1),93(\$XR1)
		1687	*		BUILD LAST HEADING LINE
18B9	C0 87 021A	1688		B	\$PRINT
18BD	01	18BD 1689		DC	XL1'01'
18BE	5E	18BE 1690		DC	IL1'94'
18BF	225E	18C0 1691		DC	AL2(\$PBUF+93)
		1692	*		
18C1	3C F1 2193	1693		MVI	\$DRV,C*1'
		1694	*		INITIALIZE DRIVE IDENTIFIER
		1695	*		
		1696	*		PRINT HISTORY TABLE SPACE LINES
		1697	*		
18C5	7C 40 5C	1698	\$R6A	MVI	92(\$XR1),C*1'
18C8	5C 5A 5B 5C	1699		MVC	91(91,\$XR1),92(\$XR1)
		1700	*		CLEAR PRINT BUFFER
18CC	7C 5C 06	1701		MVI	6(\$XR1),C**'
18CF	7C 5C 0F	1702		MVI	15(\$XR1),C**'
18D2	7C 5C 1A	1703		MVI	26(\$XR1),C**'
18D5	7C 5C 25	1704		MVI	37(\$XR1),C**'
		1705	*		POSITION ASTERISKS IN PRINT BUFFER
18D8	C0 87 021A	1706		B	\$PRINT
18DC	01	18DC 1707		DC	XL1'01'
18DD	5E	18DD 1708		DC	IL1'94'
18DE	225E	18DF 1709		DC	AL2(\$PBUF+93)
		1710	*		
		1711	*		
		1712	*		BEGIN / END HISTORY PRINTOUTS
		1713	*		
18E0	4C 00 03 2193	1714		MVC	3(1,\$XR1),\$DRV
		1715	*		MOVE DRIVE ID TO PRINT BUFFER
18E5	3D F2 2193	1716		CLI	\$DRV,C*2'
18E9	F2 04 10	1717		JNH	\$R6B
		1718	*		CONTINUE PRINTOUT IF DRIVE 4 HISTORY HAS NOT YET BEEN PRINTED
18EC	5C 5B 5C 5D	1719		MVC	92(92,\$XR1),93(\$XR1)
		1720	*		BUILD LAST LINE OF HISTORY TABLE
18F0	C0 87 021A	1721		B	\$PRINT
18F4	06	18F4 1722		DC	XL1'06'
18F5	5E	18F5 1723		DC	IL1'94'
18F6	225E	18F7 1724		DC	AL2(\$PBUF+93)
		1725	*		
18F8	C0 87 1B16	1726		B	\$R6
		1727	*		GO CHECK FOR MORE INPUT DRIVES
		1728	*		
		1729	*		LOCATE AN UNUSED LOG ENTRY FIELD
		1730	*		
18FC	3C 00 218F	1731	\$R6B	MVI	\$PTR,0
		1732	*		POINT TO FIRST LOG ENTRY FIELD
1C00	C0 87 1DD5	1733	\$R6B1	B	\$IO
		1734	*		READ LOG ENTRY
1C04	3D 00 21C1	1735		CLI	\$REC,0
					BRANCH IF

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1C08	F2 81 12	1736		JE	\$R6C
		1737	*		ENTRY IS UNUSED
1C0B	0E 00 218F 21A6	1738		ALC	\$PTR(1),\$P1
		1739	*		ADVANCE LOG ENTRY POINTER
1C11	3D BF 218F	1740		CLI	\$PTR,191
1C15	C0 82 1C00	1741		BL	\$R6B1
		1742	*		BRANCH IF NOT YET END OF LOG AREA
1C19	3C 00 218F	1743		MVI	\$PTR,0
		1744	*		ASSUME LOG AREA IS FULL
		1745	*		
		1746	*		LOCATE OLDEST LOG ENTRY
		1747	*		
1C1D	3C 00 2198	1748	\$R6C	MVI	\$CTR,0
		1749	*		INITIALIZE LOG ENTRY COUNTER
1C21	C0 87 1DD5	1750	\$R6C1	B	\$IO
		1751	*		READ LOG ENTRY
1C25	3D 00 21C1	1752		CLI	\$REC,0
1C29	F2 01 30	1753		JNE	\$R6C3
		1754	*		BRANCH IF ENTRY IS USED
1C2C	0E 00 218F 21A6	1755		ALC	\$PTR(1),\$P1
1C32	0E 00 2198 21A6	1756		ALC	\$CTR(1),\$P1
		1757	*		ADVANCE LOG ENTRY POINTER ADVANCE LOG ENTRY COUNTER
1C38	3D BF 218F	1758		CLI	\$PTR,191
1C3C	F2 82 04	1759		JL	\$R6C2
		1760	*		BRANCH IF NOT YET END OF LOG AREA
1C3F	3C 00 218F	1761		MVI	\$PTR,0
		1762	*		WRAP BACK TO FIRST LOG ENTRY
1C43	3D BF 2198	1763	\$R6C2	CLI	\$CTR,191
1C47	C0 82 1C21	1764		BL	\$R6C1
		1765	*		GO TO CHECK NEXT LOG IF ALL ENTRIES HAVE NOT YET BEEN CHECKED
1C4B	4C 05 0D 2167	1766		MVC	13(6,\$XR1),\$M21N
		1767	*		BUILD 'NO LOG' MESSAGE
1C50	C0 87 021A	1768		B	\$PRINT
1C54	01	1C54 1769		DC	XL1'01'
1C55	5E	1C55 1770		DC	IL1'94'
1C56	225E	1C57 1771		DC	AL2(\$PBUF+93)
		1772	*		
1C58	C0 87 100D	1773		B	\$R6N
		1774	*		GO TO PROCESS DATA FOR NEXT DRIVE
1C5C	0C 00 2194 218F	1775	\$R6C3	MVC	\$PTR(1),\$PTR
		1776	*		SAVE POINTER TO OLDEST LOG ENTRY
		1777	*		
		1778	*		FORMAT AND PRINT LOG ENTRY
		1779	*		
1C62	3D 60 21D8	1780	\$R6D	CLI	\$REC+23,X'60'
1C66	C0 81 1CE3	1781		BE	\$R6E
		1782	*		BRANCH IF ONLY USAGE DATA IN LOG ENTRY
1C6A	4C 05 0D 21C6	1783		MVC	13(6,\$XR1),\$REC+5
		1784	*		MOVE VOLUME ID TO PRINT BUFFER
1C6F	4C 07 18 2177	1785		MVC	24(8,\$XR1),\$M24N
1C74	4C 07 23 2177	1786		MVC	35(8,\$XR1),\$M24N
		1787	*		INITIALIZE DATE AND TIME FIELDS IN PRINT BUFFER
1C79	3D 00 21EA	1788		CLI	\$REC+41,0
1C7D	F2 81 0F	1789		JE	\$R6D1
		1790	*		BRANCH IF NO DATE WAS RECORDED
1C80	4C 01 12 21EB	1791		MVC	18(2,\$XR1),\$REC+42
1C85	4C 01 15 21ED	1792		MVC	21(2,\$XR1),\$REC+44
1C8A	4C 01 18 21EF	1793		MVC	24(2,\$XR1),\$REC+46
		1794	*		MOVE DATE TO PRINT BUFFER
1C8F	3D 00 21F0	1795	\$R6D1	CLI	\$REC+47,0
1C93	F2 81 0F	1796		JE	\$R6D2
		1797	*		BRANCH IF NO TIME WAS RECORDED
1C96	4C 01 1D 21F1	1798		MVC	29(2,\$XR1),\$REC+48
1C9B	4C 01 20 21F3	1799		MVC	32(2,\$XR1),\$REC+50
1CA0	4C 01 23 21F5	1800		MVC	35(2,\$XR1),\$REC+52
		1801	*		MOVE TIME TO PRINT BUFFER
1CA5	C0 87 021E	1802	\$R6D2	B	\$UNPK
1CA9	04	1CA9 1803		DC	IL1'4'
					UNPACK FOUR SENSE

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
ICAA 21D4	1CAB 1804	DC	AL2(\$REC+19)	BYTES TO
ICAC 222F	1CAD 1805	DC	AL2(\$PBUF+46)	PRINT BUFFER
	1806 *			
ICAE CO 87 021E	1807	B	\$UNPK	UNPACK
ICB2 04	1CB2 1808	DC	IL1'4'	FOUR SENSE
ICB3 21D8	1CB4 1809	DC	AL2(\$REC+23)	BYTES TO
ICB5 2238	1CB6 1810	DC	AL2(\$PBUF+55)	PRINT BUFFER
	1811 *			
ICB7 CO 87 021E	1812	B	\$UNPK	UNPACK
ICB8 04	1CBB 1813	DC	IL1'4'	FOUR SENSE
ICBC 21DC	1CBD 1814	DC	AL2(\$REC+27)	BYTES TO
ICBE 2241	1CBF 1815	DC	AL2(\$PBUF+64)	PRINT BUFFER
	1816 *			
ICC0 CO 87 021E	1817	B	\$UNPK	UNPACK
ICC4 04	1CC4 1818	DC	IL1'4'	FOUR SENSE
ICC5 21E0	1CC6 1819	DC	AL2(\$REC+31)	BYTES TO
ICC7 224A	1CC8 1820	DC	AL2(\$PBUF+73)	PRINT BUFFER
	1821 *			
ICC9 CO 87 021E	1822	B	\$UNPK	UNPACK
ICCD 04	1CCD 1823	DC	IL1'4'	FOUR SENSE
ICCE 21E4	1CCF 1824	DC	AL2(\$REC+35)	BYTES TO
ICD0 2253	1CD1 1825	DC	AL2(\$PBUF+82)	PRINT BUFFER
	1826 *			
ICD2 CO 87 021E	1827	B	\$UNPK	UNPACK
ICD6 04	1CD6 1828	DC	IL1'4'	FOUR SENSE
ICD7 21E8	1CD8 1829	DC	AL2(\$REC+39)	BYTES TO
ICD9 225C	1CDA 1830	DC	AL2(\$PBUF+91)	PRINT BUFFER
	1831 *			
ICD8 CO 87 021A	1832	B	\$PRINT	PRINT
ICDF 01	1CDF 1833	DC	XL1'01'	LOG ENTRY
ICE0 5E	1CE0 1834	DC	IL1'94'	
ICE1 225E	1CE2 1835	DC	AL2(\$PBUF+93)	
	1836 *			
	1837 *			
	1838 *		SEARCH FOR NEXT LOG ENTRY TO BE PROCESSED	
	1839 *			
ICE3 0E 00 218F 21A6	1840 \$R6E	ALC	\$PTR(1), \$P1	ADVANCE LOG ENTRY POINTER
	1841 *			
ICE9 3D 8F 218F	1842	CLI	\$PTR, 191	BRANCH IF NOT
ICED F2 82 04	1843	JL	\$R6E1	YET END OF LOG AREA
	1844 *			
ICF0 3C 00 218F	1845	MVI	\$PTR, 0	WRAP BACK TO FIRST LOG ENTRY
	1846 *			
ICF4 0D 00 218F 2194	1847 \$R6E1	CLC	\$PTR(1), \$PTRF	BRANCH IF ALL LOG
ICFA F2 81 10	1848	JE	\$R6E	ENTRIES HAVE BEEN PROCESSED
	1849 *			
ICFD CO 87 1DD5	1850	B	\$IO	READ NEXT LOG ENTRY
	1851 *			
ID01 3D 00 21C1	1852	CLI	\$REC, 0	BRANCH IF
ID05 CO 81 ICE3	1853	BE	\$R6E	UNUSED ENTRY
	1854 *			
ID09 CO 87 IC62	1855	B	\$R6D	GO TO FORMAT AND PRINT LOG ENTRY
	1856 *			
	1857 *			
	1858 *		CLEAR LOG AREA IF REQUIRED	
	1859 *			
ID0D 3A 08 2188	1860 \$R6N	SBN	\$IND, \$CLEAR	SET 'CLEAR LOG' INDICATOR
	1861 *			
ID11 38 80 020C	1862	TBN	\$SBY4, \$SSW20	CLEAR LOG AREA IF
ID15 CO 90 1DD5	1863	BF	\$IO	SENSE SWITCH 20 IS OFF
	1864 *			
ID19 3B 08 2188	1865	SBF	\$IND, \$CLEAR	RESET 'CLEAR LOG' INDICATOR
	1866 *			
	1867 *			
	1868 *		PREPARE TO PRINT HISTORY FOR NEXT DRIVE ID	
	1869 *			
ID1D 0E 00 218E 21A6	1870	ALC	\$HD(1), \$P1	ADVANCE HEAD ADDRESS
ID23 06 00 2193 21AD	1871	AZ	\$DRV(1), \$D1(1)	ADVANCE DRIVE IDENTIFIER

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
				1872 *
1D29 CO 87 18C5				1873 B \$R6A
				1874 *

GO TO COMPLETE HISTORY TABLE



FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE	ADDR STMT SOURCE STATEMENT
1876 *	*****
1877 *	*****
1878 *	ROUTINES 3 AND 4 - COMMON INITIALIZATION PROCEDURES
1879 *	*****
1880 *	*****
1881 *	*****
102D 34 08 10D4	1882 \$BEGIN ST \$BGNX+3,\$ARR SAVE RETURN ADDRESS
1031 3C 00 2273	1883 *
1035 0C 08 2272 2273	1884 MVI \$NN,0 CLEAR
	1885 MVC \$NN-1(9),\$NN DDCF AREA
	1886 *
103B C2 01 0A07	1887 LA \$UDT-3,\$XR1 POINT TO SECTION UDT
	1888 *
103F 02 01 03	1889 \$BGN01 LA 3(,\$XR1),\$XR1 LOCATE
1042 7D C1 00	1890 CLI 0(,\$XR1),X'C1' 3340 UDT ENTRY
1045 C0 01 103F	1891 BNE \$BGN01
	1892 *
1049 78 20 01	1893 TBN 1(,\$XR1),\$BIT2 END ROUTINE IF 3340
104C C0 90 0216	1894 BF \$LINK NOT DEFINED IN DCP UDT
	1895 *
1050 39 78 020A	1896 \$BGN02 TBF \$\$BYT2,\$SSW11+\$SSW12+\$SSW13+\$SSW14 SKIP IF ANY SNS
1054 F2 90 04	1897 JF \$BGN03 SW 11 THRU 14 ON
	1898 *
1057 3A 20 020A	1899 SBN \$\$BYT2,\$SSW12 SET SNS SW 12 (DEFAULT TO DRV 2)
	1900 *
105B 38 40 020A	1901 \$BGN03 TBN \$\$BYT2,\$SSW11 BRANCH IF DRIVE 1 NOT
105F 39 80 2188	1902 TBF \$IND,\$DRV1 SELECTED OR IF DATA FROM
1063 F2 90 13	1903 JF \$BGN04 DRV 1 HAS ALREADY BEEN PRINTED
	1904 *
1066 3A 80 2188	1905 SBN \$IND,\$DRV1 SET 'DRV 1 USED' INDICATOR
	1906 *
106A 3C F1 2189	1907 MVI \$DRVID,C'1' SETUP DRIVE IDENTIFIER,
106E 3C C0 218A	1908 MVI \$DRVAD,X'CO' DRIVE ADDRESS, AND ERROR
1072 3C 81 2192	1909 MVI \$CKMSK,X'81' SENSE BYTE MASK FOR DRIVE 1
	1910 *
1076 F2 87 58	1911 J \$BGNX RETURN TO CALLING ROUTINE
	1912 *
1079 38 20 020A	1913 \$BGN04 TBN \$\$BYT2,\$SSW12 BRANCH IF DRIVE 2 NOT
107D 39 40 2188	1914 TBF \$IND,\$DRV2 SELECTED OR IF DATA FROM
1081 F2 90 13	1915 JF \$BGN05 DRV 2 HAS ALREADY BEEN PRINTED
	1916 *
1084 3A 40 2188	1917 SBN \$IND,\$DRV2 SET 'DRV 2 USED' INDICATOR
	1918 *
1088 3C F2 2189	1919 MVI \$DRVID,C'2' SETUP DRIVE IDENTIFIER,
108C 3C C8 218A	1920 MVI \$DRVAD,X'CB' DRIVE ADDRESS, AND ERROR
1090 3C 41 2192	1921 MVI \$CKMSK,X'41' SENSE BYTE MASK FOR DRIVE 2
	1922 *
1094 F2 87 3A	1923 J \$BGNX RETURN TO CALLING ROUTINE
	1924 *
1097 38 10 020A	1925 \$BGN05 TBN \$\$BYT2,\$SSW13 BRANCH IF DRIVE 3 NOT
109B 39 20 2188	1926 TBF \$IND,\$DRV3 SELECTED OR IF DATA FROM
109F F2 90 13	1927 JF \$BGN06 DRV 3 HAS ALREADY BEEN PRINTED
	1928 *
10A2 3A 20 2188	1929 SBN \$IND,\$DRV3 SET 'DRV 3 USED' INDICATOR
	1930 *
10A6 3C F3 2189	1931 MVI \$DRVID,C'3' SETUP DRIVE IDENTIFIER,
10AA 3C 00 218A	1932 MVI \$DRVAD,X'00' DRIVE ADDRESS, AND ERROR
10AE 3C 21 2192	1933 MVI \$CKMSK,X'21' SENSE BYTE MASK FOR DRIVE 3
	1934 *
10B2 F2 87 1C	1935 J \$BGNX RETURN TO CALLING ROUTINE
	1936 *
10B5 38 08 026A	1937 \$BGN06 TBN \$\$BYT2,\$SSW14 END ROUTINE IF DRV 4 NOT
10B9 39 10 2188	1938 TBF \$IND,\$DRV4 SELECTED OR IF DATA FROM
10BD C0 90 0216	1939 BF \$LINK DRV 4 HAS ALREADY BEEN PRINTED
	1940 *
10C1 3A 10 2188	1941 SBN \$IND,\$DRV4 SET 'DRV 4 USED' INDICATOR
	1942 *
10C5 3C F4 2189	1943 MVI \$DRVID,C'4' SETUP DRIVE IDENTIFIER,

ERR LOC OBJECT CODE	ADDR STMT SOURCE STATEMENT	DRIVE ADDRESS, AND ERROR SENSE BYTE MASK FOR DRIVE 4
10C9 3C 08 218A	1944 MVI \$DRVAD,X'08'	
10CD 3C 11 2192	1945 MVI \$CKMSK,X'11'	
	1946 *	
10D1 C0 87 0000	1947 \$BGNX B 0-0	RETURN TO CALLING ROUTINE
	1948 *	

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

1950 *****
1951 *
1952 *      ROUTINES 5 AND 6 - COMMON 3340 I/O SUBROUTINES
1953 *
1954 *****
1955 *
1956 *      READ OR CLEAR 3340 LCG ENTRIES
1957 *
1005 34 08 1EC4 1958 $IO ST $IOX+3,$ARR SAVE RETURN ADDRESS
1009 34 01 1EC0 1959 ST $IOX1+3,$XR1 SAVE INDEX REG 1
1960 *
1000 3C 0A 2196 1961 MVI $RETRY,10 INITIALIZE ERROR RETRY COUNT
1962 *
10E1 0D 01 218C 226C 1963 CLC $CYL(2),$CC BRANCH IF ACCESS
10E7 F2 01 0D 1964 JNE $RECAL NOT YET AT REQUIRED CYLINDER
1965 *
10EA 0D 01 218E 226E 1966 CLC $HD(2),$HH BRANCH IF ACCESS
10F0 F2 81 42 1967 JE $RDWR ALREADY AT REQUIRED LOCATION
1968 *
10F3 3C 00 226F 1969 MVI $RR,0 RESET RECORD NUMBER
1970 *
10F7 3C 00 2190 1971 $RECAL MVI $Q,0 SETUP Q AND R BYTES
10FB 3C 01 2191 1972 MVI $R,1 FOR RECALIBRATE COMMAND
1973 *
10FF C0 87 1EC5 1974 B $XEQ GO TO EXECUTE RECALIBRATE COMMAND
1975 *
1E03 0C 01 226C 218C 1976 MVC $CC(2),$CYL MOVE CYLINDER AND
1E09 0C 01 226E 218E 1977 MVC $HH(2),$HD HEAD VALUES TO DDCF
1978 *
1E0F 3C 00 2190 1979 $SEEK MVI $Q,0 SETUP Q AND R
1E13 3C 00 2191 1980 MVI $R,0 BYTES FOR SEEK COMMAND
1981 *
1E17 C0 87 1EC5 1982 B $XEQ GO TO EXECUTE SEEK COMMAND
1983 *
1E18 3C 01 2190 1984 $RDHA MVI $Q,1 SETUP Q AND R BYTES FOR
1E1F 3C 01 2191 1985 MVI $R,1 READ HA (EVEN) COMMAND
1986 *
1E23 C0 87 1EC5 1987 B $XEQ GO TO EXECUTE READ HA COMMAND
1988 *
1E27 0C 03 226E 2290 1989 MVC $HH(4),$DDDF+4 MOVE RECORD 0 CCHM TO DDCF
1990 *
1E2D 38 02 226A 1991 TBN $FF,$BIT6 GO TO SEEK TO ASSIGNED
1E31 C0 10 1E0F 1992 BT $SEEK ALTERNATE IF DEFECTIVE TRACK
1993 *
1E35 0C 01 226C 218C 1994 $RDWR MVC $CC(2),$CYL MOVE CYLINDER AND
1E38 0C 01 226E 218E 1995 MVC $HH(2),$HD HEAD VALUES TO DDCF
1996 *
1E41 0C 02 2272 21AC 1997 MVC $DL(3),$P256 MOVE KL AND DL TO DDCF
1998 *
1E47 38 08 2188 1999 TBN $IND,$CLEAR GO TO CLEAR LOG AREA
1E48 F2 10 4D 2000 JT $WRREP IF 'CLEAR' INDICATOR IS ON
2001 *
1E4E 3C 04 21A3 2002 $RDKD MVI $RDWK,4 DEVELOPE
1E52 0C 00 21A4 218F 2003 MVC $RDWK+1(1),$PTR RECORD NUMBER
1E58 0E 00 21A4 21A7 2004 ALC $RDWK+1(1),$P5 FROM LOG AREA POINTER
1E5E 0E 01 21A4 21A4 2005 $RDKD1 ALC $RDWK+1(2),$RDWK+1
1E64 C0 20 1E5E 2006 BNOL $RDKD1
2007 *
1E68 0D 00 21A3 226F 2008 CLC $RDWK(1),$RR BRANCH IF REQUIRED
1E6E F2 81 16 2009 JE $RDKD2 RECORD IS ALREADY IN MAIN STORE
2010 *
1E71 0C 00 226F 21A3 2011 MVC $RR(1),$RDWK MOVE RECORD NUMBER TO DDCF
1E77 3C 00 2273 2012 MVI $NN,0 SETUP NN VALUE TO READ ONE RECORD
2013 *
1E78 3C 01 2190 2014 MVI $Q,$X'01' SETUP Q AND R BYTES
1E7F 3C 00 2191 2015 MVI $R,$X'00' FOR READ KEY-DATA COMMAND
2016 *
1E83 C0 87 1EC5 2017 B $XEQ GO TO EXECUTE READ KEY-DATA COMMAND

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2018 *
2019 $RDPO2 LA $DDDF,$XR1 LOCATE REQUIRED
2020 MVI $RDWK,0 LOG ENTRY VIA OFFSET
2021 A $RDWK+1,$XR1 DEVELOPED FROM LOG ENTRY POINTER
2022 *
2023 MVC $RECN(64),63(1,$XR1) GET REQUIRED LOG ENTRY
2024 *
2025 J $IOX1 RETURN TO CALLING ROUTINE
2026 *
2027 $WRREP MVI $RR,1 SETUP RR AND NN VALUES
2028 MVI $NN,47 IN DDCF TO WRITE RECORDS 1 THRU 48
2029 *
2030 MVI $DDDF+255,0 CLEAR
2031 MVC $DDDF+254(255),$DDDF+255 DDCF AREA
2032 *
2033 MVI $Q,$X'02' SETUP Q AND R BYTES
2034 MVI $R,$X'03' FOR WRITE REPEAT COMMAND
2035 *
2036 B $XEQ GO TO EXECUTE WRITE REPEAT COMMAND
2037 *
2038 SBF $IND,$CLEAR RESET 'CLEAR LOG' INDICATOR
2039 *
2040 $IOX1 LA $-,$XR1 RESTORE INDEX REG 1
2041 $IOX B $- RETURN TO CALLING ROUTINE
2042 *
2043 *-----*
2044 *      COMMON 3340 I/O COMMAND EXECUTION SUBROUTINE
2045 *
2046 $XEQ ST $XEQX+3,$ARR SAVE RETURN ADDRESS
2047 *
2048 B $TEST CHECK FOR USER INTERVENTION
2049 *
2050 MVC $SIO+1(1),$DRVAD SETUP
2051 ALC $SIO+1(1),$Q Q AND R BYTES
2052 MVC $SIO+2(1),$R IN SID INSTRUCTION
2053 *
2054 SNS $SNS+1,$X'C5' SENSE ATTACHMENT STATUS
2055 *
2056 MVC $+7(1),$CKMSK GO TO ERROR
2057 TBF $SNS,$- HANDLING SUBROUTINE IF
2058 BF $ERR ADAPTER OR UNIT CHECK
2059 *
2060 LIO $DDCR,$X'C6' LOAD DDCR
2061 LIO $DDDR,$X'C4' AND DDDR
2062 *
2063 $SIO SID $-,$- EXECUTE 3340 I/O COMMAND
2064 *
2065 MVC $TIO+1(1),$DRVAD BUILD 'SEEK BUSY'
2066 SBN $TIO+1,$BIT7 TIO INSTRUCTION
2067 *
2068 TIO $,$X'C2' LOOP ON 'ATTACHMENT BUSY'
2069 *
2070 $TIO TIO $,$- LOOP ON 'SEEK BUSY'
2071 *
2072 SNS $SNS+1,$X'C5' SENSE ATTACHMENT STATUS
2073 *
2074 MVC $+7(1),$CKMSK GO TO ERROR
2075 TBF $SNS,$- HANDLING SUBROUTINE IF
2076 BF $ERR ADAPTER OR UNIT CHECK
2077 *
2078 $XEQX B $- RETURN TO CALLING ROUTINE
2079 *
2080 *-----*
2081 *      3340 ERROR HANDLING SUBROUTINE
2082 *
2083 $ERR ST $ERRX+3,$ARR SAVE RETURN ADDRESS
2084 *
2085 TBN $SNS+1,$BIT7 BRANCH IF NOT

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1F2C	F2 90 1A	2086	JF	SUCK
1F2F	3C 00 228B	2087 *		
1F33	0C 14 228A 228B	2088 \$ACK	MVI	:SNS+23,0
1F39	31 C7 218A	2089	MVC	\$\$SNS+22(21),\$\$SNS+23
1F3D	30 C7 2277	2090	LIO	\$\$SNS23,X'C7'
1F41	3C 30 227B	2091	SNS	\$\$SNS+3,X'C7'
		2092	MVI	\$\$SNS+7,X'30'
		2093 *		
1F45	CO 87 1FC4	2094	B	\$ERRP
		2095 *		
1F49	0C 00 1F58 218A	2096 \$UCK	MVC	\$\$SNSIO+1(1),\$DRVAD
1F4F	3A 01 1F58	2097	SBN	\$\$SNSIO+1,\$BIT7
		2098 *		
1F53	31 C4 21C0	2099	LIO	\$\$SNSDR,X'C4'
		2100 *		
1F57	F3 00 07	2101 \$SNSIO	SIO	X'07',*--
		2102 *		
1F5A	C1 C2 1F5A	2103	TIO	*,X'C2'
		2104 *		
1F5E	0F 00 2196 21A6	2105	SLC	\$RETRY(1),\$P1
1F64	CO 81 1FC4	2106	BZ	\$ERRP
		2107 *		
1F68	36 0F 227B	2108 \$ERP	SBF	\$\$SNS+7,X'0F'
		2109 *		
1F6C	3D 50 227B	2110	CLI	\$\$SNS+7,X'50'
1F70	CO 81 1F8A	2111	BE	\$ECC
		2112 *		
1F74	3C 00 2273	2113	MVI	\$NN,0
1F78	0C 08 2272 2273	2114	MVC	\$\$NN-1(9),\$\$NN
		2115 *		
1F7E	3D 40 227B	2116	CLI	\$\$SNS+7,X'40'
1F82	CO 81 1E35	2117	BE	\$RDWR
		2118 *		
1F86	CO 87 1DF7	2119	B	\$RECAL
		2120 *		
1F8A	0E 01 2285 218E	2121 \$ECC	ALC	\$\$SNS+17(2),\$DDDR
1F90	0F 01 2285 2287	2122	SLC	\$\$SNS+17(2),\$\$SNS+19
1F96	35 01 2285	2123	L	\$\$SNS+17,\$XR1
		2124 *		
1F9A	3C 18 2197	2125	MVI	\$BITCT,24
		2126 *		
1F9E	0E 02 228A 228A	2127 \$ECC01	ALC	\$\$SNS+22(3),\$\$SNS+22
1FA4	F2 20 05	2128	JNOL	\$ECC02
1FA7	4E 00 00 21AE	2129	ALC	0(1,\$XR1),\$X80
1FAC	5E 02 02 02	2130 \$ECC02	ALC	2(3,\$XR1),2(4,\$XR1)
1FB0	F2 20 03	2131	JNOL	\$ECC03
1FB3	7A 01 02	2132	SBN	2(,\$XR1),\$BIT7
1FB6	0F 00 2197 21A6	2133 \$ECC03	SLC	\$BITCT(1),\$P1
1FBC	CO 01 1F9E	2134	BNZ	\$ECC01
		2135 *		
1FC0	CO 87 0000	2136 \$ERRX	B	*--
		2137 *		
		2138 *		
		2139 *		
		2140 *		
1FC4	CO 87 021A	2141 \$ERRP	B	\$PRINT
1FC8	92	2142	DC	XL1'92'
		2143 *		
1FC9	0C 00 203F 2189	2144	MVC	\$M01+4(1),\$DRVID
		2145 *		
1FCF	CO 87 021A	2146	B	\$PRINT
1FD3	C2	1FD3 2147	DC	XL1'C2'
1FD4	14	1FD4 2148	DC	AL1(\$M01N-\$M01+1)
1FD5	204E	1FD6 2149	DC	AL2(\$M01N)
1FD7	FFF6	1FD8 2150	DC	AL2(\$HLTF6)
		2151 *		
1FD9	CO 87 021A	2152	B	\$PRINT
1FDD	81	1FDD 2153	DC	XL1'81'

ADAPTER CHECK CONDITION

BUILD  
FORMAT 3  
READ DIAG  
SENSE BYTES

GO TO PRINT ERROR MESSAGE AND HALT

BUILD 'READ DIAG  
SENSE DATA' COMMAND

LOAD DDDR

READ DIAGNOSTIC SENSE DATA

LOOP ON ATTACHMENT BUSY

DECREMENT RETRY COUNTER AND GO TO  
ERR PRINT AND HALT IF LAST RETRY

RESET MSG BITS IN SENSE BYTE 7

BRANCH IF  
CORRECTABLE DATA CHECK

CLEAR  
DDCF AREA

BRANCH IF  
DATA CHECK

GO TO RECALIBRATE AGAIN

DEVELOPE  
ADDRESS OF  
FIRST ERROR BYTE

INITIALIZE ERROR BIT COUNTER

EXCLUSIVE OR  
ERROR PATTERN  
WITH ERROR BYTES

UNRECOVERABLE 3340 ERROR - PRINT ERR MESSAGE AND HALT

SPACE PRINTER 2 LINES

MOVE DRIVE ID TO ERROR MESSAGE

PRINT ERROR MESSAGE

PRINT  
'READ DIAG SNS DATA'

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
1FDE	1B	1FDE 2154	DC	AL1(\$M02N-\$M02+1)
1FDF	2069	1FE0 2155	DC	AL2(\$M02N)
		2156 *		
		2157	B	\$PRINT
1FE1	CO 87 021A	1FE5 2158	DC	XL1'81'
1FE5	81	1FE6 2159	DC	AL1(\$M03N-\$M03+1)
1FE6	35	1FE8 2160	DC	AL2(\$M03N)
1FE7	209E	2161 *		
		2162	MVI	\$PBUF+54,C' *
1FE9	3C 40 2237	2163	MVC	\$PBUF+53(54),\$PBUF+54
1FED	OC 35 2236 2237	2164 *		
		2165	B	\$UNPK
1FF3	CO 87 021E	1FF7 2166	DC	IL1'4'
1FF7	04	1FF9 2167	DC	AL2(\$SNS+3)
1FF8	2277	1FFB 2168	DC	AL2(\$PBUF+7)
1FFA	2208	2169 *		
		2170	B	\$UNPK
1FFC	CO 87 021E	2000 04	DC	IL1'4'
2001	227B	2002 2172	DC	AL2(\$SNS+7)
2003	2211	2004 2173	DC	AL2(\$PBUF+16)
		2174 *		
		2175	B	\$UNPK
2005	CO 87 021E	2009 2176	DC	IL1'4'
2009	04	2008 2177	DC	AL2(\$SNS+11)
200A	227F	200D 2178	DC	AL2(\$PBUF+25)
200C	221A	2179 *		
		2180	B	\$UNPK
200E	CO 87 021E	2012 04	DC	IL1'4'
2012	04	2014 2182	DC	AL2(\$SNS+15)
2013	2283	2016 2183	DC	AL2(\$PBUF+34)
2015	2223	2184 *		
		2185	B	\$UNPK
2017	CO 87 021E	2018 2186	DC	IL1'4'
2018	04	201D 2187	DC	AL2(\$SNS+19)
201C	2287	201F 2188	DC	AL2(\$PBUF+43)
201E	222C	2189 *		
		2190	B	\$UNPK
2020	CO 87 021E	2024 04	DC	IL1'4'
2024	04	2026 2192	DC	AL2(\$SNS+23)
2025	228B	2028 2193	DC	AL2(\$PBUF+52)
2027	2235	2194 *		
		2195	B	\$PRINT
2029	CO 87 021A	202D 86	DC	XL1'86'
202D	86	202E 2197	DC	IL1'53'
202E	35	2030 2198	DC	AL2(\$PBUF+52)
202F	2235	2199 *		
		2200	B	\$HALT
2031	CO 87 0222	2036 2201	DC	AL2(\$HLTF6)
2035	FFF6	2202 *		
		2203	B	\$BGX
2037	CO 87 1001	2204 *		

PRINT  
SNS BYTE  
HEADING

CLEAR  
PRINT BUFFER

UNPACK  
FOUR SENSE  
BYTES TO  
PRINT BUFFER

UNPACK  
FOUR SENSE  
BYTES TO  
PRINT BUFFER

UNPACK  
FOUR SENSE  
BYTES TO  
PRINT BUFFER

UNPACK  
FOUR SENSE  
BYTES TO  
PRINT BUFFER

UNPACK  
FOUR SENSE  
BYTES TO  
PRINT BUFFER

UNPACK  
FOUR SENSE  
BYTES TO  
PRINT BUFFER

UNPACK  
FOUR SENSE  
BYTES TO  
PRINT BUFFER

PRINT SENSE BYTES

ERROR HALT F6

GO TO RESTART ROUTINE

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2206 *****
2207 *
2208 *          ROUTINES 5 AND 6 - PRINT MESSAGES
2209 *
2210 *****
2211 *
203B 2212 $M01 EQU *
204E 2213 $M01N DC CL20'DRV X NOT RDY OR ERR'
2043 E340D9C4E840D6D9 2213
204B 40C5D9D9 2213
2214 *
204F 2215 $M02 EQU *
2069 2216 $M02N DC CL27'READ DIAGNOSTIC SENSE DATA'
2057 C7D5D6E2E3C9C340 2216
205F E2C5D5E2C540C4C1 2216
2067 E3C140 2216
2217 *
206A 2218 $M03 EQU *
2084 2219 DC CL27'00----03 04----07 08----11 '
2072 40F0F460606060F0 2219
207A F740F0F860606060 2219
2082 F1F140 2219
2085 F1F260606060F1F5 209E 2220 $M03N DC CL26'12----15 16----19 20----23'
208D 40F1F660606060F1 2220
2095 F940F2F060606060 2220
209D F2F3 2220
2221 *
209F 2222 $M04 EQU *
20C2 2223 $M04N DC CL36'--- 3340 USAGE AND ERROR LOG SUMMARY
20A7 40E4E2C1C7C540C1 2223
20AF D5C440C5D9D9D4D9 2223
20B7 40D3D6C740E2E4D4 2223
20BF D4C1D9E8 2223
2224 *
20C3 2225 $M05 EQU *
20D8 2226 $M05N DC CL22'--- 3340 ERROR HISTORY'
20C8 40C5D9D9D6D940C8 2226
20D3 C9E2E3D6D9E8 2226
2227 *
20D9 2228 $M06 EQU *
20EE 2229 $M06N DC CL22' --- DATA FROM DRIVE X'
20E1 C140C6D9D6D440C4 2229
20E9 D9C9E5C540E7 2229
2230 *
20EF 2231 $M07 EQU *
20F3 2232 $M07N DC CL5'FMT 0'
2233 *
20F4 2234 $M08 EQU *
2103 2235 $M08N DC CL16'EQUIPMENT CHECKS'
20FC E340C3C8C5C3D2E2 2235
2236 *
2104 2237 $M09 EQU *
2108 2238 $M09N DC CL5'SEEKS'
2239 *
2109 2240 $M10 EQU *
210C 2241 $M10N DC CL4'DATA'
2242 *
210D 2243 $M11 EQU *
2111 2244 $M11N DC CL5'TOTAL'
2245 *
2112 2246 $M12 EQU *
2114 2247 $M12N DC CL3'DRV'
2248 *
2115 2249 $M13 EQU *
211A 2250 $M13N DC CL6'VOLUME'
2251 *
211B 2252 $M14 EQU *
2120 2253 $M14N DC CL6'-USER-'

```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2254 *
2121 2255 $M15 EQU *
2137 2256 $M15N DC CL23'ATTACHMENT * SUB-SYSTEM'
2129 D5E3405C40E2E4C2 2256
2131 60E2E8E2E3C5D4 2256
2257 *
2138 2258 $M16 EQU *
2140 2259 $M16N DC CL9'MEGABYTES'
2140 E2 2259
2260 *
2141 2261 $M17 EQU *
2146 2262 $M17N DC CL6'ERRORS'
2263 *
2147 2264 $M18 EQU *
214F 2265 $M18N DC CL16'CORR TEMP PERM'
214F D4D74040D7C5D9D4 2265
2266 *
2157 2267 $M19 EQU *
215D 2268 $M19N DC CL7'-X1000-'
2269 *
215E 2270 $M20 EQU *
2161 2271 $M20N DC CL4'READ'
2272 *
2162 2273 $M21 EQU *
2167 2274 $M21N DC CL6'NO LOG'
2275 *
2168 2276 $M22 EQU *
2168 2277 $M22N DC CL4'DATE'
2278 *
216C 2279 $M23 EQU *
216F 2280 $M23N DC CL4'TIME'
2281 *
2170 2282 $M24 EQU *
2177 2283 $M24N DC CL8'00.00.00'
2284 *
2178 2285 $M25 EQU *
217F 2286 $M25N DC CL8'MM.00.YY'
2287 *
2180 2288 $M26 EQU *
2187 2289 $M26N DC CL8'HH.MM.SS'
2290 *

```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		2292			*****
		2293			*
		2294			ROUTINES 5 AND 6 - CONSTANTS AND RESERVED STORAGE AREAS
		2295			*
		2296			*****
		2297			*
2188		2188	2298	\$IND DS XL1	PROGRAM INDICATORS
			2299	*	
2189		2189	2300	\$DRVID DS CL1	INPUT DRIVE IDENTIFIER
218A		218A	2301	\$DRVAD DS XL1	INPUT DRIVE ADDRESS
			2302	*	
218B		218C	2303	\$CYL DS XL2	CURRENT CYLINDER ADDRESS
218D		218E	2304	\$HD DS XL2	CURRENT HEAD ADDRESS
218F		218F	2305	\$PTR DS XL1	CURRENT LOG ENTRY POINTER
			2306	*	
2190		2190	2307	\$Q DS XL1	SIO 'Q' BYTE
2191		2191	2308	\$R DS XL1	SIO 'R' BYTE
			2309	*	
2192		2192	2310	\$CKMSK DS XL1	ATTACHMENT SENSE BYTE ERROR MASK
			2311	*	
2193		2193	2312	\$DRV DS XL1	DRIVE IDENTIFIER (TABLE PRINTOUT)
			2313	*	
2194		2194	2314	\$PTRF DS XL1	POINTER TO FIRST (OLDEST) LOG ENTRY
2195		2195	2315	\$PTRX DS XL1	CURRENT POINTER TEMP STORAGE
			2316	*	
2196		2196	2317	\$RETRY DS XL1	ERROR RETRY COUNTER
2197		2197	2318	\$BITCT DS XL1	ECC BIT COUNTER
2198		2198	2319	\$CTR DS XL1	GENERAL PURPOSE COUNTER
			2320	*	
2199		219E	2321	\$RDCNT DS XL6	READ USAGE COUNTER
219F		21A2	2322	\$SKCNT DS XL4	SEEK USAGE COUNTER
			2323	*	
21A3		21A3	2324	\$RDWK EQU *	READ SUBROUTINE
			2325	DS XL2	WORK AREA
			2326	*	
21A5 0001		21A6	2327	\$P1 DC IL2'1'	
21A7 05		21A7	2328	\$P5 DC IL1'5'	
21A8 C0D1		21A9	2329	\$P209 DC IL2'209'	
21AA 000100		21AC	2330	\$P256 DC IL3'256'	
21AD F1		21AD	2331	\$D1 DC CL1'1'	
21AE 80		21AE	2332	\$X80 DC XL1'80'	
21AF 000003E8		21B2	2333	\$KILO DC IL4'1000'	
21B3 000000F4240		21B8	2334	\$MEG DC XL6'00C0000F4240'	
21B9 0002		21BA	2335	\$SNS23 DC XL2'0002'	
			2336	*	
21BB 226A		21BC	2337	\$DDCF DC AL2(\$DDCF)	DDCF ADDRESS (INITIAL DDCR)
21BD 228C		21BE	2338	\$DDDR DC AL2(\$DDDF)	DDDF ADDRESS (INITIAL DDDR)
21BF 2274		21C0	2339	\$SNSDR DC AL2(\$SNS)	DDDF ADDRESS FOR READ DIAG SNS
			2340	*	
21C1		21C1	2341	\$REC EQU *	LOG ENTRY
			2342	\$RECN DS XL64	FROM SYSTEM ERROR LOG
			2343	*	
2201		2201	2344	\$PBUF EQU *	PRINT BUFFER
			2345	DS XL105	
			2346	*	
226A		226A	2347	\$DDCF EQU *	DISK DRIVE CONTROL FIELD
226B		226A	2348	\$FF DS XL1	FLAG BYTE
226D		226C	2349	\$CC DS XL2	CYLINDER ADDRESS
226F		226E	2350	\$HH DS XL2	HEAD ADDRESS
2270		226F	2351	\$RR DS XL1	RECORD NUMBER
2271		2270	2352	\$KL DS XL1	KEY LENGTH
2273		2272	2353	\$DL DS XL2	DATA LENGTH
			2354	\$NN DS XL1	RECORD COUNT
			2355	*	
2274		2274	2356	\$SNS EQU *	SENSE DATA FIELD
			2357	DS XL24	
			2358	*	
		228C	2359	\$DDDF EQU *	READ / WRITE DATA FIELD

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		228C			
		238B	2360	DS XL256	
			2361	*	

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
2363 *****
2364 *
2365 *          ROUTINES 5 AND 6 - SYMBOL DEFINITIONS *
2366 *
2367 *****
2368 *
2369 *          LOCAL STORE REGISTERS
2370 *
0001 2371 $XR1 EQU X'01'          INDEX REGISTER 1
0002 2372 $XR2 EQU X'02'          INDEX REGISTER 2
0008 2373 $ARR EQU X'08'          ADDRESS RECALL REGISTER
2374 *
2375 *-----
2376 *          SECTION SENSE SWITCHES
2377 *
0040 2378 $SSW11 EQU X'40'          LOG DATA ON DRIVE 1
0020 2379 $SSW12 EQU X'20'          LOG DATA ON DRIVE 2
0010 2380 $SSW13 EQU X'10'          LOG DATA ON DRIVE 3
0008 2381 $SSW14 EQU X'08'          LOG DATA ON DRIVE 4
0080 2382 $SSW20 EQU X'80'          CLEAR LOG AFTER PRINT (IF OFF)
2383 *
2384 *-----
2385 *          MESSAGE / HALT IDENTIFIERS
2386 *
FF00 2387 $HLT00 EQU X'FF00'          NO HALT
FFF6 2388 $HLTF6 EQU X'FFF6'          3340 NOT READY OR ERROR
2389 *
2390 *-----
2391 *          PROGRAM INDICATORS ($IND)
2392 *
0080 2393 $DRV1 EQU X'80'          DRIVE 1 INPUT USED
0040 2394 $DRV2 EQU X'40'          DRIVE 2 INPUT USED
0020 2395 $DRV3 EQU X'20'          DRIVE 3 INPUT USED
0010 2396 $DRV4 EQU X'10'          DRIVE 4 INPUT USED
0008 2397 $CLEAR EQU X'08'          CLEAR ERROR LOG
2398 *
2399 *-----
2400 *          BIT POSITION SYMBOLS
2401 *
0080 2402 $BIT0 EQU X'80'
0020 2403 $BIT2 EQU X'20'
0002 2404 $BIT6 EQU X'02'
0001 2405 $BIT7 EQU X'01'
2406 *
2407 *-----
2408 *          DCP SECTION REFERENCE TABLE
2409 *
020A 2410 $S8YT2 EQU X'020A'          SECTION SENSE SWITCHES 10-17
020C 2411 $S8YT4 EQU X'020C'          SECTION SENSE SWITCHES 20-27
2412 *
0212 2413 $TEST EQU X'0212'          CHECK CE CONSOLE SWITCHES
0216 2414 $LINK EQU X'0216'          LINK TO NEXT ROUTINE OR SECTION
021A 2415 $PRINT EQU X'021A'          PRINT A MESSAGE
021E 2416 $UNPK EQU X'021E'          UNPACK DATA - HEX TO EBCDIC
0222 2417 $HALT EQU X'0222'          HALT AND DISPLAY HALT IDENTIFIER
2418 *
0A0A 2419 $UDT EQU X'0A0A'          SECTION UDT ADDRESS
2420 *
2421 **
2422 *          CONSTANTS
2423 *
2424 *
2425 *
238C 252B          238D 2426 OBRST@ DC AL2(DBUF-256+8)
238E 271@          238F 2427 OBRND@ DC AL2(DBUF+256-8)
2390 2439          2391 2428 CBUF@ DC AL2(CBUF)
2392 2491          2393 2429 CEND@ DC AL2(CBUF+88)
2394 2499          2395 2430 PBUF@ DC AL2(PBUF)

```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
2396 2522          2397 2431 ENTAD@ DC AL2(ENTADD)
2398 0010          2399 2432 SIXTEN DC IL2'16'
239A 0008          239B 2433 EIGHT DC IL2'8'
239C F0           239C 2434 OZERO DC DL1'0'
239D F1           239D 2435 DONE DC DL1'1'
239E 00000000     23A1 2436 ZERO DC XL4'0'
23A2 00           23A2 2437 CCNT DC XL1'0'
23A3 0005         23A4 2438 FIVE DC IL2'5'
23A5 0006         23A6 2439 SIX DC IL2'6'
23A7 000E         23A8 2440 XOE DC XL2'000E'
23A9 FF           23A9 2441 DC XL1'FF'
23AA FFF9         23AA 2442 FFFF EQU *
23AC 0008         23AB 2443 NEG7 DC IL2'-7'
23AE 0000         23AD 2444 OBRTP@ DC XL2'8'
23AF 2445 SYNC@ DC XL2'0'
2446 *           H24 IS ALWAYS X'00XX'
2380 0000         2381 2447 H24 DC XL2'0'
2382 0000         2383 2448 DSKOFS DC XL2'0'
2384 0000         2385 2449 CVTCNT DC XL2'0'
2386 0000         2387 2450 CNTOFS DC XL2'0'
2388 0000         2389 2451 CNTLHG DC XL2'0'
238A 0000         238B 2452 TABID@ DC XL2'0'
238C 7B          238C 2453 I123 DC IL1'123'
238D 68          238D 2454 I107 DC IL1'107'
238E 77          238E 2455 I119 DC IL1'119'
238F 7E          238F 2456 I126 DC IL1'126'
23C0 15          23C0 2457 I21 DC IL1'21'
23C1 C9D5E5C1D3C9C4 23C7 2458 INV DC CL7'INVALID'
23C8 2459 SYNTBL EQU *
23C9 F0F0F0F1F0F0 23CD 2460 DC DL6'000100' RTN1 SYNC PT CARD 1 COL 0
23CE F0F0F5F7F0F0 23CE 2461 DC DL6'005700' RTN2 SYN PT
23D4           2427 2462 DS 14XL6
2428           2428 2463 TABTBL EQU *
2438 2464 DS 17XL1
2439 2465 CBUF EQU *
2498 2466 DS 96XL1
2498 2467 CRDNMB EQU CBUF+95
2499 2468 PBUF EQU *
24F8 2469 DS 96XL1
24F9 2470 QRSNS EQU *
24FC 2471 DS XL4
24FD           24FE 2472 PEND@ DS AL2
24FF           2500 2473 PSTRA DS AL2
2501           2502 2474 CSTR@ DS AL2
2503           2508 2475 DS XL6
2509           250A 2476 PRG@ DS XL2
250B           250B 2477 PRGC JS XL1
250C           2511 2478 PRGI DS XL6
2512           2511 2479 DEC DS ODL15
2513 2480 TEMP DS XL2
2514 2481 CNT DS XL1
2515           2514 2482 CNTN DS OXL1
2515           2516 2483 SVCSTR DS AL2
2517           2518 2484 SDRID@ DS AL2
2519           251A 2485 OBRNT@ DS AL2
251B           2522 2486 ENTADD DS XL8
2523           2523 2487 END EQU *
2622 2488 DS XL256
2623 2489 DBUF EQU *
2722 2490 DS XL256
2523 2491 PTRUF EQU DBUF-256
2523 2492 PCHBUF EQU DBUF-256
25A3 2493 RDBUF EQU DBUF-256+X'80'
2714           2494 ORG DBUF+241
2714           2713 2495 HACH@ DS OCL5
271A           2496 ORG DBUF+247
271A           2719 2497 STRDAT DS OCL6
2720           2498 ORG DBUF+253

```

\* NOTE THAT THIS DS MAY CHANGE  
 \* IF THE LENGTH OF DEC CHANGES  
 \* BECAUSE LENGTH OF DEC EQUALS  
 \* PRG@+PRGC+PRGI+THIS DS

MUST FOLLOW ZERO

COUNT OF # OF BIT TO BE CONV.  
 COUNTER OFFSET FROM @ (DBUF)  
 COUNTER LENGTH IN BYTES

RTN1 SYNC PT CARD 1 COL 0  
 RTN2 SYN PT

CARD #, COL #  
 CNT,TAB1,TAB2,....,TAB16  
 CONTROL CARD BUFFER  
 CONTROL RECORD BUFFER

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE	ADDR STMT SOURCE STATEMENT
2720	271F 2499 NEWDAT DS OCL6
2720	2725 2500 DS CL6
	2501 *
	FFFF 2502 END

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
\$ACK	A	004	1F2F	2088	
\$ARR	C	001	0008	2373	1882 1958 2046 2083
\$BEGIN	A	004	1D2D	1882	1228 1617
\$BGNX	A	004	1DD1	1947	1882* 1911 1923 1935 2203
\$BGN01	A	003	1D3F	1889	1891
\$BGN02	A	004	1D50	1896	
\$BGN03	A	004	1D58	1901	1897
\$BGN04	A	004	1D79	1913	1903
\$BGN05	A	004	1D97	1925	1915
\$BGN06	A	004	1D85	1937	1927
\$BITCT	A	001	2197	2318	2125* 2133*
\$BIT0	C	001	0080	2402	1484
\$BIT2	C	001	0020	2403	1893
\$BIT6	C	001	0002	2404	1991
\$BIT7	C	001	0001	2405	1465 2066 2085 2097 2132
\$CC	A	002	226C	2349	1963 1976* 1994*
\$CKMSK	A	001	2192	2310	1909* 1921* 1933* 1945* 2056 2074
\$CLEAR	C	001	0008	2397	1860 1865 1999 2038
\$CTR	A	001	2198	2319	1380* 1388* 1395 1748* 1756* 1763
\$CYL	A	002	218C	2303	1230* 1619* 1963 1976 1994
\$DDCF	A	001	226A	2347	2337
\$DDCR	A	002	216C	2337	2060
\$DDDF	A	001	228C	2359	1989 2019 2030* 2031 2031* 2338
\$DDDR	A	002	218E	2338	2061 2121
\$DL	A	002	2272	2353	1997*
\$DRV	A	001	2193	2312	1321* 1346 1348 1593* 1693* 1714 1716 1871*
\$DRVAD	A	001	218A	2301	1908* 1920* 1932* 1944* 2050 2065 2096
\$DRVID	A	001	2189	2300	1243 1632 1907* 1919* 1931* 1943* 2144
\$DRV1	C	001	0080	2393	1902 1905
\$DRV2	C	001	0040	2394	1914 1917
\$DRV3	C	001	0020	2395	1926 1929
\$DRV4	C	001	0010	2396	1938 1941
\$D1	A	001	21AD	2331	1489 1551 1556 1593 1871
\$ECC	A	006	1F8A	2121	2111
\$ECC01	A	006	1F9E	2127	2134
\$ECC02	A	004	1FAC	2130	2128
\$ECC03	A	006	1F86	2133	2131
\$ERP	A	004	1F68	2108	
\$ERR	A	004	1F24	2083	2058 2076
\$ERRP	A	004	1FC4	2141	2094 2106
\$ERRX	A	004	1FC0	2136	2083*
\$FF	A	001	226A	2348	1991
\$HALT	C	001	0222	2417	2200
\$HD	A	002	218E	2304	1231* 1592* 1620* 1870* 1966 1977 1995
\$HH	A	002	226E	2350	1966 1977* 1989* 1995*
\$HLTF6	C	001	FFF6	2388	2150 2201
\$HLT00	C	001	FF00	2387	1249 1638
\$IND	A	001	2188	2298	1226* 1615* 1860* 1865* 1902 1905* 1914 1917* 1926 1929* 1938 1941*
					1999 2038*
\$ID	A	004	1DD5	1958	1234 1365 1382 1421 1447 1501 1579 1623 1733 1750 1850 1863
\$IOX	A	004	1EC1	2041	1958*
\$IOX1	A	004	1EBD	2040	1959* 2025
\$KILO	A	004	2182	2333	1549
\$KL	A	001	2270	2352	
\$LINK	C	001	0216	2414	1894 1939
\$HEG	A	006	2188	2334	1554
\$HO1	A	001	203B	2212	2144* 2148
\$HO1N	A	020	204E	2213	2148 2149
\$HO2	A	001	204F	2215	2154
\$HO2N	A	027	2069	2216	1668 2154 2155
\$HO3	A	001	206A	2218	2159
\$HO3N	A	026	209E	2220	1679 2159 2160
\$HO4	A	001	209F	2222	
\$HO4N	A	036	20C2	2223	1241
\$HO5	A	001	20C3	2225	
\$HO5N	A	022	20D8	2226	1630

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CROSS-REFERENCE

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
\$M06	A	001	2009	2228	
\$M06N	A	022	20EE	2229	1242 1631
\$M07	A	001	20EF	2231	
\$M07N	A	005	20F3	2232	1272
\$M08	A	001	20F4	2234	
\$M08N	A	016	2103	2235	1273 1288 1289
\$M09	A	001	2104	2237	1274
\$M09N	A	005	2108	2238	1290
\$M10	A	001	2109	2240	
\$M10N	A	004	210C	2241	1275
\$M11	A	001	210D	2243	
\$M11N	A	005	2111	2244	1276 1277
\$M12	A	001	2112	2246	
\$M12N	A	003	2114	2247	1284 1664
\$M13	A	001	2115	2249	
\$M13N	A	006	211A	2250	1285 1665
\$M14	A	001	211B	2252	
\$M14N	A	006	2120	2253	1286
\$M15	A	001	2121	2255	
\$M15N	A	023	2137	2256	1287
\$M16	A	001	2138	2258	
\$M16N	A	009	2140	2259	1291
\$M17	A	001	2141	2261	
\$M17N	A	006	2146	2262	1300
\$M18	A	001	2147	2264	
\$M18N	A	016	2156	2265	1301 1302 1303 1304
\$M19	A	001	2157	2267	
\$M19N	A	007	215D	2268	1305
\$M20	A	001	215E	2270	
\$M20N	A	004	2161	2271	1307
\$M21	A	001	2162	2273	
\$M21N	A	006	2167	2274	1398 1766
\$M22	A	001	2168	2276	
\$M22N	A	004	2168	2277	1666
\$M23	A	001	216C	2279	
\$M23N	A	004	216F	2280	1667
\$M24	A	001	2170	2282	
\$M24N	A	008	2177	2283	1785 1786
\$M25	A	001	2178	2285	
\$M25N	A	008	217F	2286	1677
\$M26	A	001	2180	2288	
\$M26N	A	008	2187	2289	1678
\$NN	A	001	2273	2354	1884* 1885 1885* 2012* 2026* 2113* 2114 2114*
\$PBUF	A	001	2201	2344	1236 1248 1260 1282 1296 1312 1319 1341 1356 1403 1562 1625
					1637 1649 1662 1673 1684 1691 1709 1724 1771 1805 1810 1815
					1820 1825 1830 1835 2162* 2163 2163* 2168 2173 2178 2183 2188
					2193 2198
\$PRINT	C	001	021A	2415	1245 1257 1279 1293 1309 1316 1338 1353 1400 1559 1634 1646
					1659 1670 1681 1688 1706 1721 1768 1832 2141 2146 2152 2157
					2195
\$PTR	A	001	218F	2305	1232* 1363* 1370* 1372 1375* 1387* 1390 1393* 1407 1412 1416* 1418
					1426* 1428 1431* 1491* 1493 1496* 1498 1567* 1569* 1571 1574* 1576
					1621* 1731* 1738* 1740 1743* 1755* 1758 1761* 1775 1840* 1842 1845*
					1847 2003
\$PTRF	A	001	2194	2314	1407* 1416 1498 1576 1775* 1847
\$PTRX	A	001	2195	2315	1412* 1418 1567
\$P1	A	002	21A6	2327	1231 1370 1387 1388 1426 1491 1569 1592 1620 1738 1755 1756
					1840 1870 2105 2133
\$P209	A	002	21A9	2329	1230 1619
\$P256	A	003	21AC	2330	1997
\$P5	A	001	21A7	2328	2004
\$Q	A	001	2190	2307	1971* 1979* 1984* 2014* 2033* 2051
\$R	A	001	2191	2308	1972* 1980* 1985* 2015* 2034* 2052
\$RDCNT	A	006	219E	2321	1448* 1449 1449* 1450 1452* 1525 1554*
\$RDHA	A	004	1E1B	1984	
\$RDKD	A	004	1E4E	2002	

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
\$RDKD1	A	006	1E5E	2005	2006
\$RDKD2	A	004	1E67	2019	2009
\$RDWK	A	001	21A3	2324	2002* 2003* 2004* 2005 2005* 2008 2011 2020* 2021
\$RDWR	A	006	1E35	1994	1967 2117
\$REC	A	001	21C1	2341	1367 1384 1414 1423 1452 1453 1455* 1459 1465 1473 1479 1484
					1503 1506 1581 1584 1735 1752 1780 1783 1788 1791 1792 1793
					1795 1798 1799 1800 1804 1809 1814 1819 1824 1829 1852
					1964 2119
\$RECAL	A	004	1DF7	1971	1964 2119
\$SPECN	A	064	2200	2342	2023*
\$RETRY	A	001	2196	2317	1961* 2105*
\$RR	A	001	226F	2351	1969* 2008 2011* 2027*
\$RTN3	A	001	1770	1219	0377
\$RTN4	A	001	180E	1608	1221
\$R5	A	004	1778	1228	1358
\$R5A	A	003	1875	1326	1595
\$R5B	A	004	1888	1363	1349
\$R5B1	A	004	188C	1365	1373
\$R5C	A	004	18D9	1380	1368
\$R5C1	A	004	18DD	1382	1396
\$R5C2	A	004	18FF	1395	1391
\$R5C3	A	006	1918	1407	1385
\$R5D	A	006	191E	1412	1587
\$R5D1	A	006	192F	1418	1429 1432
\$R5E	A	003	195B	1437	1419
\$R5E1	A	006	1992	1452	1509
\$R5E2	A	003	198F	1471	1461
\$R5E3	A	004	19D9	1484	1466 1469 1480
\$R5E4	A	005	19E3	1489	1460 1474 1485
\$R5E5	A	006	19E8	1491	1475 1504 1507
\$R5E6	A	006	19F9	1498	1494
\$R5E7	A	001	1A1B	1511	1499 1552
\$R5E8	A	006	1AA1	1554	1550 1557
\$R5E9	A	004	1AB3	1559	1548 1555
\$R5F	A	006	1ABB	1567	1424
\$R5F1	A	006	1AC1	1569	1582 1585
\$R5F2	A	006	1AD2	1576	1572
\$R5N	A	006	1AF4	1592	1405 1577
\$R6	A	004	1B16	1617	1726
\$R6A	A	003	1BC5	1698	1873
\$R6B	A	004	1BFC	1731	1717
\$R6B1	A	004	1C00	1733	1741
\$R6C	A	004	1C1D	1748	1736
\$R6C1	A	004	1C21	1750	1764
\$R6C2	A	004	1C43	1763	1759
\$R6C3	A	006	1C5C	1775	1753
\$R6D	A	004	1C62	1780	1855
\$R6D1	A	004	1C8F	1795	1789
\$R6D2	A	004	1CA5	1802	1796
\$R6E	A	006	1CE3	1840	1781 1853
\$R6E1	A	006	1CF4	1847	1843
\$R6N	A	004	1D0D	1860	1773 1848
\$SAVR1	A	004	1A67	1529	1516*
\$SAVR2	A	004	1A6B	1530	1517*
\$SBYT2	C	001	020A	2410	1896 1899* 1901 1913 1925 1937
\$SBYT4	C	001	020C	2411	1862
\$SSEEK	A	004	1EOF	1979	1992
\$SIO	A	003	1EF9	2063	2050* 2051* 2052*
\$SKCNT	A	004	21A2	2322	1450* 1453* 1518 1549*
\$SNS	A	001	2274	2356	2054* 2057 2072* 2075 2085 2088* 208? 2089* 2091* 2092* 2108* 2110
					2116 2121* 2122 2122* 2123 2127 2127* 2167 2172 2177 2182 2187
					2192 2339
\$SNSDR	A	002	21C0	2339	2099
\$SNSIO	A	003	1F57	2101	2096* 2097*
\$SNS23	A	002	21BA	2335	2090
\$SSW11	C	001	0040	2378	1896 1901
\$SSW12	C	001	0020	2379	1896 1899 1913



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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SSW13	C	001	0010	2380	1896 1925
SSW14	C	001	0008	2381	1896 1937
SSW20	C	001	0080	2382	1862
\$TEST	C	001	0212	2413	2048
\$TIO	A	004	1FOA	2070	2065* 2066*
\$UCK	A	006	1F49	2096	2086
\$UDT	C	001	0A0A	2419	1887
\$UNPK	C	001	021E	2416	1802 1807 1812 1817 1822 1827 2165 2170 2175 2180 2185 2190
\$WRREP	A	004	1E9B	2027	2080
\$XEQ	A	004	1EC5	2046	1974 1982 1987 2017 2036
\$XEQX	A	004	1F20	2078	2046*
\$XR1	C	001	0001	2371	1236* 1241 1242 1243 1254 1255 1255 1262 1263 1263 1265 1266
					1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1284
					1285 1286 1287 1288 1289 1290 1291 1298 1298 1299 1299 1300
					1301 1302 1303 1304 1305 1306 1306 1307 1314 1314 1326 1327
					1327 1329 1330 1331 1332 1333 1334 1335 1336 1346 1351 1351
					1398 1414 1423 1437 1438 1438 1439 1439 1440 1440 1441 1441
					1442 1442 1443 1443 1444 1444 1445 1445 1457 1463 1468 1471
					1477 1482 1506 1551 1556 1584 1625* 1630 1631 1632 1643 1644
					1644 1651 1652 1652 1654 1655 1656 1657 1664 1665 1666 1667
					1668 1675 1675 1676 1676 1677 1678 1679 1686 1686 1698 1699
					1699 1701 1702 1703 1704 1714 1719 1719 1766 1783 1785 1786
					1791 1792 1793 1798 1799 1800 1887* 1889 1889* 1890 1893 1959
					2019* 2021* 2023 2040* 2123* 2129 2130 2130 2132
					1457* 1463* 1468* 1471* 1477* 1482* 1487 1487* 1489
\$XR2	C	001	0002	2372	2129
\$X80	A	001	21AE	2332	0762
\$ZERO	A	006	1272	0791	1025 1033
ADDBAK	A	005	14DE	1043	1025
ADD8	A	005	0C7B	0225	0220
ALCL	A	001	1221	0765	0753*
AREC#	A	002	1727	1203	
ARR	C	001	0008	0022	0491 0636 0693 0712 0740 0799 0832 0856 0867 0896
ASTER	A	001	1082	0611	0591
AST1	A	003	1086	0613	0616
A107	A	005	0C56	0214	0206 0211
A119	A	005	0C4E	0212	0208
BLANK	A	001	0DBB	0357	0771
BOTH	A	004	0C88	0229	0218 0224 0226
BR@	A	004	0886	0163	0145*
BRTBL	A	002	0097	0339	0142
BSFLG	C	001	0002	0488	0415
BUMP	A	003	14F8	1053	1050 1057
BYTE@	A	002	0CD5	0254	0134* 0250*
CBUF	A	001	2439	2465	0664* 0873 2428 2429 2467
CBUF@	A	002	2391	2428	0509 0665
CCNT	A	001	23A2	2437	0433* 0436 0442* 0443
CEND@	A	002	2393	2429	0531 0599
CHKSW	A	001	0F88	0532	0870*
CHKSW1	A	001	1058	0600	0869*
CKCYLO	A	003	14CC	1036	1020
CKFIXD	A	003	147F	1001	0999
CKZERO	A	003	1485	1027	1034
CLCL	A	001	1213	0761	0754*
CNT	A	001	2514	2481	0312* 0319* 0398* 0452*
CNTLNG	A	002	23B9	2451	0435* 0579* 0742 0746 0751 0780 1514* 1522*
CNTN	A	001	2514	2482	
CNTQFS	A	002	23B7	2450	0155* 0156* 0171 0195* 0197 0436* 0578* 0714 0757 0780* 0801 0834
					0849* 1515* 1524*
CNTR	A	001	1007	0576	0541
CRDNMB	A	001	2498	2467	0500 0640* 0649 0661* 0662
CSTR@	A	002	2502	2474	0510* 0528 0530* 0531 0535 0554* 0563* 0598* 0599 0605 0665*
CVTBIN	A	001	12AF	0831	0161 0162
CVT81	A	003	12D4	0844	0842
CVT82	A	003	12C7	0840	0846
CVTCNT	A	002	2385	2449	0745 0769* 0839* 0845*
CVTCTH	A	003	149D	1017	1015

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
CVTSTR	A	004	14E3	1046	1038 1041
CVTX	A	001	12E4	0851	0781
CVTX@	A	001	12F3	0854	0740* 0799* 0832*
CVTX1	A	001	12E1	0847	0813
CVYSTR	A	001	149E	1018	1010*
DACON	A	004	0D04	0259	0152
DAR	A	001	1354	0925	
DAB9	A	001	0EF3	0462	0392*
DBJF	A	001	2623	2489	0086 0086* 0092 0097 0097* 0098 0098* 0099 0099* 0105* 0170 0196
					0288* 0289 0289* 0293* 0713 0756 0800 0833 0924 1172 1518* 1525*
					2426 2427 2491 2492 2493 2494 2496 2498
					0156
DBUF@	A	002	1354	0924	
DCR	A	002	1352	0923	
DDCF	A	001	16FB	1177	0948* 1060* 1061* 1062* 1098* 1169
DDCFB	A	010	1725	1202	0945
DDCFE	A	001	1704	1185	0945* 1076
DDCX	A	001	170F	1190	1171
DDCZ	A	001	1718	1198	1076* 1077*
DDDF	A	001	1705	1187	1084 1097* 1170 1203
DDZL	A	002	171A	1199	1077
DD51	A	001	0EEF	0458	0389*
DEC	A	015	2511	2479	0759* 0764 0764* 0768* 0771* 0774* 0779
DISKID	A	001	1333	0893	0290 0294 0448 0569 0894 0895
DISKX@	A	002	1349	0902	0896* 0897 1093
DISK33	A	006	13F3	0945	0899
DIVBY4	A	004	0C63	0217	0213 0215
DKERA	A	006	15CD	1118	1139
DKER2	A	006	1582	1109	1082
DKER4	A	006	158B	1112	1092
DKER9	A	006	15C4	1115	1075 1104
DKNR	A	003	15AF	1107	0947
DONE	A	001	239D	2435	0661 0768
DRV32	A	001	1718	1201	1068
DSK	A	001	0FEA	0566	0539
DSKCYL	A	001	134E	0920	
DSKDRV	A	001	134C	0917	0065* 0393* 0994
DSKFCY	A	001	1346	0900	0898* 1067
DSKFLG	A	001	134D	0919	0923
DSKMSG	A	004	138E	0933	
DSKM32	A	001	0A38	0073	0068
DSKM33	A	023	0A87	0076	0068 0069 0072
DSKNUM	A	001	1350	0922	
DSKOF5	A	002	23B3	2448	
DSKSEC	A	001	134F	0921	0292* 0568* 0993
DSNS	A	001	1728	1206	1173
DSNSE	A	024	173F	1207	1142
DUMP	C	001	2020	0035	
DVFLG	A	002	0D91	0324	0166* 0177* 0184* 0188* 0237* 0313 0313*
DYTB1	A	001	0DB4	0354	0148
DZERO	A	001	239C	2434	0640 0759
D51	A	003	0A15	0049	0387
EIGHT	A	002	239B	2433	0100 0225 0245 0256
EMPTY	A	001	0D10	0276	0132
END	A	001	2523	2487	
ENTAD@	A	002	2397	2431	0134
ENTADD	A	008	2522	2486	0116 0116* 0123 0123* 0124* 2431
ERAP	A	001	0A00	0018	
ERRMSG	A	004	0D05	0270	0095
ERRMSG	A	004	141A	0981	1022 1037 1054
ERRMSL	A	051	145E	0988	0984
EXIT	A	005	150E	1059	1048
E1	A	001	0EF0	0459	0386*
FFFF	A	001	23AA	2442	0494 0719 0803
FFLG	C	001	0080	0482	0498 0522 0637 0666
FIVE	A	002	23A4	2438	0311
FLGDA	A	001	0A11	0048	0390

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FLG14	A	001	0A0E	0046	0189 0200 0384
FORTEN	A	001	140A	0968	1031 1043
FOUR	A	001	1409	0967	1056
GPCS	A	001	145F	0990	0965
HALFNT	A	001	0832	0126	0121
HALT	C	001	0222	0031	0070 0519 0673 0681 0985 1152
HEADWA	A	001	1414	0975	1046* 1055* 1059
HEXDEC	A	001	11C2	0739	0173 0229 0424 0434 0437 1519 1526
HEXD0	A	004	125F	0782	0763
HEXD1	A	006	121A	0764	0770
HEXD2	A	006	122D	0769	0767
HEXD3	A	004	1249	0775	0773
HEXD5	A	006	1237	0771	0783
HEXHEX	A	001	1273	0798	0159 0160 0167 0181
HEX2	A	004	1288	0806	0815
HEX20	A	001	1408	0966	1051
HEX3	A	003	129D	0811	0809
HLTTBL	A	001	1355	0927	
H24	A	002	23B1	2447	0507* 0508 0859* 0861
INC	A	006	0FE0	0563	0571 0575 0580
INV	A	007	23C7	2458	0233
INVALID	A	001	0C8F	0231	0199
IOBCHN	A	004	1418	0977	0993* 0995* 0998 1001 1017* 1019 1021 1023* 1027 1030* 1031* 1036 1040* 1043* 1047 1049 1051* 1053 1056* 1059* 1060 1061 1062
IOBQB	A	001	1419	0978	0994* 0995 1012* 1014* 1016*
I107	A	001	238D	2454	0214
I119	A	001	238E	2455	0212
I123	A	001	238C	2453	0202
I126	A	001	238F	2456	0227
I21	A	001	23C0	2457	0216
I5	A	001	0C49	0210	0223
LABEL	A	004	0B03	0115	0112
LBUF	A	002	16F8	1172	1089
LDCF	A	002	16F2	1169	1070 1088
LDCX	A	002	16F6	1171	1078
LDDF	A	002	16F4	1170	1071 1079 1100
LEVEL	A	002	115B	0684	0658 0659
LINE	A	001	0FFD	0573	0547
LINK	C	001	0216	0028	0321 0454 0987 1154
LIO33	A	001	1572	1087	
LNGTBL	A	001	1267	0784	0741
LOAD	C	001	022A	0032	0643 0647 0652
LSNS	A	002	16FA	1173	1136
LVLMSG	A	017	116C	0685	0680
MACH#	A	005	2713	2495	
MASK	A	001	0CD3	0252	0135* 0248 0248* 0251*
MODEL	C	001	0200	0026	
MODELG	A	001	0A88	0077	
MSG	A	001	1018	0582	0537
MSGCK	A	004	1040	0595	0624
MSGX	A	030	0D00	0258	0273
MSG1	A	001	102A	0587	0597
MSG2	A	004	106E	0605	0601
MSG3	A	020	13A2	0935	0302 0303
MSG3B	A	001	138E	0934	0302
MSG4	A	040	13F2	0938	0307 0308
MSG4B	A	001	13A2	0936	0307
MVCL	A	001	1252	0778	0743*
NEG7	A	002	23AB	2443	0837
NEWDAT	A	006	271F	2499	
NEWDRV	A	005	1488	1010	1002
NEXT	A	001	0F71	0526	0511 0564 0607 0610
NFLG	C	001	0020	0484	
NSLEV	A	004	1148	0677	0660
NXT1	A	004	0F79	0529	0551
NXT2	A	003	0F92	0536	0533

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
OBRND@	A	002	238F	2427	0104 0131 0178 0243 0246
OBRNT@	A	002	251A	2485	0104* 0106 0117* 0120 0128* 0131 0139 0243 0245* 0246 0256*
OBRST@	A	002	238D	2426	0120
OBRTYP	A	002	23AD	2444	0115* 0117 0122* 0128
OBRI	A	004	0D95	0325	0091 0293
OME	A	001	0A8B	0079	0195 0250 0318 0319 0425 0450 0451 0452 0554 0553 0598 0615 0752 0769 0845 0849 0852 1030 1040 1055
PACK	A	004	116D	0693	0560 0567 0577
PBUF	A	001	2499	2468	0089* 0137 0527 0561 0568 0574 0578 0579 0586 0602* 0604 2430
PBUF@	A	002	2395	2430	0694 0695
PCHBUF	A	001	2523	2492	
PCK1	A	004	1179	0696	0702
PD30	A	001	1666	1160	1122
PD31	A	020	16A0	1163	1109* 1112* 1115* 1118* 1122 1123 1124* 1125 1125*
PD35	A	020	1684	1164	1109
PD43	A	020	16C8	1165	1112
PD46	A	020	16DC	1166	1115
PD48	A	020	16F0	1167	1118
PEND@	A	002	24FE	2472	0529* 0596 0701
PEXT@	A	001	1198	0704	0693*
PID	A	002	0A01	0038	0657
PRIDEF	A	001	158C	1096	1085
PRINT	C	001	021A	0029	0062 0066 0241 0270 0300 0305 0381 0427 0438 0515 0608 0669 0677 0981 1120 1131 1144 1148
PROG#	A	002	250A	2476	
PROGC	A	001	250B	2477	
PROGI	A	006	2511	2478	
PRTRBUF	C	001	0880	0034	0089 0137* 0153* 0191* 0192* 0583 0602 0604* 0649 0659 0662 0664 0860 1520 1527
PRTNR	A	004	1503	1120	1107 1110 1113 1116
PRTPOS	A	001	12F4	0855	0232 0777 0802 0836
PRTX@	A	001	1310	0863	0856*
PSNS	A	048	176F	1208	1143 1151
PSTR@	A	002	2500	2473	0595* 0596
PTBUF	A	001	2523	2491	
PT1403	A	001	0C6A	0219	0201
P1403	A	004	0C0E	0193	0190
QAO	A	001	0D05	0266	0348
QBO	A	001	0D05	0267	0349
QCO	A	001	0D05	0268	0350
QDO	A	001	0D05	0269	0351
QEO	A	001	0BFB	0187	0352
QFO	A	001	0C9B	0236	0353
QRSNS	A	001	24F9	2470	0158* 0172 0179 0193
Q10	A	001	0B0B	0176	0339
Q20	A	001	0D05	0260	0340
Q30	A	001	0D05	0261	0341
Q40	A	001	0D05	0262	0342
Q50	A	001	0BF3	0183	0343
Q60	A	001	0D05	0263	0344
Q70	A	001	0D05	0264	0345
Q80	A	001	0B8A	0165	0346
Q90	A	001	0D05	0265	0347
RDBUF	A	001	25A3	2493	
RDDGE	A	029	1666	1159	1146 1147
RDDGS	A	001	1649	1158	1146
RDRRT	A	003	157A	1090	1067* 1068*
RD1	A	001	10D9	0651	0638
RD2	A	004	10CB	0647	0642
RD3	A	001	10DE	0654	0650
RD4	A	006	10DD	0649	0646
READ	A	001	10A9	0635	0504 0534 0603 0874
RELOAD	A	001	0F43	0512	0502
RETURN	A	001	0FC4	0553	0545
REXT@	A	001	1112	0668	0636*
RLDMSG	A	017	0F70	0524	0516

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

CROSS-REFERENCE

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
RMSG	A	035	1147	0676	0672
RSHFX2	A	001	11C1	0723	0712*
RSHF1	A	004	11A9	0716	0720
RSHF2	A	004	1183	0719	0717
RSHIFT	A	001	1199	0711	0217
RST	A	004	10AD	0637	0683
RTN1	A	001	0A16	0056	0042
RTNIX	A	004	0D1C	0280	0244
RTN1XX	A	001	0D2F	0287	0274
RTN1X1	A	001	0D5D	0309	0286
RTN102	A	006	0A88	0097	0101
RTN103	A	001	0AD7	0103	0093
RTN104	A	004	0AE1	0106	0118
RTN105	A	001	0817	0119	0114
RTN106	A	001	0B32	0127	0110
RTN107	A	001	0CA2	0240	0174 0180 0182 0185 0194 0230 0234 0238
RTN108	A	001	0B4C	0136	0257
RTN109	A	006	080D	0117	0125
RTN11X	A	004	0CDF	0257	0247 0255
RTN111	A	006	0D67	0313	0320
RTN112	A	006	0D7C	0318	0314
RTN2	A	001	0DF0	0375	0058
RTN334	A	004	0D4D	0300	
SAVRD	A	005	180D	1598	1527* 1532
SAVSEK	A	005	1808	1597	1520* 1531
SBYTE4	C	001	020C	0027	0285 0446
SCAN	A	001	0EF6	0490	0081 0088 0279 0282 0317 0414 0429 0440 0872
SCNEXT	A	001	0FD1	0557	0491*
SCNFLG	A	001	0EF5	0480	0278* 0281* 0316* 0413* 0415* 0496 0498 0522* 0555* 0637 0666* 0772
SC1	A	004	0EFE	0493	0495 0775* 0782* 0871*
SC2	A	001	0F23	0503	0499 0523
SC3	A	001	0F71	0525	0497
SC4	A	001	0F58	0521	0514
SDRBS	A	004	0E98	0434	0444
SDRBSC	A	001	0E97	0432	0418 0420 0422
SDRFND	A	001	0E57	0411	0405
SDRDX	A	002	2518	2484	0401* 0402 0416 0451*
SDRLEN	A	001	0EF5	0465	0398
SDRNXT	A	001	0E2B	0397	
SDRIBL	A	001	0EEE	0456	0398 0400
SDR1	A	006	0ED4	0450	0407 0447
SDR2	A	004	0E43	0404	0409
SDR3	A	004	0E7D	0424	0426
SDR4	A	001	0EC8	0445	0430
SDR5	A	001	0E7D	0423	
SDR6	A	004	0E3A	0402	0453
SFLG	C	001	0010	0485	0278 0281 0316 0413 0496 0555 0871
SI02	A	003	1345	0901	
SI033	A	003	1560	1080	1105
SIX	A	002	23A6	2439	0493
SIXTEN	A	002	2399	2432	
SPACE	A	001	1098	0619	0589
SPCNI	A	001	1070	0609	0574*
SP1	A	003	10A2	0623	0617
SSW20	C	001	0080	0023	0285 0446
SSW23	C	001	0010	0024	
SSW24	C	001	0008	0025	
STARTN	A	001	1415	0976	0991 0992
STATOT	A	026	1649	1157	1130 1133 1134
STATST	A	001	162F	1156	1133
STATUS	A	002	1348	0916	0946* 1126* 1129
STRDAT	A	006	2719	2497	
SUB126	A	005	0C83	0227	0222
SVCSTR	A	002	2516	2483	
SVNTEN	A	001	1408	0969	1023

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SWITCH	A	001	128C	0805	0804* 0812 0814*
SYNCF	A	002	23AF	2445	0311* 0315 0318* 0399* 0412 0450*
SYNMOV	A	001	1311	0865	0080 0396
SYNMX2	A	001	1332	0876	0867*
SYNR	A	001	1315	0868	
SYNTBL	A	001	23C8	2459	0492 0873*
SYN1	A	005	0F18	0500	0505
SYN2	A	004	0F28	0506	0501
S21	A	005	0C5E	0216	0204
TAB	A	001	0FD2	0559	0543
TABIDX	A	002	238B	2452	0154* 0168* 0441* 0562* 0852* 0858 1513* 1523*
TABLES	A	001	140C	0970	0996 0997
TABTBL	A	001	2428	2463	0425* 0561* 0857 1512*
TBN	A	004	0C02	0253	0249
TEMP	A	002	2513	2480	0091* 0092* 0094 0100* 0107* 0108* 0109 0111 0113 0138* 0140* 0141 0141* 0143 0147 0147* 0149 0700* 0701 0751* 0752* 0753 0754 0758
TWO	A	001	0E26	0395	0442
UDT	C	001	0232	0033	0403
UFLG	C	001	0004	0487	
UNORD	A	004	1113	0669	0663 0675
UNPACK	C	001	021E	0030	0655 1127 1140
UPCYLN	A	005	1406	1040	1028
XRI	C	001	0001	0020	0106* 0107 0139* 0140 0150 0155 0158 0178* 0233 0402* 0404 0416* 0417 0419 0421 0492* 0493* 0500 0506 0506 0507 0527* 0529 0548 0548* 0549 0583* 0584 0585 0585 0592 0593 0593* 0613 0614 0614* 0622* 0694* 0696 0697 0698 0698* 0700 0715* 0719* 0745* 0746 0747 0747 0748 0748 0749 0749 0779 0803* 0806 0807 0808 0810 0811 0811* 0837* 0840 0843 0844 0844* 0857* 0858* 0859 0860* 0861* 0894* 0895 0896 0897 0898 0939 0991 0992* 0994 0995 0995 0998 1001 1012 1014 1016 1017 1019 1021 1023 1027 1030 1031 1036 1040 1043 1047 1049 1051 1053 1056 1059 1516 1529* 1531 1532 1533 1535 1537 1539
XR2	C	001	0002	0021	0078* 0142* 0143* 0144 0144* 0145 0148* 0149* 0152* 0153 0170* 0171* 0172 0196* 0197* 0198 0202 0203 0205 0207 0209 0212 0214 0216 0221 0223 0225 0227 0277* 0280* 0315* 0394* 0400* 0401 0403* 0404 0406 0408 0408* 0412* 0494* 0508* 0509* 0510 0528* 0530 0535* 0536 0538 0540 0542 0544 0546 0549 0550 0550* 0586* 0588 0590 0592 0594 0594* 0595 0605* 0606 0612 0612 0615 0620 0620 0621 0622 0623 0623* 0695* 0696 0697 0699 0699* 0713* 0714* 0716 0716 0718 0721 0741* 0742* 0743 0756* 0757* 0758* 0762 0766 0766 0800* 0801* 0806 0833* 0834* 0841 0841 0848 0897* 0898 0996 0997* 1000 1000* 1003 1003* 1010 1012 1013 1093* 1094 1517 1530*
XOE	A	002	23A8	2440	
X39	A	004	12A0	0812	0810
ZERO	A	004	23A1	2436	0138 1513 1515 1523 1524
ZFLG	C	001	0008	0486	0772 0775 0782

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

THE CHARACTER ' INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GBD PN 42 4824C EC 827805 DISK ERROR RECOR DING ANALYSIS 84228422 ..... FF710000  
T+-Y:7D E B/S \*D \*D HU ED & D C-C /OHE60 |a |H-LLCBG /Y GLODGOH\*BH?MAY |E(E ROKFF710001  
T+-250).E&+.Y8>| E5DCP0#K&<105;| A2)P15\*) 1)XR5\_V 2)PF5\_XMO;|15\_N 6\*PA1+/ 5\_N 1(X 19\*M 5K FF710002  
T+-D0&|I.&<LE5'X EB>I B>|A6:(.0-H \*BGD1G /O#6C|@ MHS\*SOH\*+|-1-|I- H700AIJK(IV&@AIJK VIIH -ODFF710003  
T+-,-K&9A2MLOI (A60GIXYXN-37I2H XF-3"ISYWH-@AIJK TW@ AB,Z' KMEH@ @ BMT(EDVF/O IJK +0@ \*L-FF710004  
T+-ZWIJ<' bML@YD 'I E V@HBA37&IJI 2AA&@BB+\_C-\*VHSM SCODVFS+\_OH\*H8&4 AIJYTT-HADTO&H:4 +A2M :E0FF710005  
T+-/\_HSMS+-DVH@B 6804+ \*KMEH:4( KM EH8 / 4&C D<5K+ P| D<401-B(2U= 0 AIJ<TYLMAIJYQ SM L 8 J/ FF710006  
T+->\* KMLIJ|B -6 NI-HV@HMB C&BB#U + KMLIJ|B -63(-H VD7SI |H&A<HBC&E % OSE COAH#Z4 K+ 7COD =3@FF710007  
T+-?PH#\*LNAOCI|O COH\*K\*@BGDX| /IH 7OH\*K, @BG :H 6 8OH\*K\*30BH#7B SQ T(-HT\_80 BL:OH\* JO% )R\*FF710008  
T+-OK/O2S+Y (UCH AH@ @BL9OI <Y@B GD XI /O2S+U (U<B GCHH:A 6&+B HC7H 6BC31BHHA' SC+ & U=2 PJ4FF710009  
T+-1(U 2SC-DT\_0D .0-HH@BQBH#: ' C 2-WH8H Y+@/ 9TO 'H#2'F C2/BH'D C 2/AK' C2/ E'A&C 2 - N@FF710010  
T+-2HT- H#2/06 + \*T-HGAQ@ B| OH\*JM-HGG?HAC,5 = |HDDH8 11@Y\* (T- H922/00| T?@ M1YFF710011  
T+-3C/1GB@Y+LOH\* K'DOF B|G@Y\*G+ (U|HG <BG /Y/C&D TT2HE@YESC-DVFS+ 8C&DTT2HE@YD-C- <400 2H<FF710012  
TDE3N4\*HAB-@AC(H HS3QAC<@B ..... 2&FF710013  
T+-4&@Z FC-DVFS+ 8OH\*-L<PR6)SR&<T 18>|06;/ @2GB4@N 2:I 2)PVO)111DC DOMC /OHEA18( |H GG@H 18\*FF710014  
T+-5. - C+/ +\*B GC7S@ - D+/ +\*B GC7Q9- H<@Z >| XH-3=12DXHXBGD3< B|AOLL00CISQIV\*B GD3< 70\*FF710015  
T+-6F XBG /YBEA+ SOH\*BF-R&D'H< K+ ?H: @@DBHMC-D(U&6 J@S <(EHT,3Y&C?P /O#6C-DT,0D.CO VE Y #BHFF710016  
T+-7AS@ ACO- /OH 0 \*A\*OG\*B'Z(A&4 EC&M.@04EC&M.>-4 EC&M(A&4EC&M.=02 \$'-L7@MA &DA &DA &D 11MFF710017  
T+-7@&DC1'IL2&DA &DA &DC88|A&DA &DA &DA &DA &DA &DC5@?C3'-L 2' H E7C /OHE&@ |@ #S3FF710018  
T+-87 C--B-#2U & @8E#0+K HE|HEAC1 JC>@8H YJ@Z DIHU +@32YD43B - B0H\* LDLOGIJ&@ 2+?0-H +#T& #S-FF710019  
T+-92 SMQ(EDVFKH B TI\_ @YD(>A A@/BD8-HCOH\*+&3M BH: @:D #5OH\*+T& BC?M5 KM@-Q @YD W-Q- NQ\*FF710020

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

T+-: |HANG6I |H AFZBGD\*H| B&BY? \*E9'OH\*BFSG /OB 6@Y\*1|C TYZBGD\*M @ S+9C-DT\_2+SOH\* JOZ \*R@-FF710021  
T+-BY/OHEH\*BGC7Q @ K+@CO TY-BN|JQ TYZ ACZ@- H<@Z EOH\*LCOH+ K+?BYZ + KM@BYZ| B\*MBY? \*E@ NAHFF710022  
T+-@T+@BG /O&M;C O-H/ -C&HC'GB KI B(-DTZTQBH: \*E# =+A +'-H&GCS C7P 2D @) 2KQ \*HAB\*M DH< LL-FF710023  
T+-: /|BZOH\*|FE- AA&@ B+1ALMBH#D 6 S+J( HV ?HG.T7 A T.2-E# /OHE/10 |@<BG SH :TD C7P /O@ 2,FF710024  
T+-RH\*XE4\*\$A1DC DO:|A&<|A6\*LSO-D UMCMBI&H4 KL=( H V -4A|EHTU\*HBB<B GDHUS SMB?) @YF C7MO @H<FF710025  
T+-M |HAL.5H |H AQ@5> |H@H.5Z |H AE.5+ |HAJ'HA 00 \*CS -G /O'9C-D V -D.+1 +\*@B \*C /1D JT@FF710026  
T+ / |SE0&IC-UDLO AH#Z+ KMBBY? /O' 10H\*J&@ D4@UW\*B GD3<AOM\*|B -CDG4 UW\*BG=C /IE\_C T\_2& =.E6FF710027  
T+ /AHM&O H@UWXB GC=CB &S -DA-PE9 :P@HBIIM'SOC2-OS 'O-C2-M1Z 4-D AB-HAI HV 4AIE U\*Z JZMFF710028  
T+ /BEAA DC-DV -D .C&DV S+LOHHE&-1 -I|-H7@BGDHUCPOT -I|-5 SMB700 OHD |\*@BG /Y-OH\*|\*E- A -D M <FF710029  
T+ /C -EO 4-DATO BBY? \*JBF@Y\*HD D B @O \*\$A >HB @B GOD 4BADK+H +'-H 6I&@OII-TXC7A T. 2 EY 3H\*FF710030  
T+ /C#OH\*BHSC&3'H GA\*@G SY&C&K72K Q@-DEOH\*BH/C /OH : @YADN@ ( TSDN? 2 N-F<@KQH94( 2K QB @ 7@FF710031  
T+ /D6@-DMCE@UM T -C DV S+J+@ +\*@B G \*C /OHE/2<JJ@B 6 SH @<BGDJ|DO:| A&<|A6\*LS&(P084C 15M 92\*FF710032  
T+ /E15\_XD1|V+6\*M -6:|LNE<PRO)- /OH E/1HJ&@BG SH @ZB GDH4 FCP6)SP1|V 4@PV1| @<|F( - JMCN :CGFF710033  
T+ /F& K+N(EHTVR- A \*@Q O A4-DB8-H A| DVD04AIJKU\*ZB BDPX /O ( -J0\*H B|S<6 S+70-D ADB \*\*\*\*\* LB\*FF710034  
T+ /GX@S C>-D (-D TD@ ADEW@O C /O ( -K@@HBDW@6 S+ 9. \*KM-CB K+5L D \*H@V; & P-D EB A 2 OFF710035  
T+ /HSC DVD2+9COD VDOD.C \*KHKMLC \*KD2MLO-HMH@QBH#\* 6 SNLA+ VDK+\*T& \*DX.2-MHFC@NJ1JF > 18QFF710036  
T+ /I |H-A-S-IJD TX&@AH\*HHS@ AD/Y .CSMCC&Z8B #50I KKL30IJD@B @50H\* K'DO \*BNJC-DT\_2+ 9@Y\* :T&FF710037  
T+ /HQS3YHC7P /IH 7 -@GBE@+ ..... ( -K@@HBIS<6 S+ 7OH\*K'COAHY# JH <E H G.O 679 |H DAHA -H&FF710038  
T+ /L \*KY(HA LU ADY32UCY: JH<OH\* KS3&HD?|B SQT(-H T\_@BGD?@6 K+,| - T\_P30 H@ C2H ( @@E 5 FF710039  
T+ /<+4-DACODY\_@D .O DK1#0 \*BAH#\* H508AH#ZHS@BG \* 4BA<@O-DUHCQAH#Z \* B+1 <HABG@6 K+ 10H\* HSLFF710040  
T+ /I 4BA<2|HH @O32BC@-:D #50H\* +'-1L|B\*UT\*BGDHX /O O-DL<7&HEXM BEWO DOC /|3@O \*\*\*\*\* OH3FF710041  
T+ /+D BY \*AI (ISI2@-L3&<TA4=( \*Q<SXQDCK-?E-'F\_ 9)@L&+) 2:I 5)@ T&(XEG\*LV&(SRE<P R6)Q OQ\*FF710042

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/+*6MCO5MCV5_1	94A QFA-8113*IA	QFA-8DA 8DA 8DA	8113*IA 1)XR5_V	2<XS8*8R:DCA5*J	5><*HFF710043
T+/1:2<PR8<PR6)S	RE<LAB8E 9XL44C	B1MCP6*XM82PDE<	YE(1A82PR8(X09+)	15*PSK4A C UPAA*	V<<<R#2FF710044
T+/65D4?A2A0?1	0=*HGN2 DEA- D*B	32HXH20 *****	G /DG<1J;OH*BH?2	10H*BE>LNO*.L1MC	T5U 6H4FF710045
T+/J00*8N9*PR84C	5* L46<GD1(XE8>1	2)PTSUCA8113*IA	0*LD6*PS8U?B J&	NC DME1(1L DD41	*< 5A8FF710046
T+/K,AKHBE 18D 1	2U  S -J8B 12D 1	S -H2 AK; D- A B	8B A:B L2D 18B J	2 **A'A G2-SR'20G	** /E 0Q0FF710047
T+/LHFU2 J&.8YH	2-E A2YD&L- BY	1 DMB7HBE2BGE.N	G J&E2Y*(L-	BY?2/ON+ DMBTO	AEAE 2SHFF710048
T+/M/-E B2YD/:H	B2Z ELO BE /**	/A&E<- ME D.LO	BE X JL8L BEAE	< A3'EAM< A3'EAO	< A* N#0FF710049
T+/N* A&PC N:11	FC- N:1*80*YN<L6	+E?H13A8422- 0*U	N&<GHEMLA2APDC U	PFA*DC DPE1E<*8	0*TD 6/UFF710050
T+/DP3A8422UA0*Y	NQ2GHE8H8 /*E2/	E<*802TG<E?T32&C	A2/N*0*-N>3M8D4X	-/OD2 J*E1 DO=2G	HER& MROFF710051
T+/PK*8D* H<G	IER*A2/OTO*-N1<B	GEQC2/2D<D1E-E.L	2/1-<D1E-E2T2/O2	<D1E-E_32/OQD1E	-E7 9AMFF710052
T+/Q(OH*8FY*:E0	2&AE-CAHDX1E-<<4	LK28G /88D42OK*B	G /DBF/R10*YN=TG	<E?,32E-A2/CE0*-	N3* 12DFF710053
T+/RH/OH;FA**E6	/OH&-14OR28G /D	B<A1?OH*BH?2 OH*	BEUC58GT9+1 O>T	T1:I 2F?1&<GR1MC	X9* : 2FF710054
T+/E<94CR1+GD&<L	10*) 8> A8=LS&<	Y82PS&<GR1MA &<L	18_I 1(X19*N & 1	5)ST&(XEO*LV&FE	9(N R9-FF710055
T+/E=2:( 02TEO'I	8DA 8DA 8DA 8DA	8DA 8DA 8DA 0*8	T11V 6*PA1DCHOMA	8&(XOK4CA1> E6MC	R1FD 2E&FF710056
T+/899_XT&<LAB8E	K4CA1> E6MCS1*P	K&< O5(LA5*J.&<G	F82PR&(XEO*J 1<X	A14CC5<80=1*EE02	WH1* P8&FF710057
T.J*XH	.....	.....	H2	A	PB- P1HFF710058
T+/D 0 S<TO MQT	/14_C D/TBFZC D	/TSFW  /T2BGG)P	B KHALB<TH<I<ELU	-#UO +KF1OH*BFUH	*HTY KK2FF710059
T+/V*0A2PF/*R6)	YOH*BF-EZHVV2&F)	*RORX-E0F-E01-E0	Q-E02-E0*-E1K-E1	*L &NH <<C20/ 40	C+SD 2QMFF710060
T+/-A4OCKSD<L J	RHJE<AF&/D*BG /Y	A&KIZL HDHJJ&A&4	/FUOEE&D-LAQOHL)	<ALZ/ 40EK2DCL J	RH&- 2E<FF710061
T+//8L /MHMC /OH	E OUSENOBA N*A&4	+L MOHMR<BK</NUO	I<BEOL U*HNR<C5	/NUOFGSE)P /MR40	CQ2D P&DFF710062
T+/50Q*BG /YA&KI	ZPFRX&<BG /YA&KI	Z D/U71 R51VRW)	2P R2P *2PA/2PBN	2PC12PC*2PE12PE3	/OH 3/DFF710063
T+/TJF-EZHVV< <	/U372HR12AAA*RM)	YOH*BF-RZHWX /1)	8  /T2BGG)M' BG	A2YDKC- /T2FMI22	/T2 Q3-FF710064

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/UK-/S2  /T30	HRT /17N E /O-H	AC 8 HCA/Z-8 HR-	/ZT6*HQ*2--<2 BF	1182/W<BBF(5<A&4	/R2 6D<FF710065
T+/VG/OHE OUSE*8	GF7&< BFHQ2< BF	NHQ<A&4/1-0 HQ2	/V 4 HQ2/V-HAN2B	GG)N(A&4/12BAF,2	+ 8D KSHFF710066
T+/MBT2FM 22/T2B	BFK22 BF1OH*R.73	OREOCQ6J*AEVUP (	8REOCKVA* 4J&P U	*ME00C0Z* 1N&OH*	15L0 JLOFF710067
T+/W' BF:C &/XKF	:C </YSF:C-M/XSG	<C-</YSG&+02/61H	BEL4&H)T2-T-2/AC	K 5Y8 KGJ22 -4-H	72Y* 91DFF710068
T+/X8F_HBJC5&HIT	2-J,2/A3K /4'E8G	Q2-DC4-IH+H /4?H	E -MBAYQO BF_C-	/T2FMI22/T*HBACO	HQ2 18*FF710069
T+/Y3CE /T2FM2YD	ROH*15L4 H*G -JX	YLEM(H*8 JXYOH*	RUTO 1B-< K*#H:0	2AB*9C DT_2+/I D	EET& NHHFF710070
T+/Z> /Z>C <WISF	SOH*JO-ODFO-HS30	FH&U< K*#H:D< K+	7H:D<AKQVHR8 /16	BC 88CESHO-D <H	B 108FF710071
T+/DZL JRF0/<AF&	8CP5 0-HA 7300P5	R HA 73OR<BGF,<	2FSH8-2--VF&EU	/,+BGF/2 AKF:HST	2--U HQ2FF710072
T+/,UJU4UHE7 /1D	/OH*BF-EZHUV< BF	1HRM+ BF HEQ'22F	12YHD  /TO4 HCA	/V HAF*8GG)M* BG	A0HD J.YFF710073
T+/8-FZE(A&4/12B	AF2G /1U:C- /TSF	WA- /U2F_OH*Q)E	.....	D  *   /S<BGGK4< KF	<HEU KD4FF710074
T+/_EC D/TSFW	/T2BGG)PB KHALAM	NH(/<EK3-#UO H2F	1OH*BFUN3HS3* G1	*PH1*PE7 /OH& NB	SPX0 N94FF710075
T+/>N&E1*OV_*-EO	F-E01-E0E-E0VOH*	BF-E:HV9< -E/E0D	ECKDEL <OHQ_< 2D	/840ELSAZOH*BF-E	8HV8 2K2FF710076
T+/2&P HDANOEC&9	<A1-/40GN2FGLCJ	SHIE /OH& N8SPV1	8PE7 /OH& N8SPT3	1HR 2&E1*OV_*-EO	F-E0 0&UFF710077
T+/O.C71*FX1*I*8	G /YAPSI:L CHR<	*2SFL2-E&PE_*P*8	G /YFPSI:OH*8ETO	HQ* /17N E /O-H	AD-8 MI FF710078
T+/1F BF HEQ'22F	1OHM* CO HQ22 BF	QOH*15L4 H*G2 L	+ BF HEQ* BFQH&Q	'22F 2YHD  /T36	*HR- = UFF710079
T+/2A0HH*HMDECKE	XOH*BF-E:HV8 /14	IC /VBF 1D /6<B	AG+I<A&4/IUOGFBE	7L *THP* 8GD2YD	L D :ADFF710080
T+/22DSG.L DNH:5	< J-/234 H-C2-E*	< J4/2MOAHBG3L D	TH-P /OH:ABGMHS	/OH:ABGQHTT /OH	:ABD *HFF710081
T+/37781A0H*BG-E	/8B1H0H*BG-E/9B1	LOH*BG-E/:B1*OH*	BF-E:HV8+ BF HEQ	'22F 2YHD  /TO4	HQ2 8Y*FF710082
T+/42HRL2-JC /17	N E /O*8AG+  /11	S+--/SCS --3 UAT	M+O-/S 8 HQ2/Z-0	HR</,+BGF2M4BA7	M  RT2FF710083
T+/5_HX<<BB12HX1	B 8Y64-DC-*D 0 D	117--*8E /O9; H	H2Z D+S BBT/ -Y	9-BFH2Z L+V /SC3	1HQU *H&FF710084
T+/6Y < /ST2AHR.	2/5-8H HH+M /S H	8D3Z HC-22SF <-	/ST1AHR.2/3Y8D H	H+K /S H&D3Y-HQ-	22D :S8FF710085
T+/77SL3&HQV&HKF	K2Y*+ -BBTUEHQT	U HO+ /SC34HQU	26BFH AD/U2BG	48A&D( D;OC0HHRQ	( KD 11HFF710086

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

T+/8;TBI&D-DIC&D /TSI>@YEBI S\$30 HR @ KFJOM\*;1&O AHWO/T OAHWB/TTO HR @ BFJOH\*;1LO AHR 2HEFF710087

T+/9R| D/U\*BGGM < 2I>MZ B SIDOA :COOAHWO/T OAHWB /T-OBHXH/,C-HHQT 2DD4@ABFTC /ZBF IC- ; 4FF710088

T+/MHE&/ZOBANE& /ZC -GV8( BFTHW 2-JQC BI?HE<@ BI 3| D/UCO HRG /1# E0-DSTCO HE<6 KF UGC@ 79&FF710089

T+/#|H- \*@Y\*SI D S\$30?HX<@ B+.C18 TSS+. | H/UCOCHRG /1#E+0-/S<HA C /O ( --H@BG /H < AB BE FF710090

T+/@H=SFHC- :=SF &C :=2FJ<<MS)&O G>Y/UTU HXL UAA U<\*Q/?CGDH\$#3 < A@.HQY: J@.0\*H -A&D ;,\*FF710091

T+/E A@H<<MS)&O GIU/UTU HXL UAA UOH\* C&HG@<B KI 5@Z EI SS00MHYV SS3GGH\$Y01217|C S:@ Q30FF710092

T+/= /1\*DC -DBF H+-D-DCGDH\*C3 - A0/'ECO /VSFMOHD -1C&|HX&\*MBI#OHD -STO HX<<BB12HX< 'EBH \$88FF710093

T+/=#;@BAGTP /17 7C-DS/KF=CODS/KH G|&DS/LOQHR\*+ SH HHY,2H N+ /,VB B -.2H (: EH| BF PHEQ 7H8FF710094

T+/^60 D-X&BG C /OHEU-O HCA/S\*B G /,BEBA+\*\*\$ /OH E-J&-E\*BG /DA(KB :ID S(005HTQS(AB G /8 L0&FF710095

T+S IABI7H-T /OH :ABI#H/G /OH:ABI #H/, /OH:ABHCHS| /OH:ABHGHS3 /OH :ABH.HTP /OHE/TM S(+ \$S FF710096

T+SA&/OHS\*\*\$ /17 J1(XV&+) 5)ST&(X D:DC06MCE6)XR1\*G D&<LIO\*-N5>.T2\*( 8&PN8&N 1<GTOMC O&F 41&FF710097

T+SBXQFA-@(| @|J -QFA-@|) @|/-QFA -@-E @-I-QFA-@-M @-R-QFA-@-V @7A -QFA-@?(-QFA @\*| 4&D KA FF710098

T+SCS9+.A1@N O)P DE<PR6)SR&(|O14C S9(LMO)XYOFA-E|| 3'|A 1)XR5\_V 2<X S8\$R:DA-QFA 1<G TOM #/QFF710099

T+SD)1\_X05DCD6\*X V1MCX1\_LT&ICE6+L I5'LE5:( @ATEO'. S8&PE4>.D0:|A8'\$ TO)|D6:PV5\_|U5<N -9+H 5H&FF710100

T+SEQ1)V-O:|TO\*| H5<PN84A\*E+.UOWC S:+.T1|LM1\*-AO>T T1:;E6)X06;.C5\_X R&DCT1)|LP&DCP1)X HQ+\* N8DFF710101

T.SFG@-CO&FCR1\*G D5)R 4'\$G1<GT1:| I5<PO&D?O&D?O&L(L HK&LDK=TY2</.5(J .8>H ..... R.8FF710102

TF2G DE (D &C 1- =- |&U SIDHYOS) ..... 9 &FF710103

T+S|FIK&XF2&9IID UNKMS A BIC1 A& F #\*\*MU B ;6\_7-/PIS:P A4&U 1/&FF710104

TCB|L|CO@|GO@|C 0'~>O@ ..... 49\*FF710105

E\*\*+E7\*=-DC\*PH\$ =\*7M&F| I C F& ASC R A SO Q ..... 21350630751 10775'Q&FF710106

----- LAST PAGE -----

FF83 USAGE METER TEST

FF83 USAGE METER TEST

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
0A00                      2          DECK 4
                          3 UGM  START X'AG0'
                          4 ***** 6 10 72
                          5 *
                          6 *      USAGE METER TEST
                          7 *
                          8 *****
                          9 *      SECTION PREFACE
                          10 *****
0A00 FF83                0A01 11          DC      XL2'FF83'      PROGRAM ID AND REVISION LEVEL
0A02 00                  0A02 12          DC      XL1'00'      SECTION FLAGS
0A03 00                  0A03 13          DC      XL1'00'      CURRENT ROUTINE NUMBER
0A04 0000                0A05 14          DC      XL2'0'
0A06 0A22                0A07 15          DC      AL2 (RT01)  ADDRESS OF FIRST ROUTINE
0A08 0000                0A09 16          DC      XL2'0'      RESERVED
0A0A F00000              0A0C 17 SPUDT DC      XL3'F00000'   UNIT DEFINITION TABLE
0A0D E00000              0A0F 18          DC      XL3'E00000'
0A10 500000              0A12 19          DC      XL3'500000'
0A13 A00000              0A15 20          DC      XL3'A00000'
0A16 B00000              0A18 21          DC      XL3'B00000'
0A19 E10000              0A1B 22          DC      XL3'E10000'
0A1C 510000              0A1E 23          DC      XL3'510000'
0A1F 701000              0A21 24          DC      XL3'701000'
                          25 *****
                          26 *      ROUTINE 1 PREFIX
                          27 *****
0A22 01                  0A22 28 RT01 DC      XL1'01'      ROUTINE NUMBER
0A23 80                  0A23 29          DC      XL1'80'      MANUAL INTERVENTION
0A24 FFFF                0A25 30          DC      XL2'FFFF'      LAST ROUTINE
                          31 *****
0A26 C0 87 021A         0A2A 32          B      PRINT
0A2A 06                  0A2A 33          DC      XL1'06'
0A2B 1B                  0A2B 34          DC      XL1'27'
0A2C 0B91               0A2D 35          DC      AL2 (UMT1)
0A2E 38 20 0A0B         36          TBM  SPUDT-1,X'20'  *CK FOR AND BRANCH IF
0A32 F2 10 06           37          JT    CKPT        *MFCU IS ATTACHED
0A35 0C 02 0AE6 0B76   38          MVC  SIO1+2,SKIP+2(3) NO-OP MFCU SIO
0A3B 39 20 0A0E         39 CKPT TBF  SPUDT+2,X'20' *CK FOR AND BRANCH IF
0A3F 39 20 0A1A         40          TBF  SPUDT+1,X'20'  EITHER PRINTER IS ATTACHED
0A43 F2 90 06           41          JF    CK42
0A46 0C 02 0AE9 0B76   42          MVC  SIO2+2,SKIP+2(3) NO-OP PRINTER SIO
0A4C 38 20 0A11         43 CK42 TBM  SPUDT+5,X'20' *CK FOR AND BRANCH IF RFG
0A50 F2 10 0D           44          JT    CKS1        *1442 IS ATTACHED
0A53 38 20 0A1D         45          TBM  SPUDT+17,X'20' *CK FOR AND BRANCH IF 1442
0A57 F2 10 06           46          JT    CKS1        *ATTACHMENT IS ATTACHED.
0A5A 0C 02 0AF2 0B76   47          MVC  SIO5+2,SKIP+2(3) NO-OP 1442 COMMAND
0A60 38 20 0A14         48 CKS1 TBM  SPUDT+8,X'20' *CK FOR AND BRANCH IF
0A64 F2 10 09           49          JT    SETA        *DISK SPINDLE A IS ATTACHED
0A67 0C 02 0AEC 0B76   50          MVC  SIO3+2,SKIP+2(3) NO-OP SPINDLE A SIO
0A6D F2 87 04           51          J     CKS2
0A70 31 A6 JCF7         52 SETA LIO  CDISK,X'A6'
0A74 38 20 0A17         53 CKS2 TBM  SPUDT+11,X'20' *CK FOR AND BRANCH IF
0A78 F2 10 09           54          JT    SETB        *DISK SPINDLE B IS ATTACHED
0A7B 0C 02 0AEP 0B76   55          MVC  SIO4+2,SKIP+2(3) NO-OP SPINDLE A SIO
0A81 F2 87 04           56          J     CKTAPE
0A84 31 B6 OCF7         57 SETB LIO  CDISK,X'B6'
0A88 38 20 0A20         58 CKTAPE TBM  SPUDT+20,X'20' TAPE ON SYSTEM ?
0A8C F2 10 0B           59          JT    TRITIO
0A8F 3C 87 0AF4         60          NVI  TU0+1,X'87'   SET TO SKIP TAPE CHRS.
0A93 3C 15 0AF5         61          NVI  TU0+2,X'15'   SET TO SKIP TAPE CHRS.
0A97 F2 87 4A           62          J     SIO1
0A9A C0 87 021A         63 TRITIO B    PRINT      PRINT TAPE SET-UP
0A9E 06                  0A9E 64          DC      XL1'06'
0A9F 5A                  0A9F 65          DC      IL1'90'
0AA0 OCF5                0AA1 66          DC      AL2 (UMT9)
0AA2 C0 87 0222         67          B     HALT
0AA6 FFFA                0AA7 68          DC      XL2'FFFA'
0AA8 3C 07 0AF4         69          NVI  TU0+1,X'07'

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
CAAC 3C 07 0AFA         70          NVI  TU1+1,X'07'
0'B0 3C 07 0B00         71          NVI  TU2+1,X'07'
0AB4 3C 07 0B06         72          NVI  TU3+1,X'07'
0AB8 C1 60 0ABF         73          TIO  ZNRDY,X'60'   TAPE UNIT 0 READY ?
0ABC F2 87 04           74          J     TESTU1      GO TEST NEXT UNIT
0ABF 3C 87 0AF4         75 ZNRDY NVI  TU0+1,X'87'   SKIP 0
0AC3 C1 68 0ACA         76 TESTU1 TIO  WNRDY,X'68'   TAPE UNIT 1 READY ?
0AC7 F2 87 04           77          J     TESTU2      GO TEST NEXT UNIT
0ACA 3C 87 0AFA         78 WNRDY NVI  TU1+1,X'87'   SKIP 1
0ACE C1 70 0AD5         79 TESTU2 TIO  TNRDY,X'70'   TAPE UNIT 2 READY ?
0AD2 F2 87 04           80          J     TESTU3      CO TEST NEXT UNIT
0AD5 3C 87 0B00         81 TNRDY NVI  TU2+1,X'87'   SKIP 2
0AD9 C1 78 0AE0         82 TESTU3 TIO  TRRDY,X'78'   TAPE UNIT 3 READY ?
0ADD F2 87 04           83          J     SIO1        GO TEST NEXT UNIT
0AE0 3C 87 0B06         84 TRRDY NVI  TU3+1,X'87'   SKIP 3
0AE4 F3 F0 00           85 SIO1 SIO  X'00',X'F0'   MFCU FEED
0AE7 F3 E2 00           86 SIO2 SIO  X'00',X'E2'   5203 OR 1403 PRINT
0AEA F3 A0 00           87 SIO3 SIO  X'00',X'A0'   5444 SEEK
0AED F3 B0 00           88 SIO4 SIO  X'00',X'B0'   5444 SEEK
0AF0 F3 50 00           89 SIO5 SIO  X'00',X'50'   1442 FEED
0AF3 F2 07 03           90 TU0  JC     *+6,X'07'
0AF6 F3 60 17           91          SIO  X'17',X'60'   ERASE GAP UNIT 0
0AF9 F2 07 03           92 TU1  JC     *+6,X'07'
0AFC F3 68 17           93          SIO  X'17',X'68'   ERASE GAP UNIT 1
0AFP F2 07 03           94 TU2  JC     *+6,X'07'
0B02 F3 70 17           95          SIO  X'17',X'70'   ERASE GAP UNIT 2
0B05 F2 07 03           96 TU3  JC     *+6,X'07'
0B08 F3 78 17           97          SIO  X'17',X'78'   ERASE GAP UNIT 3
0B0B C0 87 021A         98          B     PRINT
0B0F 43                  0B0F 99          DC      XL1'43'
0B10 1E                  0B10 100         DC      IL1'30'
0B11 0BAF                0B12 101         DC      AL2 (UMT2)
0B13 FFF0                0B14 102         DC      XL2'FFFF'
0B15 C0 87 021A         103         B     PRINT
0B19 02                  0B19 104         DC      XL1'02'
0B1A 25                  0B1A 105         DC      IL1'37'
0B1B 0BD4                0B1C 106         DC      AL2 (UMT3)
0B1D C0 87 021A         107          B     PRINT
0B21 02                  0B21 108         DC      XL1'02'
0B22 0F                  0B22 109         DC      IL1'15'
0B23 0BE3                0B24 110         DC      AL2 (UMT4)
0B25 C0 87 021A         111          B     PRINT
0B29 02                  0B29 112         DC      XL1'02'
0B2A 1F                  0B2A 113         DC      IL1'31'
0B2B 9C02                0B2C 114         DC      AL2 (UMT5)
0B2D C0 87 021A         115          B     PRINT
0B31 02                  0B31 116         DC      XL1'02'
0B32 38                  0B32 117         DC      IL1'56'
0B33 0C3A                0B34 118         DC      AL2 (UMT6)
0B35 C0 87 021A         119          B     PRINT
0B39 02                  0B39 120         DC      XL1'02'
0B3A 3F                  0B3A 121         DC      IL1'63'
0B3B 0C79                0B3C 122         DC      AL2 (UMT7)
0B3D C0 87 021A         123          B     PRINT
0B41 07                  0B41 124         DC      XL1'07'
0B42 22                  0B42 125         DC      IL1'34'
0B43 0C9E                0B44 126         DC      AL2 (UMT8)
0B45 C0 87 0222         127          B     HALT
0B49 FFF0                0B4A 128         DC      YL2'FFFF'
0B4B 0C 02 0D00 0CPC    129 START MVC  COUNT,ZERO(3)   ZERO THE COUNT AREA
0B51 0C 91 0DA8 0E48    130 SUB1 MVC  USELES(146),NOTANG
0B57 0E 02 0D00 0CFD    131          ALC  COUNT,ONE(3)   ADD 1 TO LOOP COUNT
0B5D 0D 02 0D00 0DD7    132          CLC  COUNT,ATSALL(3) *CK FOR AND BRANCH WHEN
0B63 F2 81 04           133          JE    ALLP        *COUNT IS COMPLETE
0B66 C0 87 0B51         134          B     SUB1        BRANCH BACK THRU LOOP
0B6A C0 87 0222         135 ALLP B     HALT
0B6E FFE8                0B6F 136         DC      XL2'FFE8'
0B70 C0 87 0B4E         137          B     START

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FF83 USAGE METER TEST

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
      OB74 F2 87 00
      138 *
      139 SKIP J *+3
      140
      141 *****
      142 * MESSAGES
      143 *****
      144 UNT1 DC CL27*HAKE ALL I/O DEVICES READY.*
      145
      146
      147
      148
      149
      150
      151
      152
      153
      154
      155
      156
      157
      158 *****
      159 * ADDRESS CONSTANTS
      160 *****
      161 CDISK DC AL2 (ADISK)
      162 ADISK DC AL2 (BDISK-3)
      163
      OCP6 OCP9
      OCP8 OD01

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 EC NO. 816677 818817 818677 577054

PROG ID 07F8-3  
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FF83 USAGE METER TEST

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
      164 *****
      165 * CONSTANTS
      166 *****
      167 ZERO DC XL3*0'
      168 ONE DC XL1*1'
      169 COUNT DC XL3*0'
      170 BDISK DC XL4*000'00FF'
      171 ATALL DC XL3*719*37'
      172
      173 *****
      174 * EQUATES
      175 *****
      176 USELES EQU *+160
      177 NOTHNG EQU *+320
      178 PRINT EQU X'21A'
      179 HALT EQU X'222'
      180 END
      OCPA 000000
      OCPD 01
      OCPE 000000
      OD01 000000FF
      OD05 0AFCOF
      OCPC 167
      OCPD 168
      OD00 169
      OD04 170
      OD07 171

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DATE 27APR70 30JUL71 19NOV71 31AUG72  
 EC NO. 816677 818817 818677 577054

PROG ID 07F8-3  
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IBM MAINTENANCE DIAGNOSTIC PROGRAM

0000 3340 CPU AND MEMORY TESTS PROGRAM DO MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

00C2	138	BUSY	EQU	X'C2'
00C0	139	SEEK	EQU	X'CO'
00C1	140	READ	EQU	X'C1'
0100	141	X100	EQU	X'100'
FFFF	142		END	

PART NO. 4248201  
PAGE 2

IBM MAINTENANCE DIAGNOSTIC PROGRAM

0000 3340 CPU AND MEMORY TESTS PROGRAM DO MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
HALTFD	A	002	00FC	0131	0068 0119
AB1	A	003	00B1	0105	
ADF	A	004	00B4	0107	0103
AF070	A	002	0021	0053	0054
ALTFLD	A	001	00F2	0128	0131
A0044	A	002	0075	0078	0065
A18	A	001	0016	0049	0080 0122*
A18E	A	005	001F	0051	
A22	A	004	0022	0054	0042
A31	A	004	002D	0057	0056
A39	A	003	0035	0059	0057 0058*
A46	A	004	003B	0061	0059
A66	A	004	005E	0071	
A83	A	004	0075	0084	0076 0123*
BUSY	C	001	00C2	0138	0070 0075 0118 0121
BY23	A	003	00F1	0127	0095* 0096 0099* 0100 0107* 0108
B4ERR	A	003	008C	0090	0073
DCR	C	001	00C6	0134	0054* 0055 0061* 0062 0063* 0064 0068* 0072* 0099
DDCR	A	002	0079	0080	0072
DDDR	A	002	007B	0081	0071
DDR	C	001	00C4	0135	0057* 0058 0065* 0066 0071* 0107 0119*
DISP	A	003	0095	0094	0091 0111
DKERR	A	003	0092	0092	
ERROR	A	003	0013	0048	0041
ERROR1	C	001	00C0	0137	0073 0084
FFFF	A	002	0077	0079	0063
HALTE	A	003	00C6	0114	
HALTF	A	003	0079	0115	
HALT1	A	003	0C00	0038	
HALT2	A	003	0010	0045	
JUMP1	A	003	0003	0039	
JUMP2	A	003	0006	0040	
JUMP3	A	004	0009	0041	
JUMP4	A	003	000D	0042	
NEXT	A	003	0085	0086	
NXTSEC	A	003	00FD	0132	0086
ONE	A	001	0088	0089	0122
RDERR	A	003	00CC	0117	0084
READ	C	001	00C1	0140	0074 0117 0120
RETRY	A	004	0053	0068	0124
SEEK	C	001	00C0	0139	0069
UVWXYZ	A	001	0C00	0005	
XR2	C	001	0002	0136	0096* 0100* 0108*
X100	C	001	0100	0141	
ZERO	A	002	007D	0082	0061

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

DATE 29AUG75  
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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
PAGE 3

0000 3340 CPU AND MEMORY TESTS PROGRAM DO MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\* GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* 3340\*CPU\*AND\*MEM ORY\*TESTS\*MOD\*12 84228422\* ..... 00000000  
T+ :2|C027B,27C 00| \*D\*H\*D7B02|A ?80\*\*\*&\*\*\*&\*A\*\*C 0\*CGF\*8D01-D02- \* <\*&(3CD\*C-2\*\*1 0S0K\*8ZU0D000001  
T+ A5<\*0 \*-LCF\*K2 11-A7<<QA.3GD\*GM 01\*D7<\*&=|1\*\*<G B\*EY11\*AB<\*0\* :\*G \*\*H330&CA0-A\_2- H\*DE\*2520D000002  
T+ B0\*\*2 \*E-C\*\*C A0\*C<2F/Y2-A52F\* P\*-A7F\*H\*\*A7P-A ?-LCE\*1D5\*-C12F2 G<<Q\*2LMB\*1G085\* 2\*\*<\*0.20D000003  
T+ C,2F2<<&2LM 6\*|G0863\*\*\*BN2F\* 32F\*22F2222DGO\*H \*33GD\*1330&GA0-C EC\*\*\*E-B.11H\*-> \*\*E<\*GQ-0D000004  
TDOC\*2F/P\*\*DO\*\* A\*.....|..OEFA ..... 1QH0D000005  
E\*\*E7\*=-DC\*PH3 =\*7M&F|\*\*\*|\*\*\*C \*\*F8\*\*ASC\*\*R\*A SO\*\*\*Q ..... 12010630750 828751QY0D000006

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
PAGE 3A

0010 CPU AND MEMORY TEST LOADER PROGRAM 01 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

00FD  
00FD F2 87 45  
0100 FO 68 6F  
0103 00  
  
010C C1 C0 0137  
0110 OC 00 0196 0016  
0116 OC 00 01A7 0196  
011C OC 00 01B3 0196  
0122 OC 00 01B8 0196  
0128 OC 00 01CB 0196  
012E OC 00 01D7 0196  
0137 FO 68 03  
013A 31 C6 0195  
013E 3C 00 019F  
0142 F2 00 33  
0145 CO 00 010C  
0149 FO 68 57  
014C 00  
  
0140 31 C6 01A6  
0151 F2 00 24  
  
0154 31 C6 01B2  
0158 F2 00 1D  
  
015B 31 C6 018E  
015F F2 00 16

DECK 4  
SEQ 0  
START 253  
TREP  
SECTOR 01  
\*\*\*\*\*  
THIS SECTOR IS READ INTO CORE LOC 0FD-1FC BY SECTOR 48  
THIS SECTOR CONTAINS LOADERS FOR SECTORS 2,3,4,5,6,7  
AND THE MASTER LOADER FOR ALL SUCCEEDING SECTORS.  
\*\*\*\*\*  
TEST (1) LSR INTERCHANGE  
(2) BR OR TIO OP DECODE  
\*\*\*\*\*  
\*\*\*\*\*  
TO OVERLAY HALT IN SECTOR 48 IF GOOD  
LO HALT, JUMP FAILED TO JUMP  
\*\*\*\*\*  
LOADER FOR SECTOR 3  
\*\*\*\*\*  
SET UP FOR NEXT SECTOR  
\*\*\*\*\*  
LOADER FOR SECTOR 2  
\*\*\*\*\*  
CHECK FOR DISK ERROR  
SET UP CONTROL FIELD FLAG  
SET UP CONTROL FIELD FLAG  
SET UP CONTROL FIELD FLAG  
SET UP CONTROL FIELD FLAG  
SET UP CONTROL FIELD FLAG  
SET UP CONTROL FIELD FLAG  
SET UP CONTROL FIELD FLAG  
GO LOAD SECTOR 2 IF NO DISK ERROR  
L1 HALT, DISK ERROR OR NOT READY  
LOAD DDCR  
ZERO THE N FIELD  
GO LOAD SECTOR  
CHECK FOR DISK ERROR OR NOT READY  
L3 HALT, BRANCH FAILED  
FALLING FUNCT (1), (2)  
\*\*\*\*\*  
LOADER FOR SECTOR 4  
\*\*\*\*\*  
LOAD DDCR  
GO LOAD SECTOR 4  
\*\*\*\*\*  
LOADER FOR SECTOR 5  
\*\*\*\*\*  
LOAD DDCR  
GO LOAD SECTOR 5  
\*\*\*\*\*  
LOADER FOR SECTOR 6  
\*\*\*\*\*  
LOAD DDCR  
GO LOAD SECTOR 6  
\*\*\*\*\*

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

70 *
71 *      LOADER FOR SECTOR 7
72 *
0162 31 C6 01CA      73 LOAD7 LIO  AC7,DCR      LOAD DDCR
0166 F2 00 0F      74 JC      EXIT,0          GO LOAD SECTOR 7
75
76 *****
77 *
78 *      COMMON LOADER FOR SECTORS 8 THRU 47
79 *
0169 3C 00 01DC      80 BOOT  MVI  CNTFLD+1,*--  SET CONTROL FIELD R BYTE
016D 3C 00 01E0      81 MVI  CNTFLD+5,*--  SET CONTROL FIELD N BYTE
0171 31 C6 01D6      82 LIO  ACOM,DCR      LOAD DDCR
0175 F2 00 00      83 JC      EXIT,0
84
85 *****
86 EXIT  BC   3,X'80'      NO-O', ALTER TO LOOP SECTOR
017C 31 C4 0193      87 LIO  ADD,DDR      LOAD DDCR
0180 F3 C1 00      88 SIO  X'00',READ    READ KEY-DATA
0183 C1 C2 0183      89 TIO  *,BUSY       LOOP UNTIL DISK BUSY DROPS
0187 C1 C0 01F0      90 TIO  COMHLT,ERR   TEST FOR ERROR AFTER DISK SIO
018B C0 00 0003      91 BC   3,0          BRANCH TO LOC 3 OF SECTOR JUST READ
82 *
018F F0 68 76      92 HPL  X'76',X'68'  ALTER TO 00 FOR HALT BEFORE EXEC
93 *
94 *****
95 *
96 *      CONSTANTS
97 *
0192 0000      98 ADD  DC   AL2(0)
0194 0196      99 AC2  DC   AL2(*+2)
0196 0000010000 100 DC   XL5'0000010000'  F-CC-HH
0198 0200010000 101 DC   XL5'0200010000'  R-K-DL-N
01A0 0000      102 DC   XL2'0'          FILL
103 *****
01A2 F0 70 F8      104 HPL  X'F8',X'70'  SAR BIT 7 FAILED
105 *****
01A5 01A7      106 AC4  DC   AL2(*+2)
01A7 0000010000 107 DC   XL5'0000010000'  F-CC-HH
01AC 0400010000 108 DC   XL5'0400010000'  R-K-DL-N
01B1 01B3      109 AC5  DC   AL2(*+2)
01B3 0000010000 110 DC   XL5'0000010000'
01B7 01B7      111 DC   XL5'0500010000'
01B8 0500010000 112 AC6  DC   AL2(*+2)
01BD 01BF      113 DC   XL5'0000010000'
01BF 0000010000 114 DC   XL5'0600010000'
01C4 0600010000 115 AC7  DC   AL2(*+2)
01C9 01CB      116 DC   XL5'0000010000'
01CB 0000010000 117 DC   XL5'0700010000'
01D0 0700010000 118 ACOM DC   AL2(CNTFLD-4)
01D5 01D7      119 CNTFLD DC XL5'0000010000'  F-CC-HH
01D7 0000010000 120 DC   XL5'0000010000'  R-K-DL-N
01DC 0000010000 121 *****
122 *
123 *      SEEK ROUTINE
124 *
01E1 C1 C0 01F0      125 800T25 TIO  COMHLT,ERR
01E5 31 C6 01D6      126 LIO  ACOM,DCR
01E9 F3 C0 00      127 SIO  X'00',X'CO'   SEEK
01EC C0 87 0169      128 B    8            LE HALT, DISK ERROR OR NOT READY
01F0 F0 68 7C      129 COMHLT HPL  X'7C',X'68'
01F3 C0 87 01E1      130 B    8            800T25
131
132 *****
133 *
134 *      EQUATES
135 *
0001 135 XR1  EQU  X'01'

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0002 136 XR2  EQU  X'02'
0016 137 A18 EQU  X'16'
00C4 138 DDR  EQU  X'C4'
00C6 139 DCR  EQU  X'C6'
00C1 140 READ EQU  X'C1'
00C0 141 ERR  EQU  X'C0'
00C2 142 BUSY EQU  X'C2'
FFFF 143     END

```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD10 CPU AND MEMORY TEST LOADER PROGRAM 01 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ACOM	A	002	01D6	0118	0038* 0082 0126
AC2	A	002	0195	0099	0026* 0033* 0034
AC4	A	002	01A6	0106	0034* 0052
AC5	A	002	01B2	0109	0035* 0059
AC6	A	002	01BE	0112	0036* 0066
AC7	A	002	01CA	0115	0037* 0073
ADO	A	002	0193	0098	0087
A18	C	001	0016	0137	0033
BACDOR	A	004	0149	0044	0020
BOOT	A	004	0169	0080	0128
BOOT25	A	004	01E1	0125	0130
BUSY	C	001	00C2	0142	0089
CNTFLD	A	003	01D8	0119	0080* 0081* 0118
COMHLT	A	003	01F0	0129	0090 0125
DCR	C	001	00C6	0139	0041* 0052* 0059* 0066* 0073* 0082* 0126*
DDR	C	001	00C4	0138	0087*
ERR	C	001	00C0	0141	0032 0090 0125
EXIT	A	004	0178	0086	0043 0053 0060 0067 0074 0083
HALT1	A	003	0100	0021	
HALT2	A	003	0137	0040	0032
HALT2A	A	003	0149	0045	
LDR2	A	004	010C	0032	0044
LOAD2	A	004	013A	0041	0027 0039
LOAD3	A	004	0104	0026	
LOAD4	A	004	014D	0052	
LOAD5	A	004	0154	0059	
LOAD6	A	004	0158	0066	
LOAD7	A	004	0162	0073	
READ	C	001	00C1	0140	0088
UVWXYZ	A	001	00FD	0004	
XR1	C	001	0001	0135	
XR2	C	001	0002	0136	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD10 CPU AND MEMORY TEST LOADER PROGRAM 01 MOD 12  
OBJECT CARD LISTING

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THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0D100000
T+D72YIE2F/?*CO C*R?***D:0*A(00 **RQ*E-0**E*AV-0 **$<AV-0**$2AV-0 **$2AV-0**)*AV7H **L*UOD100001
T+E2E* <11-FN| ** AX**H* <2***&30EE* * <*QAZ?H*ICGF*$. 2*A411-F=2-Q*Q A27H*C30**102**G -<*Q*KL&OD100002
T+-F_ )$2**C- ** C<*&AU**IA*GB*QI AO*GOO**"AY)- **RQ**D**H**E **CO*|-AZO**&* **A**R2*OD10G003
T+GY*E**$<***D ***M**&***$2***D ***Q**E**$***D ***+**&***)****D *****E**0* A2CG F*1Q**TYOD100004
TC&G622**OH*AE-A Y-<BG* ;D ***** ***** ***** ***** *****M2*OD100005
E**" *E7*=-DC*PHS =*7M&F|***|***C **F$**ASC**R*A SO**Q***** 12010630750 828751HYOD100006
    
```

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OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2      DECK 4
              3      SEQ 0
              4      UVMXYZ START 0
              5      TREP
              6      *
              7      ***** SECTOR 02 *****
              8      *****
              9      *****          PROG D4          ( BC) & ( JC )          *****
             10      *****
             11      *****          TEST          (1)          EXCLUSIVE OR          *****
             12      *****          (2)          IR SKP TRUE          *****
             13      *****          (3)          BR OR SKP TRUE          *****
             14      *****          (4)          ALU BLANK          *****
             15      *****          (5)          GT CR TO A          *****
             16      *****          (6)          LSR INTERCHANGE          *****
             17      *****          (7)          INT          *****
             18      *****          (8)          BR DECODE          *****
             19      *****          (9)          SKP DECODE          *****
             20      *****          (10)          P1          *****
             21      *****          (11)          LSR LD TO A          *****
             22      *****          (12)          AND          *****
             23      *****          (13)          BLK          *****
             24      *****          (14)          MOVE NUM (KILLS AND ZONE)          *****
             25      *****          (15)          BR OR SKIP          *****
             26      *****          (16)          PHASE B          *****
             27      *****          (17)          CLOCK 3C-5C          *****
             28      *****          (18)          CLOCK 5B          *****
             29      *****          (19)          B REG BIT 0          *****
             30      *****          (20)          BIN SUB GATE          *****
             31      *****          (21)          INTERNAL          *****
             32      *****
             33      *****
             34      *****
             35      *****
             36      *****
             37      *****
             38      *****
             39      *****
             40      *****
             41      *****
             42      *****
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             57      *****
             58      *****
             59      *****
             60      *****
             61      *****
             62      *****
             63      *****
             64      *****
             65      *****
             66      *****
             67      *****

```

```

0000 F0 73 1B          36      HLT1          HPL          H4,HD          INITIAL HALT = D4
0003 F2 7F 20          38      JMP1          JC          JMP5,NOOP1          NO-OP (1, 2, 3, 4, 5)
0006 F2 80 14          39      *
0009 C0 7F 001A        40      JMP2          JC          JMP4,NOOP2          NO-OP (1, 4, 12, 13)
000D C0 FF 002F        41      *
0011 F2 FF 03          42      BR1          BC          HLT4,NOOP1          NO-OP (6)
0014 F0 73 1B          43      *
0017 F0 73 1B          44      BR2          BC          JMP6,UNCD1          UNCD BRANCH. (1, 6, 7, 8, 10)
001A F0 73 1B          45      *
001D F2 00 03          46      JMP3          JC          HLT3,UNCD1          * (BR2) ERR, TRY UNCD JUMP.
0020 F0 73 1B          47      *
0023 F0 73 1B          48      HALT2          HPL          H4,HD          * PROG 3, HALT 2. ERROR HALT.
0026 F0 73 1B          49      *          * THE FIVE PREVIOUS INSTRUCTIONS
0029 F0 73 1B          50      *          * WERE NO-OPED.
002C F0 73 1B          51      *          * ( 1,9,11,16,18)
002F F2 00 D2          52      *
0032 C0 00 0039        53      HLT3          HPL          H4,HD          -->* (JMP3) OK
0036 F0 73 1B          54      *
0039 F0 73 1B          55      *
003C F0 73 1B          56      HLT4          HPL          H4,HD          -->* (BR1) ERR (6)
003F F0 73 1B          57      *
0042 F0 73 1B          58      *
0045 F0 73 1B          59      *
0048 F0 73 1B          60      *
004B F0 73 1B          61      JMP4          JC          HLT6,UNCD2          * (JMP2) ERR,TRY UNCD JUMP.
004E F0 73 1B          62      *
0051 F0 73 1B          63      *
0054 F0 73 1B          64      HALT5          HPL          H4,HD          * PROG 3, HALT 5. ERROR HALT.
0057 F0 73 1B          65      *          * (JMP4) FAILED TO JUMP.
005A F0 73 1B          66      *          * ( 4,12,13,17 )
005D F0 73 1B          67      *

```

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OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0023 F0 73 1B          68      *
0026 F2 FF 03          69      HLT6          HPL          H4,HD          * (JMP4) OK
0029 F0 73 1B          70      *
002C F0 73 1B          71      *
002F F2 00 D2          72      JMP5          JC          HLT8,UNCD1          * (JMP1) ERR, TRY UNCD JUMP.
0032 C0 00 0039        73      *
0036 F0 73 1B          74      HLT7          HPL          H4,HD          * (JMP5) ERR ( 4,5,20)
0039 F0 73 1B          75      *
003C F0 73 1B          76      *
003F F0 73 1B          77      *
0042 F0 73 1B          78      HLT8          HPL          H4,HD          * (JMP5) OK
0045 F0 73 1B          79      *          * ( 1,2,18,19,21)
0048 F0 73 1B          80      *
004B F0 73 1B          81      *
004E F0 73 1B          82      JMP6          JC          BOOT,UNCD2          UNCD JUMP TO BOOTSTRAP.
0051 F0 73 1B          83      BR3          BC          HLT10,UNCD2          * (JMP6) ERR, TRY UNCD BRANCH.
0054 F0 73 1B          84      *
0057 F0 73 1B          85      HLT9          HPL          H4,HD          * (BR3) ERR
005A F0 73 1B          86      *          * (21)
005D F0 73 1B          87      *
0060 F0 73 1B          88      *
0063 F0 73 1B          89      HLT10         HPL          H4,HD          *(BR3)OK
0066 F0 73 1B          90      *          * ( 2 )
0069 F0 73 1B          91      *
006C F0 73 1B          92      *
006F F0 73 1B          93      NOOP1         EQU          X'7F'          B REG BIT 0 LINE DOWN
0072 F0 73 1B          94      *          ALU-BLANK LINE DOWN.
0075 F0 73 1B          95      *
0078 F0 73 1B          96      NOOP2         EQU          X'80'          B REG BIT 0 LINE UP
007B F0 73 1B          97      *          ALU-BLANK LINE UP.
007E F0 73 1B          98      *
0081 F0 73 1B          99      UNCD1         EQU          X'FF'          B REG BIT 0 LINE UP
0084 F0 73 1B          100     *          ALU-BLANK LINE DOWN.
0087 F0 73 1B          101     *
008A F0 73 1B          102     UNCD2         EQU          X'00'          B REG BIT 0 LINE DOWN
008D F0 73 1B          103     *          ALU-BLANK LINE UP.
0090 F0 73 1B          104     HD            EQU          X'73'          -D-
0093 F0 73 1B          105     H4            EQU          X'1B'
0096 F0 73 1B          106     AC2           EQU          X'18E'
0099 F0 73 1B          107     BOOT         EQU          X'D2'
00A2 F0 73 1B          108     FFFF         END

```

\* (JMP4) OK ( 1,14,20 )  
 \* (JMP1) ERR, TRY UNCD JUMP.  
 \* (JMP5) ERR ( 4,5,20 )  
 \* (JMP5) OK ( 1,2,18,19,21 )  
 UNCD JUMP TO BOOTSTRAP.  
 \* (JMP6) ERR, TRY UNCD BRANCH.  
 \* (BR3) ERR (21)  
 \*(BR3)OK ( 2 )  
 B REG BIT 0 LINE DOWN  
 ALU-BLANK LINE DOWN.  
 B REG BIT 0 LINE UP  
 ALU-BLANK LINE UP.  
 B REG BIT 0 LINE UP  
 ALU-BLANK LINE DOWN.  
 B REG BIT 0 LINE DOWN  
 ALU-BLANK LINE UP.  
 -D-

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OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
AC2	C	001	018E	0106	
BOOT	C	001	00D2	0107	
BR1	A	004	0009	0042	0082
BR2	A	004	0000	0044	
BR3	A	004	0032	0083	
HALT2	A	003	0014	0048	
HALT5	A	003	0020	0064	
HD	C	001	0073	0104	0036 0048 0053 0057 0064 0069 0074 0078 0085 0089
HLT1	A	003	0000	0036	
HLT10	A	003	0039	0089	0083
HLT3	A	003	0017	0053	0046
HLT4	A	003	001A	0057	0042
HLT6	A	003	0023	0069	0061
HLT7	A	003	0029	0074	
HLT8	A	003	002C	0078	0072
HLT9	A	003	0036	0085	
H4	C	001	0018	0105	0036 0048 0053 0057 0064 0069 0074 0078 0085 0089
JMP1	A	003	0003	0038	
JMP2	A	003	0006	0040	
JMP3	A	003	0011	0046	
JMP4	A	003	001D	0061	0040
JMP5	A	003	0026	0072	0038
JMP6	A	003	002F	0082	0044
NOOP1	C	001	007F	0093	0038 0042
NOOP2	C	001	0080	0096	0040
UNCD1	C	001	00FF	0099	0044 0046 0072
UNCD2	C	001	0000	0102	0061 0082 0083
UVWXYZ	A	001	0000	0004	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0D400000
T+* :2G<$2X2-2Y* M0G2*F2C*2B*2*0| 0*170*170*172**| 0*170*172*0|0*17 0*172*(.*****92G< $2G<*Q,00D400001
T***#FO*****
E***ET*=-DC*PH$ =*7M&F|***|***C**F2***ASC***R*A SO***Q*****12010630750 828750Q20D400003
    
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD50 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

0000          2      DECK 4
              3      SEQ 0
              4      UVWXYZ START 0
              5      TREP
              6      *
              7      ***** SECTOR 03 *****
              8      *****
              9      *****
             10      *****
             11      *****
             12      TEST (1) LD CR INSTRUCTION *****
             13      ***** (2) FIRST E CY *****
             14      ***** (3) CR *****
             15      ***** (4) LSR WRT LD *****
             16      ***** (5) NOT RECOMP *****
             17      ***** (6) ALU BLANK *****
             18      ***** (7) CR RESET *****
             19      ***** (8) MOVE ZONE (KILLS AND NUM ) *****
             20      ***** (9) TIO ACTIVE *****
             21      ***** (10) B REG BIT 3 ACTIVE *****
             22      ***** (11) B REG BIT 4 ACTIVE *****
             23      ***** (12) ALU BIT 7 ACTIVE *****
             24      ***** (13) PROG INTERLOCK *****
             25      ***** (14) ALU BIT 6 *****
             26      ***** (15) CLC 5B *****
             27      ***** (16) INTERNAL *****
             28      *****
             29      *****
             30      *****
             31      *****
             32      *****
             33      *****
             34      *****
             35      *****
             36      *****
             37      *****
             38      *****
             39      *****
             40      *****
             41      *****
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             55      *****
             56      *****
             57      *****
             58      *****
             59      *****
             60      *****
             61      *****
             62      *****
             63      *****
             64      *****
             65      *****
             66      *****
             67      *****

0000 F0 73 5D HLT1 HPL H5,HD INITIAL HALT = D5

0003 35 04 0038 L HIOVFL,PSR LOAD CR WITH HI,BIN & DEC OVFL & FLS
0007 F2 84 09 JHP1 JH JMP3 JUMP ON HI (1, 2, 3, 4)
000A F2 83 03 JHP2 JC HLT3,LOEQ * (JHP1) ERR, TRY JUMP ON LO OR EQ.

000D F0 73 5D HLT2 HPL H5,HD * CR NOT HI, LO OR EQ.
* FAILING FUNCT (2,4)

0010 F0 73 5D HLT3 HPL H5,HD * CR SET TO LO OR EQ
* FAILING FUNCT (1,3,12,14,15)

0013 F2 88 03 JHP3 JC JMP4,DECOV JUMP ON DECIMAL OVERFLOW.
0016 F0 73 5D HLT4 HPL H5,HD * (JHP3) ERR.
* FAILING FUNCT (3,5,6,11)

0019 F2 88 19 JHP4 JC HLT8,DECOV CHECK FOR RESET OF DEC OVFLW.
001C F2 90 03 JHP5 JC JMP6,FALSE JUMP ON FALSE.
001F F0 73 5D HLT5 HPL H5,HD * (JHP5) ERR.
* FAILING FUNCT (3,6,10,16)

0022 F2 90 10 JHP6 JC HLT8,FALSE CHECK FOR RESET OF FALSE.
0025 F2 A0 03 JHP7 JC JMP8,BINOV JUMP ON BINARY OVERFLOW.
0028 F0 73 5D HLT6 HPL H5,HD * (JHP7) ERR.
* FAILING FUNCT (3,6)

002B F2 20 04 JHP8 JC HLT7,NBINOV CHECK FOR RESET OF BINARY OVERFLOW.
002E C0 87 014D B BOOT BRANCH TO BOOTSTRAP.
0032 F0 73 5D HLT7 HPL H5,HD * (JHP8) ERR.
* FAILING FUNCT (7,9)

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD50 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

003C F0 73 5D          68 *
                   69 *
                   70 HLT8 HPL H5,HD
                   71 *
                   72 *
                   73 *
0038 38          0038 74 HIOVFL DC X'138'
                   0004 75 PSR EQU X'04'
                   0083 76 LOEQ EQU X'83'
                   0088 77 DECOV EQU X'88'
                   0090 78 FALSE EQU X'90'
                   00A0 79 BINOV EQU X'A0'
                   0020 80 NBINOV EQU X'20'
                   0073 81 HD EQU X'73'
                   005D 82 H5 EQU X'5D'
                   014D 83 BOOT EQU X'14D'
                   FFFF 84 END

```

\* (JMP6) ERR.  
\* FAILING FUNCT (7,8,13)

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0050 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

0050 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

CROSS-REFERENCE

OBJECT CARD LISTING

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BINOV	C	001	00A0	0079	0057
BOOT	C	001	0140	0083	0064
DECOV	C	001	0088	0077	0044 0049
FALSE	C	001	0090	0078	0050 0056
HD	C	001	0073	0081	0030 0036 0040 0046 0052 0059 0066 0070
HIOVFL	A	001	0038	0074	0032
HLT1	A	003	0000	0030	
HLT2	A	003	0000	0036	
HLT3	A	003	0010	0040	0034
HLT4	A	003	0016	0046	
HLT5	A	003	001F	0052	
HLT6	A	003	0028	0059	
HLT7	A	003	0032	0066	0063
HLT8	A	003	0035	0070	0049 0056
H5	C	001	0050	0082	0030 0036 0040 0046 0052 0059 0066 0070
JMP1	A	003	0007	0033	
JMP2	A	003	000A	0034	
JMP3	A	003	0013	0044	0033
JMP4	A	003	0019	0049	0044
JMP5	A	003	001C	0050	
JMP6	A	003	0022	0056	0050
JMP7	A	003	0025	0057	
JMP8	A	003	0028	0063	0057
LOEQ	C	001	0083	0076	0034
NBINOV	C	001	0020	0080	0063
PSR	C	001	0004	0075	0032*
UVWXYZ	A	001	0000	0004	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E F R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* CPU\*AND\*MEMORY\*Y ESTS\*\*\*\*\*MOD\*12 84228422\*\*\*\*\* 00500000

T+\*\*82G()(|&&\*+|R DB~RC\*A3P~A3P~R H\*A3P~RHF~R6\*A 3P~R&D|H~\*A3P~H -A<BG\*M70\*570\*54 8\*\*\*\*\*6.Y0D500001

E\*\*\*E7\*=-DC\*PH\$ =\*7M&F|\*\*\*|\*\*\*C \*\*FZ\*\*\*ASC\*\*\*R\*A SO\*\*\*Q\*\*\*\*\* 12010630750 828750H80D500002

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
PAGE 10

OD60 CPU AND MEMORY DIAGNOSTICS: PROGRAM D6 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2      DECK 4
              3      SEQ 0
              4      UVMXYZ START 0
              5      TREP
              6      *
              7      *          SECTOR 04
              8      *
              9      *          PROG D6      (L) & (JC)
             10      *
             11      *          TEST      (1) LD TO LD
             12      *          (2) ALU BLANK
             13      *          (3) CR
             14      *          (4) BIN ADD SUB NOT MOVE
             15      *          (5) EDIT ACTIVE
             16      *          (6) DEC INSTR ACTIVE
             17      *          (7) ALU BIT 3 ACTIVE
             18      *          (8) ALU BIT 4 ACTIVE
             19      *          (9) ALU BIT 2 ACTIVE
             20      *          (10) INTERNAL
             21      *
             22      *
             23      *
             24      *
             25      *
             26      *
             27      *
             28      *
             29      *
             30      *
             31      *
             32      *
             33      *
             34      *
             35      *
             36      *
             37      *
             38      *
             39      *
             40      *
             41      *
             42      *
             43      *
             44      *
             45      *
             46      *
             47      *
             48      *
             49      *
             50      *
             51      *
             52      *
             53      *
             54      *
             55      *
             56      *
             57      *
             58      *
             59      *
             60      *

```

```

0000 F0 73 7D      HLT1 HPL H6,HD          INITIAL HALT = D6
0003 35 04 0024    JMP1 L LOW,PSR          LOAD CR WITH LOW .
0007 F2 82 03      JMP2 JL          JUMP ON LOW.
000A F0 73 7D      HLT2 HPL H6,HD          * (JMP1) ERR
* FAILING FUNCT ( 1,2 )
000D F2 3D 03      JMP2 JC HLT3+3,NOVFHE  JUMP ON NOT HI,EQ,FLS, DEC,BIN OVFLW
0010 F0 73 7D      HLT3 HPL H6,HD          * (JMP2) ERR
* FAILING FUNCT (3,4,7,8,9,10)
0013 35 04 0025    JMP3 L EQUAL,PSR      LOAD CR WITH EQUAL.
0017 F2 81 03      JMP4 JE          JUMP ON EQUAL.
001A F0 73 7D      HLT4 HPL H6,HD          * (JMP3) ERR
* FAILING FUNCT (1,2,4,5,6)
001D C0 3E 0154    JMP4 BC BOOT,NOVFHL   BR ON NOT HI, LO,FLS, BIN,DEC OVFL
0021 F0 73 7D      HLT5 HPL H6,HD          * (JMP4) ERR
* FAILING FUNCT (3,10)
0024 02          0024 LOW DC XL1'02'
0025 01          0025 EQUAL DC XL1'01'
0004          0004 PSR EQU X'04'
003E          003E NOVFHL EQU X'3E'
003D          003D NOVFHE EQU X'3D'
0073          0073 HD EQU X'73'
007D          007D H6 EQU X'7D'
0154          0154 BOOT EQU X'154'
FFFF          60 END

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OD60 CPU AND MEMORY DIAGNOSTICS: PROGRAM D6 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0154	0059	0046
EQUAL	A	001	0025	0053	0039
HD	C	001	0073	0057	0024 0029 0035 0042 0048
HLT1	A	003	0000	0024	
HLT2	A	003	000A	0029	
HLT3	A	003	0010	0035	0033
HLT4	A	003	001A	0042	
HLT5	A	003	0021	0048	
H6	C	001	007D	0058	0024 0029 0035 0042 0048
JMP1	A	003	0007	0027	
JMP2	A	003	000D	0033	0027
JMP3	A	003	0017	0040	
JMP4	A	004	001D	0046	0040
LOW	A	001	0024	0052	0026
NOVFHE	C	001	003D	0056	0033
NOVFHL	C	001	003E	0059	0046
PSR	C	001	0004	0054	0026* 0039*
UVMXYZ	A	001	0000	0004	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

DATE 29AUG75  
EC NO. 827804

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD60 CPU AND MEMORY DIAGNOSTICS: PROGRAM D6 MOD 12  
OBJECT CARD LISTING

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PAGE 11

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*PN\*42 48200\*EC\*827804\* CPU\*AND\*MEMORY\*T ESTS\*\*\*\*\*MOD\*12 84228422\*\*\*\*\*OD600000  
T1& V2G1\*(1&E I)H B\*A3-H\*A3-LM D\*BP2-10\*77 I-E M2G1\*-D\*\*\*\*\*K2<OD600001  
E\*\*E7\*=-DC\*PHS =\*7M&FI\*\*I\*\*C \*\*F\*ASC\*\*R A SO\*\*Q\*\*\*\*\*12010630750 828750880D600002

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD70 CPU AND MEMORY DIAGNOSTICS: PROGRAM D7 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

PART NO. 4248201  
PAGE 11A

0000 0000 2 DECK 4  
3 SEQ 0  
4 UVWXYZ START 0  
5 TREP  
6 \* SECTOR 05  
7 \*\*\*\*\*  
8 \*\*\*\*\*  
9 \*\*\*\*\*  
10 \*\*\*\*\*  
11 \*\*\*\*\*  
12 \*\*\*\*\*  
13 \*\*\*\*\*  
14 \*\*\*\*\*  
15 \*\*\*\*\*  
16 \*\*\*\*\*  
17 \*\*\*\*\*  
18 \*\*\*\*\*  
19 \*\*\*\*\*  
20 \*\*\*\*\*  
21 \*\*\*\*\*  
22 \*\*\*\*\*  
23 \*\*\*\*\*  
24 \*\*\*\*\*  
25 \*\*\*\*\*  
26 \*\*\*\*\*  
27 \*\*\*\*\*  
28 \*\*\*\*\*  
29 \*\*\*\*\*  
30 \*\*\*\*\*  
31 HLT1 HPL H7,HD INITIAL HALT = D7  
32 \*  
33 \* L HIGH,PSR LOAD PSR(CR) TO HIGH.  
34 \* COMP1 CLI ZERO,X'01\* COMPARE 00 & 01.  
35 \* JL COMP2 JUMP IF CR LOW.  
36 \* JE HLT3 \* JUMP IF CR EQUAL.  
37 \*  
38 \* HLT2 HPL H7,HD \* CR HIGH  
39 \* \* FAILING FUNCT (1,7,13,16)  
40 \* HLT3 HPL H7,HD \* CR EQUAL  
41 \*  
42 \* \* FAILING FUNCT (2,3)  
43 \*  
44 \* COMP2 CLI XFF,X'FF\* COMPARE FF & FF.  
45 \* JE COMP3 JUMP IF CR EQUAL.  
46 \*  
47 \* HLT4 HPL H7,HD \* CR NOT EQUAL.  
48 \* \* FAILING FUNCT (4,6,9,10,11,14)  
49 \* COMP3 CLI XFF,X'FF\* CHECK FOR STORING (NOT REGEN)  
50 \* JE COMP4 JUMP IF XFF NOT ALTERED BY (CLI).  
51 \*  
52 \* HLT5 HPL H7,HD \* STORAGE ALTERED BY (CLI)  
53 \* \* FAILING FUNCT (5,17)  
54 \* COMP4 CLI XFF,X'02\* COMPARE FF WITH 02.  
55 \* BH BOOT BR TO BOOTSTRAP IF CR HIGH.  
56 \*  
57 \* HLT6 HPL H7,HD \* CR NOT HIGH  
58 \* \* FAILING FUNCT (4,8,9,15)  
59 \*  
60 \* HIGH EQU X'19\*  
61 \* XFF DC XL2'FFFF\*  
62 \* ZERO DC XL2'0000\*  
63 \* PSR EQU X'04\*  
64 \* HD EQU X'73\*  
65 \* BOOT EQU X'07\*  
66 \* EQU X'158\*  
END

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD70 CPU AND MEMORY DIAGNOSTICS: PROGRAM D7 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0158	0065	0055
COMP1	A	004	0007	0034	
COMP2	A	004	0017	0044	0035
COMP3	A	004	0021	0049	0045
COMP4	A	004	0028	0054	0050
HD	C	001	0073	0063	0031
HIGH	C	001	0019	0059	0033
HLT1	A	003	0000	0031	
HLT2	A	003	0011	0038	
HLT3	A	003	0014	0040	0036
HLT4	A	003	001E	0047	
HLT5	A	003	0028	0052	
HLT6	A	003	0033	0057	
H7	C	001	0007	0064	0031 0038 0040 0047 0052 0057
PSR	C	001	0004	0062	0033*
UVWXYZ	A	001	0000	0004	
XFF	A	002	0037	0060	0044 0049 0054
ZERO	A	002	0039	0061	0034

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD70 CPU AND MEMORY DIAGNOSTICS: PROGRAM D7 MOD 12

OBJECT CARD LISTING

PART NO. 4248201  
PAGE 12A

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```
*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0D700000
T+E*92G<G|E&*FL4 A*CX2--X2-E|0*0~ 0*0*!0*78YDC2G< G|~2(*RA*A3A34 B*C~/E$2G<G**2 *****NZ*0D700001
E***E7*=-DC*PH$ =*7M&F|***|***C **F$***ASC***R*A SO***Q***** 12010630750 828750Y80D700002
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
PAGE 13

OD80 CPU AND MEMORY DIAGNOSTICS: PROGRAM D8 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 DECK 4
3 SEQ 0
4 UVMXYZ START 0
5
6 * SECTOR 06
7 *****
8 *****
9 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 *****
20 *****
21 *****
22 *****
23 HLT1 HPL H8,HD INITIAL HALT = D8
24
25 L LOVFLW,PSR LOAD PSR(CR) TO LOW & DEC OVERFLOW
26 CLI XFF,X'00' COMPARE FF & 00.
27 JC HLT2,BINOV JUMP IF BINARY OVERFLOW IS SET.
28 JH HLT2+3 JUMP IF HIGH SET.
29 *
30 HLT2 HPL H8,HD * PSR(CR) SET WRONG.
31 * * FAILING FUNCT (1,6,7)
32 *
33 *
34 CLI X7F,X'00' COMPARE 7F & 00.
35 JNH HLT3 JUMP IF HIGH NOT SET.
36 CLI XBF,X'00' COMPARE BF & 00.
37 JH HLT3+3 JUMP IF HIGH SET.
38 *
39 HLT3 HPL H8,HD * PSR(CR) SET WRONG.
40 * * FAILING FUNCT (2,3,7)
41 *
42 *
43 CLI XFF,X'FF' COMPARE FF & FF.
44 JF HLT4 JUMP IF FALSE SET.
45 BNOZ HLT2 GO HALT IF DEC OVERFLOW WAS RESET.
46 B BOOT BRANCH TO BOOTSTRAP.
47 *
48 HLT4 HPL H8,HD * PSR(CR) SET WRONG.
49 * * FAILING FUNCT (4,5)
50 *
51 *
52 DC XLI'FF'
53 XFF DC XLI'FF'
54 X7F DC XLI'7F'
55 XBF DC XLI'BF'
56 LOVFLW DC XLI'0A'
57
58 BINOV EQU X'AO'
59 PSR EQU X'04'
60 HD EQU X'73'
61 H8 EQU X'7F'
62 BOOT EQU X'162'
63
64 FFFF END

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OD80 CPU AND MEMORY DIAGNOSTICS: PROGRAM D8 MOD 12  
CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
BINOV C 001 00A0 0058 0027
BOOT C 001 0162 0062 0046
HD C 001 0073 0060 0023 0030 0039 0048
HLT1 A 003 0000 0023
HLT2 A 003 0011 0030 0027 0028 0045
HLT3 A 003 0022 0039 0035 0037
HLT4 A 003 0034 0048 0044
H8 C 001 007F 0061 0023 0030 0039 0048
LOVFLW A 001 0038 0056 0025
PSR C 001 0004 0059 0025*
UVMXYZ A 001 0000 0004
XBF A 001 003A 0055 0036
XFF A 001 0038 0053 0026 0043
X7F A 001 0039 0054 0034

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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EC NO. 827804

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
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OD80 CPU AND MEMORY DIAGNOSTICS: PROGRAM D8 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* CPU AND MEMORY T ESTS\*\*\*\*\*MOD\*12 84228422\*\*\*\*\*OD800000  
T+\*=2G\*(1&&+34 \*\*CT2Y\*12/10\*72 \*92-6G1&+7H D\*\*A3-37\*\*CT2U\*T \*B\*\*JOM\*AQ7A3-\*\*\* \*\*2\*\*=CUOD800001  
T\*\*#B-\*\*\*\*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*\* \*2.60D800002  
E\*\*\*E7\*=-DC\*PH\$ =\*7H&F|\*\*\*|\*\*C \*\*F\$\*\*ASC\*\*R\*A SO\*\*Q\*\*\*\*\*12010630750 828753Q20D800003

DATE 29AUG75  
EC NO. 827804

PROG ID 008-0  
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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
PAGE 14A

OD90 CPU AND MEMORY DIAGNOSTICS: PROGRAM D9 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4  
3 SEQ 0  
4 UVWXYZ START 0  
5 TREP  
6 \*  
7 SECTOR 07  
8 \*\*\*\*\*  
9 \*\*\*\*\*  
10 \*\*\*\*\*  
11 \*\*\*\*\*  
12 \*\*\*\*\*  
13 \*\*\*\*\*  
14 \*\*\*\*\*  
15 \*\*\*\*\*  
16 \*\*\*\*\*  
17 \*\*\*\*\*  
18 \*\*\*\*\*  
19 \*\*\*\*\*  
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52 \*\*\*\*\*  
53 \*\*\*\*\*  
54 \*\*\*\*\*  
55 \*\*\*\*\*  
56 \*\*\*\*\*  
57 \*\*\*\*\*  
58 \*\*\*\*\*  
59 \*\*\*\*\*  
60 \*\*\*\*\*  
61 \*\*\*\*\*  
62 \*\*\*\*\*  
63 \*\*\*\*\*  
64 \*\*\*\*\*  
0000 F0 73 5F HLT1 HPL H9,HD INITIAL HALT = D9  
0003 35 04 003F L HIGH,PSR LOAD PSR TO HIGH.  
0007 3C FF 003E PAD,X'FF' MOVE FF TO PAD.  
000B F2 84 13 JH HLT4+3 JUMP IF CR STILL HIGH.  
000E 3D 01 003E CLI PAD,X'01' \* CHECK RESULT  
0012 F2 81 09 JE HLT4 \* JUMP IF RESULT IS 01.  
0015 F2 82 03 JL HLT3 \* JUMP IF RESULT IS 00.  
0018 F0 73 5F \* HLT2 HPL H9,HD \* CR ERR  
\* \* \* FAILING FUNCT (2,8,10)  
001B F0 73 5F \* HLT3 HPL H9,HD \* DECODE ERR.  
\* \* \* FAILING FUNCT (5,10)  
001E F0 73 5F \* HLT4 HPL H9,HD \* NO COMP A REG.  
\* \* \* FAILING FUNCT (1,10)  
0021 3D FF 003E CLI PAD,X'FF' CHECK RESULT.  
0025 F2 81 03 JE HLT5+3 JUMP IF RESULT IS FF.  
0028 F0 73 5F \* HLT5 HPL H9,HD \* FF NOT STORED IN PAD.  
\* \* \* FAILING FUNCT (3,6,9,10)  
002B 3C 00 003E MVI PAD,X'00' MOVE 00 INTO PAD.  
002F 3D FF 003E CLI PAD,X'FF' CHECK RESULT  
0033 3C 08 016A MVI BOOT+1,X'08' SET UP TO READ 8TH RECORD  
0037 C0 01 0169 BNE BOOT BRANCH TO BOOTSTRAP IF RESULT NOT FF  
003B F0 73 5F \* HLT6 HPL H9,HD \* STORE OR BLOCK SDR ERR  
\* \* \* FAILING FUNCT (4,7,10)  
003E 00 003E PAD DC XL1'00'  
003F 00 003F HIGH DC XL1'00'  
0004 59 PSR EQU X'04'  
0073 60 HD EQU X'73'  
005F 61 H9 EQU X'5F'  
0169 62 BOOT EQU X'169'  
FFFF 64 END

-D-

PROG ID 009-0  
PAGE 14A



IBM MAINTENANCE DIAGNOSTIC PROGRAM

0090 CPU AND MEMORY DIAGNOSTICS: PROGRAM D9 MOD 12  
CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0062	0050* 0051
HD	C	001	0073	0060	0024 0033
HIGH	A	001	003F	0057	0026
HLT1	A	003	0000	0024	
HLT2	A	003	0018	0033	
HLT3	A	003	0018	0036	0031
HLT4	A	003	001E	0039	0028 0030
HLT5	A	003	0028	0045	0043
HLT6	A	003	0038	0053	
H9	C	001	005F	0061	0024 0033
PAD	A	001	003E	0056	0027* 0029
PSR	C	001	0004	0059	0042 0048* 0049
UVWXYZ	A	001	0000	0004	0026*

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

0090 CPU AND MEMORY DIAGNOSTICS: PROGRAM D9 MOD 12  
OBJECT CARD LISTING

PART NO. 4248201  
PAGE 15A

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 00900000
T+ :26(-1&&|33 =C#2/A<'&'=2YD I2YHC26(-26(-26(- -|-2|?RA*A3P30 **C8**0=-|-AE$ A*OU*0&Q0D900001
TA **26(-***** ..... LQQ0D900002
E***E7*-DC*PHS =*7M&F|***I***C **F$**ASC**R A 'SO**Q***** 12010630750 828753H20D900003
    
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
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ODAO CPU AND MEMORY DIAGNOSTICS: PROGRAM DA MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

126 *****
127 *****
128 ***** (SBF,TBF) SET & TEST BITS OFF *****
129 *****
130 ***** TEST (12) STORE DATA *****
131 ***** (13) AND, ADD A & B REG *****
132 ***** (14) INTERNAL *****
133 *****
134 *****
135 *****
136 *****
137 *****
138 *****
139 *****
140 *****
141 *****
142 *****
143 *****
144 *****
145 *****
146 *****
147 *****
148 *****
149 *****
150 *****
151 *****
152 *****
153 *****
154 *****
155 *****
156 *****
157 *****
158 *****
159 *****
160 *****
161 *****
162 *****
163 *****
164 *****
165 *****
166 *****
167 *****
168 *****
169 *****
170 *****
171 *****
172 *****
173 *****
174 *****
175 *****
176 *****

```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
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ODAO CPU AND MEMORY DIAGNOSTICS: PROGRAM DA MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0172	0155* 0158
HA	C	001	003F	0174	0019 0026 0033 0040 0063 0066 0072 0079 0143 0146 0152 0160
HD	C	001	0073	0175	0019 0026 0033 0040 0063 0066 0072 0079 0143 0146 0152 0160
HIGH	A	004	00C7	0170	0163 0166 0169 0174
HLT1	A	003	00D0	0019	0057
HLT10	A	003	00FD	0146	0115 0118 0121 0124
HLT11	A	003	00D7	0143	
HLT12	A	003	00DA	0144	0139 0141
HLT13	A	003	00E4	0152	0150
HLT14	A	003	00F7	0160	
HLT2	A	003	0012	0026	0024
HLT3	A	003	0024	0033	0031
HLT4	A	003	0036	0040	
HLT5	A	003	0048	0063	
HLT6	A	003	004E	0066	0060 0061
HLT7	A	003	0058	0072	C070
HLT8	A	003	0066	0079	
HLT9	A	003	00FA	0163	0093 0096 0099 0102
PAD	C	001	00FF	0171	0021* 0022* 0023 0028* 0029* 0030 0035* 0036* 0037 0058* 0059 0069
PPP	A	004	0003	0021	0075* 0076 0091* 0092 0094* 0095 0097* 0098 0100* 0101 0113* 0114
PSR	C	001	0004	0173	0116* 0117 0119* 0120 0122* 0123 0136* 0137* 0138 0140 0149 0156*
SET1	A	004	00C5	0137	0157
SET2	A	004	00EB	0156	0057*
START	A	004	0039	0057	0170
START1	A	004	0069	0091	
TST1	A	004	00C9	0138	0038
TST2	A	004	00EF	0157	0077
UVMXYZ	A	001	0000	0004	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
004E	F0 73 6C	66	HLT3	HPL HC,HD
		67	*	* FAILING FUNCT (6,8,10,11,13)
		68	*	
		69	*	
0051	3D 20 00F4	70	TST5	CLI XR2LO,X'20'
0055	F2 01 07	71	JNE	HLT4
0058	3D 80 00F8	72	TST6	CLI ARRLO,X'80'
005C	F2 81 06	73	JE	START
005F	F0 73 6C	74	HLT4	HPL HC,HD
		75	*	* FAILING FUNCT (14)
		76	*	
		77	*	
0062	F0 73 6C	78	HLT5	HPL HC,HD
		79	*	* FAILING FUNCT (7,8,9)
		80	*	
		81	*	
		82	*	*****
		83	*****	(L, ST, A) LOAD, STORE & ADD REGISTER
		84	*****	*****
		85	*****	*****
		86	*****	TEST (1) AR
		87	*****	(2) BAR
		88	*****	(3) LSR SELECT
		89	*****	*****
		90	*****	*****
		91	*	
		92	*	
0065	35 01 00CE	93	START	L XFF,XR1
		94	*	LOAD XR1 & XR2 WITH FFFF
0069	35 02 00CE	95	L	XFF,XR2
006D	36 01 00C9	96	A	ONE,XR1
0071	F2 20 08	97	JNOL	HLT7
0074	36 02 00C9	98	A	ONE,XR2
0078	C0 A0 007F	99	BOL	START1
		100	*	
007C	F0 73 6C	101	HLT7	HPL HC,HD
		102	*	* BINARY OVERFLOW NOT SET
		103	*	* FAILING FUNCT (1,2)
		104	*	
		105	*****	*****
		106	*****	(LA) LOAD ADDRESS
		107	*****	*****
		108	*****	*****
		109	*****	TEST (1) XR1 & XR2 SELECT
		110	*****	(2) (LA) OP DECODE
		111	*****	(3) INTERNAL
		112	*****	*****
		113	*****	*****

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ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
007F	35 01 00BF	115	START1	L ZEROES,XR1
0083	35 02 00BF	116	L	ZEROES,XR2
0087	C2 01 00BB	117	LOAD1	LA HLT10,XR1
		118	*	
008B	34 02 00FA	119	ST	PAD1,XR2
		120	*	STORE XR2 IN LOC -00F9 & 00FA-
008F	C2 02 FFFF	121	LOAD2	LA X'FFFF',XR2
		122	*	LOAD XR2 WITH -FFFF-
0093	34 01 00FC	123	ST	PAD2,XR1
0097	34 02 00FE	124	ST	PAD3,XR2
		125	*	STORE XR1 IN LOC -00FB & 00FC-
009B	3D 00 00FD	126	CLI	PAD3-1,X'00'
009F	F2 81 16	127	JE	HLT9
		128	*	GO HALT IF XR2 WAS NOT SELECTED
00A2	3D 8B 00FC	129	CLI	PAD2,X'BB'
00A6	F2 01 0C	130	JNE	HLT8
		131	*	GO HALT IF XR1 NOT SELECTED BY LOAD1
00A9	3D 00 00F9	132	CLI	PAD1-1,X'00'
		133	*	OR IF XR1 WAS SELECTED BY LOAD2.
00AD	3C 0A 016A	134	MVI	BOOT+1,X'0A'
00B1	C0 81 0169	135	BE	BOOT
		136	*	GO HALT IF XR2 WAS SELECTED
		137	*	BY LOAD1
00B5	F0 73 6C	138	HLT8	HPL HC,HD
		139	*	* PROG DC, HALT 8. ERROR HALT.
		140	*	* FAILING FUNCT 1
00B8	F0 73 6C	141	HLT9	HPL HC,HD
		142	*	* PROG DC, HALT 9. ERROR HALT.
		143	*	* FAILING FUNCT (1,2,3)
00BB	F0 73 6C	144	HLT10	HPL HC,HD
		145	*	* PROG DC, HALT 10. ERROR HALT.
		146	*	* FAILING FUNCT 2
		147	*	THE (LA) WAS DECODED AS A (BNE)
		148	*	INSTRUCTION.
00BE	0000	149	ZEROES	DC XL2'0000'
00C0	0110	150	X0110	DC XL2'0110'
00C2	2020	151	X2020	DC XL2'2020'
00C4	4004	152	X4004	DC XL2'4004'
00C6	8080	153	X8080	DC XL2'8080'
00C8	0001	154	ONE	DC XL2'0001'
00CA	AA55	155	XAA55	DC XL2'AA55'
00CC	AA	156	X55AA	DC XL1'AA'
00CD	FFFF	157	XFF	DC XL2'FFFF'
		158	*	
0001	159	XR1	EQU	1
0002	160	XR2	EQU	2
0004	161	PSR	EQU	4
0008	162	ARR	EQU	8
00FF	163	ALLREG	EQU	255
00FA	164	PAD1	EQU	250
00FC	165	PAD2	EQU	252
00FE	166	PAD3	EQU	254
00F1	167	XR1HI	EQU	241
00F2	168	XR1LO	EQU	242
00F4	169	XR2LO	EQU	244
00F6	170	PSRLO	EQU	246
00F8	171	ARRLO	EQU	248
0169	172	BOOT	EQU	X'169'
0073	173	HD	EQU	X'73'
006C	174	HC	EQU	X'6C'
FFFF	175	END		

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ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ALLREG	C	001	00FF	0163	
ARR	C	001	0008	0162	0023* 0029
ARRLO	C	001	00F8	0171	0029* 0072
BOOT	C	001	0169	0172	0134* 0135
HC	C	001	006C	0174	0018 0058
HD	C	001	0073	0173	0018 0058
HLT1	A	003	0000	0018	
HLT10	A	003	008B	0144	0117
HLT2	A	003	003D	0058	0055
HLT3	A	003	004E	0066	
HLT4	A	003	005F	0074	0071
HLT5	A	003	0062	0078	0065
HLT7	A	003	007C	0101	0097
HLT8	A	003	0085	0137	0130
HLT9	A	003	0088	0141	0127
LOAD1	A	004	0087	0117	
LOAD2	A	004	008F	0121	
ONE	A	002	00C9	0154	0096 0098
PAD1	C	001	00FA	0164	0119* 0132
PAD2	C	001	00FC	0165	0123* 0129
PAD3	C	001	00FE	0166	0124* 0126
PSR	C	001	0004	0161	0022* 0028
PSRLO	C	001	00F6	0170	0028* 0054
STAKT	A	004	0065	0093	0073
START1	A	004	007F	0115	0099
TST1	A	004	002F	0054	0030
TST2	A	004	0036	0056	
TST3	A	004	0040	0062	0057
TST4	A	004	0047	0064	
TST5	A	004	0051	0070	0063
TST6	A	004	0058	0072	
UVWXYZ	A	001	0000	0004	
XAA55	A	002	00C8	0155	
XFF	A	002	00CE	0157	0093 0095
XR1	C	001	0001	0159	0020* 0026 0093* 0096* 0115* 0117* 0123
XR1HI	C	001	00F1	0167	0025* 0062 0064
XR1LO	C	001	00F2	0168	0024* 0026* 0056
XR2	C	001	0002	0160	0021* 0027 0095* 0098* 0116* 0119 0121* 0124
XR2LO	C	001	00F4	0169	0027* 0070
X0110	A	002	00C1	0150	0020
X2020	A	002	00C3	0151	0021
X4004	A	002	00C5	0152	0022
X55AA	A	001	00CC	0156	
X8080	A	002	00C7	0153	0023
ZEROES	A	002	00BF	0149	0115 0116

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** ODC00000
T+*:=2G(%ED*OLM B*<<5A*CE(%-130 |*H2*OC1(*D*2TE B*|&4A*C6(*--=<B G*82*A*C62-DG|J* *27H*)EYODC00001
T+*A5-E10*60*EC 12YDH|&*a*-RAE|A 3&C4-|L2*E*-*C 82YDF2G(%2G(%ED *3TMB*<86*EC|2S* H(-H*8S2ODC00002
T+*B0*CX*Y*A*2G(%ED*73HB*.NB*EB #(*H*=%HB**24*EC @(*H*%T4**|72-JQ *>OC22-D<|E**=LO R*OY*POMODC00003
TG&C+OHDAE-A3$|A 3$|A3$*****J*-HD D-H***E2ND?*** ***** 3K80DC00004
E****E7*=-DC*PH$ =*7M&F|***|***C **F%***ASC***R*A SO***Q***** *****12010630750 82875*YUODC00005
    
```

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ODDO CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2      DECK 4
              3      SEQ 0
              4      UVWXYZ START 0
              5      TREP
              6      *
              7      ***** SECTOR 10 *****
              8      *****
              9      *****
             10      *****
             11      *****
             12      *****
             13      *****
             14      *****
             15      *****
             16      *****
             17      *****
             18      *****
             19      *****
             20      *****
             21      HALT1 HPL HD,HD          INITIAL HALT = DD
             22      *
             23      *
             24      *
             25      MVI PAD,X'A5'          SET PAD (LOC 00FF) TO -A5-.
             26      *
             27      MOVENN MNN PAD,HEX96+1  MOVE NUMERIC -96- TO NUMERIC OF PAD
             28      *
             29      CLI PAD,X'03'          GO TO HALT2 IF RESULT
             30      JNE HALT2+3            WAS -03-.
             31      *
             32      HALT2 HPL HD,HD          * PROG DD, HALT 2. ERROR HALT.
             33      *
             34      *
             35      *
             36      CLI PAD,X'A0'          GO TO HALT3 IF RESULT
             37      JNE HALT3+3            WAS -A0-.
             38      *
             39      HALT3 HPL HD,HD          * PROG DD, HALT 3. ERROR HALT.
             40      *
             41      *
             42      *
             43      *
             44      CLI PAD,X'96'          GO TO HALT4 IF RESULT
             45      JE HALT4                WAS -96-.
             46      *
             47      CLI PAD,X'A5'          GO TO HALT4 IF RESULT
             48      JNE HALT4+3            WAS -A5-.
             49      *
             50      HALT4 HPL HD,HD          * PROG DD, HALT4. ERROR HALT.
             51      *
             52      *
             53      *
             54      CLI PAD,X'A9'          GO TO HALT5 IF RESULT
             55      JNE START2              WAS -A9-.
             56      *
             57      HALT5 HPL HD,HD          * PROG DD, HALT 5. ERROR HALT.
             58      *
             59      *
    
```

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ODDO CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

61 *****
62 *****
63 *****
64 *****
65 *****
66 *****
67 *****
68 *****
69 *****
70 *****
71 *****
72 *****
73 *****
74 *****
75 *****
76 *****
77 *****
78 *****
79 *****
80 *****
81 *****
82 *****
83 *****
84 *****
85 *****
86 *****
87 *****
88 *****
89 *****
90 *****
91 *****
92 *****
93 *****
94 *****
95 *****
96 *****
97 *****
98 *****
99 *****
    
```

(MNN) MOVE NUMERIC TO NUMERIC

```

TEST (1) GATE LSR LO NORMAL TO A.
      (2) GATE LSR LO CROSSED TO A.
      (3) SINGLE EB CYC INST.
      (4) MNN DECODE
      (5) ALU AND-UR
      (6) I/O NOT CE TEST
    
```

```

003C 3C 11 00FE          START2 MVI PAD-1,X'11'
0040 3C A5 00FF          MVI PAD,X'A5'          SET PAD (LOC 00FE & 00FF)
                                TO -11A5-.
0044 08 03 00FF 0085    MNN PAD,HEX96+1      MOVE NUMERIC -96- TO NUMERIC OF PAD.
                                RESULT IN LOC 0051 SHUD BE -A6-.
004A 3D AF 00FF          *
004E F2 01 03          CLI PAD,X'AF'        BYPASS HALT6 IF RESULT IN LOC 00FF
                                WAS NOT -AF-.
0051 F0 73 73          JNE HALT6+3
0051 F0 73 73          HALT6 HPL HD,HD      * PROG DD, HALT 6. ERROR HALT
                                * FAILING FUNCT 1,2
0054 3D 11 00FE          *
0058 F2 81 03          CLI PAD-1,X'11'     BYPASS HALT7 IF LOC 00FE WAS NOT
                                HALT7+3        ALTERED BY (MOVENN).
0058 F0 73 73          JE
0058 F0 73 73          HALT7 HPL HD,HD      * PROG DD, HALT 7. ERROR HALT
                                * FAILING FUNCT 3
005E 3D A6 00FF          *
0062 C0 81 0069          CLI PAD,X'A6'        GO TO HALT8 IF RESULT IN LOC 00FF
                                BE START3      WAS NOT -A6-. GO TO START3 IF
                                RESULT IN LOC 00FF WAS -A6-.
0066 F0 73 73          HALT8 HPL HD,HD      * PROG DD, HALT 8. ERROR HALT.
                                * FAILING FUNCT (4,5,6)
    
```

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ODD0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12

ODD0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

CROSS-REFERENCE

```

101 *****
102 *****
103 ***** (MZZ) MOVE ZONE TO ZONE *****
104 *****
105 ***** TEST (1) ZONE NUM INTERCHANGE *****
106 ***** (2) MOVE NUM *****
107 ***** (3) MOVE ZONE *****
108 ***** (4) MZZ DECODE *****
109 ***** (5) ALU AND-OR FUNCTION *****
110 ***** (6) Q BIT 6 *****
111 ***** (7) INTERNAL *****
112 *****
113 *****
114 *****
115 *****
116 START3 MVI PAD,X'A5' SET PAD (LOC 00FE) TO -A5-.
117 *****
118 MZZ PAD,HEX96+1 MOVE ZONE OF -96- TO ZONE OF PAD.
119 *****
120 CLI PAD,X'65' GO TO HALT9 IF RESULT
121 JNE HALT9+3 WAS -65-.
122 *****
123 HALT9 HPL HD,HD * PROG DD, HALT 9. ERROR HALT.
124 * FAILING FUNCT (1,7)
125 *
126 *****
127 *****
128 CLI PAD,X'A5' GO TO HALT10 IF RESULT
129 JE HALT10 WAS -A5-.
130 *****
131 HEX96 CLI PAD,X'96' GO TO HALT10 IF RESULT
132 JNE HALT10+3 WAS -96-.
133 *****
134 HALT10 HPL HD,HD * PROG DD, HALT 10. ERROR HALT.
135 * FAILING FUNCT (2,3)
136 *
137 *****
138 CLI PAD,X'A9' GO TO HALT11 IF RESULT
139 JNE HALT11+3 WAS -A9-.
140 *****
141 HALT11 HPL HD,HD * PROG DD, HALT 11. ERROR HALT.
142 * FAILING FUNCT 6
143 *
144 *****
145 CLI PAD,X'95' GO TO HALT12 IF RESULT WAS NOT-95-.
146 MVI BOOT+1,X'08' SET UP TO READ 11TH RECORD
147 BE BOOT GO TO BOOTSTRAP IF RESULT WAS -95-.
148 *****
149 HALT12 HPL HD,HD * PROG DD, HALT 12. ERROR HALT.
150 * FAILING FUNCT (4), (5)
151 *
152 *****
153 PAD EQU 255
154 BOOT EQU X'169'
155 HD EQU X'73'
156 *****
00FF 152 PAD EQU 255
0169 153 BOOT EQU X'169'
0073 154 HD EQU X'73'
155 *****
FFFF 156 END

```

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0153	0145* 0146
HALT1	A	003	0000	0021	
HALT10	A	003	0086	0133	0128 0131
HALT11	A	003	0095	0140	0138
HALT12	A	003	00A4	0148	
HALT2	A	003	0014	0032	0030
HALT3	A	003	001E	0039	0037
HALT4	A	003	002F	0050	0045 0048
HALT5	A	003	0039	0057	
HALT6	A	003	0051	0082	0080
HALT7	A	003	0058	0089	0087
HALT8	A	003	0066	0097	
HALT9	A	003	007A	0123	0121
HD	C	001	0073	0154	0021 0032 0032 0039 0039 0050 0050 0057 0057 0082 0082
HEX96	A	004	0084	0130	0021 0089 0097 0097 0123 0123 0133 0133 0140 0140 0148 0148
MOVENN	A	006	0007	0027	0027 0077 0118
PAD	C	001	00FF	0152	0C25* 0027* 0029 0036 0044 0047 0054 0074* 0075* 0077* 0079 0086
START2	A	004	003C	0074	C055
START3	A	004	0069	0116	0093 0116* 0118* 0120 0127 0130 0137 0144
UVWXYZ	A	001	0000	0004	0094

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0



ODD0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* CPU AND MEMORY TESTS \*\*\*\*\* MOD 12 84228422 \*\*\*\*\* ODD000000  
T+ :2G(3)HM\*0- C |2 /L4C |\*2 \*6 | 0\*7<'Y'C\*2-DC2G( 3|RQ\*\*RAA36V |\* 2 \*8|0\*7<'D&C\*2-D C2G< LQ8ODD00001  
T+-A5\*30J |82Z&C \*B<'\*OBE |E2 \*MH A \*A3\*34J |#2-8 | 0\*7<'Z-C\*OHD'E-A 3\*32V |2H \*C \*HM \*RE \*\*9H&ODD00002  
T< BW\*\*HA \*A3\*36 V |\*2-8\*V-C\*2-D C2G(3)EU\*\*HA \*A 3\*36N |22BOED0HD AE-A3\*0 \*\*\*\*\* JLODD000003  
E\*\*E7\*=-DC\*PH\$ =\*7M&F| \*\*I \*\*C \*\*F\$\*\*ASC\*\*R\*A SO\*\*Q\*\*\*\*\* 12010630750 828752Q-ODD00004

ODE0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4  
3 SEQ 0  
4 UVMXYZ START 0  
5 TREP  
6 \* SECTOR 11  
7 \*\*\*\*\*  
8 \*\*\*\*\* PROG DE \*\*\*\*\*  
9 \*\*\*\*\* (MNZ) MOVE ZONE TO NUMERIC \*\*\*\*\*  
10 \*\*\*\*\*  
11 \*\*\*\*\* TEST (1) GATE LSR LO CROSSED TO A \*\*\*\*\*  
12 \*\*\*\*\* (2) GATE LSR LO NORMAL TO A \*\*\*\*\*  
13 \*\*\*\*\* (3) ZONE NUM INTERCHANGE \*\*\*\*\*  
14 \*\*\*\*\* (4) MNZ DECODE \*\*\*\*\*  
15 \*\*\*\*\* (5) ALU AND OR FUNCTION \*\*\*\*\*  
16 \*\*\*\*\*  
17  
18 HALT1 HPL HE,HD INITIAL HALT = DE  
19  
20 MVI PAD,X'A5' SET PAD (LOC 00FF) TO -A5-.  
21  
22 MNZ PAD,X96 MOVE ZONE OF -96- TO NUMERIC OF PAD.  
23  
24 CLI PAD,X'A6' GO TO HALT2 IF RESULT  
25 JNE HALT2+3 WAS -A6-.  
26  
27 HALT2 HPL HE,HD \* PROG DE, HALT 2. ERROR HALT.  
28 \* FAILING FUNCT (3)  
29 \*  
30  
31 CLI PAD,X'A0' GO TO HALT3 IF RESULT  
32 JNE HALT3+3 WAS -A0-.  
33  
34 HALT3 HPL HE,HD \* PROG DE, HALT 3. ERROR HALT.  
35 \* FAILING FUNCT 1  
36 \*  
37  
38 CLI PAD,X'AF' GO TO HALT4 IF RESULT  
39 JNE HALT4+3 WAS -AF-.  
40  
41 HALT4 HPL HE,HD \* PROG DE, HALT 4. ERROR HALT.  
42 \* FAILING FUNCT 1,2  
43 \*  
44 \*  
45  
46 CLI PAD,X'A9' GO TO HALT5 IF RESULT WAS NOT -A9-.  
47 BE START2 GO TO NEXT TEST IF RESULT WAS -A9-.  
48  
49 HALT5 HPL HE,HD \* PROG DE, HALT 5. ERROR HALT.  
50 \* FAILING FUNCT (4), (5)  
51 \*

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ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

53 *****
54 ***** (MZN) MOVE NUMERIC TO ZONE *****
55 *****
56 ***** TEST (1) ZONE NUM INTERCHANGE *****
57 ***** (2) MZN DECODE *****
58 ***** (3) ALU AND-OR FUNCTION *****
59 ***** (4) INTERNAL *****
60 *****
61 *****
62 *****
63 START2 MVI PAD,X'A5' SET PAD (LOC 00FF) TO -A5-.
64 *****
65 MZN PAD,X96 MOVE NUMERIC OF -96- TO ZONE OF PAD
66 *****
67 CLI PAD,X'95' GO TO HALT6 IF RESULT
68 JNE HALT6+3 WAS -95-.
69 *****
70 *****
71 HALT6 HPL HE,MD * PROG DE, HALT 6. ERROR HALT.
72 * * FAILING FUNCT (1), (4)
73 *
74 *
75 *****
76 CLI PAD,X'65' GO TO HALT7 IF RESULT WAS NOT -65-.
77 BF START3 GO TO NEXT TEST IF RESULT WAS -65-.
78 *****
79 HALT7 HPL HE,MD * PROG DE, HALT 7. ERROR HALT.
80 * * FAILING FUNCT (2), (3)
81 *
82 *****
83 ***** (MVC) MOVE LOGICAL CHARACTER *****
84 ***** (CLC) COMPARE LOGICAL CHARACTER *****
85 *****
86 *****
87 ***** TEST (1) MVC DECODE *****
88 ***** (2) OP END TOO SOON *****
89 ***** (3) CLC DECODE *****
90 ***** (4) Q NUM BLANK, Q REG BLANK ** *****
91 ***** (5) I ADDRESS FORMAT *****
92 *****
93 ***** NOTE: IF Q NUMERIC BLANK OR Q REG BLANK LINES *****
94 ***** ARE STUCK DOWN, THE FIRST MVC INSTRUCTION WILL *****
95 ***** TAKE 52 EA-EB CYCLES BEFORE AN INVALID ADDRESS *****
96 ***** IS GENERATED. *****
97 *****
98 *****
99 *****
100 START3 MVI PAD,X'AA' INITIALIZE PAD
101 MVI PAD-1,X'55' HEX -55AA-
102 MVC PAD(2),XEEFF MOVE HEX -EEFF- TO PAD.
103 CLI PAD,X'FF' CHECK DATA MOVED TO LOC HEX -00FF-.
104 JE HALT8+3 JUMP IF EQUAL TO HEX -FF-.
105 * *
106 HALT8 HPL HE,MD * WRONG DATA IN LOC HEX -00FF-.
107 * * FAILING FUNCT 1
108 *
109 *****
110 CLI PAD-1,X'EE' CHECK DATA MOVED TO LOC HEX -00FE-.
111 JE HALT9+3 JUMP IF EQUAL TO HEX -EE-.
112 *****
113 CLI PAD-1,X'FF' CHECK DATA MOVED TO LOC HEX -00FE-.
114 JE HALT10 JUMP IF EQUAL TO HEX -FF-.
115 *****
116 HALT9 HPL HE,MD * WRONG DATA IN LOC HEX -00FE-.
117 * * FAILING FUNCT (2), (4)

```

```

118 *****
119 ***** CLC PAD(2),XEEFF TEST (CLC) INSTRUCTION
120 BE START4 *****
121 *****
122 *****
123 *****
124 *****
125 *****
126 ***** (MVC) MOVE LOGICAL CHARACTER *****
127 ***** (ALC) ADD LOGICAL CHARACTER *****
128 ***** (SLC) SUBTRACT LOGICAL CHARACTER *****
129 ***** (CLC) COMPARE LOGICAL CHARACTER *****
130 *****
131 ***** TEST (1) CR SET WRONG *****
132 ***** (2) RESULT WRONG *****
133 *****
134 *****
135 *****
136 *****
137 START4 MVC PAD(1),XFF INITIALIZE PAD TO HEX -FF-.
138 ALC PAD(1),X01 ADD HEX -01- TO PAD.
139 JNOL HALT11 JUMP IF BIN OVFLW NOT SET.
140 JNE HALT11 CHECK RESULT.
141 CLC PAD(1),X00 JUMP IF NOT EQUAL TO HEX -00-.
142 JNE HALT12 ADD HEX -00- TO PAD.
143 ALC PAD(1),X'00' JUMP IF BIN OVFLW NOT RESET.
144 JOL HALT11 SUBTRACT HEX -FF- FROM PAD.
145 SLC PAD(1),XFF JUMP IF BIN OVFLW SET.
146 JOL HALT12 SET UP TO READ 12TH RECORD
147 MVI BOOT+1,X'0C' BRANCH IF LOW SET.
148 BL BOOT
149 *
150 HALT11 HPL HE,MD * FAILING FUNCT 1
151 *
152 *
153 *
154 HALT12 HPL HE,MD * FAILING FUNCT 2
155 *
156 *
157 *
158 XFF DC XLI'FF'
159 X01 DC XLI'01'
160 XEEFF DC XLI'EEFF'
161 X96 DC XLI'96'
162 *
163 X00 EQU X'8C'
164 PAD EQU X'255'
165 BOOT EQU X'169'
166 HD EQU X'73'
167 HE EQU X'7C'
168 *
169 END

```

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ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0165	0147* 0148
HALT1	A	003	0000	0018	
HALT10	A	003	0088	0121	0113
HALT11	A	003	00C0	0150	0139 0140 0144
HALT12	A	003	00C3	0154	0142 0146
HALT2	A	003	0014	0027	0025
HALT3	A	003	001E	0034	0032
HALT4	A	003	0028	0041	0039
HALT5	A	003	0033	0049	
HALT6	A	003	0047	0071	0069
HALT7	A	003	0052	0079	
HALT8	A	003	006A	0106	0104
HALT9	A	003	0078	0115	0110
HD	C	001	0073	0166	0018 0027 0034 0041 0049 0071 0079 0106 0115 0121 0150 0154
HE	C	001	007C	0167	0018 0027 0034 0041 0049 0071 0079 0106 0115 0121 0150 0154
PAD	C	001	00FF	0164	0020* 0022* 0024 0031 0038 0046 0064* 0066* 0068 0076 0100* 0101*
START2	A	004	0036	0064	0102* 0103 0109 0112 0118 0137* 0138* 0141 0143* 0145*
START3	A	004	0055	0100	0047 0077
START4	A	006	0088	0137	0119
UVWXYZ	A	001	0000	0004	
XEFF	A	002	00C9	0160	0102 0118
XFF	A	001	00C6	0158	0137 0145
X00	C	001	008C	0163	0141
X01	A	001	00C7	0159	0138
X96	A	001	00CA	0161	0022 0066

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PM*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** ODE00000
T+--:2G(2IRM*0- B*|2*2T6W*|*2*6| 0*70*Y*C*2-DC2G( 2|E2**HA**A3-C6 Z*|*--6*2G(2IRM *0- P880DE00001
T+--A5*8C* <Y*V&C *2-DC2G(2|OM**2B A*EPO*7022D-C*|EM *"-0A*|2*2L7**|* 7-6|0*70*#-C=2YD R|2-M9D0DE00002
T+--B0*|2-670*70 (*8C* <X*-6B.2G( 2C***OCFC-***OC G2S*W2-DTCC***0B <2-DIC-***0**2D* JCO**)*40DE00003
TF&CH*|2*17R-B30 <*0,*--EZ2G(22G( 2*OG)*9Q***** K1D0DE00004
E***E7**--DC*PHS =*7M&F|***|***C **F2***ASC***R*A 50***Q***** 12010630750 828752HU0DE00005
    
```

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 DECK 4
3 SEQ G
4 UVWXYZ START 0
5 TREP
6 *
7 ***** SECTOR 12 *****
8 *****
9 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 *****
20 *****
21 *****
22 *****
23 *****
24 HLT1 HPL HF,HD INITIAL HALT = DF
25
26 L HIGH,ARR SET CR TO HIGH & ARR TO HEX -0000-
27 L HIGH,PSR
28 ZAZ XFO(1),XFO(1) ZERO & ADD DEC 0
29 JE HLT2+3 JUMP IF EQUAL CONDITION SET.
30 *
31 HLT2 HPL HF,HD * FAILING FUNCT (1,2,5,6,7,9)
32 *
33 *
34 *
35 ST SAVARR,ARR SAVE ARR
36 CLC SAVARR(2),ADXFO COMPARE IT WITH ADDRESS OF XFO
37 JE HLT3+3 JUMP IF EQUAL
38 *
39 CLC SAVARR(2),ADNFO GO TO HALT5 IF ARR
40 JE HLT5 WAS DECREMENTED.
41 *
42 HLT3 HPL HF,HD * ARR WRT SELECT
43 * * FAILING FUNCT 2
44 *
45 *
46 BC START2,X'08' BRANCH TO NEXT TEST IF DEC. OVERFLOW
47 * CONDITION NOT SET.
48 HLT4 HPL HF,HD * DECIMAL OVERFLOW WAS SET 2571
49 * * FAILING FUNCT 3
50 *
51 *
52 HLT5 HPL HF,HD *PROG IF, HALT 5. ERROR HALT
53 * * FAILING FUNCT (8)
54 *

```

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

56 *****
57 *****
58 *****
59 *****
60 *****
61 *****
62 *****
63 *****
64 *****
65 *****
66 *****
67 *****
68 *****
69 START2 MVI PAD,X'F6' MOVE HEX -F6- INTO PAD.
70 ZAZ PAD(1),XF3(1) ZERO & ADD DEC 3.
71 CLI PAD,X'F3' CHECK RESULT.
72 JE START3 JUMP TO NEXT TEST IF RESULT EQUALS
73 * DECIMAL 3.
74 *
75 * NOTE: PAD AND SAVARR ARE EQUATED TO 255 AND USE THE LAST 2
76 * BYTES OF THIS SECTOR.
77 *****
78 CLI PAD,X'F7' *
79 JNE HLT6+3 * JUMP IF RESULT NOT EQ TO DEC 7.
80 *
81 HLT6 HPL HF,HD
82 *
83 *
84 *
85 CLI PAD,X'F0' *
86 JE HLT9 * JUMP IS RESULT EQUALS DEC 0.
87 CLI PAD,X'F9' *
88 JNE HLT7+3 * JUMP IF RESULT NOT EQ TO DEC 9.
89 *
90 HLT7 HPL HF,HD * FAILING FUNCT 4
91 *
92 *
93 *
94 *
95 CLI PAD,X'F6' *
96 JE HLT8+3 * JUMP IF RESULT EQUALS DEC 6.
97 HLT8 HPL HF,HD * FAILING FUNCT (4)
98 *
99 *
100 *
101 HLT9 HPL HF,HD * CARRY IN ON SUB
102 * * FAILING FUNCT 1,5
103 *

```

```

003A 3C F6 00FF 00FD
003E 04 00 00FF
0044 3D F3 00FF
0048 F2 81 28

```

```

0048 3D F7 00FF
004F F2 01 03
0052 F0 73 3C

```

```

0055 3D F0 00FF
0059 F2 81 14
005C 3D F9 00FF
0060 F2 01 03

```

0063 F0 73 3C

```

0066 3D F6 00FF
006A F2 81 03

```

006D F0 73 3C

0070 F0 73 3C

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

105 *****
106 *****
107 ***** (ZAZ) ZERO AND ADD DECIMAL *****
108 *****
109 ***** TEST (1) SDR TO B REGISTER *****
110 ***** (2) RECOMPLEMENT CYCLE *****
111 ***** (3) DECIMAL COMPLEMENT B REGISTER *****
112 ***** (4) FORCE BIT 7 *****
113 ***** (5) B REGISTER SIGN MINUS *****
114 ***** (6) SDR SIGN MINUS *****
115 ***** (7) CHANGE ALU BIT 2 *****
116 ***** (8) CARRY TO BIT 3 *****
117 ***** (9) ARR SELECT *****
118 ***** (10) ADD TO REG , STORE INSTR *****
119 ***** (11) RECOMP GATE *****
120 ***** (12) ALU *****
121 ***** (13) INTERNAL *****
122 *****
123 *****
124 *****
125 START3 MVI PAD,X'00' RE-INITIALIZE PAD TO -00-
126 ZAZ PAD(1),X00(1) ZERO & ADD DEC MINUS ZERO.
127 JL HLT13 GO HALT IF CR SET TO LOW
128 CLI PAD,X'F0' CHECK RESULT.
129 BE START4 JUMP TO NEXT TEST IF SIGN CHANGED.
130 CLI PAD,X'F9' * JUMP IF RESULT EQUALS DEC 9.
131 JE HLT11 * JUMP IF RESULT NOT EQ TO DEC 1.
132 CLI PAD,X'F1'
133 JNE HLT10+3
134 *
135 HLT10 HPL HF,HD * FAILING FUNCT 3
136 *
137 *
138 *
139 *
140 *
141 *
142 *
143 *
144 *
145 *
146 *
147 *
148 *
149 *
150 HLT12 HPL HF,HD * FAILING FUNCT
151 *
152 *
153 *
154 HLT13 HPL HF,HD * FAILING FUNCT (2,5,6,11,12,13)
155 *
156 *
0073 3C 00 00FF 00A4
0077 04 00 00FF
007D F2 82 2D
0080 3D F0 00FF
0084 C0 81 00B0
0088 3D F9 00FF
008C F2 81 11
008F 3D F1 00FF
0093 F2 01 03
0096 F0 73 3C
0099 3D 20 00FF
009D F2 01 03
00A0 F0 73 3C
00A3 3D D0 00FF
00A7 F2 81 03
00AA F0 73 3C
00AD F0 73 3C

```

ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

158 *****
159 ***** (ZAZ) ZERO AND ADD DECIMAL *****
160 *****
161 *****
162 ***** TEST (1) SDR SIGN MINUS *****
163 ***** (2) CHANGE ALU BIT 2 *****
164 ***** (3) NOT FIRST RECOMPLEMENT CYCLE *****
165 ***** (4) FORCE BITS *****
166 ***** (5) Q REGISTER *****
167 ***** (6) 'E' CYCLE *****
168 ***** (7) INTERNAL *****
169 *****
170 *****
171 *****
172 *****
173 *****
174 *****
175 *****
176 *
177 HLT14 HPL HF,HD * FAILING FUNCT (1,2,7)
178 *
179 *
180 *
181 *
182 *
183 *
184 HLT15 HPL HF,HD * FAILING FUNCT 3
185 *
186 *
187 *
188 *
189 *
190 *
191 *
192 *
193 *
194 *
195 *
196 *
197 *
198 *
199 *
200 *
201 *
202 *
203 *****
204 * NOTE: PAD AND SAVARR ARE EQUATED TO 255 AND USE THE LAST 2
205 * BYTES OF THIS SECTION.
206 *****
207 *****
208 XFO DC XL1'F0'
209 ADNFO DC AL2(NEG-1)
210 XBO DC XL1'80'
211 XFOF3 DC XL2'FOF3'
212 XF3 DC XL1'F3'
213 *
214 XDO EQU X'A4'
215 HIGH EQU X'00'
216 ADXFO EQU X'10'
217 ARR EQU 8
218 PSR EQU 4
219 HF EQU X'3C'
220 HD EQU X'73'
221 BOOT EQU X'169'
222 SAVARR EQU 255
223 PAD EQU 255
224 *
00B0 3C 0F 00FE 00FA
00B4 04 00 00FF
00BA 3D F0 00FF
00BE F2 81 03
00C1 F0 73 3C
00C4 3D 0F 00FE
00C8 F2 81 03
00CB F0 73 3C
00CE 04 10 00FF 00FD
00D4 0D 01 00FF 00FC
00DA 3C 0D 016A
00DE C0 81 00E5
00E2 F0 73 3C
00E5 04 00 00FF 00EC
00EB 3D D3 00FF
00EF C0 01 00C1
00F3 C0 87 C169
00F7 F0
00F8 00E4
00FA B0
00FB F0F3
00FD F3

```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12  
 ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT  
 FFFF 225 END

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12  
 CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ALNFO	A	002	00F9	0209	0039
ADXF0	C	001	0010	0216	0036
ARR	C	001	0008	0217	0026* 0035
BOOT	C	001	0169	0221	0190* 0201
HD	C	001	0073	0220	0024 0031 0042 0048 0052 0081 0090 0097 0101 0135 0142 0150
HF	C	001	003C	0219	0154 0177 0184 0193 0024 0031 0042 0048 0052 0081 0090 0097 0101 0135 0142 0150
HIGH	C	001	000D	0215	0154 0177 0184 0193
HLT1	A	003	0000	0024	0026 0027
HLT10	A	003	0096	0135	
HLT11	A	003	00A0	0142	0133
HLT12	A	003	00AA	0150	0131 0140
HLT13	A	003	00AD	0154	0127 0148
HLT14	A	003	00C1	0177	0175 0200
HLT15	A	003	00CB	0184	0182
HLT16	A	003	00E2	0193	
HLT2	A	003	0014	0031	0329
HLT3	A	003	002D	0042	0037
HLT4	A	003	0034	0048	
HLT5	A	003	0037	0052	0040
HLT6	A	003	0052	0081	0079
HLT7	A	003	0063	0090	0088
HLT8	A	003	006D	0097	0095
HLT9	A	003	0070	0101	0086
NEG	A	006	00E5	0197	0191 0209
PAD	C	001	00FF	0223	0069* 0070* 0071 0078 0085 0087 0094 0125* 0126* 0128 0130 0132
PSR	C	001	0004	0218	0139 0147 0172* 0173* 0174 0181 0188* 0189 0197* 0199
SAVARR	C	001	00FF	0222	0027*
START2	A	004	003A	0069	0035* 0036 0039
START3	A	004	0073	0125	0046
START4	A	004	0080	0172	0072 0129
UVWXYZ	A	001	0000	0004	
X80	A	001	00FA	0210	0173
XD0	C	001	00A4	0214	0126
XD3	A	004	00EB	0199	0197
XFO	A	001	00F7	0208	0028 0028*
XFOF3	A	002	00FC	0211	0189
XF3	A	001	00FD	0212	0070 0188

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE00 CPU AND MEMORY DIAGNOSTICS: PROGRAM EO MOD 12

OE00 CPU AND MEMORY DIAGNOSTICS: PROGRAM EO MOD 12

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
003A 04 08 00FF 00AE 61 START2 ZAZ PAD(9),DATA(9) RIPPLE SIX CORRECT LOGIC INPUTS
0040 0D 08 00FF 00AE 62 CLC PAD(9),DATA CHECK RESULT
0046 F2 81 03 63 JE HLT5+3 JUMP IF OK
0049 F0 7C 6F 64 *
65 HLT5 HPL NO,HE * WRONG RESULT
66 * * FAILING FUNCT 1
67 *
68 * MVI PAD,X'D0' SET PAD TO MINUS DEC 0
69 MVC PAD-1(8),PAD RIPPLE DEC COMP B REG INPUTS
70 AZ PAD(9),DATA(9) CHECK RESULT
71 CLC PAD(9),DATA GO TO NEXT TEST
72 BE START3
73 *
74 HLT6 HPL NO,HE * WRONG RESULT
75 * * FAILING FUNCT (2,3,4)
76 *
77 *****
78 ***** (SZ) SUBTRACT DECIMAL *****
79 *****
80 ***** TEST (1) DEC COMP A REGISTER *****
81 ***** (2) CR LOW LATCH *****
82 ***** (3) ITC ACTIVE *****
83 ***** (4) SUB DEC INST *****
84 *****
85 *****
86 *****
87 *****
88 *
89 START3 MVI PAD,X'F1' INITIALIZE PAD TO DEC 1
90 SZ PAD(1),XD1(1) SUBTRACT A MINUS DEC 1
91 JNH HLT8 JUMP IF CR NOT SET TO HIGH
92 CLI PAD,X'F1' CHECK FOR PAD NOT ALTERED
93 JE HLT9 JUMP IF PAD WAS NOT ALTERED
94 CLI PAD,X'F2' CHECK RESULT FOR DEC 2
95 JNE HLT7 JUMP IF WRONG RESULT
96 SZ PAD(1),XF3(1) SUBTRACT A DEC 3
97 JNL HLT8 JUMP IF CR NOT SET TO LO
98 CLI PAD,X'D1' CHECK RESULT FOR A MINUS DEC 1
99 MVI BDDT+1,X'0E' SET UP TO READ 14TH RECORD
00 BE BOOT JUMP IF RESULT CORRECT
0099 F0 7C 6F 101 *
102 HLT7 HPL NO,HE * WRONG RESULT
103 * * FAILING FUNCT 1,4
104 *
105 HLT8 HPL NO,HE * CR WRONG
106 * * FAILING FUNCT 2
107 *
108 HLT9 HPL NO,HE * PAD NOT ALTERED BY FIRST SZ
109 * * FAILING FUNCT 3
110 *
111 XD1 DC XL1'D1'
112 XD9 DC XL1'D9'
113 XF2 DC XL1'F2'
114 XF3 DC XL1'F3'
115 DATA DC DL9'987654321'
00A2 01 00A2 116 PSR EQU X'04'
00A3 09 00A3 117 PAD EQU 255
0169 00 0169 118 BOOT EQU X'169'
007C 119 HE EQU X'7C'
006F 120 HO EQU X'6F'
00AE F1 00AE 121 END
    
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0118	0099* 0100
DATA	A	009	00AE	0115	0061 0062 0070 0071
HE	C	001	007C	0119	0025 0040 0043 0046 0065 0074 0102 0105 0108
HLT1	A	003	0000	0025	
HLT2	A	003	0031	0040	0033
HLT3	A	003	0034	0043	0031 0036
HLT4	A	003	0037	0046	0030 0035
HLT5	A	003	0049	0065	0063
HLT6	A	003	0066	0074	
HLT7	A	003	0099	0102	0095
HLT8	A	003	009C	0105	0091 0097
HLT9	A	003	009F	0108	0093
HO	C	001	006F	0120	0025 0040 0043 0046 0065 0074 0102 0105 0108
NEXT	A	004	0006	0028	0027
PAD	C	001	00FF	0117	0028* 0029* 0032 0034* 0037 0061* 0062 0068* 0069 0069* 0070* 0071
PSR	C	001	0004	0116	0089* 0090* 0092 0094 0096* 0098
START2	A	006	003A	0061	0058
START3	A	004	0069	0089	0072
UVWXYZ	A	001	0000	0004	
XD1	A	001	00A2	0111	0090
XD9	A	001	00A3	0112	0029
XF2	A	001	00A4	0113	0034
XF3	A	001	00A5	0114	0096

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE00 CPU AND MEMORY DIAGNOSTICS: PROGRAM EO MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS 0 E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```
*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** OE000000
T+* :2G1?2Y-|IU *0Q*|2*Y*HMI|H BGT7Q|*2*J&F**C *RL2SAG2*-2*5-C *OHD*+7A2$*A2$*A 2$0&*~LY0E000001
T+*A5B*C**R8|B*C *R#2-6|0-F224*C *C*~*~C*A--*OB >C&-*OB>OHD*E~A 2$331*|2G**C**R. 2ABQ*98%0E000002
T+*B>|~D**HAHT7 2*|*2*JHG**C**HP 2*-2*4&C*|*8AE3B A*OX0-F*0-F*0-F* J6~.3~-T7*?P42*. 1**** $9Y0E000003
E**I*E7*~DC*PH$ =*7M&F|***|***C **F&***ASC***R*A SO***Q***** 12010630750 828751QU0E000004
```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
PAGE 31A

OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```
0000          2          DECK 4
              3          SEQ 0
              4          UVWXYZ START 0
              5          TREP
              6          *
              7          *          SECTOR 14
              8          *
              9          *          PROG E1
             10          *          (ED) EDIT
             11          *
             12          *          TEST (1) EDIT DECODE
             13          *          (2) CONDITION REG
             14          *          (3) REG 20
             15          *          (4) REG SIGN MINUS
             16          *          (5) C INST
             17          *          (6) INTERNAL
             18          *
             19          *
             20          *
             21          *
             22          HALT1 HPL H1,HE          INITIAL HALT = E1
             23          *
             24          MVC PAD(2),X2020          SET PAD (LOC 00FE & 00FF) TO -2020-
             25          L LO,PSR          SET PSR (CR) TO LOW CONDITION.
             26          ED PAD(2),XE1F0          EDIT XE1F0. RESULT SHUD BE -F1F0-.
             27          BH START2          GO TO NEXT IF CR SET TO HI
             28          CLC PAD(2),XE1F0          * GO TO HALT3 IF RESULT
             29          JE HALT3          * WAS -F1F0-.
             30          *
             31          CLC PAD(2),X2020          GO TO HALT4 IF RESULT
             32          JE HALT4          WAS -2020-.
             33          *
             34          HALT2 HPL H1,HE          * PROG E1, HALT 2. ERROR HALT.
             35          *          * FAILING FUNCT (3,4,5)
             36          *
             37          *
             38          HALT3 HPL H1,HE          * PROG E1, HALT 3. ERROR HALT.
             39          *          * FAILING FUNCT (1,4)
             40          *
             41          *
             42          HALT4 HPL H1,HE          * PROG E1, HALT 4. ERROR HALT.
             43          *          * FAILING FUNCT (3,6)
             44          *
             45          *
             46          *
             47          *
             48          *
```

----- LAST PAGE -----

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
PAGE 32

OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

50 *****
51 *****
52 ***** TEST (1) B REG 20 , RIPPLE TEST *****
53 *****
54 *****
55 *****
56 *****
57 *****
58 *****
59 *****
60 *****
61 *****
62 *****
63 *****
64 *****
65 *****
66 *****
67 *****
68 *****
69 *****
70 *****
71 *****
72 *****
73 ***** TEST (1) SIGN CONTROL *****
74 ***** (2) CONDITION REG *****
75 *****
76 *****
77 *****
78 *****
79 *****
80 *****
81 *****
82 *****
83 *****
84 *****
85 *****
86 *****
87 *****
88 *****
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93 *****
94 *****
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97 *****
98 *****
99 *****
100 *****
101 *****
102 *****
103 *****
104 *****
105 *****

```

0032	OC	01	00FF	00D2	START2	MVC	PAD(2),X2020	SET PAD TO -2020
0038	OA	01	00FF	00DD	ED	PAD(2),XE1F0	EDIT -E1F0-	
003E	OD	01	00FF	00D2	CLC	PAD(2),X2020	GO TO HALT5 IF RESULT	
0044	F2	81	15		JE	HALT5	WAS -2020-	
0047	OC	04	00FF	00D9	MVC	PAD,PATRN(5)	SET PAD (LOC 00FB THRU 00FF)	
004D	OA	04	00FF	00DA	ED	PAD,XFF(5)	TO -2824222100-	
0053	OD	04	00FF	00D9	CLC	PAD,PATRN(5)	EDIT XFF. PAD SHOULD NOT BE ALTERED.	
0059	F2	81	03		JE	START3	GO TO HALT5 IF PAD WAS ALTERED.	
005C	F0	7C	03		HALT5	HPL	GO TO NEXT TEST IF PAD NOT ALTERED	
							* PROG E1, HALT 5. ERROR HALT.	
							* FAILING FUNCT (1)	
005F	3C	20	00FF		START3	MVI	PAD,X'20'	SET PAD (LOC 00FF) TO -20-
0063	35	04	0005		L	HI,PSR	SET PSR (CR) TO HIGH CONDITION.	
0067	0A	00	00FF	00D4	EDIT1	ED	PAD(1),XB1	EDIT XB1. RESULT SHUD BE -F1-
006D	F2	02	23		JNL	HALT7	GO TO HALT6 IF CR NOT SET TO LOW.	
0070	3D	F1	00FF		CLI	PAD,X'F1'	GO TO HALT7 IF EDIT1 DID	
0074	F2	01	19		JNE	HALT6	NOT SET PAD TO -F1-	
0077	3C	20	00FF		MVI	PAD,X'20'	SET PAD (LOC 00FF) TO -20-	
007B	35	04	0005		L	HI,PSR	SET PSR (CR) TO HIGH CONDITION.	
007F	0A	00	00FF	00D3	EDIT2	ED	PAD(1),XD1	EDIT XD1. RESULT SHUD BE -F1-
0085	F2	02	0B		JNL	HALT7	GO TO HALT7 IF CR NOT SET TO LOW.	
0088	3D	F1	00FF		CLI	PAD,X'F1'	GO TO HALT6 IF EDIT2 DID	
008C	C0	81	0096		BE	START4	NOT SET PAD TO -F1-	
0090	F0	7C	03		HALT6	HPL	HI,HE	* PROG E1, HALT 6. ERROR HALT.
								* FAILING FUNCT 1
0093	F0	7C	03		HALT7	HPL	HI,HE	* PROG E1, HALT 7. ERROR HALT.
								* FAILING FUNCT 2

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OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

107 *****
108 *****
109 ***** TEST (1) CONDITION REGISTER (FIRST EA CYCLE) *****
110 ***** (2) ALU CONTROLS *****
111 ***** (3) EA CYCLE ACTIVE *****
112 *****
113 *****
114 *****
115 *****
116 *****
117 *****
118 *****
119 *****
120 *****
121 *****
122 *****
123 *****
124 *****
125 *****
126 *****
127 *****
128 *****
129 *****
130 *****
131 *****
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148 *****
149 *****
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152 *****
153 *****
154 *****
155 *****
156 *****
157 *****
158 *****
159 *****
160 *****

```

0096	35	04	0005		START4	L	HI,PSR	SET PSR (CR) TO HIGH CONDITION.
009A	OC	01	00FF	00D2	MVC	PAD,X2020(2)	SET PAD (LOC 00FE & 00FF) TO -2020-	
00A0	0A	01	00FF	00CE	ED	PAD,XD5F1(2)	EDIT XD5F1. RESULT SHUD BE -F5F1-	
00A6	F2	04	21		JNH	HALT9	GO TO HALT9. IF CR NOT SET TO HIGH.	
00A9	OD	01	00FF	00DG	CLC	PAD,XF5F1(2)	GO TO HALT8 IF RESULT IS NOT -F5F1-	
00AF	F2	01	15		JNE	HALT8		
00B2	3C	00	00FF		MVI	PAD,X'D0'	SET PAD TO MINUS ZERO	
00B6	0A	00	00FF	00D0	ED	PAD,XF5F1(1)	EDIT -F1-. CR SHUD BE HIGH.	
00BC	F2	82	0B		JL	HALT9	GO HALT IF CR WAS SET TO LOW.	
00BF	3C	0F	016A		MVI	BOOT+1,X'0F'	SET UP TO READ 15TH SECTOR	
00C3	C0	87	0169		B	BOOT	GO TO BOOTSTRAP.	
00C7	F0	7C	03		HALT8	HPL	HI,HE	* PROG E1, HALT 8. ERROR HALT.
								* FAILING FUNCT 2
00CA	F0	7C	03		HALT9	HPL	HI,HE	* PROG E1, HALT 9. ERROR HALT.
								* FAILING FUNCT 1,3
00CE	D5F1				DC	XL2'D5F1'		
00CF	F5F1				DC	XL2'F5F1'		
00D1	2020				DC	XL2'2020'		
00D3	D1				DC	XL1'D1'		
00D4	B1				DC	XL1'B1'		
00D5	2824222100				DC	XL5'2824222100'		
00DA	FF				DC	XL1'FF'		
00DB	02				DC	XL1'02'		
00DD	E1F0				DC	XL2'E1F0'		
007C					DC	X'03'		
007E					DC	X'7C'		
0169					DC	X'169'		
00FF					DC	255		
0004					DC	X'04'		
0005					DC	X'05'		
FFFF					END			

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12

PART NO. 4248201  
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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0155	0133* 0134
EDIT1	A	006	0067	0083	
EDIT2	A	006	007F	0094	
HALT1	A	003	0000	0022	
HALT2	A	003	0029	0038	
HALT3	A	003	002C	0042	0033
HALT4	A	003	002F	0046	0036
HALT5	A	003	005C	0068	0060
HALT6	A	003	0090	0101	0088
HALT7	A	003	0093	0104	0085 0096
HALT8	A	003	00C7	0136	0125
HALT9	A	003	00CA	0140	0122 0131
HE	C	001	007C	0154	0022 0038 0042 0046 0068 0101 0104 0136 0140
HI	C	001	0005	0158	0081 0092 0116
HI	C	001	0003	0153	0022 0038 0042 0046 0068 0101 0104 0136 0140
LO	A	001	00DB	0151	0026
PAD	C	001	00FF	0156	0024* 0028* 0032 0035 0057* 0058* 0059 0062* 0064* 0065 0079* 0083*
PATRN	A	005	00D9	0149	0087 0090* 0094* 0098 0118* 0120* 0124 0127* 0129*
PSR	C	001	0004	0157	0024* 0081* 0092* 0116*
START2	A	006	0032	0057	0030
START3	A	004	005F	0079	0066
START4	A	004	0096	0116	0099
UVWXYZ	A	001	0000	0004	
XB1	A	001	00D4	0148	0083
XD1	A	001	00D3	0147	0094
XD5F1	A	002	00CE	0144	0120
XE1F0	A	002	00DD	0152	0028 0032 0058
XFF	A	001	00DA	0150	0064
XF5F1	A	002	00DD	0145	0124 0129
X2020	A	002	00D2	0146	0024 0035 0057 0059 0118

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12

PART NO. 4248201  
PAGE 33A

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*Y ESTS*****MOD*12 84228422***** 0E100000
T+ :2GOCC*D*OC K1&&60YA*|a*7*B D*CHI*EC*(72-80 (*EC*(1.2-880-| 0-10-<<EC*(H H*E**#8*0E100001
T+-A5*OC|C&D*OC KAYDNC*E*OCRB-E *OCECE&&*OCRAVD CAGOCIB**3MD**M H**C*(L2*S<|a&C *a-D*33QOE100002
T+-8OFLO-|a5A** EB-**OCLA-H.|-D *aBA*|80-|0-< 5A**EC*D*OCKB-D *OC+a-E/C&D*OC a-D*8CYOE100003
T.C|EL3&|aH**C *(C2--aCOEDOH* AE-aA*aA*P1'-D -HIF1RBESH&C**>G 0***** *UOE100004
E**|*E7*=-DC*PH8 =*7N&F|***|**C **F2**ASC**R*A SO**Q***** 12010630750 828751H-0E100005
    
```

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OE20 CPU AND MEMORY DIAGNOSTICS: PROGRAM E2 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
0000 0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP 0
6 * SECTOR 15
7 *****
8 *****
9 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 HALT1 HPL H2,HE
20 L LO,ARR
21 L LO,PSR
22 MVI PAD,X'00'
23 ITC PAD(1),X00F4
24 ST SAVARR,ARR
25 CLC SAVARR(1),X00F4
26 JE HALT3
27 CLC SAVARR(1),LO
28 BNE START2
29
30 HALT2 HPL H2,HE
31 *
32 *
33 *
34 HALT3 HPL H2,HE
35 *
36 *
37 *
38 HALT4 HPL H2,HE
39 *
40 *
41 *
42 *****
43 *****
44 *****
45 *****
46 *****
47 *****
48 *****
49 *****
50 *****
51 *****
52 *****
53 *****
54 *****
55 START2 MVI PAD,X'00'
56 L X1BFF,ARR
57 ITC PAD(1),XFF
58 ST SAVARR,ARR
59 CLI PAD,X'FF'
60 JNE PADCHK
61 CLC SAVARR(1),X00F6
62 BE START3
63 HALT5 HPL H2,HE
64 *
65 *
66 *
67 PADCHK CLI PAD,X'00'

```

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OE20 CPU AND MEMORY DIAGNOSTICS: PROGRAM E2 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
005F F2 81 03 68 HALT6 JE HALT7
0062 F0 7C 76 69 HALT6 HPL H2,HE
70 *
71 *
72 *
73 HALT7 HPL H2,HE
74 *
75 *
76 *
77 *****
78 *****
79 *****
80 *****
81 *****
82 *****
83 *****
84 *****
85 *****
86 *****
87 *****
88 *****
89 START3 MVC PAD+2,X007(3)
90 ITC PAD,XFE(3)
91 ST SAVARR,ARR
92 CLC PAD+2,XFF7(3)
93 JE ARCHK
94 CLI PAD+1,X'EE'
95 JE HALT9
96 HALT8 HPL H2,HE
97 *
98 *
99 *
100 HALT9 HPL H2,HE
101 *
102 *
103 *
104 ARCHK CLI SAVARR,X'F7'
105 BE START4
106 HALT10 HPL H2,HE
107 *
108 *

```

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EC NO. 827804

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PAGE 34A

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

110 *****
111 *****
112 ***** (ITC) INSERT AND TEST CHARACTERS *****
113 *****
114 ***** TEST (1) SIG LOGIC *****
115 *****
116 *****
117 *****
118 *****
0099 OC 04 00F9 00CC START4 MVC PAD+4,RIPPLE(5) SET PAD TO -F001FBFDF9--
009F 08 04 00F5 00D2 ITC PAD,XFF(5) INSERT & TEST PAD WITH -FF-
00A5 34 08 00FB 00C7 ST SAVARR,ARR STORE ARR IN SAVARR
00A9 0D 00 00FB 00C7 CLC SAVARR(1),X00F9 GO TO HALT11IF ARR NOT EQ -00F9-
00AF F2 81 03 JE PADCK GO TO PADCHK IF RESULT IS EQ -00F9-
00B2 FO 7C 76 125 HALT11 HPL H2,HE * PROG E2, HALT 11.
126 * * FAILING FUNCT 1
127 *
128 *
00B5 OD 04 00F9 00D1 129 PADCK CLC PAD+4,RESULT(5) GO TO HALT12IF PAD NOT -FFFFFFFF9-
00BB 3C 10 016A 130 MVI BOOT+1,X'10' SET UP TO READ 16TH SECTOR
00BF CO 81 0169 131 BE BOOT GO TO BOOT IF PAD IS -FFFFFFFF9-
00C3 FO 7C 76 132 HALT12 HPL H2,HE * PROG E2, HALT 12.
133 * * FAILING FUNCT 1
134 *
135 *
00C6 00F9 00C7 137 X00F9 DC XL2'00F9'
00C8 F001FBFDF9 00CC 138 RIPPLE DC XL5'F001FBFDF9'
00CD FFFFFFFF9 00D1 139 RESULT DC XL5'FFFFFFF9'
00D2 FF 00D2 140 XFF DC XL1'FF'
00D3 1BFF 00D4 141 X1BFF DC XL2'1BFF'
00D5 0000F7 00D7 142 X007 DC XL3'0000F7'
00D8 FF 00D8 143 XFE DC XL1'FE'
00D9 EE 00D9 144 DC XL1'EE'
00DA FFFF7 00DC 145 XFF7 DC XL3'FFFF7'
00DD 00F6 00DE 146 X00F6 DC XL2'00F6'
00DF 0002 00E0 147 LO DC XL2'0002'
00E1 00F4 00E2 148 X00F4 DC XL2'00F4'
149
00FB 150 SAVARR EQU X'FB'
0004 151 PSR EQU X'04'
007C 152 HE EQU X'7C'
0076 153 H2 EQU X'76'
0169 154 BOOT EQU X'169'
00F5 155 PAD EQU X'F5'
0008 156 ARR EQU X'08'
157
FFFF 158 END

```

-E-

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ARR C 001 0008 0156 0020* 0024 0056* 0058 0091 0121
ARRCHK A 004 008E 0104 0093
BOOT C 001 0169 0154 0130* 0131
HALT1 A 003 0000 0019
HALT10 A 003 0096 0106
HALT11 A 003 0082 0125
HALT12 A 003 00C3 0133
HALT2 A 003 002C 0030
HALT3 A 003 002F 0034 0026
HALT4 A 003 0032 0038
HALT5 A 003 0058 0063
HALT6 A 003 0062 0069
HALT7 A 003 0065 0073 0068
HALT8 A 003 0088 0096
HALT9 A 003 0088 0100 0095
HE C 001 007C 0152 0019 0030 0034 0038 0063 0069 0073 0096 0100 0106 0125 0133
H2 C 001 0076 0153 0019 0030 0034 0038 0063 0069 0073 0096 0100 0106 0125 0133
LO A 002 00E0 0147 0020 0021 0027
PAD C 001 00F5 0155 0022* 0023* 0055* 0057* 0059 0067 0089* 0090* 0092 0094 0119* 0120*
PADCHK A 004 005B 0067 0129 0060
PADCK A 006 0085 0129 0123
PSR C 001 0004 0151 0021*
RESULT A 005 00D1 0139 0129
RIPPLE A 005 00CC 0138 0119
SAVARR C 001 00FB 0150 0024* 0025 0027 0058* 0061 0091* 0104 0121* 0122,
START2 A 004 0075 0055 0028
START3 A 006 0068 0089 0062
START4 A 006 0099 0119 0105
UVWXYZ A 001 0000 0004
XFE A 001 00D8 0143 0090
XFF A 001 00D2 0140 0057 0120
XFF7 A 003 00DC 0145 0092
X00F4 A 002 00E2 0148 0023 0025
X00F6 A 002 00DE 0146 0061
X00F9 A 002 00C7 0137 0122
X007 A 003 00D7 0142 0089
X1BFF A 0C2 00D4 0141 0056

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE20 CPU AND MEMORY DIAGNOSTICS: PROGRAM E2 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* CPU\*AND\*MEMORY\*T ESTS\*\*\*\*\*MOD\*12 84228422\*\*\*\*\*OE200000  
T+\* :2G16(8-8CM D+\*a\*\*C5B0\*\*&C S(-=04\*\*I%8?H AC&4\*\*I%8<\*A\*CP 0-G\$0-G\$0-GQ2\*\*C 5(8-\*\*S40E200001  
T+\*A5\*(8.\*\*C5\*(H 4B\*C#I~2\*\*~HAC&4 \*\*I%7%BA\*FTO-GQ \*\*C52YDC2G162G1 6C\*H\*OCPB0H\*%&C Q(-\*\*3U0E200002  
T+\*B0\*I%(-C7\*(3 2-84\*#-C62YDC2G1 62G16I~\*~2BA\*IX 0-GQ<A\*C9<O.A\*C 5\*(H4B\*C#C&\*=0C G2YD\*7&H0E200003  
T<ECS\*\*A2)-4D\*IU \*4L0&D,\*-8EZ2G1 6\*I%0~?~#~#~#~# 9\*1?~#\*C7~#~#~#~# \*~#\*B\*I%\*\*\*\*\*2M0E200004  
E\*\*I\*E7\*=-DC\*PH8 =\*7M&F|\*\*\*I\*\*\*C \*\*F%\*\*\*ASC\*\*\*R\*A SO\*\*\*Q\*\*\*\*\*12010630750 8287518-OE200005

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0090

2 DECK 4  
3 SEQ 0  
4 UVMXYZ START 0  
5 TREP  
6 \*  
7 \*\*\*\*\* SECTOR 16 \*\*\*\*\*  
8 \*\*\*\*\*  
9 \*\*\*\*\*  
10 \*\*\*\*\*  
11 \*\*\*\*\*  
12 \*\*\*\*\*  
13 \*\*\*\*\*  
14 \*\*\*\*\*  
15 \*\*\*\*\*  
16 \*\*\*\*\*  
17 \*\*\*\*\*  
18 \*\*\*\*\*  
19 \*\*\*\*\*  
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56 \*\*\*\*\*  
57 \*\*\*\*\*  
58 \*\*\*\*\*

PROG E3  
INDEXING TESTS  
TESTS (1) ARR SELECT  
(2) FORCE BIT 7 TO A  
(3) LSR LO EQUAL TO ALL ONES  
(4) CARRY CONTROLS- CARRY FROM 3-4 LOST  
(5) BIN COMP & BIN SUB  
(6) XR1 SELECT  
(7) CLOCK 3-7  
(8) CLOCK 4-8  
(9) INTERNAL

0000

USING HALT1,1

INITIAL HALT = E3  
\* FAILING FUNCT (7)

0000 F0 7C 57

HALT1 HPL H3,HE

LOAD XR1 & ARR WITH -0001-

0003 35 01 00DC  
0007 35 08 00DC  
0008 0C 02 0112 0039

LOAD L X0001,XR1  
L X0001,ARR  
MVC X\*0112\*,HALT4+2(3)

MOVE HALT4 TO LOC -0110 THRU 0112-

0011 D0 80 FE

BC X\*FE\*(,XR1),NOOP

BRANCH NO-OP. THE ARR SHOULD NOW  
CONTAIN -00FF-

0014 34 08 00FF 00E9  
0018 0C 02 0112 00E9

ST PAD,ARR  
MVC X\*0112\*,FIXLD(3)

STORE THE ARR IN LOC -00FE & 00FF-  
FIX LOADER

001E 0D 01 00FF 00E2  
0024 C0 81 003A

CHECK1 CLC PAD(2),X00FF  
BE START2

COMPARE THE STORED ARR WITH -00FF- &  
GO TO NEXT TEST IF EQUAL.

0028 0D 01 00FF 00DC  
002E F2 81 03

CLC PAD(2),X0001  
JE HALT3

\* COMPARE THE STORED ARR WITH -0001-  
\* & GO TO HALT3 IF EQUAL.  
\* GO TO HALT2 IF NOT EQUAL.

0031 F0 7C 57

HALT2 HPL H3,HE

\* PROG E3, HALT 2. ERROR HALT.  
\* FAILING FUNCT 4 IF ARR= 01FF  
\* FAILING FUNCT 5 IF ARR= 01FE

0034 F0 7C 57

HALT3 HPL H3,HE

\* PROG E3, HALT 3. ERROR HALT.  
\* FAILING FUNCT (1), (9)

0037 F0 7C 57

HALT4 HPL H3,HE

\* PROG E3, HALT 4. ERROR HALT.  
\* FAILING FUNCT (2,3)

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

60 *****
61 *****
62 ***** INDEXING TESTS *****
63 ***** TEST (1) XR1 & XR2 SELECT *****
64 ***** (2) SEL XR2 GATE *****
65 ***** (3) CARRY CONTROLS- CARRY FORCED AT 7-8 *****
66 *****
67 *****
68 *****
69 *****
70 START2 L X000A,ARR LOAD XR1 & ARR WITH -000A-.
71 L X000A,XR1
72 L X0005,XR2 LOAD XR2 WITH -0005-.
73
74 BRNCH1 8C X'FF'(,XR2),NOOP INDEXED BRANCH NO-OP. THE ARR
75 * SHOULD NOW CONTAIN -0104-.
76
77 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
78
79 CLC PAD,X0104(2) COMPARE THE STORED ARR WITH -0104-.
80 BE LOAD1 GO TO NEXT TEST IF EQUAL.
81
82 CLI PAD,X'0E' * COMPARE STORED ARR LO WITH -0E-.
83 JNE HALT5+3 * GO TO HALT5 IF EQUAL.
84 * BYPASS HALT5 IF NOT EQUAL.
85 *
86 HALT5 HPL H3,HE * PROG E3, HALT 5. ERROR HALT.
87 * FAILING FUNCT 1
88 *
89
90
91 CLI PAD,X'09' * COMPARE STORED ARR LO WITH -09-.
92 JNE HALT7 * GO TO HALT6 IF EQUAL.
93 * GO TO HALT7 IF NOT EQUAL
94 *
95 HALT6 HPL H3,HE * PROG E3, HALT 6. ERROR HALT.
96 * FAILING FUNCT (1,2)
97 *
98
99 HALT7 HPL H3,HE * PROG E3, HALT 7. ERROR HALT.
100 * FAILING FUNCT 3
101 *

```

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OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

103 *****
104 ***** INDEXING TESTS *****
105 *****
106 ***** TEST (1) LSR LO = FF. *****
107 ***** (2) LSR WRITE HI AT I-X CLOCK 2. *****
108 ***** (3) GATE LSR HI TO B AT I-X CLOCK 2. *****
109 ***** (4) FORCE BIT 7 TO B. *****
110 ***** (5) SEL XR2 GATE *****
111 ***** (6) INTERNAL *****
112 *****
113 *****
114 *****
115 *****
116 *****
117 *****
118 *****
119 *****
120 *****
121 MOVE MVC X'02FF',BRANCH+2(3) MOVE THE INDEXED UNCONDITIONAL
122 * BRANCH TO LOC -02FD THRU 02FF-.
123 *
124 B X'02FD' GO TO LOC -02FD-. THE INDEXED BRANCH
125 * AT LOC -02FD- WILL BRANCH BACK TO
126 * THE NEXT INSTRUCTION (STORE)
127 *
128 STORE ST PAD,ARR STORE THE ARR (OLD IAR) IN
129 * LOC -00FE & 00FF-.
130 *
131 CLI PAD-1,X'03' COMPARE STORED ARR HI WITH -03-.
132 BE LOAD2 GO TO NEXT TEST IF EQUAL.
133 *
134 CLI PAD-1,X'02' * COMPARE STORED ARR HI WITH -02-.
135 JNE HALT9 * GO TO HALT8 IF EQUAL.
136 * GO TO HALT9 IF NOT EQUAL
137 *
138 HALT8 HPL H3,HE * PROG E3, HALT 8. ERROR HALT.
139 * FAILING FUNCT (1,2,4)
140 *
141 *
142 HALT9 HPL H3,HE * PROG E3, HALT 9. ERROR HALT.
143 * FAILING FUNCT 3 WITH ARR=0100
144 *
145 *
146 HALT10 HPL H3,HE * PROG E3, HALT 10. ERROR HALT
147 * FAILING FUNCT (5), (6)
148 *
149 *
150 BRANCH B STORE(,XR1) INDEXED UNCONDITIONAL BRANCH.

```

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

152 *****
153 *****
154 ***** INDEXING TESTS *****
155 *****
156 ***** TESTS (1) RIPPLE THE LSR LO = FF LOGIC. *****
157 *****
158 *****
159 *****
160 *****
161 *****
162 *****
163 *****
164 *****
165 *****
166 *****
167 *****
168 *****
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208 *****
209 *****
210 *****
211 *****
212 *****
213 *****
214 *****

```

```

009F 35 01 00DA
00A3 35 02 00DA
00A7 0C 05 00FD 00D8

```

```

00AD C0 87 00F8

```

```

00B1 34 08 00FF

```

```

00B5 3D 01 00FE
00B9 F2 81 14
00BC C0 87 00FB

```

```

00C0 34 08 00FF

```

```

00C4 3D 01 00FE
00C8 3C 11 016A
00CC C0 01 0169

```

```

00D0 F0 7C 57

```

```

00D3 D0 87 B1

```

```

00D6 D0 87 C0

```

```

00D9 0000
00DB 0001
00DD 0005
00DF 0019
00E1 00FF
00E3 0104
00E5 000A
00E7 0C0001

```

```

00DA 196 X0000 DC XL2'0000'
00DC 197 X0001 DC XL2'0001'
00DE 198 X0005 DC XL2'0005'
00E0 199 X0019 DC XL2'0019'
00E2 200 X00FF DC XL2'00FF'
00E4 201 X0104 DC XL2'0104'
00E6 202 X000A DC XL2'000A'
00E9 203 FIXLD DC XL3'0C0001'

```

```

0001 204 XR1 EQU X'01'
0002 206 XR2 EQU X'02'
0008 207 ARR EQU X'08'
0080 208 NOOP EQU X'80'
00FF 209 PAD EQU X'FF'
0169 210 BOOT EQU X'169'
0057 211 H3 EQU X'57'
007C 212 HE EQU X'7C'
213
FFFF 214 END

```

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OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ARR C 001 0008 0207 0031* 0037 0070* 0078 0128 0171 0180
BOOT C 001 0169 0210 0183* 0184
BRANCH A 003 009C 0150 0121
BRNCH1 A 003 0046 0075
BRNCH2 A 003 00D6 0193 0163
BRNCH3 A 003 00D3 0191
CHECK1 A 006 001E 0040
FIXLD A 003 00E9 0203 0038
HALT1 A 003 0000 0026 0024
HALT10 A 003 0099 0146
HALT11 A 003 00D0 0187 0174
HALT12 A 003 0031 0047
HALT3 A 003 0034 0052 0044
HALT4 A 003 0037 0056 0032
HALT5 A 003 005E 0087 0084
HALT6 A 003 0068 0095
HALT7 A 003 0068 0099 0092
HALT8 A 003 0093 0138
HALT9 A 003 0096 0142 0135
HE C 001 007C 0212 0026 0047 0052 0056 0087 0095 0099 0138 0142 0146 0187
H3 C 001 0057 0211 0026 0047 0052 0056 0087 0095 0099 0138 0142 0146 0187
LOAD A 004 0003 0030
LOAD1 A 004 006E 0117 0081
LOAD2 A 004 009F 0161 0132
MOVE A 006 0076 0121
MOVE1 A 006 00A7 0163
NOOP C 001 008A 0208
PAD C 001 00FF 0209 0034 0075 0037* 0040 0043 0078* 0080 0083 0091 0128* 0131 0134 0171* 0173 0180* 0182
START2 A 004 003A 0070 0041
STORE A 004 0080 0128 0150
STORE1 A 004 0081 0171 0191
STORE2 A 004 00C0 0180 0193
UVWXYZ A 001 0000 0004
XR1 C 001 0001 0205 0030* 0034 0071* 0117* 0150 0161* 0191 0193
XR2 C 001 0002 0206 0072* 0075 0119* 0162*
XOFF A 002 00E2 0200 0040
X000A A 002 00E6 0202 0070 0071
X0000 A 002 00DA 0196 0117 0161 0162
X0001 A 002 00DC 0197 0030 0031 0043
X0005 A 002 00DE 0198 0072
X0019 A 002 00E0 0199 0119
X0104 A 002 00E4 0201 0080

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0



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OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* CPU\*AND\*MEMORY\*T ESTS\*\*\*\*\*MOD\*12 8422842a\*\*\*\*\* 0E300000  
T+\*AGIP(ED\*7CM H\*(OK\*-DK\*CX&-18 4B\*C\*M\*HAD-CZC&D \*MOC50HD\*+-4A\*12 \*71RA\*MAAN\*MAAN\*MA AN3M\*J220E300001  
T+\*A5B\*CW(ED\*9TM B\*(#--124B\*C\*CE&D \*MOCUOHD\*\$T4+\*1" 2\*E10-E\*18&C\*2-D CAG1PAG1P(ED\*6TM B\*+\*\*~CYOE300002  
T+\*BOC\*HB\*OB:OH\* B\*LG\*H\*12\*OC=OHD \*X34B\*1#2\*E10-E- 0-E-0-E-E/8\*5\*EC E1&H\*6-OE\*14\*6<B G\*1-\*=EHOE300003  
T+\*CZ(\*-#34A\*1# 2-JL\*/OC#1\*-#34 A\*182D&ED\*DAE-A 2H\*BG&1BGO\*\*\*\*\*D \*AL\*R\*12AA\*HC\*\* A\*\*\*\*\*M#HOE300004  
E\*\*#\*E7\*\*~DC\*PH\$ =\*7M&F1\*\*\*1\*\*\*C \*\*F&\*\*\*ASC\*\*\*R\*A SC\*\*\*Q\*\*\*\*\* 12010630750 828751Y-OE300005

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OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 0000 0000 0000 0000 FO 7C 18 0003 35 01 00CD 0007 0C 02 00FD 0036 0000 F2 87 EB 0010 34 08 00FF 0014 3D 01 00FE 0018 F2 81 16 001B 0C 02 00DF 0039 0021 C0 87 00DD 0025 34 08 00FF 0029 3D 01 00FE 002D C0 01 007A 0031 FO 7C 18 0034 D0 87 10 0037 D0 87 25 003A 0C 02 00EF 006A 0040 C0 87 00ED

DECK 4  
SEQ 0  
START 0  
TREP  
SECTOR 17  
\*\*\*\*\*  
PROG E4  
INDEXING TESTS  
TESTS (1) RIPPLE THE LSR LO = FF LOGIC.  
\*\*\*\*\*  
USING HALT1,1  
USING HALT1,2  
HALT1 HPL H4,HE INITIAL HALT = E4  
LOAD L X000,XR1 LOAD XR1 WITH -0000-  
MOVE1 MVC X'00FD'(3),BRNCH1+2 MOVE BRNCH1 TO LOC -00FB THRU 00FD-  
J X'EB' GO TO BRNCH1 AT LOC -00FB-  
\*  
\* BRNCH1 WILL BRANCH BACK TO STORE1  
\* AT LOC -0010-. (NEXT INSTRUCTION)  
STORE1 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-  
CLT PAD-1,X'01' COMPARE STORED ARR HI WITH -01-  
JE HALT2 GO TO HALT2 IF ARR HI = -01-  
MOVE2 MVC X'00DF'(3),BRNCH2+2 MOVE BRNCH2 TO LOC -00DD THRU 00DF-  
B X'DD' GO TO BRNCH2 AT LOC -00DD-  
\*  
\* BRNCH2 WILL BRANCH BACK TO STORE2  
\* AT LOC -0025-. (NEXT INSTRUCTION)  
STORE2 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-  
CLI PAD-1,X'01' COMPARE STORED ARR HI WITH -01-  
BNE MOVE4 GO TO NEXT TEST IF ARR HI NOT -01-  
GO TO HALT2 IF ARR HI = -01-  
\*  
\* PROG E4, HALT 2. ERROR HALT.  
\* FAILING FUNCT 1  
BRNCH1 B STORE1(XR1) INDEXED BRANCH TO LOC -0010-  
BRNCH2 B STORE2(XR1) INDEXED BRANCH TO LOC -0025-  
\*\*\*\*\*  
TESTS (1) RIPPLE THE LSR LO = FF LOGIC  
\*\*\*\*\*  
MOVE4 MVC X'00EF'(3),BRNCH3+2 MOVE BRNCH3 TO LOC -00ED THRU 00EF-  
B X'ED' GO TO BRNCH3 AT LOC -00ED-

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OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

66 * BRNCH3 WILL BRANCH BACK TO STORE3
67 * AT LOC -0044-. (NEXT INSTRUCTION)
68 *
0044 34 08 00FF STORE3 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
0048 3D 01 00FE 71 CLI PAD-1,X'01' COMPARE STORED ARR HI WITH -01-.
004C F2 91 16 72 JE HALT3 GO TO HALT3 IF ARR HI = -01-.
004F 0C 02 00BF 006D 73 MOVE5 MVC X'00BF'(3),BRNCH4+2 MOVE BRNCH4 TO LOC -00BD THRU 00BF-.
0055 C0 87 00BD 74 B X'BD' GO TO BRNCH4 AT LOC -00BD-.
75 *
76 * BRNCH4 WILL BRANCH BACK TO STORE4
77 * AT LOC -0059-. (NEXT INSTRUCTION)
78 *
0059 34 08 00FF 80 STORE4 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
005D 3D 01 00FE 81 CLI PAD-1,X'01' COMPARE THE STORED ARR HI WITH -01-.
0061 C0 01 0072 82 BNE MOVE6 GO TO NEXT TEST IF ARR HI NOT -01-.
83 * GO TO HALT3 IF ARR HI = -01-.
0065 F0 7C 1B 84 HALT3 HPL H4,HE * PROG E4, HALT 3. ERROR HALT.
85 * * FAILING FUNCT 1
86 *
0068 D0 87 44 91 BRNCH3 B STORE3(,XR1) INDEXED BRANCH TO LOC -0044-.
006B D0 87 59 92 BRNCH4 B STORE4(,XR1) INDEXED BRANCH TO LOC -0059-.
93 *
94 *
95 *
96 * TESTS (1) RIPPLE THE LSR LO = FF LOGIC
97 *
98 *
99 *
100 *
101 LOAD4 L X0000,XR1 LOAD XR1 WITH -0000-.
102 *
0072 0C 02 007F 00A6 103 MOVE6 MVC X'007F'(3),BRNCH5+2 MOVE BRNCH5 TO LOC -007D THRU 007F-.
104 * GO TO BRNCH5 AT LOC -007D-.
0078 C0 87 007D 105 B X'7D' BRNCH5 WILL BRANCH BACK TO STORE5
106 * AT LOC -0080-. (NEXT INSTRUCTION)
107 * RESERVED SPACE
108 *
007C 00000000 007F 109 DC XL4'0'
110 *
0080 34 08 00FF 111 STORE5 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
112 *
0084 3D 01 00FE 113 CLI PAD-1,X'01' COMPARE STORED ARR HI WITH -01-.
0088 F2 81 16 114 JE HALT4 GO TO HALT4 IF ARR HI = -01-.
115 * GO TO HALT4 IF ARR HI = -01-.
008B 0C 02 00F7 00A9 116 MOVE7 MVC X'00F7'(3),BRNCH6+2 MOVE BRNCH6 TO LOC -00F5 THRU 00F7-.
117 * GO TO BRNCH6 AT LOC -00F5-.
0091 C0 87 00F5 118 B X'F5' BRNCH6 WILL BRANCH BACK TO STORE6
119 * AT LOC -0095-. (NEXT INSTRUCTION)
120 *
121 *
122 *
123 *
0095 34 08 00FF 124 STORE6 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
125 *
0099 3D 01 00FE 126 CLI PAD-1,X'01' COMPARE THE STORED ARR HI WITH -01-.
009D C0 01 00AA 127 BNE LOAD1 GO TO NEXT TEST IF ARR HI NOT -01-.
128 * GO TO HALT4 IF ARR HI = -01-.
129 *
00A1 F0 7C 1B 130 HALT4 HPL H4,HE * PROG E4, HALT 4. ERROR HALT.

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OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

131 * * FAILING FUNCT 1
132 *
00A4 D0 87 80 133 BRNCH5 B STORE5(,XR1) INDEXED BRANCH TO LOC -0080-.
00A7 D0 87 95 134 BRNCH6 B STORE6(,XR1) INDEXED BRANCH TO LOC -0095-.
135 *
136 *
137 *
138 *
139 *
140 * TEST (1) 2 ND OP INDEXED
141 * (2) XR1,XR2 SELECT
142 *
143 *
144 *
145 *
00AA 35 01 00CF 145 LOAD1 L X0003,XR1 SET XR1 TO POINT TO LOC -00AA-
00AE 35 02 00BA 146 LOAD2 L X000C,XR2 SET XR2 TO POINT TO LOC -00B3-
00B2 35 04 00BB 147 LOAD3 L OVFLS,PSR SET PSR TO LG,BIN OVFL & FALSE.
148 *
00B6 F2 00 07 149 JC MOVEB,0
150 *
00B9 00B3 00BA 151 X000C DC XL2'00B3'
00BB F2 00BB 152 OVFLS DC XL1'F2'
153 *
00BC 00000000 00BF 154 DC XL4'0' RESERVED SPACE
155 *
00C0 1C 00 00FF 00 156 MOVEB MVC PAD,0(1,XR1) MOVE LOAD1 OP CODE -35- TO LOC 00FF
157 *
00C5 F2 F2 08 158 JC X'08',X'F2' BYPASS NEXT 8 BYTES
159 *
00C8 00 00C8 160 DC XL1'0'
161 *
00C9 F0 7C 1B 162 HALT5 HPL H4,HE * PROG E4, HALT5. ERROR HALT.
163 * * FAILING FUNCT 1
164 *
00CC 0000 00CD 165 XG000 DC XL2'0000'
00CE 00AA 00CF 166 X0003 DC XL2'00AA'
167 *
00D0 2C 00 00FE 00 168 MOVE9 MVC PAD-1,0(1,XR2) MOVE LOAD3 0 CODE -04- TO LOC 00FE
00D5 3C 12 016A 169 MVI BOOT+1,X'12' SET UP TO READ 18TH SECTOR
00D9 F2 00 04 170 JC CHECK,0
00DC 00000000 00DF 171 DC XL4'0' RESERVED SPACE
172 *
00E0 0D 01 00FF 0'F1 173 CHECK CLC PAD(2),X0435 BRANCH TO BOOT IF PROPER INDEX REGS
00E6 C0 81 0169 174 BE BOOT WERE SELECTED DURING MOVE8 & MOVE9.
175 *
00EA F0 7C 1B 176 HALT6 HPL H4,HE * PROG E4, HALT 6. ERROR HALT.
177 * * FAILING FUNCT 2
178 *
179 *
180 *
00EF 000000 00EF 180 DC XL3'0' RESERVED SPACE
00F1 0435 00F1 181 DC XL2'0435'
182 *
0008 183 ARR EQU X'08'
0001 184 XR1 EQU 1
0002 185 XR2 EQU 2
0004 186 PSR EQU 4
00FF 187 PAD EQU 255
0169 188 BOOT EQU X'169'
007C 189 HE EQU X'7C'
001B 190 H4 EQU X'1B'
191 *
FFFF 192 END

```

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OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12

OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12  
OBJECT CARD LISTING

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ARR	C	001	0008	0183	0030 0042 0069 0081 0112 0124
BOOT	C	001	0169	0188	0169* 0174
BRNCH1	A	003	0034	0052	0023
BRNCH2	A	003	0037	0054	0035
BRNCH3	A	003	0068	0091	0062
BRNCH4	A	003	0068	0093	0074
BRNCH5	A	003	00A4	0134	0103
BRNCH6	A	003	00A7	0136	0117
CHECK	A	006	00E0	0173	0170
HALT1	A	003	0000	0019	0016 0017
HALT2	A	003	0031	0048	0033
HALT3	A	003	0065	0087	0072
HALT4	A	003	00A1	0130	0115
HALT5	A	003	00C9	0162	
HALT6	A	003	00EA	0176	
HE	C	001	007C	0189	0019 0048 0087 0130 0162 0176
H4	C	001	0018	0190	
LOAD	A	004	0003	0021	
LOAD1	A	004	00AA	0145	0127
LOAD2	A	004	00AE	0146	
LOAD3	A	004	00B5	0147	
LOAD4	A	004	00BE	0101	
MOVE1	A	006	0007	0023	
MOVE2	A	006	0018	0035	
MOVE4	A	006	003A	0062	0045
MOVE5	A	006	004F	0074	
MOVE6	A	006	0072	0103	0084
MOVE7	A	006	0088	0117	
MOVE8	A	005	00C0	0156	0149
MOVE9	A	005	00D0	0168	
OVFALS	A	001	008B	0152	
PAD	C	001	00FF	0187	
PSR	C	001	0004	0186	
STORE1	A	004	0010	0030	
STORE2	A	004	0025	0042	
STORE3	A	004	0044	0069	
STORE4	A	004	0059	0081	
STORE5	A	004	0080	0112	
STORE6	A	004	0095	0124	
UVWXYZ	A	001	0000	0004	
XR1	C	001	0001	0184	0021* 0052 0054 0091 0093 0101* 0134 0136 0145* 0156
XR2	C	001	0002	0185	0146* 0168
X000C	A	002	00BA	0151	
X0000	A	002	00CD	0165	0021 0101
X0003	A	002	00CF	0166	
X0435	A	002	00F1	0181	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```
*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0E400000
T+-:2G0S(ED)3EO B*14*(7RG:3&H)2 *EC=2YDOC*H*70 90H*7L&H)2*EC =0*D*+7A2F*BGD(8 G1EO*:8Y0E400001
T+-A5-C?F,/OC _1-*34A)2-JO <-B*F7/OB*( *-34A)2*2A2G0 84H)D4H)R(ED)3EO B*G2*:2*0E400002
T+-BO*Hs/OA*** **C&H)2*EC=2YD OC*H*OBZOM*LE H)2*EC=0*D*07A 2F*BG-(BGVLM)*2 5*-91H0E400003
T+-C>TMD*.72** *3*H*****G***OC 22--2G0S****DSO **18)AHAE?H*A ****(EC*1G*-EE 22G0/Q*80E400004
TA&C1FO****E5***** 8:80E400005
E****E7*-DC*PHS =*7H&F1***|***C **F*ASC**R*A SO***Q***** 12010630750 828750Q30E400006
```

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OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000 0000 2 DECK 4
      3 SEQ 0
      4 UVWXYZ START 0
      5 TREP
      6 * SECTOR 18
      7 *****
      8 *
      9 *
      10 *
      11 *
      12 *
      13 *
      14 *
      15 *
      16 *****
      17 *
      18 *
      19 *
      20 *
      21 *
      22 *
      23 *
      24 *
      25 *
      26 *
      27 *
      28 *
      29 *
      30 *
      31 *
      32 *
      33 *
      34 *
      35 *
      36 *
      37 *
      38 *
      39 *
      40 *
      41 *
      42 *
      43 *
      44 *
      45 *
      46 *
      47 *
      48 *
      49 *
      50 *
      51 *
      52 *
      53 *
      54 *
      55 *
0000 FO 7C 5D HALT1 HPL H5,HE INITIAL HALT = E5
0003 35 01 00D2 L XFFF6,XR1 LOAD XR1 WITH -FFF6-
0007 34 01 00FF ST PAD,XR1 STORE XR1 IN LOC -FE & FF-.
000B 3D F6 00FF CLJ PAD,X'F6' GO TO NEXT IF STORED DATA EQUALS
000F CO 81 0020 BE START2 LOADED DATA.
0013 3D FF 00FF CLJ PAD,X'FF' GO TO HALT3 IF LOC -FF-
0017 F2 01 03 JNE HALT3 IS -FF-.
001A FO 7C 5D HALT2 HPL H5,HE * PROG EF, HALT 2. ERROR HALT
* FAILING FUNCT 1
001D FO 7C 5D HALT3 HPL H5,HE * PROG EF, HALT 3. ERROR HALT
* FAILING FUNCT (2)
*****
40 * TEST TO CHECK IF Q BIT IS STUCK DOWN
41 *
42 *
43 *
44 *
45 *
46 *
47 *
48 *
49 *
50 *
51 *
52 *
53 *
54 *
55 *
0020 3D 03 018E START2 CLJ BOOT+37,X'03' CHECK FOR AND SETUP TO HALT
0024 F2 81 04 JE *7 BEFORE EXECUTION IF THAT WAS
0027 3C 00 00BC MVI BOOT37+1,X'00' SELECTED BEFORE.
002B 0C 04 00D8 MVC ALOAD+5,CNTFLD(5) SAVE CONTROL FIELD F-CC-MH
0031 3C 00 0100 MVI X00,X'00' MOVING 256 BYTES OF DATA
0035 3C FF 01FF MVI X00+255,X'FF' CHECKS OUT ALL Q BITS. IF A
0039 0C FF 01FE MVC X00+254(256),X00+255 Q BIT IS STUCK DOWN THE
003F 3D FF 0100 CLJ X00,X'FF' MOVE OF 256 BYTES ISN'T
0043 CO 81 004A BE START3 COMPLETED THUS CAUSING HALT4
0047 FO 57 3F HALT4 HPL X'3F',X'57' *Q BIT ERROR HALT

```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

57 *****
58 *****
59 ***** (SNS), SENSE CONSOLE DATA SWITCHES *****
60 *****
61 *****
62 *****
63 ***** TEST (1) SNS I/O *****
64 ***** (2) 2 ADDR FORMAT *****
65 ***** (3) 1 ST E CYCLE ACTIVE *****
66 ***** (4) INTERNAL *****
67 *****
68 ***** NOTE: THIS TEST WILL CAUSE ERROR HALTS IF *****
69 ***** -OOFE- WAS NOT ENTERED IN THE DATA *****
70 ***** SWITCHES PRIOR TO RUNNING THE TEST. *****
71 *****
72 *****
73 *****
74 START3 MVC PAD(2),X9999 SET LOC FE & FF TO -9999-.
75 *****
76 SENSE SNS PAD,X'00' SENSE THE CONSOLE DATA SWITCHES
77 * INTO LOC FE & FF.
78 *****
79 CLJ PAD,X'FE' JUMP TO HALT6 IF LOC FF WAS
80 JNE HALT6 NOT ALTERED BY SENSE INT.
81 *****
82 CLC PAD(2),XFEFE JUMP TO HALT7 IF LOC FE & FF BOTH
83 JE HALT7 CONTAINED -FE-.
84 *****
85 CLJ PAD-1,X'00' GO TO HALT5 IF LOC FE WAS NOT
86 BE START4 ALTERED BY SENSE INSTR.
87 *****
88 *****
89 HALT5 HPL H5,HE * PROG EF, HALT 5. ERROR HALT
90 * FAILING FUNCT (2,5)
91 *
92 *
93 *
94 *
95 *****
96 HALT6 HPL H5,HE * PROG EF, HALT 6. ERROR HALT
97 * FAILING FUNCT 1
98 *
99 *****
100 HALT7 HPL H5,HE * PROG EF, HALT 7. ERROR HALT
101 * FAILING FUNCT 3
102 *
103 *
104 *

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OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
106 *****
107 *
108 *
109 * THIS PROGRAM TESTS THE FIRST AND/OR SECOND INDEXED OPERAND
110 * INSTRUCTIONS (OP BITS 0-3)
111 *
112 * DECODING FAILURES -FIRST OR SECOND OPERAND ADDRESS STUCK DOWN-
113 * WILL BE INDICATED BY SAR CHECK AND HALTING OF THE MACHINE
114 * CYCLE.
115 *
116 *
117 *****
118 *
119 *
0075 120 USING START4,1
0075 121 USING START4,2
0075 C2 01 0000 122 START4 LA 0,XR1
0079 C2 02 0000 123 LA 0,XR2
124 *
007D 4D 00 FF 00FF 125 CLC PAD(1,XR1),PAD -CHECK BIT 1
0082 5D 00 FF FF 126 CLC PAD(1,XR1),PAD(,XR1) -CHECK BIT 1+3
0086 6D 00 FF FF 127 CLC PAD(1,XR1),PAD(,XR2) -CHECK BIT 1+2
128 *
008A 8D 00 FF 00FF 129 CLC PAD(1,XR2),PAD -CHECK BIT 0
008F 9D 00 FF FF 130 CLC PAD(1,XR2),PAD(,XR1) -CHECK BIT 0+3
0093 AD 00 FF FF 131 CLC PAD(1,XR2),PAD(,XR2) -CHECK BIT 0+2
132 *
0097 7D 00 FF 133 CLI PAD(,XR1),X'00' -CHECK BIT 1+2+3
009A 8D 00 FF 134 CLI PAD(,XR2),X'00' -CHECK BIT 0+2+3
135 *
136 *
137 *****
138 * RELOAD LOADER PROGRAM
139 *****
009D C0 87 00A4 140 B *+7
00A1 F0 7C 5D 141 COMHLT HPL H5,HE DISK ERROR HALT
00A4 C1 C0 00A1 142 TIO COMHLT,ERR TEST FOR ERROR BEFORE DISK SIO
00A8 31 C4 00D4 143 LIO DDFADR,DDR LOAD DDR
00AC 31 C6 00D6 144 LIO ALDADR,DCR LOAD DDCR
00B0 F3 C1 00 145 SIO X'00',READ READ LOADER PROGRAM
00B3 F1 C2 00B3 146 TIO *BUSHY LOOP UNTIL DISK BUSHY DROPS
00B7 C1 C0 00A1 147 TIO COMHLT,ERR TEST FOR ERROR AFTER DISK SIO
00B8 3C 03 018E 148 BOOT37 MVI BOOT+37,X'03' SET UP BRANCH
00BF 3C 13 016A 149 MVI BOOT+1,X'13' SET UP TO READ 19TH SECTOR
00C3 0C 04 01DB 00DB 150 MVC CNTFLO(5),ALOAD+5 RESTORE CONTROLFIELD
00C9 C0 87 0169 151 B BOOT
152 *
00CD 9999 00CE 154 X9999 DC XL2'9999'
00CF FEFE 00D0 155 XFEFE DC XL2'FEFE'
00D1 FFF6 00D2 156 XFFF6 DC XL2'FFF6'
00D3 00FD 00D4 157 DDFADR DC AL2(253)
00D5 00D7 00D6 158 ALOAD DC AL2(*+2)
00D7 0000010000 00DB 159 DC XL5'0000010000' F-CC-MH
00DC 0100010000 00E0 160 DC XL5'0100010000' R-K-DL-N
161 *
00C6 162 DCR EQU X'C6'
00C4 163 DDR EQU X'C4'
01DB 164 CNTFLO EQU X'01DB'
00C0 165 ERR EQU X'C0'
00C2 166 BUSHY EQU X'C2'
0002 167 DIAG EQU X'02'
00C1 168 READ EQU X'C1'
0100 169 X00 EQU X'100'
0001 170 XR1 EQU X'01'
0002 171 XR2 EQU X'02'
007C 172 HE EQU X'7C'
005D 173 H5 EQU X'5D'

```

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0169 174 BOOT EQU X'169'
00FF 175 PAD EQU 255
FFFF 176 END
177 END

```

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OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ALOAD	A	002	00D6	0158	0048* 0145 0151
BOOT	C	001	0169	0174	0045 0149* 0150* 0152
BOOT37	A	004	00B8	0149	0047*
BUSY	C	001	00C2	0166	0147
CNTFLD	C	001	01D8	0164	0048 0151*
CMHLL	A	003	00A1	0142	0143 0148
DCR	C	001	00C6	0162	0145*
DDFADR	A	002	00D4	0157	0144*
DDR	C	001	00C4	0163	0144*
DIAG	C	001	0002	0167	
ERR	C	001	00C0	0165	0143 0148
HALT1	A	003	0000	0018	
HALT2	A	003	001A	0030	
HALT3	A	003	001D	0035	0028
HALT4	A	003	0047	0055	
HALT5	A	003	006C	0089	
HALT6	A	003	006F	0096	0080
HALT7	A	003	0072	0100	0083
HE	C	001	007C	0172	0018 0030 0035 0089 0096 0100 0142
H5	C	001	005D	0173	0018 0030 0035 0089 0096 0100 0142
PAD	C	001	00FF	0175	0022* 0024 0027 0074* 0076* 0079 0082
READ	C	001	00C1	0168	0127 0127 0130 0130 0131 0131 0132 0085 0125 0125 0126 0126
SENSE	A	004	0050	0076	0146
START2	A	004	0020	0045	0025
START3	A	006	004A	0074	0053
START4	A	004	0075	0122	0086 0120 0121
UV:XYZ	A	001	0000	0004	
XFFFE	A	002	00D0	0155	0082
XFFF6	A	002	00D2	0156	0020
XR1	C	001	0001	0170	0020* 0022 0122* 0125 0126 0126 0127 0131 0135
XR2	C	001	0002	0171	0123* 0127 0130 0131 0132 0132 0136
X00	C	001	0100	0169	0049* 0050* 0051 0051* 0052
X9999	A	002	00CE	0154	0074

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422*****OE500000
T+--:2G1)1ED*4T& A*|2**C*OHD*HC7 *|*2*E|0-E70-E4 *OF+2YDD|***?O D*(2A630**E*2*OG *C|2*OR<OE500001
T+-A5*-8A*37**&C *-&A*E**C*D*OC +<***37=*|*2*JE (*&C*(C2-E8**C =OHD*)-A2P-A2P-A 2P*H*3QOE500002
T+-B0*E**O-H**D4 *OC*P&C**64**= (|2**94**=|* *-&C*?&C*OH*Z|A 2P*G*FD11*CM<*Q *5?<2EHOE500003
T.OC-0&CA0-B30* *YLOC*Q82DOEDC*5 A60C$OH*AERWR*?# **-C*(**D**D **&*****3#UOE500004
E***E7*=-DC*PH$ =*7M&F|***|***C **F***ASL***R*A SD***Q*****12010630750 828750H-OE500005

```

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OE60 CPU AND MEMCRY DIAGNOSTICS: PROGRAM E6 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
0000                2      DECK 4
                    3      SEQ 0
                    4      UVMXYZ START 0
                    5      TREP
                    6      *
                    7      *      SECTOR 19
                    8      *
                    9      *
                   10      *      PROG E6
                   11      *
                   12      *      (CLI) COMPARE LOGICAL IMMEDIATE
                   13      *
                   14      *      TEST (1) SINGLE EB CYCLE INSTR
                   15      *
                   16      *
0000 FO 7C 7D      17      HALT1 HPL H6,HE          INITIAL HALT = E6
                   18      *
0003 3D 00 007F    19      CLI XFF00,X'00'        COMPARE 00 TO 00
0007 C0 81 000E    20      BE START2              GO TO NEXT TEST IF CR SET TO EQUAL
0008 FO 7C 7D      21      HALT2 HPL H6,HE          * PROG E6, HALT 2. ERROR HALT
                   22      *
                   23      *      * FAILING FUNCT (1)
                   24      *
                   25      *
                   26      *
                   27      *
                   28      *      (CLC) COMPARE LOGICAL CHARACTER
                   29      *
                   30      *
                   31      *      TEST (1) OP END
                   32      *
                   33      *
000E 3C 00 00FF    34      START2 MVI PAD,X'00'        PLACE HEX -FF00- IN
0012 3C FF 00FE    35      MVI PAD-1,X'FF'        LOC FE & FF.
                   36      *
0016 0D 01 00FF 007D 37      CLC PAD(2),X00FF        COMPARE PAD WITH HEX -00FF-
001C F2 82 07      38      JL HALT4              GO TO HALT4 IF CR SET LD
001F C0 84 0029    39      BH START3              GO TO NEXT TEST IF CR SET HI
0023 FO 7C 7D      40      HALT3 HPL H6,HE          * PROG E6, HALT3. ERROR HALT
                   41      *
                   42      *      * FAILING FUNCT (1)
                   43      *
                   44      *
0026 FO 7C 7D      45      HALT4 HPL H6,HE          * PROG E6, HALT 4. ERROR HALT
                   46      *
                   47      *      * FAILING FUNCT 1
                   48      *
                   49      *
                   50      *
                   51      *

```

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OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
53 *****
54 *
55 *      (AZ) ADD DECIMAL
56 *
57 *      TEST (1) OP BIT 7
58 *      (2) A REG BIT 2 ACTIVE
59 *
60 *****
61 *
62 *
63 0029 3C D9 00FF  START3 MVI PAD,X'D9'        SET PAD TO MINUS DECIMAL 9.
64 *
65 002D 06 00 00FF 00D9  AZ PAD(1),X'D9'(1)        ADD MINUS DECIMAL 9 TO PAD.
66 *
67 0033 3D F0 00FF  CLI PAD,X'F0'          GO TO HALT5 IF RESULT EQUALS DECIMAL
68 *      BNE TST1          ZERO, GO TO NEXT TEST IF RESULT IS
69 *      *      NOT DECIMAL ZERO
70 *
71 003B F0 7C 7D    HALT5 HPL H6,HE          * PROG E6, HALT 5. ERROR HALT
72 *      *      * FAILING FUNCT (1,2)
73 *
74 *
75 *      APL TEST
76 *
77 *      TEST (1) APL DECODE
78 *      (2) I/O COND B
79 *      (3) IR SKP TRUE
80 *
81 *****
82 *
83 *
84 TST1 TIO HALT7,X'CO'        TEST FOR ERROR OR NOT READY.
85 MVC ADCF(5),CNTFLD        SET UP CONTROL FIELD
86 LIO AD255,X'C6'          LOAD DDCR
87 LIO DF,X'C4'            LOAD DDRR
88 SIO X'OC',X'C3'        SCAN EQUAL 32 SECTORS
89 TST2 TIO APLTST,X'C2'    GO TO APLTST ON BUSY
90 *
91 HALT6 HPL H6,HE          * PROG E6, HALT 6. ERROR HALT.
92 *      *      * TST1 OR TST2 ERROR
93 *
94 *
95 HALT7 HPL H6,HE          * PROG E6, HALT 7. ERROR HALT.
96 *      *      * FAILING FUNCT (3)
97 *
98 APLTST APL 0,X'C2'        WAIT HERE ON BUSY
99 *
100 TST3 TIO HALT8,X'C2'        GO TO HALT8 IF STILL BUSY
101 MVI BOOT+1,X'14'        SET UP TO READ 20TH SECTOR
102 B BOOT
103 DC XLI'0'
104 *
105 HALT8 HPL H6,HE          * PROG E6, HALT 8. ERROR HALT.
106 *      *      * APL INSTR WAS NO-OPED
107 *
108 *
109 AD255 DC AL2(#+2)
110 ADCF DC XL5'0000010000'
111 DC XL5'0100010020'
112 X00FF DC XL2'00FF'
113 XFF00 DC XL2'FF00'
114 DF DC XL2'400'
115 *
116 PAD EQU 255
117 BOOT EQU X'169'
118 CNTFLD EQU X'1DB'

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

007C 119 HE EQU X\*7C:  
 007D 120 H6 EQU X\*7D:  
 FFFF 121 END

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADCF	A	005	0076	0110	0085*
AD255	A	002	0071	0109	0086
APLTST	A	003	005D	0099	0089
BOOT	C	001	0169	0117	0101* 0102
CNTFLD	C	001	01DB	0118	0085
DF	A	002	0081	0114	0087
HALT1	A	003	0000	0017	
HALT2	A	003	0008	0023	
HALT3	A	003	0023	0045	
HALT4	A	003	0026	0049	0041
HALT5	A	003	003B	0071	
HALT6	A	003	0057	0091	
HALT7	A	003	005A	0095	0084
HALT8	A	003	006D	0105	0100
HE	C	001	007C	0119	0017 0023 0045 0049 0071 0091 0095 0105
H6	C	001	007D	0120	0017 0023 0045 0049 0071 0091 0095 0105
PAD	C	001	00FF	0116	0036* 0037* 0039 0063* 0065* 0067
START2	A	004	000E	0036	0021
START3	A	004	0029	0063	0343
TST1	A	004	003E	0084	0069
TST2	A	004	0053	0089	
TST3	A	004	0060	0100	
UVWXYZ	A	001	0000	0004	
XFFF0	A	002	007F	0113	0019
X00FF	A	002	007D	0112	0039

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PM*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0E600000
T+ :261*1E**2B A**#0~G42**C**1|2 *~4A*|2**~RBA2B D*BX0~G70~G426&C "A~**"OCR|~**"2 A*C8*8Q*0E600001
T+~A52G1*0*~0~0 D*GQA63GF*GD11*B A22<<0*H*P~A2~~A 2~~GB*~GB*F42E*E DOH*AE&CO~G4*~* **&*J&0E600002
T80BA**D**&~-|** " **&***** ..... ***** ..... ***** ***** 5140E600003
E***E7*~DC*PH$ =*7M&F|***|***C **F$***ASC***R*A SO***Q***** ***** 12010630750 8287508U0E600004

```

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 *
7 ***** SECTOR 20 *****
8 ***** PROG E7 *****
9 ***** (L10) & (SNS), LOAD & SENSE I/O LSR'S *****
10 *****
11 *****
12 ***** * PRINTER * *****
13 ***** * PRINTER * *****
14 *****
15 ***** FAILURE TO SELECT ANY LSR WILL CAUSE *****
16 ***** 'A' REG CHECK DURING (SNS) EB CYCLE. *****
17 *****
18 ***** FAILURE TO SELECT CORRECT LSR WILL *****
19 ***** RESULT IN ERROR HALT. *****
20 *****
21 *****
22 *****
23 HALT1 HPL H7,HE INITIAL HALT = E7
24
25 0003 31 E4 004F L10 XCFFF,X'E4' LOAD PRINTER IMAGE ADDRESS LSR
26 * WITH -CFFF-.
27
28 0007 31 E6 0051 L10 X3FF8,X'E6' LOAD PRINTER DATA ADDRESS LSR
29 * WITH -3FF8-.
30
31 000B 30 E4 00FB SNS 251,X'E4' STORE PRINTER IMAGE ADDRESS LSR
32 * IN LOC HEX -00FA & 00FB-.
33
34 000F 30 E6 00FD SNS 253,X'E6' STORE PRINTER DATA ADDRESS LSR
35 * IN LOC HEX -00FC & 00FD-.
36
37 0013 3D FE 00FD CLI 253,X'FE' GO TO HALT4 IF DATA SWITCHES
38 0017 F2 81 19 JE HALT4 WERE ALSO GATE TO I/O BUSS
39
40 001A 0D 01 00FD 0051 CLC 253(2),X3FF8 GO TO HALT2 IF PRINTER DATA ADDRESS
41 0020 F2 81 03 JE HALT2+3 LSR WAS LOADED INCORRECTLY
42
43 0023 F0 7C 07 HALT2 HPL H7,HE * PROG E7, HALT 2. ERROR HALT.
44 * *
45 * REFER TO CHART.
46 * DATA ADDRESS LSR SELECTION ERROR
47
48 0026 0D 01 00FB 004F CLC 251(2),XCFFF GO TO HALT3 IF IMAGE ADDRESS
49 002C CD 81 0036 BE START2 LSR WAS LOADED INCORRECTLY
50
51 0030 F0 7C 07 HALT3 HPL H7,HE * PROG E7, HALT 3. ERROR HALT ***
52 * *
53 * IMAGE ADDR LSR SELECTION ERROR
54
55 0033 F0 7C 07 HALT4 HPL H7,HE * PROG E7, HALT 4. ERROR HALT
56 * *
57 * THE DATA SNS WERE ORED IN ALSO
58 *
59 *
60 *

```

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

57 *****
58 ***** (LIO) & (SNS), LOAD & SENSE I/O LSR'S *****
59 *****
60 *****
61 ***** * PRINTER * *****
62 *****
63 ***** FAILURE TO SENSE THE CORRECT VALUE *****
64 ***** WILL RESULT IN LSR CHECK *****
65 *****
66 *****
67 *****
68 *****
69 *****
70 START2 LIO X3000,X'E4' LOAD PRINTER IMAGE ADDRESS LSR
71 * WITH -3000-.
72 *****
73 LIO XC007,X'E6' LOAD PRINTER DATA ADDRESS LSR
74 * WITH -C007-.
75 *****
76 SNS 251,X'E4' STORE PRINTER IMAGE ADDRESS LSR
77 * IN LOC HEX -00FA & 00FB-.
78 *****
79 SNS 253,X'E6' STORE PRINTER DATA ADDRESS LSR
80 * IN LOC HEX -00FC & 00FD-.
81 *****
82 MVI BOOT+1,X'15' SET UP TO READ 21ST SECTOR
83 B BOOT LSR'S WERE SENSED CORRECTLY,BRANCH
84 *****
85 *****
86 XCFFF DC XL2'CFFF'
87 X3FF8 DC XL2'3FF8'
88 X3000 DC XL2'3000'
89 XC007 DC XL2'C007'
90 *****
91 BOOT EQU X'169'
92 HE EQU X'7C'
93 H7 EQU X'07'
94 PAD EQU 250
95 *****
96 END

```

0036 31 E4 0053

003A 31 E6 0055

003E 30 E4 00FB

0042 30 E6 00FD

0046 3C 15 016A  
004A C0 87 0169

004E CFFF  
0050 3FF8  
0052 3000  
0054 C007

004F  
0051  
0053  
0055

0169  
007C  
0007  
00FA  
FFFF

86 XCFFF DC XL2'CFFF'  
87 X3FF8 DC XL2'3FF8'  
88 X3000 DC XL2'3000'  
89 XC007 DC XL2'C007'  
91 BOOT EQU X'169'  
92 HE EQU X'7C'  
93 H7 EQU X'07'  
94 PAD EQU 250  
96 END

-E-

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0091	0082* 0083
HALT1	A	003	0000	0023	
HALT2	A	003	0023	0043	0041
HALT3	A	003	0030	0050	
HALT4	A	003	0033	0053	0038
HE	C	001	007C	0092	0023 0043 0050 0053
H7	C	001	0007	0093	0023 0043 0050 0053
PAD	C	001	00FA	0094	
START2	A	004	0036	0070	0048
UVWXYZ	A	001	0000	0004	
XCFFF	A	002	004F	0086	0025 0047
XC007	A	002	0055	0089	0073
X3FF8	A	002	0051	0087	0028 0040
X3000	A	002	0053	0088	0070

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```
* GBK GBD *** PN 42 48200 EC 827804 CPU AND MEMORY T ESTS ***** MOD 12 84228422 ***** 0E700000
T+ : @GOG<; & L3G W ED09 C#<+Q *L7 = 172-JU I &C EG 2-&10~*( &C# D# -& 6@GOG@GOG<; & M3D EZ*0E700001
TF-AN9-AN<+& =3C W 14@E&E D0H*AE*# *|"-0<'G ***** 0,30E700002
E***E7*=-DC"PH$ =7H&F| *** I *** C ** F% *** ASC *** R A SO *** Q ***** 12010630750 828750Y80E700003
```

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OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```
0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 * SECTOR 21
7 *****
8 *
9 *
10 *
11 *
12 *
13 *
14 *
15 *
16 *****
17 HALT1 HPL UNITS,TENS INITIAL HALT
18 LD LA X'0080',XR1 LOAD XR1 WITH HIGHER CORE ADDRESS
19
20
21 MVI PAD(XR1),X'00' BYPASS
22 MVI PAD,X'FF' HALT IF
23 CLI PAD(XR1),X'FF' SAR DECODE
24 JNE HALT2+3 WAS CORRECT
25
26 HALT2 HPL X'10',X'80' * PROG E8, HALT 2, ERROR HALT
27 * * FAILURE: SAR DECODE, THE FAILING
28 * * SAR BIT IS DISPLAYED IN
29 * * THE Q REGISTER
30 *
31
32 CLI HALT2+1,X'20' EXIT THIS PROGRAM IF SAR
33 BE EIGHT BITS 8 THRU 3 HAVE BEEN TESTED.
34
35 ALC LD+3(2),LD+3 DOUBLE HIGHER CORE ADDRESS
36 SLC HALT2+1(1),HALT2+2 DECREMENT HALT DISPLAY
37 B LD GO TEST NEXT SAR BIT
```

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OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

002F 0000      0030      39
                    40 DATASW DC   XL2'0'
                    41
0031 F2 90 00      42 EIGHT JF   B
0034 0E 01 0084 0084 43 B      ALC   ADD,ADD(2)
                    44
003A F0 7F 3E      45      HPL   X'3E',X'7F'
                    46
003D 3C 93 017F      47      MVI   BOOT+22,X'93'
0041 3C 00 016E      48      MVI   BOOT+5,X'00'
0045 3C 00 018E      49      MVI   BOOT+37,X'00'
0049 3C 16 016A      50      MVI   BOOT+1,X'16'
004D 30 00 0030      51      SMS   DATASW,X'00'
0051 3D E9 0030      52      CLI   DATASW,X'E9'
0055 C0 81 01E1      53      BE    BOOT25
                    54
0059 3C 00 016E      55      MVI   BOOT+5,X'00'
005D 3C 1F 016A      56      MVI   BOOT+1,X'1F'
0061 3D F2 0030      57      CLI   DATASW,X'F2'
0065 C0 81 01E1      58      BE    BOOT25
                    59
0069 3C 21 016A      60      MVI   BOOT+1,X'21'
006D 3D F4 0030      61      CLI   DATASW,X'F4'
0071 C0 81 01E1      62      BE    BOOT25
                    63
0075 0C 04 01DB 0089 64      MVC   CNTFLD(5),DCP
007B 3C 01 016A      65      MVI   BOOT+1,X'01'
007F C0 87 01E1      66      B     BOOT25
                    67
0083 0000      0084      68 ADD   DC   AL2(0)
0085 0000030011    0089      69 DCP   DC   XLS'0000030011'
                    70
0169      71 BOOT  EQU   X'169'
01E1      72 BOOT25 EQU  X'1E1'
00FF      73 PAD   EQU   255
007F      74 UNITS EQU  X'7F'
007C      75 TENS  EQU  X'7C'
0001      76 XR1   EQU   1
01DB      77 CNTFLD EQU  X'01DB'
                    78
FFFF      79      END
    
```

```

RESET 'TEST FALSE'
CLEAR 'LOGICAL OVERFLOW'

8P HALT

REPAIR LOADER AFTER MEM. CHECK

SETUP TO GET INITIAL HALTS

READ DATA SWITCHES

SET UP FOR LOAD OF DCP
    
```

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OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADD	A	002	0084	0068	0043 0043*
B	A	006	0034	0043	0042
BOOT	C	001	0169	0071	0047* 0048* 0049* 0050* 0055* 0056* 0060* 0065*
BOOT25	C	001	01E1	0072	0053 0058 0062 0066
CNTFLD	C	001	01DB	0077	0064*
DATASW	A	002	0030	0040	0051* 0052 0057 0061
DCP	A	005	0089	0069	0064
EIGHT	A	003	0031	0042	0033
HALT1	A	003	0000	0017	
HALT2	A	003	0014	0026	0024 0032 0036 0036*
LD	A	004	0003	0019	0035 0035* 0037
PAD	C	001	00FF	0073	0021* 0022* 0023
TENS	C	001	007C	0075	0017
UNITS	C	001	007F	0074	0017
UVMXYZ	A	001	0000	0004	
XR1	C	001	0001	0076	0019* 0021 0023

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* 3340\*CPU\*E\*MEMOR Y\*TESTS\*\*\*MOD\*12 84228422\*\*\*\*\*OEB000000  
T+\* :2G1\*0-D\*-GO \*33\*|\*\*2\*E| 0-A\*H\*\*NOHD\*&B A\*\*Q\*A-a\*\*AM\*E\*8 G\*\*<\*\*IR&\*8A\*H& \*/|\*\*P,00E800001  
T+\*A5-362UOE\*|\*\* A\$TO\*\*Q82E-ED<\*\*\* <C7Z\*CC\*-&G/|\*\* A\$TO-0Y\*a-00HD A8L0/0Y\*\*00HD A8&0\*\$1&OE800002  
TDOBIA\*G\$\*HU2\*E& D0H\*A8E\*\*\*\*C\*AD \*\*\*\*\*9Y\*OE800003  
E\*\*\*E7\*=-DC\*PH\$ =\*7M&F|\*\*\*|\*\*\*C\*\*F\$\*\*\*ASC\*\*\*R\*A S0\*\*\*Q\*\*\*\*\*12010630750 828753QUOE800004

OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 * SECTOR 22
7 *****
8 *****
9 ***** PROG E9, SAR DECODE *****
10 *****
11 ***** THIS PROGRAM TESTS FOR PROPER DECODING OF SAR BITS *****
12 ***** 1 & 0 AND THE ABILITY TO ADDRESS CORE LOC 16,384 *****
13 ***** THROUGH 65,535. CONSOLE ADDRESS SWITCHES MUST *****
14 ***** BE SET TO SPECIFY CORE SIZE. *****
15 *****
16 *****
17 *****
18 HALT1 HPL UNITS,TENS INITIAL HALT
19 *****
20 *****
21 TEST1 SNS CORISZ-1,X'80' STORE CONSOLE ADDRESS SWITCHES.
22 CLI CORISZ-1,X'80' BYPASS TESTING SAR BIT 0 IF CORE
23 JL TEST2 SIZE IS 32 K OR LESS.
24 BIT0 MVI X'8040',X'00' TEST SAR BIT 0 DECODE AND ABILITY
25 MVI X'0040',X'FF' TO ADDRESS ABOVE 32 K OF STORAGE.
26 CLI X'8040',X'FF' GO TEST SAR BIT 1 IF SAR BIT 0
27 JNE BIT1 WAS DECODED CORRECTLY.
28 *****
29 HALT2 HPL X'6F',X'00' * PROG E9, HALT 2. ERROR HALT
30 * FAILURE: SAR DECODE BIT 0. THE
31 * FAILING SAR BIT IS
32 * DISPLAYED IN THE Q
33 * REGISTER. HALTS WITH -0 -
34 *
35 TEST2 CLI CORISZ-1,X'40' BYPASS TESTING SAR BIT 1 IF CORE
36 JL TEST3 SIZE IS 16K OR LESS.
37 *****
38 BIT1 MVI X'4040',X'00' TEST SAR BIT 1 DECODE AND ABILITY
39 MVI X'0040',X'FF' TO ADDRESS >16K BUT <32K OF CORE.
40 CLI X'4040',X'FF' EXIT THIS PROGRAM IF SAR BIT 2
41 JNE BIT2 WAS DECODED CORRECTLY.
42 J HALT3 BIT2 JUMP AROUND DC WHICH REMAINS AT 0036
43 DC XL80'0'
44 *****
45 HALT3 HPL X'00',X'10' * PROG E9, HALT 3. ERROR HALT
46 * FAILURE: SAR DECODE BIT 1. THE
47 * FAILING SAR BIT IS
48 * DISPLAYED IN THE Q
49 * REGISTER
50 TEST3 CLI CORISZ-1,X'20' BYPASS TESTING SAR BIT 2 IF COPE
51 JL RETURN SIZE IS 8K OR LESS.
52 *****
53 *****
54 ***** THIS PROGRAM TESTS FOR PROPER DECODING *****
55 ***** OF SAR BIT 2. *****
56 *****
57 *****
58 *****

```

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OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

59
60 BIT2 MVI 8447,X'00'
61 MVI PAD,X'FF'
62 CLI 8447,X'FF'
63 JNE RETURN
64
00A2 FO 20 00
65 HALT4 HPL X'00',X'20'
66 *
67 *
68 *
69 *
70 *
71 RETURN MVC CNTFLD+5,#+70(161)
72 B X'303'
    
```

```

TEST SAR BIT 2 DECODE AND ABILITY
TO ADDRESS >8K BUT <20K OF STORAGE.
EXIT THIS PROGRAM IF SAR BIT 2
WAS DECODED CORRECTLY.
* PROG E9, HALT 4. ERROR HALT
* FAILURE: SAR DECODE BIT 2. THE
* FAILING SAR BIT IS
* DISPLAYED IN THE Q
* REGISTER
    
```

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OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0300 74 USING COMHLT,XR1
75 ORG X'300'
76 COMHLT HPL UNITS,TENS E9 HALT - DISK ERROR
77 LA X'0300',XR1
78 TIO COMHLT(XR1),ERR
79 LIO ADO(XR1),DFDR
80 SECD1 LIO ACOM(XR1),DFCR
81 SIO DIAG,READ
82 WAIT TIO WAIT(XR1),BUSY
83 TIO COMHLT(XR1),ERR
84 SECD B
85
86 MVI CNTFLD+5(XR1),X'00' RE-INITIALIZE THE CONTROL FIELD
87 MVI CNTFLD+1(XR1),X'18' SET UP TO READ 2ND SECTOR
88 MVC SECD+3(XR1),ADO(2,XR1) SETUP TO BEGIN EXECUTION
89 LIO ADLD(XR1),DFDR
90 B SECD(XR1) GO READ SECOND SECTOR
91
032E 92 ADO DC AL2(0)
0330 93 ADLD DC AL2(256)
0332 94 ACOM DC AL2(CNTFLD-4)
0337 95 CNTFLD DC XL5'0000010000'
033C 96 DC XL5'1700010000'
97
0001 98 XR1 EQU 1
00C4 99 DFDR EQU X'C4'
00C6 100 DFDR EQU X'C6'
0002 101 DIAG EQU X'02'
00C1 102 READ EQU X'C1'
00C0 103 ERR EQU X'00'
00C2 104 BUSY EQU X'C2'
0050 105 CORSIZ EQU 80
00FF 106 PAD EQU 255
0169 107 800T EQU X'169'
005F 108 UNITS EQU X'5F'
007C 109 TENS EQU X'7C'
110
FFFF 111 END
    
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ACOM	A	002	0332	0094	0080
ADLD	A	002	0330	0093	0089
ADD	A	002	032E	0092	0079 0088
BIT0	A	004	000E	0024	
BIT1	A	004	0027	0038	0027
BIT2	A	004	0093	0060	0041
BOOT	C	001	0169	0107	
BUSY	C	001	00C2	0104	0082
CNTFLD	A	005	0337	0095	0071* 0086* 0087* 0094
COMHLT	A	003	0300	0076	0074 0078 0083
CORSIZ	C	001	0050	0105	0020* 0021 0035 0050
DFCR	C	001	00C6	0100	0080*
DFDR	C	001	00C4	0099	0079* 0089*
DIAG	C	001	0002	0101	0081
ERR	C	001	00C0	0103	0078 0083
HALT1	A	003	0000	0018	
HALT2	A	003	001D	0029	
HALT3	A	003	0089	0044	0042
HALT4	A	003	00A2	0065	
PAD	C	001	00FF	0106	0061*
READ	C	001	00C1	0102	0081
RETURN	A	006	00A5	0071	0051 0063
SECD	A	004	0319	0084	0088*
SECD1	A	003	030D	0080	0090
TENS	C	001	007C	0109	0018 0076
TEST1	A	004	0007	0021	
TEST2	A	004	0020	0035	0022
TEST3	A	004	008C	0050	0036
UNITS	C	001	005F	0108	0018 0076
UVWXYZ	A	001	0000	0004	
WAIT	A	003	0313	0082	0082
XR1	C	001	0001	0098	0074 0077* 0078 0079 0080 0082 0083 0086 0087 0088 0088 0089
				0090	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12

OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
*GBK*GBD**PN*42	48200*EC*827804*	CPU*E*MEMORY*TES	TS*****MOD*12	84228422*****	*****0E900000
T+*:*2G1-<***MC6	**D*2-/H2*HA*  2	*E*7*DC2*E,O*F2	*E*A 2YIV *A*E*3	*D**4A*2-E 2Y)	E*****8H*0E900001
T+*A5*****	*****	*****	*****	*****	*****-#*0E900002
T+*B>*****	*****	E*C4-*D*2-/H2*BC	**  2**37*H *2*E	OH**< <2*+?/0<	C*****-R*0E900003
T+*:<:2G1-0-DC*(G	**GGD.XGF<? A*_G	BD*G**<BG*152*C1	2FC/**J0>*&04H*	(***A**<3***A***	P**D*LC00E900004
T*E<2*****	*****	*****	*****	*****	*****1T00E900005
E***E7*=-DC*PH\$	=*7H&F *** ***C*	**F2***ASC***R*A	SO***Q*****	*****12010630750	828753H20E900006

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```

0000 2 DECK 4
      3 SEQ 0
      4 UVWXYZ START 0
      5 TREP
      6 * SECTORS 23 & 24
      7 *****
      8 *
      9 *
     10 *
     11 *
     12 *
     13 *
     14 *
     15 *
     16 *
     17 *
     18 *
     19 *
     20 *
     21 *
     22 *
     23 *
     24 *
     25 *
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     57 *
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     59 *
     60 *
     61 *
     62 *
     63 *
     64 *
     65 *
     66 *
     67 *
     68 *
     69 *
  
```

PROG EA SAR DECODE AND SAR BIT FAILURE TEST

THIS PROGRAM TESTS FOR PROPER DECODING OF SAR BITS IN BSM'S ABOVE 16K, TESTS THE ABILITY TO ADDRESS EACH CORE LOCATION WITHIN A 16K BSM, AND CHECKS FOR STORAGE ALTERATIONS IN CORE DUE TO SAR BIT FAILURE.

THE TESTS WILL BE PERFORMED IN THE FOLLOWING MANNER:

- 1) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS SWITCH WILL BE TESTED, THE OTHER ADDRESS SWITCHES WILL NOT BE READ.
- 2) IF LESS THAN 16K OF CORE IS TO BE TESTED, THE SAR DECODE PORTION OF THE TEST IS SKIPPED; THE FIRST 16K ARE CHECKED OUT BY PREVIOUS PROGRAMS.
- 3) IF MORE THAN 16K OF CORE IS TO BE TESTED, EACH BSM WILL BE TESTED FOR SAR DECODE OF BITS 15-4, 3, AND 2. THE TESTING OF SAR DECODE OF BITS 3 AND 2 DEPENDS ON WHETHER THERE IS MORE THAN 4K (SAR BIT 3) OR MORE THAN 8K (SAR BIT 2) OF CORE IN THAT BSM.
- 4) SAR DECODE TEST ENDS WHEN ALL SELECTED BSM'S ARE TESTED.

NOTE: DUE TO THE NATURE OF SAR DECODE FAILURES, ERROR HALTS ON SAR DECODE ERRORS WILL BE IDENTIFIED BY Q REGISTER DISPLAY:

Q REG	SAR BIT	Q REG	SAR BIT
-F0-	15	-80-	8
-F2-	14	-70-	7
-D0-	13	-60-	6
-C0-	12	-50-	5
-B0-	11	-40-	4
-A0-	10	-30-	3
-90-	9	-20-	2
		-10-	1

- 5) THE AMOUNT OF CORE SPECIFIED ON THE LEFTMOST ADDRESS SWITCH IS FILLED WITH HEX -FF-
- 6) HIGHEST CORE LOCATION HAS HEX -00- ENTERED.
- 7) ALL OTHER CORE LOCATIONS ARE TESTED FOR ALTERED CONTENTS (DATA NOT HEX-FF-) USING XR1 AS POINTER.
- 8) DECREMENT POINTER
- 9) STEPS 6-8 PERFORMED FOR ALL CORE ABOVE HEX -200-
- 10) SAR BIT FAILURE TEST ENDS WHEN ALL SELECTED CORE TESTED.

NOTE: ERRORS WILL BE INDICATED BY A -EA- HALT.

TO DETERMINE THE FAILING BSM:

I-OP	I-Q	I-R	FAILING BSM
01E2	01E3	01E4	0 - 16K
01E9	01EA	01EB	16 - 32K
01F0	01F1	01F2	32 - 48K
01F7	01F8	01F9	48 - 64K

TO DETERMINE THE FAILING LOCATION:

- 1) PUSH 'STOP' BUTTON
- 2) XR2 CONTAINS THE ADDRESS INTO WHICH -00- WAS STORED

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99 *
00A7 100 USING RETRN1,1
00A7 101 USING RETRN1,2
102 RESTRT HPL X'3F',X'7C' PRE-EXECUTION HALT
103 RETRN1,XR2
104 MVC SAVXR2(,XR2),X000(14,XR2) .RESET COUNTERS
105 SNS DATASW(,XR2),X'00' .READ ADDRESS SWITCHES
106 MVI DATASW(,XR2),X'00' .MASK UNWANTED ADDRESS
107 MNN DATASW-1(,XR2),DATASW(,XR2) SWITCHES AND SET MAX CORE
108 MZZ CORSIZ-1(,XR2),DATASW-1(,XR2) .SET CORSIZE COUNT
109 MVC BRANCH+3(,XR2),AHALT4(2,XR2) .RESET BRANCH TO HALT 4
110 CLC CORSIZ(,XR2),X4000(2,XR2) .CHECK IF MORE THAN 16K SET
111 BL EXIT(,XR2) IF NOT,EXIT ADDRESSING TST
112 MVI COMPAR+1(,XR2),X'40' .RESET FOR SAR BIT 4 TEST
113 ALC SWITCH(,XR2),X4000(2,XR2) .SET UP FOR 16K
114 SLC DATASW(,XR2),X4000(2,XR2)
115 ALC BRANCH+3(,XR2),X0006(2,XR2) .SET BRANCH TO HALT 5
116 CLI CORSIZ-1(,XR2),X'80' .LESS THAN 32K?
117 JL BOMSET .IF YES, GO TO BOMSET
118 ALC SWITCH(,XR2),X4000(2,XR2) .SET UP FOR 16K
119 SLC DATASW(,XR2),X4000(2,XR2)
120
121 ALC BRANCH+3(,XR2),X0006(2,XR2) .SET BRANCH TO HALT 6
122 CLI CORSIZ-1(,XR2),X'CO' .LESS THAN 48K?
123 JL BOMSET .IF YES, GO TO BOMSET
124 ALC SWITCH(,XR2),X4000(2,XR2) .SET UP FOR 48K
125 SLC DATASW(,XR2),X4000(2,XR2)
126
127 ALC BRANCH+3(,XR2),X0006(2,XR2) .SET BRANCH TO HALT 7
128
129 BUMSET MVC CORFIL,X0000(2) .RESET CORE FILL COUNTER
130 RETRN2+1(,XR2),X'80' .RESET NO-OP
131 CLC DATASW(,XR2),X4000(2,XR2) .SET UP TO CHECK NEXT BSM,
132 JL KONT1 BYPASS IF BSM NOT FULL
133 MVI RETRN2+1(,XR2),X'97' .SET BRANCH TO ADDR. TEST
134 CORFIL-1(,XR2),X'3F' .SET TO TEST 4K IN ADDR TST
135 MVI COMPAR+1(,XR2),X'20' .SET TO CHECK SAR BITS 2&3
136 CLC SWITCH(,XR2),X0000(2,XR2) .BYPASS CHECKING SAR BIT
137 JE TST5 FAILURES IF IN 0-16K BSM
  
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OEAO CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0077	B5 01 84	138	KONT1	L SWITCH(,XR2),XR1
007A	4C 00 00 0094	139	LOAD	MVC O(1,XR1),TST1
007F	2E 02 007E 98	140		ALC LOAD+4,X10001(3,XR2)
0084	3D 46 007C	141		CLI LOAD+2,X'46'
0088	CO 01 007A	142		BNE LOAD
008C	2C 02 007E 38	143		MVC LOAD+4,ATST1(3,XR2)
0091	D0 87 00	144		B O(,XR1)
0094	F2 F0 F0	145		
0097	F2 F0 D0	146	TST1	JC X'F0',X'F0'
009A	F2 F0 F0	147		JC X'D0',X'F0'
009D	CO 87 00A7	148		B X'F0',X'F0'
00A1	40	149		RETRN1
00A2	0000	150	00A1	DC CL1
		151	00A3	DC AL2(O)
00A4	F0 80 F0	152		
00A7	BC 80 23	153	HSAR11	HPL X'F0',X'B0'
00AA	AC 01 88 91	154		
00AE	B6 01 88	155	RETRN1	MVI HSARER+1(,XR2),X'80'
00B1	F2 87 03	156		MVC PAD(,XR2),X0080(2,XR2)
		157		A PAD(,XR2),XR1
		158		J LD
00B4	F0 A0 F0	159		
00B7	B4 02 8C	160	HSAR10	HPL X'F0',X'A0'
00BA	B5 02 84	161		
00BD	7C 00 40	162	LD	ST SAVXR2(,XR2),XR2
00C0	BC FF 40	163		L SWTCH(,XR2),XR2
00C3	7D FF 40	164		MVI 64(,XR1),X'00'
00C6	F2 01 03	165		MVI 64(,XR2),X'FF'
00C9	F0 80 10	166		CLI 64(,XR1),X'FF'
00CC	35 02 0133	167	JNE	RESET
00D0	CO 87 00E0	168	HSARER	HPL X'10',X'80'
		169	RESET	L SAVXR2,XR2
		170		B COMPAR
00D4	F0 90 F0	171		
00D7	40	172	HSAR09	HPL X'F0',X'90'
00D8	01C8	173		
00DA	0000	174		DC CL1
00DC	0000	175	AHALT4	DC AL2(MALT4)
00DE	0094	176	BSMSW	DC XL2'0'
00E0	BD 40 23	177		DC XL2'0'
00E3	EO 81 50	178	ATST1	DC AL2(TST1)
		179	COMPAR	CLI HSARER+1(,XR2),X'40'
		180		BE RETRN2(,XR2)
00E6	EO 80 9F	181		
00E9	B6 01 88	182	TST3	BC TST5(,XR2),X'80'
00EC	AE 01 88 88	183		A PAD(,XR2),XR1
00F0	AF 00 23 24	184		ALC PAD(,XR2),PAD(2,XR2)
00F4	EO 87 10	185		SLC HSARER+1(1,XR2),HSARER+2(,XR2)
		186		B LD(,XR2)
00F7	EO 80 9F	187		
00FA	BD 10 7D	188	RETRN2	BC TST5(,XR2),X'80'
00FD	BC 0F 81	189	KONT2	CLI DATASW-1(,XR2),X'10'
0100		190		MVI CORFIL-1(,XR2),X'0F'
		191		ORG *
		192	TREP	
0100	EO 82 9F	193		BL TST5(,XR2)
0103	BC 87 51	194		MVI RETRN2+1(,XR2),X'87'
0106	BD 20 7D	195		CLI DATASW-1(,XR2),X'20'
0109	BC 1F 81	196		MVI CORFIL-1(,XR2),X'1F'
010C	BC 30 3A	197		MVI COMPAR+1(,XR2),X'30'
010F	EO 82 3F	198		BL TST3(,XR2)
0112	BD 30 7D	199		CLI DATASW-1(,XR2),X'30'
0115	BC 2F 81	200		MVI CORFIL-1(,XR2),X'2F'
0118	BC 20 3A	201		MVI COMPAR+1(,XR2),X'20'
011E	EO 82 3F	202		BL TST3(,XR2)
011E	BC 3F 81	203		MVI CORFIL-1(,XR2),X'3F'
0121	EO 87 9F	204		B TST3(,XR2)
		205		

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OEAO CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT
0124	0000	206		***** PROGRAM CONSTANTS AND EQUATES *****
0126	0000	207		DATASW DC XL2'0'
0127	0000	208		CORSIZ DC XL2'0'
0128	0000	209		CORFIL DC XL2'0'
012A	0000	210		SWTCH DC XL2'0'
012C	0000	211		SAVXR1 DC XL2'0'
012E	0000	212		PAD DC XL2'0'
0130	0000	213		X0000 DC XL2'0000'
0132	0000	214		SAVXR2 DC XL2'0'
0134	1000	215		X1000 DC XL2'1000'
0136	4000	216		X4000 DC XL2'4000'
0138	80	217		X0080 DC XL1'80'
0139	FFFF	218		NEGONE DC XL2'FFFF'
013B	0006	219		X0006 DC XL2'0006'
013D	010001	220		X10001 DC XL3'010001'
		221		
		222		X0200 EQU RESET+2
		223		NEG256 EQU NEGONE+1
		224		XR1 EQU 1
		225		XR2 EQU X'02'
		226		*****
		227		
		228		
0140	BC 87 40	229	EXIT	MVI TST3+1(,XR2),X'87'
0143	EO 87 53	230		B KONT2(,XR2)
		231		
0146	BC 80 40	232	TST5	MVI TST3+1(,XR2),X'80'
0149	AC 01 D2 82	233		MVC HITEST+3(,XR2),CORFIL(2,XR2)
014D	B5 01 84	234		L SWITCH(,XR2),XR1
0150	B6 01 82	235		A CORFIL(,XR2),XR1
0153	7C FF FF	236		MVI 255(,XR1),X'FF'
0156	5C FF FE FF	237	FILL	MVC 254(,XR1),255(256,XR1)
015A	B6 01 94	238		A NEG256(,XR2),XR1
015D	B4 01 86	239		ST SAVXR1(,XR2),XR1
0160	AD 01 86 27	240		CLC SAVXR1(,XR2),X0200(2,XR2)
0164	EO 84 AF	241		BH FILL(,XR2)
		242		
0167	AE 01 D2 84	243		ALC HITEST+3(,XR2),SWTCH(2,XR2)
016B	BC FF D2	244		MVI HITEST+3(,XR2),X'FF'
016E	AC 01 34 84	245		MVC BSMSW(,XR2),SWTCH(2,XR2)
0172	A7 01 34 93	246		ALC BSMSW(,XR2),NEGONE(2,XR2)
0176	3C 00 0000	247	HITEST	MVI *-*,X'00'
017A	B5 01 D2	248		L HITEST+3(,XR2),XR1
017D	B6 01 94	249		A NEG256(,XR2),XR1
0180	B4 02 8C	250	SETUP	ST SAVXR2(,XR2),XR2
0183	35 02 0179	251		L HITEST+3,XR2
0187	7D FF FF	252		CLI 255(,XR1),X'FF'
018A	CO 01 01C8	253	BRANCH	BNE HALT4
		254		
018E	35 02 0133	255		L SAVXR2,XR2
0192	B6 01 93	256		A NEGONE(,XR2),XR1
0195	B4 01 86	257		ST SAVXR1(,XR2),XR1
0198	AD 01 86 27	258		CLC SAVXR1(,XR2),X0200(2,XR2)
019C	F2 81 07	259		JE KONT3
		260		
019F	AD 01 86 84	261		CLC SAVXR1(,XR2),SWTCH(2,XR2)
01A3	EO 01 D9	262		BNE SETUP(,XR2)
		263		
01A6	AF 01 D2 8E	264	KONT3	SLC HITEST+3(,XR2),X1000(2,XR2)
01AA	AD 01 D2 34	265		CLC HITEST+3(,XR2),BSMSW(2,XR2)
01AE	EO 01 CF	266		BNE HITEST(,XR2)
		267		
01B1	AD 01 80 7E	268		CLC CORSIZ(,XR2),DATASW(2,XR2)
01B5	F2 81 29	269		JE LOADER
		270		
01B8	AF 01 E6 95	271		SLC BRANCH+3(,XR2),X0006(2,XR2)
01BC	AF 01 84 90	272		SLC SWITCH(,XR2),X4000(2,XR2)

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OEA0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12  
CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
X4000	A	002	0137	0217	0108 0112 0113 0118 0119 0124 0125 0131 0272 0273
TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY =					0

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OEA0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12  
OBJECT CARD LISTING

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THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
*GBK*GBD***PN*42	48200*EC*827804*	CPU*E*MEMORY*TES	TS*****MOD*12	84228422*****	*****OEA00000
T+-:2G0*0-H*Z:0	(THD0*G:a*G:Y*75	=D*A*-EOA9TR_*QB	&8HR?D*:-,FDURa	A-ZB>*;EN?QA*2YH	;-D*P&EOEA00091
T+-A5/IB?P:G,-G	HV\$7*-HBC*8A/IB	?P:G,-G*V&OA*KU	A<\$2*ME4A-ZC2-/B	a/5F2 BF2HCD_*QK	H2YD*8UOEAO0002
T+-B03#MA/DO***B	M.-H*-Z-*J-A20*D	*;SOB*G884H*2?C	0a?C&2?C00H*Z4*	** B02-2*H:0ASIF	6*Q*-BHOEA00003
T+-C,aY*CaRCo_*R	<_&HD-*A*? *~*~*	*a-DC2H*&(EHA<2B	G*+COU A**~*~*~*	**IK*EB ---NC--I=	6*Q*;*I&OEAO0004
TDOC*,-FHSR2*H2L	-/1C--I=*DG62C8D	*****	*****	*****	*****K9QOEAO0005
E	*****	*****	*****	*****12010630750	82875***OEA00006
T+-D:8HR-?H)J?KA	*?A=A?C*:8HH*?LA	*?B=A?B*:8HH*?C=	ABH**	*****A*E*B	**2*L/00EA00007
T+-E5*QA*F2/4C	-/5+a-DB%*}RB_&F	D_-FB- **P **=**Q	AV.&A/D4A/S--/R=	>*RD? *K,*D4/RB	A(I<4Y80EA00008
T+-FO ****.MA4,Q	AV.&BTCHB*PV**H*	**&GH(EHA<#QAU#&	A/D4A/S-2-&*_QE	D8*GR,OGKTD4A4TL	-*2*Q1Q0EA00009
T+-G,,&F*-?HARE2	A9Z0?QK&,-E=U<B	G*E-0-C*2/0*0-C*	2/0X0-C*2/0 0-C*	/0**<*QA*LGD*RI	30&H*ZQOEAO0010
TDOG*0*HA#<BG**<	A*-**&*FE*A*	*****	*****	*****	*****E-DOEA00011
E***E7*=-DC*PH\$	=*7M&F *** ***C	**F2***ASC***R*A	SO***Q*****	*****12010630750	82875*Q20EA00012

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OECO CPU AND MEMORY DIAGNOSTICS: PROGRAM EC MOD 12  
OBJECT CARD LISTING

OEE0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EE MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* CPU\* & MEMORY\*YES TS\*\*\*\*\*MOD\*12 84228422\*\*\*\*\*OEC00000  
T+\* :@G1Z<\*Q\*(KG \*\*\*C30\*\*11\*\*2<\*Q \* &11A<GB\*AXAO\*\* \*I\*\*ATTO\*\*082F-E DOH\*A8&C\*CM\*\*\*D \*\*\*D\*&Z&OEC00001  
TCOAH\*\*D\*\*\*AA\*\*\* A\*\*A D \*\*\*\*\* \*\*\*\*\* \*\*\*\*\* \*\*\*\*\*: #&OEC00002  
E\*\*\*E7\*=-DC\*PH\$ =\*7M&F|\*\*\*I\*\*\*C\* \*\*FZ\*\*\*ASC\*\*\*R A SO\*\*\*Q\*\*\*\*\*12010630750 82875\*Y8OEC00003

00C0

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3 DECK 4
4 SEQ 0
5 START 0
6 TREP
7 *****
8 SECTOR 26
9 *****
10 PROG EE HALF-SELECT CORE TEST - LOWER CORE
11 *****
12 THIS PROGRAM DETECTS THE DROPPING OR PICKING OF
13 AN ODD NUMBER OF BITS WITHIN A BYTE CAUSED BY
14 THAT BYTE BEING HALF-SELECTED 64 TIMES.
15 *****
16 THE TEST WILL BE PERFORMED IN THE FOLLOWING MANNER:
17 1) ALL CORE LOCATIONS ARE TESTED WITH FIRST THE
18 WORST CASE PATTERN IN CORE AND THEN WITH THE
19 COMPLEMENT WORST CASE PATTERN IN CORE
20 2) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST
21 ADDRESS SWITCH WILL BE TESTED.
22 3) SET UP CONSOLE ADDRESS SWITCHES PRIOR TO RESETTING
23 THE HALT.
24 4) FUNCTIONS OF THE CONSOLE ADDRESS SWITCHES (DATASH)
25 ARE:
26
27 (LEFTMOST) SWITCH 1 SWITCH 2 SWITCH 3+4
28
29 0 TESTS CORE TO 4K 0 PROGRAM EXECUTED 00 NORMAL POSITION,
30 1 TESTS CORE TO 8K ONCE ONLY WC PATERN FILL.
31 2 TESTS CORE TO 12K 1 BYPASS PROGRAM XY ANY OTHER ENTRY
32 3 TESTS CORE TO 16K 2 LOOP PROGRAM SETS -EP- HALT AND
33 4 TESTS CORE TO 20K 4 COMPLEMENT FILL ALLOWS CE TO SE-
34 5 TESTS CORE TO 24K PATTERN USED LECT FILL PATTERN
35 6 TESTS CORE TO 28K 6 LOOP & COMPLEMENT ON THESE TO SW.
36 7 TESTS CORE TO 32K 1 LOOP & COMPLEMENT A BYTE AT A TIME,
37 8 TESTS CORE TO 36K 2 LOOP & COMPLEMENT FOR A TOTAL OF 4
38 9 TESTS CORE TO 40K 4 LOOP & COMPLEMENT BYTES. 00 CAN BE
39 A TESTS CORE TO 44K USED AS A BYTE OF
40 B TESTS CORE TO 48K PATTERN AFTER -EP-
41 C TESTS CORE TO 52K HALT SET (SEE 5)
42 D TESTS CORE TO 56K
43 E TESTS CORE TO 60K
44 F TESTS CORE TO 64K
45
46 5) NOTE: TURNING ADDRESS SWITCHES 3+4 (RIGHTMOST) TO A
47 SETTING OTHER THAN 00 WILL SET AN -EP- (ENTER PATTERN)
48 HALT WHICH WILL ALLOW THE CE TO ENTER HIS OWN 'WORST
49 CASE' PATTERN. THE PATTERN IS ENTERED A BYTE AT A TIME
50 ON SWITCHES 3+4. THE INITIAL SETTING OF SWITCHES TO A
51 SETTING OTHER THAN 00 SELECTS THIS OPTION. THE INITIAL
52 SWITCH SETTING IS NOT THE FIRST BYTE OF PATTERN. AFTER
53 THE -EP- HALT, THE SWITCHES CAN BE SET TO ANY DESIRED
54 COMBINATION, EVEN TO 00. THE BYTE OF PATTERN THAT IS
55 ENTERED IS THE SETTING ON SWITCHES 3+4 WHEN THE HALT
56 IS RESET. THE -EP- HALT IS DISPLAYED FOUR TIMES, THUS
57 ALLOWING THE CE TO CHOCSE THE FILL PATTERN.
58
59 THE HALF-SELECT ERROR WILL BE INDICATED BY
60 1) PROCESSOR CHECK &
61 2) '6' REG PARITY CHECK
62 & SAR WILL CONTAIN THE FAILING LOCATION.
63
64 THE PROGRAM WILL RUN FOR 40 SECONDS ON A 64K
65 MEMORY & PROPORTIONATELY LESS TIME ON SMALLER
66 MEMORIES.
67
68 *****
69 *****

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OEE CPU AND MEMORY DIAGNOSTICS: PROGRAM EE MOD 12

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
		0000	71	USING START,1	
		0000	72	USING START,2	
0000	3C 87 0013	73	START MVI IPLFLG+1,X'87'	.ENABLE OPTIONS	
0004	F0 7C 7C	74		PRE-EXECUTION HALT	
0007	C2 01 0000	75	BEGIN HPL X'7C',X'7C'		
0008	C2 02 0000	76	INIT LA 0,X'01'	.RESET XR1	
		77	LA 0,X'02'	& XR2	
000F	80 00 D4	78		.READ THE ADDRESS SWITCHES	
0012	F2 80 07	79	SNS DATASW(,XR2),X'00'		
0015	8C 00 D4	80		.MASK ALL OPTIONS IF SYSTEM RESET WAS PERFORMED.	
0018	A8 03 D3 D4	81	IPLFLG JC KONT6,X'80'		
		82	MVI DATASW(,XR2),X'00'		
		83	MNN DATASW-1(,XR2),DATASW(,XR2)		
001C	B8 01 D3	84			
001F	F2 10 A9	85	KONT6 TBN DATASW-1(,XR2),X'01'	.GO TO LOADER ROUTINE IF 'BYPASS' SWITCH IS ON.	
		86	JT LOADER		
0022	A8 00 72 D3	87			
0026	A8 00 C0 D3	88	MZZ DUN1+1(,XR2),DATASW-1(,XR2)	.PUT CORE SIZE IN FILL & HALF-SELECT ROUTINE.	
		89	MZZ DUN2+1(,XR2),DATASW-1(,XR2)		
002A	B9 FF D4	90			
002D	F2 10 14	91	TBF DATASW(,XR2),X'FF'	GO TO KONT2 IF CE DOESN'T WANT TO ENTER HIS OWN PATTERN.	
		92	JT KONT2		
0030	F0 7C 3E	93			
0033	70 00 FD	94	EPHALT HPL X'3E',X'7C'	. 'EP' HALT. (ONE OF FOUR) THE CE SELECTS ONE BYTE OF PATTERN AT A TIME. WHEN 'EP' HALT RESET, A BYTE WILL BE ENTERED FROM SWS 3 & 4.	
0036	5C 00 FC FD	95	SNS WCPTRN-2(,XR1),X'00'		
003A	D2 01 01	96	MVC WCPTRN-3(,XR1),WCPTRN-2(,XR1)		
003D	6D 09 14 18	97	LA 1(,XR1),XR1		
0041	E0 01 30	98	CLC 20(10,XR1),24(,XR2)		
		99	BNE EPHALT(,XR2)		
0044	C2 01 01FC	100			
0048	4C 03 07 00FF	101	KONT2 LA 508,XR1	.PUT WORST CASE PATTERN IN LOC5 512, 513, 514 & 515.	
		102	MVC 7(4,XR1),255		
004D	B8 04 D3	103			
0050	F2 90 08	104	TBN DATASW-1(,XR2),X'04'	.GO TO FILL ROUTINE IF 'USE COMP PATTERN' SWITCH OFF.	
		105	JF FILL		
0053	6C 03 07 DB	106			
0057	5F 03 07 03	107	KONT3 MVC 7(4,XR1),XFFFF(,XR2)	.PUT COMPLEMENT PATTERN IN WHERE WORST CASE WAS	
		108	SLC 7(4,XR1),3(,XR1)		
0058	D2 01 04	109			
005E	5C 03 07 03	110	FILL LA 4(,XR1),XR1	.FILL CORE WITH THE PATTERN IN LOCATIONS 512, 513, 514 & 515 4 BYTES PER PASS UNTIL A 4K BOUNDARY IS ENCOUNTERED.	
0062	84 01 D6	111	MVC 7(4,XR1),3(,XR1)		
0065	88 F8 D6	112	ST PAD(,XR2),XR1		
0068	88 0F D5	113	TBN PAD(,XR2),X'F8'		
006B	E0 90 58	114	TBN PAD-1(,XR2),X'0F'		
		115	BF FILL(,XR2)		
006E	D2 01 04	116			
0071	88 0F D5	117	LA 4(,XR1),XR1	.GO TO KONT3 TO COMPLEMENT PATTERN & FILL 4K MORE UNTIL ALL CORE FILLED.	
0074	E0 90 53	118	TBN PAD-1(,XR2),X'0F'		
		119	BF KONT3(,XR2)		
0077	C2 01 01FE	120			
0078	8C 00 DC	121	LA 510,XR1	.SETUP FOR HALF-SELECT TEST	
007E	D2 01 02	122	MVI COUNT2(,XR2),X'00'		
0081	9C 01 DE 01	123	LA 2(,XR1),XR1		
0085	7C FF 00	124	KONT9 LA SAVE1(2,XR2),1(,XR1)	.SAVE TWO TEST BYTES, THEN COMPLEMENT THE BYTE XR1 POINTS TO.	
0088	6F 00 00 DD	125	MVC 0(,XR1),X'FF'		
		126	MVI 0(1,XR1),SAVE0(,XR2)		
		127	SLC 0(1,XR1),SAVE0(,XR2)		
008C	5C 00 01 01	128			
0090	AE 00 DC D7	129	BEAT2 MVC 1(1,XR1),1(,XR1)	.SELECT (BEAT) THE HIGHER BYTE 32 TIMES.	
0094	E0 20 8C	130	ALC COUNT2(1,XR2),X10(,XR2)		
		131	BNOL BEAT2(,XR2)		
0097	5C 00 00 00	132			
		133	CHK2 MVC 0(1,XR1),0(,XR1)	.RE-SELECT THE LOWER BYTE	
009B	6C 00 00 DD	134			
009F	7C FF 01	135	MVC 0(1,XR1),SAVE0(,XR2)	.RESTORE THE LOWER BYTE, THEN COMPLEMENT THE HIGHER BYTE.	
00A2	6C 00 01 DE	136	MVI 1(,XR1),X'FF'		
		137	MVC 1(1,XR1),SAVE1(,XR2)		
		138			

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	
00A6	5C 00 00 00	139	BEAT1 MVC 0(1,XR1),0(,XR1)	.SELECT (BEAT) THE LOWER BYTE 22 TIMES.	
00AA	AE 00 DC D7	140	ALC COUNT2(1,XR2),X10(,XR2)		
00AE	E0 20 A6	141	BNOL BEAT1(,XR2)		
00B1	5C 00 01 01	142			
		143	CHK1 MVC 1(1,XR1),1(,XR1)	.RE-SELECT THE HIGHER BYTE	
00B5	6C 00 01 DE	144			
00B9	84 01 D6	145	MVC 1(1,XR1),SAVE1(,XR2)	.RESTORE THE HIGHER BYTE, THEN GO TO KONT9 TO TEST TWO MORE BYTES UNTIL ALL CORE HAS BEEN TESTED.	
00BC	88 FE D6	146	ST PAD(,XR2),XR1		
00BF	88 0F D5	147	TBN PAD(,XR2),X'FE'		
00C2	E0 90 7E	148	TBN PAD-1(,XR2),X'0F'		
		149	BF KONT9(,XR2)		
00C5	88 02 D3	150			
00C8	E0 10 44	151	TBN DATASW-1(,XR2),X'02'	.GO TO KONT2 TO DO TEST AGAIN IF 'LOOP' SWITCH ON	
		152	BT KONT2(,XR2)		
00CB	3C 18 016A	153			
00CF	CO 87 0169	154	LOADER MVI BOOT+1,X'18'	GO LOAD NEXT TEST	
		155	B BOOT		
		156			
		157	***** CONSTANTS *****		
00D3	0000	00D4	158	DATASW DC XL2'0000'	
00D5	0000	00D6	159	PAD DC XL2'0000'	
00D7	10	00D7	160	X10 DC XL1'10'	
00D8	FFFFFFFF	00D8	161	XFFFF DC XL4'FFFFFFFF'	
00DC	00	00DC	162	COUNT2 DC XL1'00'	
00DD	00	00DD	163	SAVE0 DC XL1'00'	
00DE	00	00DE	164	SAVE1 DC XL1'00'	
00DF	0000	00E0	165	X0000 DC XL2'00'	EXTRA SPACE
00E1	0000000000000000	00FB	166		
00E9	0000000000000000		167		
00F1	0000000000000000		168		
00F9	000000		169	***** EQUATES *****	
		0001	170	XR1 EQU 1	
		0002	171	XR2 EQU 2	
		0169	172	BOOT EQU X'169'	
00FC	FFFF0000	00FF	173	WCPTRN DC XL4'FFFF0000'	
		FFFF	174		
			175	END	
			176		

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BEAT1	A	004	00A6	0139	0141
BEAT2	A	004	008C	0129	0131
BEGIN	A	003	0004	0075	
BOOT	C	001	0169	0172	0154* 0155
CHK1	A	004	0081	0143	
CHK2	A	004	0097	0133	
COUNT2	A	001	00DC	0163	0123* 0130* 0140*
DATASH	A	002	00D4	0159	0080* 0083* 0084* 0084* 0086 0089 0090 0092 0105 0151
DUN1	A	003	0071	0119	0089*
DUN2	A	003	008F	0148	0090*
EPHALT	A	003	0030	0095	0100
FILL	A	003	0058	0111	0106 0116
INIT	A	004	0007	0077	
IPLFLG	A	003	0012	0082	0073*
KONT2	A	004	0044	0102	0093 0152
KONT3	A	004	0053	0108	0120
KONT6	A	003	001C	0086	0082
KONT9	A	003	007E	0124	0149
LOADER	A	004	00C8	0154	0087
PAD	A	002	00D6	0160	0113* 0114 0115 0119 0146* 0147 0148
SAVE0	A	001	00DD	0164	0127 0135
SAVE1	A	001	00DE	0165	0125* 0137 0145
START	A	004	0000	0073	0071 0072
UVWXYZ	A	001	0000	0004	
WCPTRN	A	004	00FF	0174	0096* 0097 0097*
XFFFF	A	004	00DB	0162	0108
XR1	C	001	0001	0170	0096 0097 0097 0098 0098* 0099 0102* 0103 0108 0109 0109 0111
					0111* 0112 0112 0113 0118 0118* 0122* 0124 0124* 0125 0126 0127
					0129 0129 0133 0133 0135 0136 0137 0139 0139 0143 0143 0145
					0146
XR2	C	001	0002	0171	0080 0083 0084 0084 0086 0089 0089 0090 0090 0092 0099 0100
					0105 0108 0113 0114 0115 0116 0119 0120 0123 0125 0127 0130
					0130 0131 0135 0137 0140 0140 0141 0145 0146 0147 0148 0149
					0151 0152
X0000	A	002	00E0	0166	
X10	A	001	00D7	0161	0130 0140

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OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
*GBK*GBD***PN*42	48200*EC*827804*	CPU* & *MEMORY*TES	TS*****MOD*12	84228422*****	*****OEE00000
T+ : H*D*AA~KH	A*CB~**%CM2Y	G?CKD L5.-A4*H	ED~*_*+Y<CL>~*	Ma/M2GO=*C*P*C	a*IH*:Y4OEE00001
T+-A5*EE_BJ&Q8*D	00-DA*DOCAOC* >L	L2Z*H\$<G652CA0	K*EJ*0*C_*GO>IT	O>*N8IAS4-DD>*N	N8I**ER<OEE00002
T+-BOM2HA~:2(3	K*EH* )8A~ 2\$0*	*7NO**EF>(3P88B	<P****FO** (52*0E	%*G:P****R8*7(	-HRQ*39M0EE00003
T+-C,P**A*00**):	4*)EB*_EB*P-UG:	8*_I-DD&2FOEDOH*	AE&*****E*****0*	*****	*****P&M0EE00004
TDOC*****	***** **	*****	*****	*****	*****E&-OEE00005
E****E7*=-DC*PHS	=*7M&F *** ***C*	**F%***ASC***R*A	SO***Q*****	*****12010630750	828752H30EE00006

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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0000

```

2 DECK 4
3 SEQ 0
4 UVMXYZ START 0
5 TREP
6 *
7 ***** SECTOR 27 *****
8 *
9 * PROG EF RIPPLE BITS ON AND OFF TEST - LOWER CORE *
10 *
11 * THIS PROGRAM CHECKS THE ABILITY TO READ AND WRITE UNDER WORST *
12 * CASE CONDITIONS. *
13 *
14 * THE TEST WILL BE PERFORMED IN THE FOLLOWING MANNER: *
15 * 1) THE CORE IS FILLED WITH THE WORST CASE PATTERN, FFFF0000 *
16 * 2) THE PATTERN IS VERIFIED (READ) AT EACH CORE LOCATION *
17 * 3) A NUMBER IS RIPPLED THROUGH CORE *
18 * 4) THE NUMBER IS VERIFIED (READ) AT EACH CORE LOCATION *
19 * 5) STEPS 1-4 ARE REPEATED FOR ALL HEX NUMBERS 00-FF *
20 * 6) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS *
21 * SWITCH WILL BE TESTED. *
22 * 7) SET UP CONSOLE ADDRESS SWITCHES PRIOR TO RESETTING *
23 * THE HALT. *
24 * 8) FUNCTIONS OF THE CONSOLE ADDRESS SWITCHES (DATASW) ARE: *
25 *
26 * (LEFTMOST) SWITCH 1 SWITCH 2 SWITCH 3+4
27 *
28 * 0 TESTS CORE TO 4K 0 PROGRAM EXECUTED 00 NORMAL POSITION,
29 * 1 TESTS CORE TO 8K ONCE ONLY WC PATTERN FILL.
30 * 2 TESTS CORE TO 12K 1 BYPASS PROGRAM XY ANY OTHER ENTRY
31 * 3 TESTS CORE TO 16K 2 LOOP PROGRAM SETS -EP- HALT AND
32 * 4 TESTS CORE TO 20K 4 COMPLEMENT FILL ALLOWS CE TO SE-
33 * 5 TESTS CORE TO 24K PATTERN USED LECT FILL PATTERN
34 * 6 TESTS CORE TO 28K 6 LOOP & COMPLEMENT ON THESE TO SW.
35 * 7 TESTS CORE TO 32K FILL PATTERN USED A BYTE AT A TIME,
36 * 8 TESTS CORE TO 36K FOR A TOTAL OF 4
37 * 9 TESTS CORE TO 40K BYTES. 00 CAN BE
38 * A TESTS CORE TO 44K USED AS A BYTE OF
39 * B TESTS CORE TO 48K PATTERN AFTER -EP-
40 * C TESTS CORE TO 52K HALT SET (SEE 9)
41 * D TESTS CORE TO 56K
42 * E TESTS CORE TO 60K
43 * F TESTS CORE TO 64K
44 *
45 *
46 * 9) NOTE: TURNING ADDRESS SWITCHES 3+4 (RIGHTMOST) TO A
47 * SETTING OTHER THAN 00 WILL SET AN -EP- (ENTER PATTERN)
48 * HALT WHICH WILL ALLOW THE CE TO ENTER HIS OWN 'WORST
49 * CASE' PATTERN. THE PATTERN IS ENTERED A BYTE AT A TIME
50 * ON SWITCHES 3+4. THE INITIAL SETTING OF SWITCHES TO A
51 * SETTING OTHER THAN 00 SELECTS THIS OPTION. THE INITIAL
52 * SWITCH SETTING IS NOT THE FIRST BYTE OF PATTERN. AFTER
53 * THE -EP- HALT, THE SWITCHES CAN BE SET TO ANY DESIRED
54 * COMBINATION, EVEN TO 00. THE BYTE OF PATTERN THAT IS
55 * ENTERED IS THE SETTING ON SWITCHES 3+4 WHEN THE HALT
56 * IS RESET. THE -EP- HALT IS DISPLAYED FOUR TIMES, THUS
57 *
58 * MEMORY FAILURES WILL BE INDICATED BY:
59 * 1) PROCESSOR CHECK
60 * 2) 'B' REGISTER PARITY CHECK
61 *
62 * ALLOWING THE CE TO CHOOSE THE FILL PATTERN.
63 * THE SAR WILL CONTAIN THE FAILING LOCATION
64 *
65 * THE PROGRAM WILL RUN FOR 43 SECONDS PER 8K OF CORE
66 *
67 *
68 *****

```

```

0000 3C 87 0013 70 USING START,1
0004 F0 7C 3C 71 USING START,2
0007 C2 01 0000 72 START MVI IPLFLG+1,X'87'
000B C2 02 0000 73 BEGIN HPL X'3C',X'7C'
000F B0 00 88 74 LA 0,X'01'
0012 F2 80 07 75 LA 0,X'02'
0015 BC 00 88 76 DATASW(,XR2),X'00'
0018 A8 03 87 B8 77 IPLFLG JC KONT6,X'80'
001C B8 01 87 78 MVI DATASW(,XR2),X'00'
001F F2 10 8D 79 MNN DATASW-1(,XR2),DATASW(,XR2)
0022 BC FF 89 80 KONT6 TBN DATASW-1(,XR2),X'01'
0025 A8 00 89 B7 81 JT LOADER
0029 B9 FF 88 82
002C F2 10 14 83 MVI CORISZ-1(,XR2),X'FF'
002F F0 7C 3E 84 CORISZ-1(,XR2),DATASW-1(,X:2)
0032 70 00 C5 85 TBF DATASW(,XR2),X'FF'
0035 5C 00 C4 C5 86 JT KONT2
0039 D2 01 01 87 EPHALT HPL X'3E',X'7C'
003C 6D 09 C5 C9 88 SNS WCPTRN-2(,XR1),X'00'
0040 E0 01 2F 89 MVC WCPTRN-3(,XR1),WCPTRN-2(1,XR1)
0043 B8 04 87 90 LA 1(,XR1),XR1
0046 AC 03 8E CC 91 CLC WCPTRN-2(10,XR1),WCPTRN+2(,XR2)
004A F2 90 08 92 BNE EPHALT(,XR2)
004D AF 03 8E C7 93 TBN DATASW-1(,XR2),X'04'
0051 AC 03 C7 BE 94 MVC PATERN(,XR2),CHNGR(4,XR2)
0055 AC 03 D5 D6 95 KONT2 JF KONT5
0059 C2 01 0200 96 KONT5 MVC KONT5
005D A8 00 D1 B9 97 KONT3 LA 512,XR1
0061 AC 01 D0 DC 98 MZZ COUNT2(,XR2),CORISZ-1(,XR2)
0065 B8 11 DD 99 MVC COUNT1(,XR2),X1040(2,XR2)
0068 F2 90 2D 100 TBN RFLAG(,XR2),X'11'
006B BC 00 DD 101 JF KONT8
006E 6C 03 D5 102 MVI RFLAG(,XR2),X'00'
0072 5C 03 07 D3 103 MVC 3(,XR1),RIPPAT(4,XR2)
0075 B6 01 CE 104 FILMOR A 7(,XR1),3(4,XR1)
0079 AE 01 CE C3 105 A FOUR(,XR2),XR1
007D E0 01 72 106 ALC COUNT1(,XR2),X0040(2,XR2)
0080 AF 00 D1 C0 107 BNE FILL(,XR2)
0084 E0 82 59 108 SLC COUNT2(,XR2),X10(1,XR2)
0087 B9 11 DD 109 BL KONT3(,XR2)
008A E0 10 72 110 TBF RFLAG(,XR2),X'11'
008D 6C 03 07 CC 111 BT FILL(,XR2)
0091 5F 03 07 D3 112 MVC 7(,XR1),CHNGR(4,XR2)
0095 E0 87 76 113 SLC 7(,XR1),3(4,XR1)
0098 BC 11 DD 114 KONT8 MVI FILMOR(,XR2)
009B 6C 03 03 C7 115 MVC RFLAG(,XR2),X'11'
009F B8 FF D5 DA 116 MVI 3(,XR1),WCPTRN(4,XR2)
00A2 AE 03 D5 DA 117 TBN RIPPAT(,XR2),X'FF'
00A6 E0 90 72 118 ALC RIPPAT(,XR2),RCOUNT(4,XR2)
00A9 B8 02 87 119 BF FILL(,XR2)
00AC E0 10 55 120 TBN DATASW-1(,XR2),X'02'
00AF 3C 1C 016A 121 BT KONT5(,XR2)
00B3 C0 87 0169 122 MVI BOOT+1,X'1C'
0169 137 BOOT EQU BOOT
X'169'

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
0001 138 XR1 EQU X'01'
139
140 ***** DATA DEFINITIONS
141
00B7 1000             00B8 142 DATASW DC XL2'1000'
00B9 0000             00B9 143 XR2 EQU X'02'
00BE 00000000         00BA 145 CORsiz DC XL2'0'
00BF 00               00BE 146 PATERN DC XL4'0'
00C0 10               00BF 147          DC XL1'0'
00C1 0000             00C0 148 X10 DC XL1'10'
00C3 40               00C2 149 X0000 DC XL2'0'
00C4 FFFF0000         00C3 150 X0040 DC XL1'40'
00C8 00               00C7 151 WCPTRN DC XL4'FFFF0000'
00C9 FFFFFFFF         00C8 152          DC XL1'0'
00CD 0004             00C9 153 CHNGER DC XL4'FFFFFFF'
00CF 0000             00CE 154 FOUR DC XL2'0004'
00D1 00               00D0 155 COUNT1 DC XL2'0'
00D2 00000000         00D1 156 COUNT2 DC XL1'0'
00D6 00               00D5 157 RIPPAT DC XL4'0'
00D7 01010101         00D6 158          DC XL1'0'
00DB 2040             00DA 159 RCOUNT DC XL4'01010101'
00DD 00               00DC 160 X1040 DC XL2'2040'
00DE 0000000000000000 00DD 161 RFLAG DC XL1'0'
00E6 0000000000000000 00FF 162 ***** DO NOT ALTER THE ORDER OF ABOVE DATA DEFINITIONS
00EE 0000000000000000 00FF 163 EXTRA DC XL34'0'
00F6 0000000000000000 163
00FE 0000             163
                      FFFF 164          END
    
```

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SYMBOL T LEN VALUE DEFN REFERENCES
BEGIN A 003 0004 0073
BOOT C 001 0169 0137 0134* 0135
CHNGER A 004 00C2 0153 0096 0121
CORsiz A 002 008A 0145 0083* 0084* 0103
COUNT1 A 002 00D0 0156 0104* 0112*
COUNT2 A 001 00D1 0156 0103* 0115*
DATASW A 002 0088 0143 0076* 0078* 0079 0079* 0080 0084 0085 0095 0131
EPHALT A 003 002F 0088 0093
EXTRA A 034 00FF 0163
FILL A 004 0072 0110 0113 0119 0129
FILMOR A 003 0076 0111 0123
FOUR A 002 00CE 0154 0111
IPLFLG A 003 0012 0077 0072*
KONT2 A 003 0043 0095 0086
KONT3 A 004 0059 0102 0116
KONT5 A 004 0055 0101 0097 0132
KONT6 A 003 001C 0080 0077
KONT8 A 003 0098 0125 0106
LOADER A 004 00AF 0134 0081
PATERN A 004 00BE 0146 0096* 0099* 0100
RCOUNT A 004 00DA 0159 0128
RFLAG A 001 00DD 0161 0105 0108* 0118 0125*
RIPPAT A 004 00D5 0157 0101 0101* 0109 0127 0128*
START A 004 0000 0072 0070 0071
JVWXYZ A 001 0000 0004
WCPTRN A 004 00C7 0151 0089* 0090 0090* 0092 0092 0099 0100* 0126
XR1 C 001 0001 0138 0089 0090 0090 0091 0091* 0092 0102* 0109 0110 0110 0111* 0121
XR2 C 001 0002 0144 0122 0122 0126 0076 0076 0079 0079 0080 0083 0084 0084 0085 0092 0093 0095
0105 0108 0109 0111 0112 0112 0113 0115 0115 0116 0118 0119
0121 0123 0125 0126 0127 0128 0128 0129 0131 0132
X0000 A 002 00C2 0149
X0040 A 001 00C3 0150 0112
X10 A 001 00C0 0148 0115
X1040 A 002 00DC 0160 0104
    
```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0000	3C 87 0013	0000	70	USING	START,1
0004	F0 3C 6F	0000	71	USING	START,2
0007	C2 01 0000		72	START	MVI IPLFLG+1,X'87'
000B	C2 02 0000		73	BEGIN	HPL X'6F',X'3C'
0012	F0 00 D5		74	LA	0,X'01'
0015	B2 00 D5		75	LA	0,X'02'
0018	A8 03 D4 D5		76	SNS	DATASW(XR2),X'00'
001C	B8 01 D4		77	IPLFLG	JC KONT6,X'80'
001F	F2 10 A6		78	MVI	DATASW(XR2),X'00'
0022	BC FE D6		79	MNN	DATASW-1(XR2),DATASW(XR2)
0025	A8 00 D6 D4		80	KONT6	TBN DATASW-1(XR2),X'01'
0029	B9 FF D5		81	JT	LOADER
002C	F2 10 14		82		
002F	F0 7C 3E		83	MVI	CORSIZ-1(XR2),X'FE'
0032	70 00 E2		84	MZZ	CORSIZ-1(XR2),DATASW-1(XR2)
0035	5C 00 E1 E2		85	TBF	DATASW(XR2),X'FF'
0039	D2 01 01		86	JT	KONT2
003C	6D 09 E2 E6		87	EPHALT	HPL X'3E',X'7C'
0040	E0 01 2F		88	SNS	WCPTRN-2(XR1),X'00'
0043	B8 04 D4		89	MVC	WCPTRN-3(XR1),WCPTRN-2(XR1)
0046	AC 03 D8 E9		90	LA	1(XR1),XR1
004A	F2 90 08		91	CLC	WCPTRN-2(XR1),WCPTRN-2(XR2)
004D	AF 03 D8 E4		92	BNE	EPHALT(XR2)
0051	AC 03 E4 D8		93	KONT2	TBN DATASW-1(XR2),X'04'
0055	B5 01 F6		94	MVC	PATERN(XR2),CHNGER(4,XR2)
0058	A8 00 EE D6		95	JF	KONT3
005C	AC 01 ED F0		96	SLC	PATERN(XR2),WCPTRN(4,XR2)
0060	6C 03 03 E4		97	MVC	WCPTRN(4,XR2),PATERN(XR2)
0064	5C 03 07 03		98	L	X0100(XR2),XR1
0068	B6 01 EB E0		99	MZZ	COUNT2(XR2),CORSIZ-1(XR2)
006B	AE 01 ED E0		100	MVC	COUNT1(XR2),X1040(2,XR2)
006F	E0 01 64		101	MVC	3(XR1),WCPTRN(4,XR2)
0072	AF 00 EE DD		102	FILL	7(XR1),3(4,XR1)
0076	EO 82 84		103	FILMOR	FOUR(XR2),XR1
0079	6C 03 07 E9		104	ALC	COUNT1(XR2),X0040(2,XR2)
007D	5F 03 07 03		105	BNE	FILL(XR2)
0081	EO 87 68		106	SLC	COUNT2(XR2),X10(1,XR2)
0084	AC 01 ED D7		107	BL	KONT1(XR2)
0088	B5 01 F6		108	MVC	7(XR1),CHNGER(4,XR2)
008B	5C 00 00 00		109	SLC	7(XR1),3(4,XR1)
008F	B6 01 F3		110	B	FILMOR(XR2)
0092	AF 01 ED F3		111	KONT1	COUNT1(XR2),CORSIZ(2,XR2)
0096	EO 01 88		112	L	X0100(XR2),XR1
0099	AC 01 ED D7		113	MVC	0(1,XR1),0(XR1)
009D	B5 01 F6		114	SELECT	MVC ONE(XR2),XR1
00A3	BC FF AB		115	A	COUNT1(2,XR2),ONE(XR2)
00A6	9F 00 AB 00		116	SLC	COUNT1(2,XR2)
00AA	7C 00 00 00		117	BNE	SELECT(XR2)
00AD	5C 00 00 00		118	MVC	COUNT1(XR2),CORSIZ(2,XR2)
00B1	AE 00 EE F1		119	L	X0100(XR2),XR1
00B5	EO 01 A3		120	MVI	COUNT2(XR2),X'00'
00B8	B6 01 F3		121	MVI	CHNGR+1(XR2),X'FF'
00BB	AF 01 ED F3		122	SLC	CHNGR+1(XR2),0(XR1)
00BF	EO 01 A3		123	MVI	0(XR1),X'
			124	MVC	0(1,XR1),0(XR1)
			125	ALC	COUNT2(1,XR2),X80(XR2)
			126	BNE	KONT9(XR2)
			127	A	ONE(XR2),XR1
			128	SLC	COUNT1(XR2),ONE(2,XR2)
			129	BNE	KONT9(XR2)
			130		
			131		
			132		
			133		
			134		
			135		
			136		
			137		

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
00C2	B8 02 D4		138	TBN	DATASW-1(XR2),X'02'
00C5	EO 10 55		139	BT	KONT3(XR2)
00C8	3C 00 016E		140		
00CC	3C 1D 016A		141	LOADER	MVI BOOT+5,X'00'
00D0	C0 87 0169		142	MVI	BOOT+1,X'1D'
			143	B	BOOT
			144		
		0169	145	BOOT	EQU X'169'
			146		
			147		***** DATA DEFINITIONS
			148		
00D4	1000		149	DATASW	DC XL2'1000'
00D6	0000		150	XR2	EQU X'02'
00D8	00000000		151	CORSIZ	DC XL2'0'
00DC	00		152	PATERN	DC XL4'0'
00DD	10		153	DC	XL1'0'
00DE	0000		154	X10	DC XL1'10'
00E0	40		155	X0000	DC XL2'0'
00E1	FFFFFF0000		156	X0040	DC XL1'40'
00E5	00		157	WCPTRN	DC XL4'FFFFFF0000'
00E6	FFFFFFF		158	DC	XL1'0'
00EA	0004		159	CHNGER	DC XL4'FFFFFFF'
00EC	0000		160	FOUR	DC XL2'0004'
00EE	00		161	COUNT1	DC XL2'0'
00EF	2040		162	COUNT2	DC XL1'0'
00F1	80		163	X1040	DC XL2'2040'
00F2	0001		164	X80	DC XL1'80'
00F4	00		165	ONE	DC XL2'0001'
00F5	020J		166	DC	XL1'0'
00F7	0000000000000000		167	X0100	DC XL2'0200'
00FF	00		168	*****	DO NOT ALTER THE ORDER OF ABOVE DATA DEFINITIONS
		00FF	169	EXTRA	DC XL9'0'
			170	XR1	EQU X'01'
			171	END	

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BEGIN	A	003	0004	0073	
BOOT	C	001	0169	0145	0141* 0142* 0143
CHNGER	A	004	00E9	0159	0096 0113
CHNGR	A	003	00AA	0129	0127* 0128*
CORSIZ	A	002	00D7	0151	0083* 0084* 0102 0117 0124
COUNT1	A	002	00ED	0161	0103* 0107* 0117* 0121* 0124* 0135*
COUNT2	A	001	00EE	0162	0102* 0110* 0126* 0131*
DATASH	A	002	00D5	0149	0076* 0078* 0079 0079* 0080 0084 0085 0095 0138
EPHALT	A	003	002F	0088	0093
EXTRA	A	009	00FF	0169	
FILL	A	004	0064	0105	0108
FILMOR	A	003	0068	0106	0115
FOUR	A	002	00EB	0160	0106
IPLFLG	A	003	0012	0077	0072*
KONT1	A	004	0084	0117	0111
KONT2	A	003	0043	0095	0086
KONT3	A	003	0055	0101	0097 0139
KONT6	A	003	001C	0080	0077
KONT9	A	003	00A3	0127	0132 0136
LOADER	A	004	00C8	0141	0081
ONE	A	002	00F3	0165	0120 0121 0134 0135
PATTERN	A	004	00D8	0152	0096* 0099* 0100
SELECT	A	004	008B	0119	0122
START	A	004	0000	0072	0070 0071
UVWXYZ	A	001	0000	0004	
WCPTRN	A	004	00E4	0157	0089* 0090 0090* 0092 0092 0099 0100* 0104
XR1	C	001	0001	0170	0089 0090 0090 0091 0091* 0092 0101* 0104 0105 0105 0106* 0113
					0114 0114 0118* 0119 0119 0120* 0125* 0128 0129 0130 0130 0134*
					0076 0078 0079 0079 0080 0083 0084 0084 0085 0092 0093 0095
					0096 0096 0099 0099 0100 0100 0101 0102 0102 0103 0103 0104
					0106 0107 0107 0108 0110 0110 0111 0113 0115 0117 0117 0118
					0120 0121 0121 0122 0124 0124 0125 0126 0127 0128 0131 0131
					0132 0134 0135 0135 0136 0138 0139
XR2	C	001	0002	0150	
X0000	A	002	00DF	0155	
X0040	A	001	00E0	0156	0107
X0100	A	002	00F6	0167	0101 0118 0125
X10	A	001	00D0	0154	0110
X1040	A	002	00F0	0163	0103
X80	A	001	00F1	0164	0131

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*\*PN\*42 48200\*EC\*827804\* CPU\* & \*MEMORY\*TES TS\*\*\*\*\*MOD\*12 84228422\*\*\*\*\*OF000000

T+--:|H\*DM\*2\$2H A\*\*CB\*\*%\*CN2Y\* G?CND\*|M5\$-A5|H &Z,3=5D-5\_K9\*\*P 2DAL0-C90\*+I\*+G S4-D\*MLUOF000001

T+-A5\*0418>\$-K= 8A(K%\*?Z2Z\*H,0| \$9HOC9(>5\*-EY\*+# 0,\*G\_2FUC\*=J\*0\* C\_-G,,-G\_8+\*ARR2 #\_4=3\*OF000002

T+-B08HHD\$<G:NA CA0|-/6S%:7P\_&G 6P\*\*\*\*.QA2:2A#-| -Q>%:7P\_&G6?C >?|=,X0B,\*GO\*\*EO \*\*\*\*\*3RYOF000003

T+-C,,-C>2;AY#Q A2:2A#-|-E.8\_L -DEMA\*\*E>|A4AE2B G\*DU&\*\*\*\*\* &\*\*A\*\*2\*\*C\*\*\*\* \*%&,DOF000004

TDOC\*\*\*\*HDB\*\*D \*\*-\*\*\*\*\* \*\*\*\*\* \*\*\*\*\* \*\*\*\*\* \*\*\*\*\*2.YOF000005

E\*\*\*\*E7\*=-DC\*PH\$ =\*7M&F|\*\*\*|\*\*\*C\* \*\*F%\*\*\*ASC\*\*\*R\*A SO\*\*\*\*Q \*\*\*\*\*12010630750 828751Q-OF000006

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000

```

3  DECK 4
4  SEQ 0
5  START 0
6  TREP
7  SECTORS 29 & 30
8  *****
9  PROG F1 WORST CASE CORE TEST - UPPER CORE
10 THIS PROGRAM DETECTS THE ABILITY TO READ & WRITE
11 UNDER WORST CASE CONDITIONS.
12 *****
13 ** WARNING **
14 *****
15 **
16 ** ALTHOUGH THIS PROGRAM HAS PROVISIONS TO RE-
17 ** START AFTER THE CPU HAS BEEN POWERED DOWN, NO
18 ** GUARANTEES ARE MADE AS TO THE CONTENTS OF CORE
19 ** OR TO THE ABILITY TO RE-START THE PROGRAM ONCE
20 ** THE CPU HAS BEEN POWERED DOWN.
21 **
22 ** IF ERROR INDICATIONS ARE PRESENT AFTER
23 ** POWERING UP--DO NOT TRY TO DETERMINE THE
24 ** CAUSE OF FAILURE--RELOAD THE PROGRAM.
25 **
26 *****
27 AFTER THE WORST CASE PATTERN HAS BEEN PLACED IN CORE
28 THE PROGRAM WILL
29 1) READ/REGEN FROM EVERY LOCATION
30 2) READ/COMPLEMENT/READ/COMPLEMENT EVERY LOCATION
31 3) FILL CORE WITH WORST CASE COMPLEMENT PATTERN
32 4) REPEAT STEPS (1) & (2)
33 5) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS
34 SWITCH WILL BE TESTED, THE OTHER ADDRESS SWITCHES WILL
35 NOT BE READ
36 6) TO GAIN CONTROL OF THE CONSOLE ADDRESS SWITCHES, THE
37 CE MUST SET SWITCH 3 OR 4 TO OTHER THAN ZERO PRIOR TO
38 COMPLETION OF FIRST PASS WITH STANDARD WORST CASE PATTERN
39 7) SET UP CONSOLE ADDRESS SWITCHES PRIOR TO RESETTING THE
40 HALT
41 8) FUNCTIONS OF CONSOLE ADDRESS SWITCHES (DATASW) ARE:
42
43 (LEFTMOST) SWITCH 1 SWITCH 2 SWITCH 3+4
44
45 0 TESTS CORE TO 4K 0 PROGRAM EXECUTED 00 NORMAL POSITION,
46 1 TESTS CORE TO 8K ONCE ONLY WC PATERN FILL.
47 2 TESTS CORE TO 12K 1 BYPASS PROGRAM XY ANY OTHER ENTRY
48 3 TESTS CORE TO 16K 2 LOOP PROGRAM SETS-EP-HALT AND
49 4 TESTS CORE TO 20K 4 COMPLEMENT FILL ALLOWS CE TO SE-
50 5 TESTS CORE TO 24K 6 PATTERN USED LECT FILL PATTERN
51 6 TESTS CORE TO 28K 8 LOOP & COMPLEMENT ON THESE TWO SW.
52 7 TESTS CORE TO 32K FILL PATTERN USED A BYTE AT A TIME
53 8 TESTS CORE TO 36K 8 LOOP ON HIGHEST BSM FOR A TOTAL OF 4
54 9 TESTS CORE TO 40K (SEE 10) BYTES. 00 CAN BE
55 A TESTS CORE TO 44K USED AS A BYTE OF
56 B TESTS CORE TO 48K PATTERN AFTER-EP
57 C TESTS CORE TO 52K HALT SET (SEE 9)
58 D TESTS CORE TO 56K
59 E TESTS CORE TO 60K
60 F TESTS CORE TO 64K

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0000 F0 3C 03

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70 * 9) NOTE: TURNING DATA SWITCHES 3+4 (RIGHTMOST) TO A
71 * SETTING OTHER THAN 00 WILL SET AN -EP- (ENTER PATTERN)
72 * HALT WHICH WILL ALLOW THE CE TO ENTER HIS OWN 'WORST
73 * CASE' PATTERN. THE PATTERN IS ENTERED A BYTE AT A TIME
74 * ON SWITCHES 3+4. THE INITIAL SETTING OF SWITCHES TO A
75 * SETTING OTHER THAN 00 SELECTS THIS OPTION. THE INITIAL
76 * SWITCH SETTING IS NOT THE FIRST BYTE OF PATTERN. AFTER
77 * THE -EP- HALT, THE SWITCHES CAN BE SET TO ANY DESIRED
78 * COMBINATION, EVEN TO 00. THE BYTE OF PATTERN THAT IS
79 * ENTERED IS THE SETTING ON SWITCHES 3+4 WHEN THE HALT
80 * IS RESET. THE -EP- HALT IS DISPLAYED FOUR TIMES, THUS
81 * ALLOWING THE CE TO CHOOSE THE FILL PATTERN.
82 *
83 *
84 * 10) NOTE:
85 * FOR SWITCH SETTINGS 4 AND ABOVE, SWITCH 2 SETTING 8
86 * WILL LOOP THE PROGRAM IN THE HIGHEST BSM OR SELECTED
87 * PORTION THEREOF (MEMORY BSM = 16K OF CORE). WHEN
88 * SCHMOODING, THE NEXT BSM IS CHOSEN BY INCREASING THE
89 * AMOUNT OF CORE TO BE TESTED BY 16K. THE PROGRAM WILL
90 * THEN LOOP ON THE HIGHEST BSM.
91 *
92 * EXAMPLES:
93 * SWITCH 1 SET TO 3, PROGRAM LOOPS 0 TO 16K
94 * SWITCH 1 SET TO 4, PROGRAM LOOPS 16 TO 20K
95 * SWITCH 1 SET TO 5, PROGRAM LOOPS 16 TO 24K
96 * SWITCH 1 SET TO 6, PROGRAM LOOPS 16 TO 28K
97 * SWITCH 1 SET TO 7, PROGRAM LOOPS 16 TO 32K
98 * SWITCH 1 SET TO 8, PROGRAM LOOPS 32 TO 36K
99 * SWITCH 1 SET TO A, PROGRAM LOOPS 32 TO 44K
100 * SWITCH 1 SET TO B, PROGRAM LOOPS 32 TO 48K
101 * SWITCH 1 SET TO C, PROGRAM LOOPS 48 TO 52K
102 * SWITCH 1 SET TO F, PROGRAM LOOPS 48 TO 64K
103 *
104 *
105 * MEMORY FAILURES WILL BE INDICATED BY
106 * 1) PROCESSOR CHECK &
107 * 2) 'B' REG PARITY CHECK
108 * & SAR WILL CONTAIN THE FAILING LOCATION.
109 *
110 * THE PROGRAM WILL RUN FOR 30 SECONDS ON A 64K
111 * MEMORY & PROPORTIONATELY LESS TIME ON SMALLER
112 * MEMORIES.
113 *
114 *
115 *
116 *
117 HALT1 HPL X'03',X'3C' PRE-EXECUTION HALT
118 *****
119 *****
120 * THIS LOADER WILL LOAD THE SECOND SECTOR OF THIS
121 * PROGRAM AND THEN BRANCH TO GIVE IT CONTROL.
122 *
123 *
124 *
125 *
126 *
127 HALTLD J SECOLD F1 HALT
128 HPL HPL X'03',X'3C' TEST FOR ERROR BEFORE DOING READ
129 SECOLD TIO HALTLD,ERR
130 LIO DDFADR,DFDR
131 SIO LOAD7,DFCR
132 TIO DIAG,READ
133 TIO *,BUSY
134 J HALTLD,ERR
135 J FRSTRY

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0023	0025	0024	136	LOAD7	DC AL2(*+2)
0025	0000010000	0029	137	DC	XL5'0000010000'
002A	1E00010000	002E	138	DC	XL5'1E00010000'
002F	0100	0030	139	DDFADR	DC AL2(256)
		004A	140	USING	WCPTRN-3,1
		004A	141	USING	WCPTRN-3,2
0031	30 00 013C	004A	142	FRSTRY	SNS DATASW,X'00'
0035	3C 00 013C	004A	143	MVI	DATASW,X'00'
0039	08 03 013B	004A	144	MNN	DATASW-1,DATASW
003F	C2 01 004A	004A	145	LA	WCPTRN-3,X'01'
0043	C2 02 004A	004A	146	LA	WCPTRN-3,X'02'
0047	F2 87 16	004D	147	J	KONT6
004A	FFFF0000	004D	148	WCPTRN	DC XL4'FFFF0000'
004E	FO 3C 03	004D	149	RESTRT	HPL X'03',X'3C'
0051	80 00 F2	004D	150	SNS	DATASW(,XR2),X'00'
0054	88 01 F1	004D	151	TBN	DATASW-1(,XR2),X'01'
0057	EO 90 16	004D	152	BF	KONT6(,XR2)
005A	B6 02 FB	004D	153	HERE	A X0100(,XR2),XR2
005D	F2 87 F1	004D	154	J	LOADER
0060	A8 00 F3 F1	004D	155	KONT6	MZZ CORSIZ-1(,XR2),DATASW-1(,XR2)
0064	B5 01 F4	004D	156	L	CORSIZ(,XR2),X'01'
0067	B5 02 F4	004D	157	L	CORSIZ(,XR2),X'02'
006A	8C FF F4	004D	158	SHIFT	MVC 255(256,XR2),WCPTRN+252
006F	B4 02 24	004D	159	ST	SHIFT+4(,XR2),XR2
0072	BC FF 24	004D	160	MVI	SHIFT+4(,XR2),X'FF'
0075	B4 02 EB	004D	161	ST	SETUP+3(,XR2),XR2
0078	B6 02 FB	004D	162	A	X0100(,XR2),XR2
007B	8C FF FF	004D	163	SHIFT1	MVC 255(256,XR2),COMHLT+251
0080	74 02 35	004D	164	ST	SHIFT1+4(,XR1),XR2
0083	7C FF 35	004D	165	MVI	SHIFT1+4(,XR1),X'FF'
0086	76 02 FO	004D	166	A	FF00(,XR1),XR2
0089	EO 87 42	004D	167	B	KONT7(,XR2)
008C	B9 FF F2	004D	168	KONT7	TBF DATASW(,XR2),X'FF'
008F	F2 10 06	004D	169	JT	KONT2
0092	B6 02 FB	004D	170	A	X0100(,XR2),XR2
0095	F2 87 FD	004D	171	J	LDWRST
0098	B5 01 F4	004D	172	KONT2	L CORSIZ(,XR2),XR1
009B	2C 06 0006 EE	004D	173	MVC	6,PRLOAD+2(7,XR2)
00A0	B6 01 F9	004D	174	A	NEG4(,XR2),XR1
00A3	5C 03 07	004D	175	MVC	3(4,XR1),7(,XR1)
00A7	B8 04 F1	004D	176	TBN	DATASW-1(,XR2),X'04'
00AA	F2 90 08	004D	177	JF	FILL
00AD	6C 03 03 F8	004D	178	KONTX	MVC 3(4,XR1),XFFFF(,XR2)
00B1	5F 03 03 07	004D	179	SLC	3(4,XR1),7(,XR1)
00B5	B6 01 F9	004D	180	FILL	A NEG4(,XR2),XR1
00B8	5C 03 03 07	004D	181	MVC	3(4,XR1),7(,XR1)
00BC	EO 81 80	004D	182	BE	KONTY(,XR2)
00BF	B4 01 FD	004D	183	ST	PAD(,XR2),XR1
00C2	B9 FF FD	004D	184	TBF	PAD(,XR2),X'FF'
00C5	B9 0F FC	004D	185	TBF	PAD(,XR2),X'OF'
00C8	EO 90 66	004D	186	BF	FILL(,XR2)
00CB	B6 01 F9	004D	187	KONTE	A NEG4(,XR2),XR1
00CE	B8 08 F1	004D	188	TBN	DATASW-1(,XR2),X'08'
00D1	B9 30 FC	004D	189	TBF	PAD-1(,XR2),X'30'

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
00D4	EO 90 63	004D	204	BF	KONTX(,XR2)
00D7	2C 06 0006 EE	004D	205	KONTY	MVC 6,PRLOAD+2(7,XR2)
00DC	B5 01 F4	004D	206	L	CORSIZ(,XR2),XR1
00DF	B6 01 F9	004D	207	KONTZ	A NEG4(,XR2),XR1
00E2	5C 03 03 03	004D	208	SELCTA	MVC 3(4,XR1),3(,XR1)
00E6	F2 81 1D	004D	209	JE	KONTB
00E9	B4 01 FD	004D	210	ST	PAD(,XR2),XR1
00EC	B8 08 F1	004D	211	TBN	DATASW-1(,XR2),X'08'
00EF	B9 FF FD	004D	212	TBF	PAD(,XR2),X'FF'
00F2	B9 3F FC	004D	213	TBF	PAD-1(,XR2),X'3F'
00F5	EO 90 95	004D	214	BF	KONTZ(,XR2)
00F8	B5 01 F4	004D	215	KONTA	L CORSIZ(,XR2),XR1
00FB	2C 06 0006 EE	004D	216	MVC	6,PRLOAD+2(7,XR2)
0100		004D	217	ORG	*
		004D	218	TREP	*
0100	B6 01 F8	004D	219	KONTD	A XFFFF(,XR2),XR1
0103	EO 20 DF	004D	220	BNOL	KONTU(,XR2)
0106	BC FF C8	004D	221	MVI	CHNG1+1(,XR2),X'FF'
0109	9C 00 C8 00	004D	222	MVC	CHNG2+1(,XR2),0(,XR1)
010D	AF 00 C8 C8	004D	223	SLC	CHNG1+1(,XR2),CHNG2+1(,XR2)
0111	7C 00 00	004D	224	CHNG1	MVI 0(,XR1),*--
0114	7C 00 00	004D	225	CHNG2	MVI 0(,XR1),*--
0117	B4 01 FD	004D	226	ST	PAD(,XR2),XR1
011A	B8 08 F1	004D	227	TBN	DATASW-1(,XR2),X'08'
011D	B9 FF FD	004D	228	TBF	PAD(,XR2),X'FF'
0120	B9 3F FC	004D	229	TBF	PAD-1(,XR2),X'3F'
0123	EO 90 B6	004D	230	BF	KONTD(,XR2)
0126	EO 87 4E	004D	231	B	KONT2(,XR2)
0129	B8 02 F1	004D	232	KONTU	TBN DATASW-1(,XR2),X'02'
012C	EO 10 4E	004D	233	BT	KONT2(,XR2)
012F	EO 87 10	004D	234	B	HERE(,XR2)
0132	C2 02 0000	004D	235	LA	*--XR2
0136	EO 87 04	004D	236	PRLOAD	B RESTRT(,XR2)
0139	FF00	004D	237	DC	XL2'FF00'
0138	0000	004D	238	DC	XL2'0'
013D	0E00	004D	239	DC	XL2'0E00'
013F	FFFFFFF	004D	240	DC	XL4'FFFFFFF'
0143	FC	004D	241	DC	XL1'FC'
0145	0100	004D	242	DC	XL2'0100'
0146	0000	004D	243	DC	XL2'0'
		004D	244	XR1	EQU 1
		004D	245	XR2	EQU 2
0148	0000	004D	246	DC	XL2'0000'

OTHERWISE GO TO KONTY  
 .PUT BR INSTR IN LOC 0,162  
 .RESET XR1  
 .READ/REGEN 4 CORE LOCS &  
 GO TO KONTB IF ALL CORE  
 LOCS HAVE BEEN TESTED.  
 .GO TO KONTA IF AT 16 K  
 BOUNDARY & CE DESIRES TO  
 LOOP ON UPPER 16 K.  
 OTHERWISE, GO BACK  
 TO KONTZ.  
 .RESET XR1  
 .PUT BR INSTR IN LOC 0,162.  
 \*  
 .GO TO KONTC IF ALL CORE  
 HAS BEEN TESTED.  
 .SETUP FOR DOING TWO  
 READ/WRITE COMPLEMENTS.  
 .DO READ/WRITE COMPLEMENT  
 .DO READ/WRITE COMPLEMENT  
 .GO TO KONTU IF AT 16K  
 BOUNDARY & SW 2 IS SET  
 TO 8. OTHERWISE, GO  
 TO KONTD  
 .GO TO KONT2 IF 'LOOP'  
 SWITCH ON.  
 ADD 256 TO XR2

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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262 *****
263 *
264 * THIS LOADER WILL LOAD THE LOADER SECTOR WHICH WILL LOAD
265 * PROGRAM E8 WHICH WILL GIVE AN 8P HALT. YOU MAY THEN
266 * SELECT TO RE-RUN MEMORY TESTS, SELECT SPECIAL FEATURE
267 * TESTS OR LOAD DCP.
268 *
269 *****
270
014A 271 USING SECOND,2
272 SECOND LA SECOND,X'02'
273 COMHLT HPL X'03',X'3C' F1 HALT
274 LOADER SNS DSW(XR2),X'00' READ THE DATA SWITCHES
275 TBF DSW(XR2),X'FF' AND BRANCH TO 0000 IF
276 BF *-* A WORST CASE PATTERN IS WANTED
277
278 TIO COMHLT(XR2),ERR TEST FOR ERROR BEFORE DOING SEEK
279 ST ACOM(XR2),XR2
280 ALC ACOM(XR2),SET1+2(1,XR2)
281 ST ACOM(XR2),ONE(XR2)
282 ALC ALOAD(XR2),XR2
283 ALC ALOAD(XR2),SET2+2(1,XR2)
284 ALC ALOAD(XR2),ONE(XR2)
285 SET1 LIO ACOM(XR2),DFCR
286 SIO X'00',X'CO' SEEK HEAD 0
287 LIO DAFADR(XR2),DFDR
288 SET2 LIO ALOAD(XR2),DFCR
289 SIO DIAG,READ READ 1 SECTOR
290 WAIT TIO WAIT(XR2),BUSY LOOP UNTIL DISK BUSY DROPS
291 TIO COMHLT(XR2),ERR TEST FOR ERROR AFTER DISK SIO
292 MVI BOOT+5,X'00' SETUP TO READ SECTOR 21,
293 MVI BOOT+1,X'15' PGM E8 FOR 8P HALT
294 B BOOT
295
0169 296 BOOT EQU X'169'
00C6 297 DFDR EQU X'C6'
00C4 298 DFDR EQU X'C4'
00C2 299 BUSY EQU X'C2'
0002 300 DIAG EQU X'02'
00C1 301 READ EQU X'C1'
00C0 302 ERR EQU X'CO'
303
0195 304 LDWRST MVI COUNT(XR2),X'04' INITIALIZE COUNT TO 04
0198 305 EPHALT HPL X'3E',X'7C' .EP' HALT
0198 306 SNS WCPTRN-2(1,XR1),X'00' THE CE MAY NOW ALTER THE
019E 307 MVC WCPTRN-3(1,XR1),WCPTRN-2(1,XR1) WORST CASE PATTERN
01A2 308 LA 1(XR1),XR1 GO TO KONT2 AFTER FOUR
01A5 309 SLC COUNT(XR2),ONE(XR2)
01A9 310 BNZ EPHALT(XR2)
311
01AC 312 ST OUT+3(1,XR2),XR2
01AF 313 MVI OUT+3(1,XR2),X'4E'
01B2 314 SLC OUT+3(1,XR2),ONEC(2,XR2)
01B6 315 A XFF00(XR2),XR2 SUBTRACT 256 FROM XR2
01B9 316 MVI 0(1,XR1),X'FD' REPAIR RESTRT A'FTER LOAD OF WC. PATRN.
01BC 317 B *-*
318
01C0 318 ONE DC XL1'01'
01C1 319 XFF00 DC XL2'FF00'
01C3 320 COUNT DC XL1'04'
01C4 321 DSW DC XL2'0'
01C6 322 ONEC DC XL2'0100'
323
01C8 324 ACOM DC AL2(0)
01CA 325 DC XL5'0000010000'
01CF 326 DC XL5'0000010000'
01D4 327 DC XL5'0000010000'
01D6 328 ALOAD DC AL2(0)
01DA 329 DC XL5'0000010000'
    
```

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OF10 CPU AND MEMORY DIAGNOSTICS: PROGRAM F1 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

01DB 0100010000 01DF 330 DC XL5'0100010000'
01E0 00FD 01E1 331 DAFADR DC AL2(253)
      332
      FFFF 333 END
    
```

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OF10 CPU AND MEMORY DIAGNOSTICS: PROGRAM F1 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ACOM	A	002	01C9	0325	0279* 0280* 0281* 0285
ALDAD	A	002	01D5	0328	0282* 0283* 0284* 0288
BOOT	C	001	0169	0296	0292* 0293* 0294*
BUSY	C	001	00C2	0299	0132 0290
CHNG1	A	003	0111	0230	0227* 0229*
CHNG2	A	003	0114	0231	0228* 0229
COMHLT	A	003	014E	0273	0168 0278 0291
CORSIZ	A	002	013E	0252	0160* 0161 0162 0180 0207 0219
COUNT	A	001	01C3	0321	0304* 0309*
DAFADR	A	002	01E1	0331	0287
DATASW	A	002	013C	0251	0142* 0143* 0144 0144* 0152* 0154 0160 0175 0186 0202 0214 0234
DDFADR	A	002	0030	0139	0241
DFCR	C	001	00C0	0297	0129
DFDR	C	001	00C4	0298	0130* 0285* 0288*
DIAG	C	001	0002	0300	0129* 0287*
DSW	A	002	01C5	0322	0131 0289
EPHALT	A	003	0198	0305	0274* 0275
ERR	C	001	00C0	0302	0310
FILL	A	002	013A	0250	0128 0133 0278 0291
FRSTRY	A	004	00B5	0192	0171
HALTLD	A	003	0031	0142	0187 0199
HALT1	A	003	0000	0117	0134
HERE	A	003	005A	0157	0128 0133
KONTA	A	003	00F8	0219	0244
KONTB	A	003	0106	0227	0211
KONTD	A	003	0100	0225	0237
KONTE	A	003	00C8	0201	0226
KONTU	A	003	0129	0241	0204
KONTX	A	004	00AD	0189	0194
KONTY	A	005	00D7	0206	0217
KONTZ	A	003	00DF	0209	0176 0239 0242
KONT2	A	003	0098	0180	0147 0155
KONT6	A	004	0060	0160	0172
KONT7	A	003	008C	0175	0178
LDWRST	A	003	0195	0304	0158
LOADER	A	003	0151	0274	0130
LOAD7	A	002	0024	0136	0183 0192 0201 0209
NEG4	A	001	0143	0254	0281 0284 0309
ONE	A	001	01C0	0319	0314
ONEC	A	002	01C7	0323	0312* 0313* 0314*
OUT	A	004	018C	0317	0196* 0197 0198 0203 0213* 0215 0216 0233* 0235 0236
PAD	A	002	0147	0256	0181 0206 0220
PRLOAD	A	003	0136	0247	0131 0289
READ	C	001	00C1	0301	0247
RESTR	A	003	004E	0150	0126
SECOLD	A	004	0009	0128	0271 0272
SECOND	A	004	014A	0272	0166*
SELCTA	A	004	00E2	0210	0280
SETUP	A	004	0132	0246	0283
SET1	A	003	0174	0285	0164* 0165*
SET2	A	003	017D	0288	0169* 0170*
SHIFT	A	005	006A	0163	0290
SHIFT1	A	005	0078	0168	0140 0141 0145 0146 0163 0306* 0307 0307*
UVWXYZ	A	001	0000	0004	0189 0225
WAIT	A	003	0183	0290	0315
WCPTRN	A	004	004D	0148	0169 0170 0171 0180* 0183* 0184 0184 0189 0190 0190 0192* 0193
XXXXF	A	004	0142	0253	0193 0196 0201* 0207* 0209* 0210 0210 0213 0219* 0225* 0228 0230
XFF00	A	002	01C2	0320	0231 0233 0306 0307 0307 0308 0308* 0316
XR1	C	001	0001	0258	0152 0154 0155 0157 0157* 0160 0160 0161 0162 0163 0164 0164
XR2	C	001	0002	0259	0165 0166 0166 0167 0167* 0168 0169 0171* 0172 0175 0177 0177*
					0180 0181 0183 0186 0189 0192 0194 0196 0197 0198 0199 0201

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
					0202 0203 0204 0206 0207 0209 0213 0214 0215 0216 0217 0219
					0220 0225 0226 0227 0228 0229 0229 0233 0234 0235 0236 0237
					0239 0241 0242 0244 0246* 0247 0274 0275 0278 0279 0279 0280
					0280 0281 0281 0282 0282 0283 0283 0284 0284 0285 0287 0288
					0290 0291 0304 0309 0309 0310 0312 0312 0313 0314 0314 0315
					0315*
X0100	A	002	0145	0255	0157 0167 0177
TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY =					0

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OF10 CPU AND MEMORY DIAGNOSTICS: PROGRAM F1 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96  
\*GBK\*G8D\*\*\*PN\*42 48200\*EC\*827804\* CPU & MEMORY TES TS\*\*\*\*\*MOD\*12 84@284@2\*\*\*\*\*OF100000  
T+--:aCOCaY\*CaCO CO\* ATGD C 11- Ua@DBO\*H F<G\*\*\*\$ 2/08 IE\*\*\*E\*\*G- A\*\*A\*C\*\*\*LOa\*\*D aB<\*ODUOF100001  
T+-A5 L&A|<HA\*D, B-AHAY\*O\*\*a\*\*i a\*\*a,-Aa;B&E,Q B=HGaE-a\*\*F5\*-K 5\*?K\*\*aAK\$E&BI.3 \*I.&;RQOF100002  
T+-BO>>6?><\*\*\*a BKPEBIP3\*(PQB@+B G&,X\*\*a?H&A,QB=H G\*\*MA'BOF\*\*\$>\_-G 9P<CA#-Da-H&BFO C\*\*LLOYOF100003  
T+-C,PO<CA#QA=NO C O---Q64\*-69\*\*6 9C\*3-UF>6\*-W8B|F 9<|3-UF<ZA-\*F#,M A\*.QA=NOC O|2-J6 4\*-4\*=KHOF100004  
TDOC\*>T1>~\*|>L\* @8IBN\_&G4.\*Q\*A>8 ..... 18<OF100005  
E ..... 12010630750 82875\*\*\*OF100006  
T+-D:~G88BC~?|H HX C. Ha 2<\_a\*\*A a\*\*B4\*-68B|F9\*\*6 9|\*3-U.\$-/4:8?G -DD#-/1CB\*-\*\*8H\* D\*O\*\*E100F100007  
T+-E5\*\*\*+|\*\*\*\*\* a\*E\*\*\*\*\*O-HAK? a\*\*#\*\*;#X\*\*;aB&\*\*C /O K4 X=>G@a,~A \*) ,&BS:8 S3D>\*H\_ 6&\*Q~\*#QOF100008  
T+-FO~\*|\*\*GDV#G FS\*|A>GB+;G\*ACO \*\*08aE&EaOH\*AE\$O D;~Aa|X\*\*\*NO\*\*G K\*E?7\*GV6B\*E+\_I 57D8 \*D&OF100009  
T<G/|E@a|P66 X/ a@C /O\*\*\*~a\*\* A ..... E ..... A ..... \*E ..... P\*YOF100010  
E\*\*\*E7\*=-DC\*PH\$ =\*7M&F|\*\*\*|\*\*\*C \*\*F%\*\*\*ASC\*\*\*R A SO\*\*\*Q ..... 12010630750 828751QaOF100011

OF20 CPU AND MEMORY DIAGNOSTICS: PROGRAM F2 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4  
3 SEQ 0  
4 UVWXYZ START 0  
5 TREP  
6 \*\*\*\*\* SECTOR 31 \*\*\*\*\*  
7 \*\*\*\*\* PROG F2 \*\*\*\*\*  
8 \*\*\*\*\*  
9 \*\*\*\*\*  
10 \*\*\*\*\* DUAL PROGRAM FEATURE LSR TEST \*\*\*\*\*  
11 \*\*\*\*\*  
12 \*\*\*\*\* THE ABILITY TO LOAD & STORE P2-IAR IS TESTED \*\*\*\*\*  
13 \*\*\*\*\*  
14 \*\*\*\*\*  
15 \*\*\*\*\*  
16 0000 FO 3C 76 HALT1 HPL UNITS,TENS PRE-EXECUTION HALT  
17 \*\*\*\*\*  
18 L X03FE,X'40' LOAD P2-IAR WITH HEX -03FE-  
19 \*\*\*\*\* STORE P2-IAR IN LOC HEX FC & FD.  
20 ST PAD,X'40'  
21 \*\*\*\*\*  
22 CLC PAD(2),X03FE BYPASS HALT 2 IF P2-IAR  
23 JE HALT2\*3 WAS SELECTED PROPERLY.  
24 \*\*\*\*\*  
25 0014 FO 3C 76 HALT2 HPL UNITS,TENS \* PROG F2, HALT 2, ERROR HALT  
26 \*\*\*\*\* \* P2-IAR SELECTION ERROR  
27 \*\*\*\*\* \* FAILING CARD# A-B3Q2,A-B3D4  
28 \*\*\*\*\*  
29 \*\*\*\*\*  
30 L XFE03,X'40' LOAD P2-IAR WITH HEX -FE03-  
31 \*\*\*\*\* STORE P2-IAR IN LOC HEX FC & FD.  
32 ST PAD,X'40'  
33 \*\*\*\*\*  
34 CLC PAD(2),XFE03 GO TO NEXT TEST IF P2-IAR  
35 BE START2 WAS SELECTED PROPERLY.  
36 \*\*\*\*\*  
37 001F 0D 01 00FD 00EB HALT3 HPL UNITS,TENS \* PROG F2, HALT 2, ERROR HALT  
38 \*\*\*\*\* \* P2-IAR SELECTION ERROR  
39 \*\*\*\*\* \* FAILING CARD# A-B3Q2,A-B3D4  
40 \*\*\*\*\*  
41 \*\*\*\*\*  
42 \*\*\*\*\*  
43 \*\*\*\*\*  
44 \*\*\*\*\* (APL) & (SIO) \*\*\*\*\*  
45 \*\*\*\*\*  
46 \*\*\*\*\* THE (APL) COMMAND IS TESTED \*\*\*\*\*  
47 \*\*\*\*\* IN BOTH PROGRAM LEVELS WITH \*\*\*\*\*  
48 \*\*\*\*\* DUAL PROGRAM MODE DISABLED & \*\*\*\*\*  
49 \*\*\*\*\* THEN ENABLED. \*\*\*\*\*  
50 \*\*\*\*\*  
51 \*\*\*\*\* THE (SIO) COMMAND IS USED TO \*\*\*\*\*  
52 \*\*\*\*\* ENABLE & DISABLE THE DUAL \*\*\*\*\*  
53 \*\*\*\*\* PROGRAM MODE. \*\*\*\*\*  
54 \*\*\*\*\*  
55 \*\*\*\*\*  
56 \*\*\*\*\*  
57 \*\*\*\*\* TEST (1) ADVANCE INSTRUCTION \*\*\*\*\*  
58 \*\*\*\*\* (2) SKIP ACTIVE \*\*\*\*\*  
59 \*\*\*\*\* (3) MACH ADV \*\*\*\*\*  
60 \*\*\*\*\* (4) SIO \*\*\*\*\*  
61 \*\*\*\*\* (5) PROG INTERLOCK \*\*\*\*\*  
62 \*\*\*\*\* (6) ALU BIT 5 \*\*\*\*\*  
63 \*\*\*\*\* (7) P2 TRIGGER \*\*\*\*\*  
64 \*\*\*\*\* (8) P2 ENABLE \*\*\*\*\*  
65 \*\*\*\*\* (9) INTERNAL \*\*\*\*\*  
66 \*\*\*\*\*

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	PROGRAM LEVEL
67	*				
68	*				
69	*				
70	*				
002C	35 40 00E5			START2 L ADERR,X'40'	1
71					
0030	F1000D	0032		APL1A DC XL3'F1000D'	1
72					
73					
74					
75					
76					
77					
78					
79					
0033	F3 00 04			SIO 4,0	1
80					
0036	35 40 00E7			L ADPL2,X'40'	1
81					
82					
003A	F1 00 00			APL1B APL 0	1
83					
84					
85					
86					
87					
003D	F3 00 00			ERROR SIO 0,0	1
88					
89					
0040	F0 3C 76			HALT4 HPL UNITS,TENS	1
90					
91					
92					
93					
94					
95					
96					
97					
0043	F3 00 00			PL2 SIO 0,0	2
98					
99					
0046	F1 00 00			APL2A APL 0	2
100					
101					
102					
103					
104					
0049	F3 00 04			SIO 4,0	2
105					
004C	35 20 00E9			L ADEND,X'20'	2
106					
107					
0050	F1 00 00			APL2B APL 0	2
108					
109					
110					
111					
0053	C0 87 003D			B ERROR	2
112					
113					
0057	F3 00 00			END SIO 0,0	1
114					
115					
116					
005A	C0 87 005E			B TIO1	1
117					
118					
119					
120					
121					
122					
123					
124					
125					
126					
127					
128					
129					
130					
131					
132					
133					
134					

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	PROGRAM LEVEL
005E	C1 00 0065			TIO1 TIO TIO2,X'00'	1
135					
136					
137					
0062	F0 3C 76			HALT5 HPL UNITS,TENS	1
138					
139					
140					
141					
142					
143					
0065	C1 04 0079			TIO2 TIO HALT6,X'04'	1
144					
145					
146					
0069	C1 01 0079			TIO HALT6,X'01'	1
147					
006D	C1 02 0079			TIO HALT6,X'02'	1
148					
0071	C1 03 0079			TIO HALT6,X'03'	1
149					
150					
0075	C0 87 007C			B START4	1
151					
152					
0079	F0 3C 76			HALT6 HPL UNITS,TENS	1
153					
154					
155					
156					
157					
158					
159					
160					
161					
162					
163					
164					
165					
166					
167					
168					
169					
170					
007C	35 40 00E3			START4 L ADDP2,X'40'	1
171					
172					
0080	F3 00 04			SIO 4,0	1
173					
174					
0083	F1 00 00			APL 0	1
175					
176					
177					
0086	F3 00 00			P1 SIO 0,0	1
178					
179					
0089	3D E7 00FD			CLI PAD,X'E7'	1
180					
008D	C0 81 00A3			BE START5	1
181					
182					
0091	F0 3C 76			HALT7 HPL UNITS,TENS	1
183					
184					
185					
186					
187					
0094	C2 01 FFC3			P2 LA X'FFC3',XR1	2
188					
189					
0098	C2 02 FF66			LA X'FF66',XR2	2
190					
191					
009C	34 03 00FD			ST PAD,X'03'	2
192					
193					
00AD	F1 00 00			APL 0	2
194					
195					

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OF20 CPU AND MEMORY DIAGNOSTICS: PROGRAM F2 MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADDF2	A	002	00E3	0279	0171
ADEND	A	002	00E9	0282	0106
ADERR	A	002	00E5	0280	0071
ADPL2	A	002	00E7	0281	0082
ADPL22	A	002	00EE	0285	0233
APL1A	A	003	0032	0073	
APL1B	A	003	003A	0084	
APL2A	A	003	0046	0100	
APL2B	A	003	0050	0108	
BOBT	C	001	0169	0292	
DAP	C	001	00FF	0284	0252* 0254* 0255
END	A	003	0057	0115	0248
END2	A	003	0088	0246	0282
ERROR	A	003	003D	0089	0113 0280
HALT1	A	003	0000	0016	
HALT2	A	003	0014	0025	0023
HALT3	A	003	0029	0037	
HALT4	A	003	0040	0091	
HALT5	A	003	0062	0138	
HALT6	A	003	0079	0153	0144 0147 0148 0149
HALT7	A	003	0091	0183	
HALT8	A	003	00C0	0258	
PAD	C	001	00FD	0291	0020* 0022 0032* 0034 0180 0192* 0240* 0270*
PL2	A	003	0043	0098	0281
PL22	A	004	00D0	0263	0285
PSR	C	001	0004	0288	
P1	A	003	0086	0178	
P2	A	004	0094	0188	0279
START2	A	004	002C	0071	0035
START4	A	004	007C	0171	0151
START5	A	004	00A3	0229	0181
STOR1	A	004	00B1	0240	
STOR2	A	004	00D7	0270	
TENS	C	001	003C	0293	0016 0025 0037 0091 0138 0153 0183 0258
TIO1	A	004	005E	0135	0117
TIO2	A	004	0065	0144	0135
UNITS	C	001	0076	0294	0016 0025 0037 0091 0138 0153 0183 0258
UVWXYZ	A	001	0000	0004	
XAA21	A	002	00E1	0278	0248 0263
XFE03	A	001	00EC	0284	0030 0034
XRI	C	001	0001	0289	0188*
XR2	C	001	0002	0290	0190*
XO3FE	A	002	00EB	0283	0018 0022
X551A	A	002	00DF	0277	0229

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*E*MEMORY*TES TS*****MOD*12 84228422*****OF200000
T+*:*2C16(M)*:3J **|4(|&C*+72-&| 01G05E*C&ID**E4 A*|4*#<BA*8301G0 5E*CV2E*(20*D(M)*9*D*)B40F200001
T+*A5**C3**COIG$ 3**C1**C3**E5H*C Z2E**OH*|<*<B G*E#A**AV2C160&E *:*DA*GXA*-A90&C *;:*6200F200002
T+*B0/OA22C16(M)*B**<AID**|<**C7 X*|7*-E8T2C160-G *02HB*6Q4*OC*2E *(E2*73N**+83**L 1****P:*0F200003
T+*C,(*2**D**|< ***4C*|2*8LOC*QB 2H*E0HDAE~*2)TM |*+G1***4COC*2E *NJDDH&BM*C4*E0A P**8*PYHOF200004
T+*C>*OC&***** ..... L3<OF200005
E***E7*~DC*PH$ =*7M&F|***|***C **F&***ASC***R*A SO***Q*****12010630750 8287518-OF200006
    
```

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OF30 CPU AND MEMORY DIAGNOSTICS: PROGRAM F3 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2 DECK 4
              3 SEQ 0
              4 UVWXYZ START 0
              5 TREP
              6 *****
              7 SECTOR 32
              8 *****
              9 *
             10 *          PROG F3
             11 *          DUAL PROGRAM FEATURE TEST
             12 *
             13 *          TEST (1) THE ABILITY TO BRANCH IN PROGRAM
             14 *          LEVEL TWO AND TO TURN ON ALL THE
             15 *          HALT ID LIGHTS IN BOTH PROGRAM
             16 *          LEVELS IS TESTED.
             17 *
             18 *          THE PROGRAM WILL CAUSE HALTS '88'
             19 *          TO OCCUR IN BOTH PROGRAM LEVELS.
             20 *
             21 *          PROGRAM LEVEL 2 HALT SHOULD BE
             22 *          RESET FIRST, THEN PROGRAM LEVEL
             23 *          ONE HALT SHOULD BE RESET.
             24 *
             25 *          *****
             26 *          PROGRAM
             27 *          LEVEL
             28 *          1
             29 *          PROG F3, HALT 1.
             30 *
             31 *          0000 F0 3C 57
             32 *          HALT1 HPL UNITS,TENS
             33 *
             34 *          0003 35 40 00B8
             35 *          P1 L ADP2,X'40' 1 LOAD P2-IAR WITH ADDRESS OF P2
             36 *
             37 *          C007 F3 00 04
             38 *          SIO X'04',X'00' 1 ENABLE DUAL PROGRAM MODE
             39 *
             40 *          000A F0 7F 7F
             41 *          HALT2 HPL X'7F',X'7F' -88- HALT--EXPECTED
             42 *
             43 *          000D F3 00 00
             44 *          ERR1 SIO 0,0 1 * DISABLE DUAL PROGRAM MODE
             45 *
             46 *          0010 F0 3C 57
             47 *          HALT3 HPL UNITS,TENS 1
             48 *          * PROG F3, HALT 3. ERROR HALT
             49 *          * FAILING CARD# A-B3Q2
             50 *          * FAILING FUNCT 1
             51 *
             52 *          0013 F3 00 00
             53 *          END SIO 0,0 1 DISABLE DUAL PROGRAM MODE
             54 *
             55 *          0016 C0 87 0036
             56 *          B START2 1 GO TO NEXT TEST
             57 *
             58 *          001A C0 80 0022
             59 *          P2 BC ERR2,NOOP 2 NO-OP BR TO ERR
             60 *
             61 *          001E C0 87 0028
             62 *          B HALT5 2 UNCD BR TO EXIT
             63 *
             64 *          0022 F3 00 00
             65 *          ERR2 SIO 0,0 2 * DISABLE DUAL PROGRAM MODE
             66 *
             67 *          0025 F0 3C 57
             68 *          HALT4 HPL UNITS,TENS 2
             69 *          * PROG F3, HALT 4. ERROR HALT
             70 *          * FAILING CARD# A-B3Q2
             71 *          * FAILING FUNCT 1
             72 *
             73 *          0028 F0 7F 7F
             74 *          HALT5 HPL X'7F',X'7F' -88- HALT--EXPECTED
             75 *
             76 *          002B 35 20 00BE
             77 *          L ADEND,X'20' 2 LOAD P1-IAR WITH ADDRESS OF END
             78 *
             79 *          002F F1 00 00
             80 *          WAIT APL 0 2 ADVANCE TO PROGRAM LEVEL ONE.
             81 *          * JUMP TO END WITH P1 HALT LATCH
             82 *          * STILL SET.
             83 *
             84 *          0032 C0 87 002F
             85 *          B WAIT 2 LOOP ON APL UNTIL HALT IS RESET

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201  
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OF30 CPU AND MEMORY DIAGNOSTICS: PROGRAM F3 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

69 *****
70 *****
71 *****          INTERRUPT LEVEL 0, DUAL PROGRAM
72 *****
73 *****
74 *****
75 *****
76 START2 L ADRSET,X'80' LOAD INTERRUPT LEVEL 0 IAR WITH
77 * ADDRESS OF RESET.
78 *
79 SIO X'06',X'00' ENABLE INTERRUPT LEVEL 0
80 *
81 STOR1 ST PAD+4,X'80' STORE INTERRUPT LEVEL 0 IAR IN
82 * LOC -FE & FF-.
83 *
84 STOR2 ST PAD+2,X'80' STORE INTERRUPT LEVEL 0 IAR IN
85 * LOC -FC & FD-.
86 *
87 RESET SIO X'01',X'00' RESET INTERRUPT LEVEL 0 (IF ACTIVE)
88 *
89 STOR3 ST PAD,X'80' STORE INTERRUPT LEVEL 0 IAR IN
90 * LOC -FA & FB-.
91 *
92 CLC PAD+4(6),ADRSET BRANCH TO NEXT IF INTERRUPT LEVEL 0
93 BE START3 IAR WAS OK FOR STOR1, STOR2 & STOR3
94 *
95 HALT6 HPL UNITS,TENS * PROG F3, HALT 6. ERROR HALT.
96 * * FAILING CARD# A-B3Q2
97 *
98 *
99 *
100 *****
101 *****
102 *****          INTERRUPT LEVEL 0, DUAL PROGRAM
103 *****
104 *****
105 *****          TEST (1) INT 0 IAR/ARR SELECT
106 *****          (2) ALU BIT 7
107 *****
108 *****
109 *****
110 *****
111 START3 L ADINT,X'80' LOAD INT LEV 0 IAR
112 *
113 SIO X'06',X'00' ENABLE INTERRUPT LEVEL 0
114 *
115 LOOP B LOOP WAIT HERE FOR INTERRUPT
116 *
117 INT L ADHLT7,X'20' LOAD PROG LEVEL 1 IAR TO HLT7 ADDR.
118 *
119 NOOPB BC RESET,X'80' NO-OP BRANCH
120 *
121 UNCD B NEWLD UNCONDITIONAL BRANCH TO NEWLD
122 J RESET2 GO TO RESET IF UNCD FAILED.
123 *
124 NEWLD SIO 0,0 DISABLE DUAL INT
125 L ADBOOT,X'20' LOAD PROG LEVEL 1 IAR TO NEXT ADDR.
126 *
127 RESET2 SIO X'01',X'00' RESET THE INTERRUPT
128 *
129 HALT7 HPL UNITS,TENS * PROG F3, HALT 7. ERROR HALT
130 * * FAILING CARD# A-B3Q2
131 * * FAILING FUNCT 1,2
132 *

```

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

134 *****
135 *
136 *
137 *
138 *****
139
140
0080 35 40 00AC 141 START4 L ADP22,X'40' LOAD P2 IAR
0084 35 80 00AE 142 L ADINT2,X'80' LOAD INT LEVEL 0 IAR
0088 F3 00 06 143 SIO X'06',X'00' ENABLE INTERRUPTS & DUAL PROGRAM
144
008B F0 7F 6C 145 HALT8 HPL X'6C',X'7F' -8C- HALT--EXPECTED
146 * P1 & P2 LOOP ON THIS HALT
147 * UNTIL INTERRUPT IS TAKEN.
148 *
149
008E 35 20 00C0 150 LV12 L ADP1,X'20' PUT P1 ADDRESS IN P1-IAR
151 * IF IN PROG LEV 1 THIS WILL CAUSE
152 * A BRANCH TO LOC P12.
153
0092 F1 00 00 154 APL 0 ADVANCE TO PROG LEV 1 (LV12)
155
0095 F3 00 00 156 P12 SIO 0,0 DISABLE DUAL PROG MODE & INTERRUPTS
157
0098 3C 00 016E 158 MVI BOOT+5,X'00' SETUP TO LOAD E8
009C 3C 15 016A 159 MVI BOOT+1,X'15' GO TO LOAD E8
00A0 C0 87 01E1 160 B BOOT25
161
00A4 35 60 00C2 163 INT2 L ADLV12,X'60' LOAD P1 & P2 IARS WITH LV12 ADDRESS
164
00A8 F3 00 07 165 SIO X'07',X'00' RESET THE INTERRUPT
166 * BOTH P1 & P2 HALTS SHOULD RESET
167 * BY THIS INSTRUCTION.
168
00AB 008B 00AC 170 ADP22 DC AL2(HALT8)
00AD 00A4 00AE 171 ADINT2 DC AL2(INT2)
00AF 007D 00B0 172 ADHLT7 DC AL2(HALT7)
00B1 0080 00B2 173 ADBDOT DC AL2(START4)
00B3 0064 00B4 174 ADINT DC AL2(INT)
00B5 0045 00B6 175 DC AL2(RESET)
00B7 0045 00B8 176 DC AL2(RESET)
00B9 0045 00BA 177 ADRSET DC AL2(RESET)
00BB 001A 00BC 178 ADP2 DC AL2(P2)
00BD 0013 00BE 179 ADEND DC AL2(END)
00BF 0095 00C0 180 ADP1 DC AL2(P12)
00C1 008E 00C2 181 ADLV12 DC AL2(LV12)
182
01E1 183 BOOT25 EQU X'1E1'
0169 184 BOOT EQU X'169'
003C 185 TENS EQU X'3C'
0057 186 UNITS EQU X'57'
00FA 187 PAD EQU 250
0080 188 NOOP EQU X'80'
189
FFFF 190 END

```

-F-  
3

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ADBOOT A 002 00B2 0173 0125
ADEND A 002 008E 0179 0061
ADHLT7 A 002 00B0 0172 0117
ADINT A 002 00B4 0174 0111
ADINT2 A 002 00AE 0171 0142
ADLV12 A 002 00C2 0181 0163
ADP1 A 002 00C0 0180 0150
ADP2 A 002 00BC 0178 0030
ADP22 A 002 00AC 0170 0141
ADRSET A 002 00BA 0177 0076
BOOT C 001 0169 0184 0158* 0092
BOOT25 C 001 01E1 0183 0160* 0159*
END A 003 0013 0043 0179
ERR1 A 003 000D 0036
ERR2 A 003 0022 0052 0048
HALT1 A 003 0000 0027
HALT2 A 003 000A 0034
HALT3 A 003 0010 0038
HALT4 A 003 0025 0054
HALT5 A 003 0028 0059 0050
HALT6 A 003 0056 0095
HALT7 A 003 007D 0129 0172
HALT8 A 003 0088 0145 0170
INT A 004 0064 0117 0174
INT2 A 004 00A4 0163 0171
LOOP A 004 0060 0115 0115
LV12 A 004 008E 0150 0181
NEWLD A 003 0073 0124 0121
NOOP C 001 0080 0188 0048
NOOPB A 004 0068 0119
PAD C 001 00FA 0187 0081* 0084* 0089* 0092
P1 A 004 0003 0030 0180
P12 A 003 0095 0156 0178
P2 A 004 001A 0048 0119
RESET A 003 0045 0087 0175 0176 0177
RESET2 A 003 007A 0127 0122
START2 A 004 0036 0076 0045
START3 A 004 0059 0111 0093
START4 A 004 0080 0141 0173
STOR1 A 004 003D 0081
STOR2 A 004 0041 0084
STOR3 A 004 0048 0089
TENS ? 001 003C 0185 0027 0038 0054 0095 0129
UNCD ? 004 006C 0121
UNITS C 001 0057 0186 0027 0038 0054 0095 0129
UVMXYZ A 001 0000 0004
WAIT A 003 002F 0063 0067

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

OF30 CPU AND MEMORY DIAGNOSTICS: PROGRAM F3 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E P INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

\*GBK\*GBD\*\*PN\*42 48200\*EC\*827804\* CPU\*6\*MEMORY\*TES TS\*\*\*\*\*MOD\*12 84228422\*\*\*\*\* OF300000  
T+-:2C1P(M\*?)|< \*A|A\*-~\*|<|\*2N\*|< \*\*<BG\*CS\*-\*\*SOH\* \*H|<|\*2N\*A\*-3M -\*.#1\*\*C\*/0\*?|Q\* \*>?<\*EKYOF300001  
T+-A5\*\*Q4-\*C=(H\* \*|<\*\*LK\*\*|Y(A&C =\*.,\*-&AR2C1P(Q\* \*\_|<\*A2BG\*F\*5H\*B 00H\*\*J\*BG\*G|2/0~ 3\*\*\*\*23QOF300002  
T+-BOIK\*\*2?<\*~\* 2N3N\*\*R05-\*B>20\* F2G\*2IK\*\*O|D\*\*|< \*\*CO\*\*082E&E0H\* A8LN-\*<.3\*\* \*S08 U\*G4\*\*H6OF300003  
YD&CB\*H\*\*R\*AE\*DM \*J&\*E\*A<V&B+\*\*\* ..... \*\$-<OF300004  
E\*\*\*\*E7\*=-DC\*PH\$ =\*7M&F|\*\*\*|\*\*\*C\* \*\*F%\*\*\*ASC\*\*R\*A S0\*\*\*Q\*\*\*\*\* 12010630750 828751Y20F300005

OF40 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM F4 MOD 12  
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4  
3 SEQ 0  
4 UVWXYZ START 0  
5 TREP  
6 \* SECTOR 33  
7 \*\*\*\*\*  
8 \*\*\*\*\*  
9 \*\*\*\*\* INVALID OP CODE TEST \*\*\*\*\*  
10 \*\*\*\*\*  
11 \*\*\*\*\*  
12 \*\*\*\*\*  
13 \*\*\*\*\*  
14 \*\*\*\*\*  
15 HLT1 HPL UNITS,TENS PRE-EXECUTION HALT  
16 \*\*\*\*\*  
17 \*\*\*\*\*  
18 \*\*\*\*\*  
19 \*\*\*\*\*  
20 \*\*\*\*\*  
21 \*\*\*\*\*  
22 \*\*\*\*\*  
23 \*\*\*\*\*  
24 \*\*\*\*\*  
25 \*\*\*\*\*  
26 \*\*\*\*\*  
27 \*\*\*\*\* PARITY CHECK CIRCUIT TEST \*\*\*\*\*  
28 \*\*\*\*\*  
29 \*\*\*\*\*  
30 \*\*\*\*\*  
31 \*\*\*\*\*  
32 MVC X'0418',BRBACK(4) SET UP TO BR BACK WHEN IAR ALTERED  
33 L SARDAT,X'01' PUT HEX -0404- IN XR1  
34 ST OPQ,X'11' OR IAR & XR1. RESULT HAS BAD PARITY.  
35 \* RESULT (HEX -0415-) FORMS THE  
36 \* OP & Q BYTES OF NSI.  
37 \*  
38 \*  
39 \*  
40 \*  
41 \* \*NOTE- IAR IS ALTERED TO HEX -0415-  
42 \* WITH BAD PARITY.  
43 \*\*\*\*\*  
44 \*\*\*\*\*  
45 \*\*\*\*\*  
46 \*\*\*\*\*  
47 \*\*\*\*\*  
48 \*\*\*\*\*  
49 \*\*\*\*\*  
50 \*\*\*\*\*  
51 \*\*\*\*\*  
52 \*\*\*\*\*  
53 \*\*\*\*\*  
54 BRBACK DC XL4'C0870039' BRANCH INSTRUCTION.  
55 SARDAT DC XL2'0404' DATA LOADED INTO XR1.  
56 DCP DC XL5'0000030011'  
57 \*\*\*\*\*  
58 \*\*\*\*\*  
59 \*\*\*\*\*  
60 \*\*\*\*\*  
61 \*\*\*\*\*  
62 \*\*\*\*\*  
63 \*\*\*\*\*  
0003 F80000 0005 DC XL3'F80000' INVALID COMMAND  
0006 F40000 0008 DC XL3'F40000' INVALID COMMAND  
0009 C3000000 000C DC XL4'C3000000' INVALID BRANCH  
000D 32000100 0010 DC XL4'32000100' INVALID 1 ADDRESS INSTR.  
0011 3E000100 0014 DC XL4'3E000100' INVALID 1 ADDRESS INSTR.  
0015 37000100 0018 DC XL4'37000100' INVALID 1 ADDRESS INSTR.  
0019 030001000100 001E DC XL6'030001000100' INVALID 2 ADDRESS INSTR.  
001F 050001000100 0024 DC XL6'050001000100' INVALID 2 ADDRESS INSTR.  
0025 090001000100 002A DC XL6'090001000100' INVALID 2 ADDRESS INSTR.  
0028 0C 03 0418 0054 MVC X'0418',BRBACK(4) SET UP TO BR BACK WHEN IAR ALTERED  
0031 35 01 0056 L SARDAT,X'01' PUT HEX -0404- IN XR1  
0035 34 11 003A ST OPQ,X'11' OR IAR & XR1. RESULT HAS BAD PARITY.  
\* RESULT (HEX -0415-) FORMS THE  
\* OP & Q BYTES OF NSI.  
\*NOTE- IAR IS ALTERED TO HEX -0415-  
\* WITH BAD PARITY.  
0039 0000 003A OPQ DC XL2'0000'  
003B FFFFFFFF 003E DC XL4'FFFFFFF' SHUD CONTAIN HEX -0415-, ZAZ INSTR.  
ADRS BYTES OF ZAZ INSTR. THIS DATA  
FORCES ADRS. CHECKS WHEN SAR LOADED.  
003F 0C 04 01DA 005B MVC CNTFLD(5),DCP SET UP FOR LOAD OF DCP.  
0045 3C 00 018E MVI BOOT+37,X'00' SETUP TO GIVE CONTROL AT 0000  
0049 3C 01 016A MVI BOOT+1,X'01' BRANCH TO BOOTSTRAP.  
004D C0 87 0169 B BOOT EQU X'169'  
0051 C0870039 0054 BRBACK DC XL4'C0870039' BRANCH INSTRUCTION.  
0055 0404 0056 SARDAT DC XL2'0404' DATA LOADED INTO XR1.  
0057 0000030011 0058 DCP DC XL5'0000030011'  
0169 58 BOOT EQU X'169'  
003C 59 TENS EQU X'3C'  
0018 60 UNITS EQU X'18'  
01DA 61 CNTFLD EQU X'01DA'  
FFFF 62 \*\*\*\*\*  
63 \*\*\*\*\*

----- LAST PAGE -----

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OF40 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM F4 MOD 12  
CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BOOT	C	001	0169	0058	0049* 0050* 0051
BRBACK	A	004	0054	0054	0032
CNTFLD	C	001	01DA	0061	0048*
DCP	A	005	005B	0056	0048
HLL1	A	003	0000	0013	
OPQ	A	002	003A	0043	0036*
SARDAT	A	002	0056	0055	0034
TENS	C	001	003C	0059	0013
UNITS	C	001	001B	0060	0013
UVWXYZ	A	001	0000	0004	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OF40 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM F4 MOD 12  
OBJECT CARD LISTING

THE CHARACTER \* INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.  
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD**PN*42 48200*EC*827804* CPU & MEMORY YES TS*****MOD*12 84228422 ..... OF400000
T+ :@C0$=***i** *00**CLH**&*=**D *(O A < & A M **& A U & A O CAA-NCMA EQ4DE : *****4#&OF400001
TH*AS*****00D*Y *030**Q82*&ED0H* AE*BG*CUDA*****O J ..... OF400002
E***E7*=-DC*PHS =*7M&FI***I***C **F*ASC**R*A SO**Q ..... 12010630750 828750Q40F400003
  
```