

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
3 COPY LOG7810 ** MAP EC HISTORY **
4 *****
5 *** PPEREQUISITES ***
6 *
7 *
8 * NONE *
9 *
10 *****
11 *
12 *** MODIFICATIONS ***
13 *
14 CHANGES MADE TO MEET PROGRAM REQUIREMENTS
15 *
16 *****
17 *
18 *** REA'S INCOPPORATED ***
19 *
20 * NONE *
21 *
22 *****
23 *
24 *** SPECIAL INSTPUCTIONS ***
25 *
26 * NONE *
27 *
28 *****
29 *
30 *** E. C. HISTORY ***
31 *
32 DATE 17DEC76 DATE 18JAN77 DATE 04MAR77 DATE 10JUN77
33 E.C. 578486 E.C. 578573 E.C. 578638 E.C. 578625
34 *
35 DATE 01MAR78 DATE DATE DATE
36 E.C. 755285 E.C. E.C. E.C.
37 *
38 *****
39 17810 START X'2500' START ADDRESS OF ALL 'I' TYPE PROG
40 @QUES EQU X'0100' EQUATED VALUE FOR MDI STATEMENT
41 @FIXT EQU X'0101' EQUATED VALUE FOR MDI STATEMENT
42 @STOP EQU X'0102' EQUATED VALUE FOR MDI STATEMENT
43 @GOTO EQU X'0200' EQUATED VALUE FOR MDI STATEMENT
44 @CALL EQU X'0201' EQUATED VALUE FOR MDI STATEMENT
45 @INPT EQU X'0300' EQUATED VALUE FOR MDI STATEMENT
46 @QUXX EQU X'0400' EQUATED VALUE FOR MDI STATEMENT
47 @TUXX EQU X'0500' EQUATED VALUE FOR MDI STATEMENT
48 @NVLD EQU X'0600' EQUATED VALUE FOR MDI STATEMENT
49 @C EQU X'0000' EQUATE FOR EQUAL
50 @NE EQU X'0004' EQUATE FOR NOT EQUAL
51 @HI EQU X'0008' EQUATE FOR HIGH
52 @NH EQU X'000C' EQUATE FOR NOT HIGH
53 @LO EQU X'0010' EQUATE FOR LOW
54 @NL EQU X'0014' EQUATE FOR NOT LOW
55 @IT EQU X'0010' EQUATE FOR LESS THAN
56 @LE EQU X'000C' EQUATE FOR LESS THAN OR EQUAL TO
57 @GT EQU X'0008' EQUATE FOR GREATER THAN
58 @GE EQU X'0014' EQUATE FOR GREATER THAN OR EQUAL TO
59 @ON EQU X'0200' EQUATE FOR ON
60 @OF EQU X'0202' EQUATE FOR OFF
61 @MX EQU X'0204' EQUATE FOR MIXED
62 @EBC EQU X'0000' EQUATE FOR EBCDIC DATA TRANSFER
63 @HEX EQU X'0001' EQUATE FOR HEX DATA TRANSFER
64 @XTFNL EQU X'0001' EQUATE FOR EXTERNAL REFERENCE
65 @INTFNL EQU X'0000' EQUATE FOR INTERNAL REFERENCE
66 @PARM EQU X'0000' EQUATE FOR INDICATING PARAMETER
67 @DA EQU X'0001' EQUATE FOR DEVICE ADDRESS
68 @UA EQU X'0002' EQUATE FOR UNIT ADDRESS
69 @DUMMY EQU X'0000' DUMMY EQUATE
70 @PID EQU *-X'0D00' ADDRESS OF MDI HEADER
71 @PTYPE EQU *-X'22CE' ADDRESS OF PROCESSOR TYPE FIELD
72 @STEPNUM EQU PID+X'000C' ADDRESS OF DECIMAL STEP NUMBER
73 @OPWD1 EQU PID+X'000E' ADDRESS OF OPTION WORD ONE
74 @OPWD2 EQU PID+X'0010' ADDRESS OF OPTION WORD TWO
75 @TUSTATUS EQU PID+X'0018' ADDRESS OF TU STATUS WORD
76 @TUWORK EQU PID+X'0019' ADDRESS OF TU WORK AREA
77 @TUPARM1 EQU PID+X'009A' ADDRESS OF PARM 1 POINTER
78 @TUPARM2 EQU PID+X'009C' ADDRESS OF PARM 2 POINTER
79 @TUPARM3 EQU PID+X'009E' ADDRESS OF PARM 3 POINTER
80 @TUPARM4 EQU PID+X'00A0' ADDRESS OF PARM 4 POINTER
81 @TUPARM5 EQU PID+X'00A2' ADDRESS OF PARM 5 POINTER
82 @TUPARM6 EQU PID+X'00A4' ADDRESS OF PARM 6 POINTER
83 @TUPARM7 EQU PID+X'00A6' ADDRESS OF PARM 7 POINTER
84 @TUPARM8 EQU PID+X'00A8' ADDRESS OF PARM 8 POINTER
85 @TUPARM9 EQU PID+X'00AA' ADDRESS OF PARM 9 POINTER
86 @TUPARM10 EQU PID+X'00AC' ADDRESS OF PARM 10 POINTER
87 @TUPARM11 EQU PID+X'00AE' ADDRESS OF PARM 11 POINTER
88 @TUPARM12 EQU PID+X'00B0' ADDRESS OF PARM 12 POINTER
89 @TUPARM13 EQU PID+X'00B2' ADDRESS OF PARM 13 POINTER
90 @TUPARM14 EQU PID+X'00B4' ADDRESS OF PARM 14 POINTER
91 @TUPARM15 EQU PID+X'00B6' ADDRESS OF PARM 15 POINTER
92 @TUPARM16 EQU PID+X'00B8' ADDRESS OF PARM 16 POINTER
93 @TUMSGWTR EQU PID+X'00BA' ADDRESS OF -> TO COMMON MSG WRITER
94 @TUUU EQU PID+X'00BE' ADDRESS OF UNIT ADDRESS IN EBC
95 @TUDA EQU PID+X'00C0' ADDRESS OF DEVICE ADDRESS IN EBC
96 @TUBUFF EQU PID+X'00C2' ADDRESS OF IAST USED WORD IN MAP
97 @TULAST EQU PID+X'00C4' ADDRESS OF IAST ADDRESSABLE WORD
98 @TUFESULN EQU PID+X'00C6' ADDRESS OF LENGTH OF TU RESULTS
99 @TUFESUL EQU PID+X'00C8' ADDRESS OF TU RESULTS FIELD
100 @MAPNAME EQU PID+X'00FC' ADDRESS OF MAP NAME FIELD IN HEX
101 @TIMPT EQU PID+X'0149' ADDRESS OF SINT DATA
102 @PARMARA EQU PID+X'016E' ADDRESS OF SINT PARAMETER
103 @DCADD1 EQU PID+X'01B8' MDI POINTER
104 @DCADD2 EQU PID+X'01BA' MDI POINTER
105 @SUPSTAT EQU PID+X'01C4' ADDRESS OF MDI STATUS
106 @DEVADD EQU PID+X'01D0' ADDRESS OF DEVICE ADDRESS TABLE 0
107 @DEVADD1 EQU PID+X'01DA' ADDRESS OF DEVICE ADDRESS TABLE 1
108 @DEVADD2 EQU PID+X'01E4' ADDRESS OF DEVICE ADDRESS TABLE 2
109 @DEVADD3 EQU PID+X'01EE' ADDRESS OF DEVICE ADDRESS TABLE 3
110 @DEVADD4 EQU PID+X'01F8' ADDRESS OF DEVICE ADDRESS TABLE 4
111 @DEVADD5 EQU PID+X'0202' ADDRESS OF DEVICE ADDRESS TABLE 5
112 @DEVADD6 EQU PID+X'020C' ADDRESS OF DEVICE ADDRESS TABLE 6
113 @DEVADD7 EQU PID+X'0216' ADDRESS OF DEVICE ADDRESS TABLE 7
114 PRINT OFF
115 *
116 *****

002500
000100
000101
000102
000200
000201
000300
000400
000500
000600
000000
000004
000008
000010
000014
000018
000022
000026
000030
000034
000038
000042
000046
000050
000054
000058
000062
000066
000070
000074
000078
000082
000086
000090
000094
000098
000102
000106
000110
000114
000118
000122
000126
000130
000134
000138
000142
000146
000150
000154
000158
000162
000166
000170
000174
000178
000182
000186
000190
000194
000198
000202
000206
000210
000214
000218
000222
000226
000230
000234
000238
000242
000246
000250
000254
000258
000262
000266
000270
000274
000278
000282
000286
000290
000294
000298
000302
000306
000310
000314
000318
000322
000326
000330
000334
000338
000342
000346
000350
000354
000358
000362
000366
000370
000374
000378
000382
000386
000390
000394
000398
000402
000406
000410
000414
000418
000422
000426
000430
000434
000438
000442
000446
000450
000454
000458
000462
000466
000470
000474
000478
000482
000486
000490
000494
000498
000502
000506
000510
000514
000518
000522
000526
000530
000534
000538
000542
000546
000550
000554
000558
000562
000566
000570
000574
000578
000582
000586
000590
000594
000598
000602
000606
000610
000614
000618
000622
000626
000630
000634
000638
000642
000646
000650
000654
000658
000662
000666
000670
000674
000678
000682
000686
000690
000694
000698
000702
000706
000710
000714
000718
000722
000726
000730
000734
000738
000742
000746
000750
000754
000758
000762
000766
000770
000774
000778
000782
000786
000790
000794
000798
000802
000806
000810
000814
000818
000822
000826
000830
000834
000838
000842
000846
000850
000854
000858
000862
000866
000870
000874
000878
000882
000886
000890
000894
000898
000902
000906
000910
000914
000918
000922
000926
000930
000934
000938
000942
000946
000950
000954
000958
000962
000966
000970
000974
000978
000982
000986
000990
000994
000998
001002
001006
001010
001014
001018
001022
001026
001030
001034
001038
001042
001046
001050
001054
001058
001062
001066
001070
001074
001078
001082
001086
001090
001094
001098
001102
001106
001110
001114
001118
001122
001126
001130
001134
001138
001142
001146
001150
001154
001158
001162
001166

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
002500 26AE 201 DC A(ENTPT) POINT TO MAP ENTRY POINT TABLE
202 *****
203 *****
204 *****
205 ** THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00) **
206 ** TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER **
207 ** PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR **
208 ** THE INDICATED MESSAGE(S). THERE ARE FOUR TABLES USED FOR THIS **
209 ** PURPOSE THEY ARE: **
210 **
211 ** STEP AND RULE ADDRESS TABLE **
212 ** THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND **
213 ** THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE. **
214 ** ENTRIES ARE AS FOLLOWS **
215 ** A) AN ADDRESS OF THE RULE DC START AREA **
216 ** B) THE STEP NUMBER IN DECIMAL **
217 ** C) AN EQUATE FOR THE STEP NUMBER **
218 **
219 **
220 ** RULE INFORMATION TABLE **
221 ** THIS TABLE CONTAINS THE REQUIRED INFORMATION TO EXECUTE **
222 ** THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN **
223 ** UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS **
224 ** INDICATED WITH A X'0000' FOR THE RULE EQUATE. **
225 **
226 ** \$QUES **
227 ** A) RULE EQUATE X'0100' **
228 ** B) ADDRESS OF THE YES LEG RULE **
229 **
230 ** \$FIXT **
231 ** A) RULE EQUATE X'0101' **
232 ** B) ADDRESS OF MESSAGE TO PRINT **
233 **
234 ** \$STOP **
235 ** A) RULE EQUATE X'0102' **
236 ** B) ADDRESS OF MESSAGE **
237 **
238 ** \$GOTO **
239 ** A) RULE EQUATE X'0200' **
240 ** B) ADDRESS OF MESSAGE **
241 ** C) NAME OF MAP TO GO TO **
242 ** D) ENTRY POINT WITHIN GO TO MAP TO USE **
243 ** E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE **
244 **
245 ** \$CALL **
246 ** A) RULE EQUATE X'0201' **
247 ** B) ADDRESS OF MESSAGE **
248 ** C) NAME OF MAP TO CALL **
249 ** D) ENTRY POINT WITHIN CALLED MAP TO USE **
250 ** E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE **
251 **
252 ** \$INPT **
253 ** A) RULE EQUATE X'0300' **
254 ** B) INPUT TYPE (EBCDIC OR HEX) **
255 ** C) ADDRESS OF YES LEG RULE **
256 ** D) DESTINATION LOCATION OF INPUT DATA **
257 ** E) LENGTH OF INPUT DATA **
258 ** F) LOWER LIMIT OF GOOD DATA **
259 ** G) HIGHER LIMIT OF GOOD DATA **
260 **
261 ** \$QUXX **
262 ** A) RULE EQUATE X'0400' **
263 ** B) ADDRESS OF YES LEG RULE **
264 ** C) TU BRANCH TO ADDRESS (INITIAL) **
265 ** D) TU BRANCH TO ADDRESS (SECONDARY) **
266 ** E) LENGTH OF PARAMETER IN BYTES **
267 ** F) PARAMETER TO PASS TO TU **
268 ** G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER **
269 **
270 **
271 ** \$TUXX **
272 ** A) RULE EQUATE X'0500' **
273 ** B) ADDRESS OF YES LEG RULE **
274 ** C) TU BRANCH TO ADDRESS **
275 ** D) TYPE OF COMPARE TO MAKE ON RESULTS **
276 ** E) LENGTH OF COMPARED RESULTS **
277 ** F) MASK FIELD FOR COMPARE **
278 ** G) LENGTH OF PARAMETER IN BYTES **
279 ** H) PARAMETER TO PASS TO THE TU **
280 ** I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER **
281 **
282 **
283 ** \$NVLD **
284 ** A) RULE EQUATE X'0600' **
285 **
286 **
287 ** ENTRY POINT TABLE **
288 ** THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT **
289 ** THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE **
290 ** REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWS: **
291 **
292 ** A) NAME OF ENTRY POINT **
293 ** B) ADDRESS OF ENTRY POINT RULE TABLE **
294 **
295 ** THE ENTRY POINT TABLE END IS INDICATED BY A X'0000' **
296 **
297 ** MESSAGE TABLE **
298 ** THIS TABLE CONTAINS THE MESSAGE PASSED TO THE OPERATOR **
299 ** VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWS: **
300 **
301 ** A) EQUATE FOR START OF MESSAGE BLOCK **
302 ** B) NUMBER OF LINES OF MESSAGE **
303 ** C) LENGTH OF FOLLOWING LINE **
304 ** D) FIRST LINE OF MESSAGE **
305 ** E) LENGTH OF FOLLOWING LINE **
306 ** F) SECOND LINE OF MESSAGE **
307 ** G) ETC. **
308 *****

LOCTR	OBJECT TEXT	STMT	SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
311			*****	
312			*****	
313			*****	
314			*****	
315			*****	
316			*****	
317			*****	
318			*****	
319			*****	
320			*****	
321			*****	
322			*****	
323			*****	
324			*****	
325			*****	
326			*****	
327			*****	
328			*****	
329			*****	
330			*****	
331			*****	
332			*****	
333			*****	
334			*****	
335			*****	
336			*****	
337			*****	
338			*****	
339			*****	
340			*****	
341			*****	
342			*****	
343			*****	
344			*****	
345			*****	
346			*****	
347			*****	
348			*****	
349			*****	
350			*****	
351			*****	
352			*****	
353			*****	
354			*****	
355			*****	
356			*****	
357			*****	
358			*****	
359			*****	
360			*****	
361			*****	
362			*****	
363			*****	
364			*****	
365			*****	
366			*****	
367			*****	
368			*****	
369			*****	
370			*****	
371			*****	
372			*****	
373			*****	
374			*****	
375			*****	
376			*****	
377			*****	
378			*****	
379			*****	
380			*****	
381			*****	
382			*****	
383			*****	
384			*****	
385			*****	
386			*****	
387			*****	
388			*****	
389			*****	
390			*****	
391			*****	
392			*****	
393			*****	
394			*****	
395			*****	
396			*****	
397			*****	
398			*****	
399			*****	
400			*****	
401			*****	
402			*****	
403			*****	
404			*****	
405			*****	
406			*****	
407			*****	
408			*****	
409			*****	
410			*****	
411			*****	
412			*****	
413			*****	
414			*****	
415			*****	
416			*****	
417			*****	
418			*****	
419			*****	
420			*****	
421			*****	
422			*****	
423			*****	
424			*****	
002502	2570			
002504	0001			
002506	2582			
002508	0002			
002510	2594			
002512	0003			
002514	25A0			
002516	0004			
002518	25A2			
002520	0005			
002522	25B2			
002524	0006			
002526	25B6			
002528	0007			
002530	25C8			
002532	0008			
002534	25DA			
002536	0009			
002538	25EC			
002540	0010			
002542	25FA			
002544	0011			
002546	25FE			
002548	0012			
002550	260A			
002552	0013			
002554	260E			
002556	0014			
002558	2612			
002560	0015			
002562	261A			
002564	0016			
002566	2636			
002568	0017			
002570	2642			
002572	0018			
002574	2646			
002576	0019			
002578	264A			
002580	0020			
002582	264E			
002584	0021			
002586	2660			
002588	0022			
002590	2672			
002592	0023			
002594	2676			
002596	0024			
002598	2682			
002600	0025			
002602	2694			
002604	0026			
002606	26A0			
002608	0027			
002610	0000			

LOCTR	OBJECT TEXT	STMT	SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
00258C	5000	425+	DC X'5000'	
00258E	0000	426+	ALIGN WORD	
002590	C1C1	427+	DC AL2(0)	
		428+	DC C'AA'	
		429+	ALIGN WORD	
002592	196E	430+	DC AL2(PARMARA)	
		431	SGOTO TYPE=XTRNL,MAP=7860,EP=A,FT=(F00100),GTO=((7860,A))	
		432	DC A(80GOTO)	
002594	0200	433+	DC A(F00100)	
002596	26B8	434+	DC CL4'7860'	
002598	F7F8F6FO	435+	DC CL2'A'	
00259C	C140	436+	DC AL2(XTRNL)	
00259E	0001	437	SQUXX T7833,QT=(Q00105),YES=N00006,CT=(C00103),ST=(S00077)	
		438+	DC A(80UXX)	
0025A0	0400	439+	DC AL2(IN00006)	
0025A2	25B2	440+	DC A(T7833)	
0025A4	36BA	441+	DC AL2(DUMMY)	
0025A6	0000	442+	DC C'AA'	
0025A8	0000	443+	ALIGN WORD	
0025AA	C1C1	444+	DC AL2(PARMARA)	
		445+	SFIXT FT=(F00109)	
0025AC	196E	446	DC A(8FIXT)	
		447+	DC A(F00109)	
0025AE	0101	448	SFIXT FT=(F00111),CT=(C00054)	
0025B0	26BE	449	DC A(8FIXT)	
		450+	DC A(F00111)	
0025B2	0101	451	STUXX T7831,2,0000,EQ,QT=(Q00114),YES=N00021	
0025B4	26FC	452	DC A(8TUXX)	
		453+	DC AL2(IN00021)	
0025B6	0500	454+	DC A(T7831)	
0025B8	264E	455+	DC AL2(EQ)	
0025BA	2F34	456+	DC AL2(2)	
0025BC	0000	457+	DC X'0000'	
0025BE	0002	458+	ALIGN WORD	
0025C0	0000	459+	DC AL2(0)	
		460+	DC C'AA'	
0025C2	0000	461+	ALIGN WORD	
0025C4	C1C1	462+	DC AL2(PARMARA)	
		463+	STUXX T3C02,2,C000,OF,QT=(Q00116),YES=N00020,ST=(S00059)	
0025C6	196E	464	DC A(8TUXX)	
		465+	DC AL2(IN00020)	
0025C8	0500	466+	DC A(T3C02)	
0025CA	264A	467+	DC AL2(OF)	
0025CC	2C14	468+	DC AL2(2)	
0025CE	0202	469+	DC X'0000'	
0025D0	0002	470+	ALIGN WORD	
0025D2	C000	471+	DC AL2(0)	
		472+	DC C'AA'	
0025D4	0000	473+	ALIGN WORD	
0025D6	C1C1	474+	DC AL2(PARMARA)	
		475+	STUXX T3C02,2,8000,ON,QT=(Q00121),YES=N00013,ST=(S00059)	
0025DA	0500	476	DC A(8TUXX)	
0025DC	260A	477+	DC AL2(IN00013)	
0025DE	2C14	478+	DC A(T3C02)	
0025E0	0200	479+	DC AL2(ON)	
0025E2	0002	480+	DC AL2(2)	
0025E4	8000	481+	DC X'8000'	
		482+	ALIGN WORD	
0025E6	0000	483+	DC AL2(0)	
0025E8	C1C1	484+	DC C'AA'	
		485+	ALIGN WORD	
0025EA	196E	486+	DC AL2(PARMARA)	
		487+	STUXX T7836,QT=(Q00126),YES=N00012,CT=(C00124),ST=(S00077)	
0025EC	0400	488	DC A(8TUXX)	
0025EE	25FE	489	DC AL2(IN00012)	
0025F0	2DB6	490+	DC A(T7836)	
0025F2	0000	491+	DC AL2(DUMMY)	
0025F4	0000	492+	DC AL2(0)	
0025F6	C1C1	493+	DC C'AA'	
		494+	ALIGN WORD	
0025F8	196E	495+	DC AL2(PARMARA)	
		496+	SFIXT FT=(F00130),CT=(C00054)	
0025FA	0101	497	DC A(8FIXT)	
0025FC	27D2	498	DC A(F00130)	
		499+	DC A(8TUXX)	
0025FE	0200	500	SGOTO TYPE=XTRNL,MAP=7860,EP=A,FT=(F00133),GTO=((7860,A))	
002600	28A0	501+	DC A(8GOTO)	
002602	F3C3F0FO	502+	DC A(F00133)	
002604	C140	503+	DC CL4'3C00'	
002606	0001	504+	DC CL2'A'	
		505+	DC AL2(XTRNL)	
00260A	0100	506	SQUES QT=(Q00138),YES=N00015,CT=(C00136)	
00260C	2612	507+	DC A(8QUES)	
		508+	DC AL2(IN00015)	
00260E	0101	509	SFIXT FT=(F00140),CT=(C00054)	
002610	28A6	510+	DC A(8FIXT)	
		511+	DC A(F00140)	
002612	0500	512	STUXX T3C02,2,0004,ON,QT=(Q00144),YES=N00019,ST=(S00059)	
002614	2646	513+	DC A(8TUXX)	
002616	2C14	514+	DC A(T3C02)	
002618	0200	515+	DC AL2(ON)	
00261A	0002	516+	DC AL2(2)	
00261C	0004	517+	DC X'0004'	
		518+	ALIGN WORD	
00261E	0000	519+	DC AL2(0)	
002620	C1C1	520+	DC C'AA'	
		521+	ALIGN WORD	
002622	196E	522+	DC AL2(PARMARA)	
		523+	STUXX T3C02,2,1000,ON,QT=(Q00147),YES=N00018,ST=(S00059)	
002624	0500	524	DC A(8TUXX)	
002626	2642	525+	DC AL2(IN00018)	
002628	2C14	526+	DC A(T3C02)	
00262A	0200	527+	DC AL2(ON)	
00262C	0002	528+	DC AL2(2)	
00262E	1000	529+	DC X'1000'	
		530+	ALIGN WORD	
002630	0000	531+	DC AL2(0)	
002632	C1C1	532+	DC C'AA'	
		533+	ALIGN WORD	
002634	196E	534+	DC AL2(PARMARA)	
		535+	SGOTO TYPE=XTRNL,MAP=7860,EP=A,FT=(F00150),GTO=((7860,A))	
002636	0200	536	DC A(8GOTO)	
002638	28BE	537+	DC A(F00150)	

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
00263A F7F8F6F0 539+ DC CI4'7860'
00263E C140 540+ DC CI2'A'
002640 0001 541+ DC AL2(XTRNL)
542 N00018 \$FIXT FT=(F00153),CT=(C00054)
543 N00018 DC A(@FIXT)
544+ DC A(F00153)
545 N00019 \$FIXT FT=(F00156),CT=(C00054)
546 N00019 DC A(@FIXT)
547+ DC A(F00156)
548 N00020 \$FIXT FT=(F00159),CT=(C00054)
549 N00020 DC A(@FIXT)
550+ DC A(F00159)
551 N00021 \$TUXX T7832,2,0000,EQ,QT=(Q00162),YES=N00025
552 N00021 DC A(@TUXX)
553+ DC AL2(N00025)
554+ DC A(T7832)
555+ DC AL2(2)
556+ DC AL2(2)
557+ DC X'0000'
558+ ALIGN WORD
559+ DC AL2(0)
560+ DC C'AA'
561+ ALIGN WORD
562+ DC AL2(PARMARA)
563 N00022 \$TUXX T3C02,2,1C00,OF,QT=(Q00164),YES=N00024,ST=(S0 0059)
564 N00022 DC A(@TUXX)
565+ DC AL2(N00024)
566+ DC A(T3C02)
567+ DC AL2(OF)
568+ DC AL2(2)
569+ DC X'1C00'
570+ ALIGN WORD
571+ DC AL2(0)
572+ DC C'AA'
573+ ALIGN WORD
574+ DC AL2(PARMARA)
575 N00023 \$FIXT FT=(F00167),CT=(C00054)
576 N00023 DC A(@FIXT)
577+ DC A(F00167)
578 N00024 \$GOTO TYPE=XTRNL,MAP=7860,EP=A,FT=(F00170),GTO=((7860,A))
579 N00024 DC A(@GOTO)
580+ DC A(F00170)
581+ DC CI4'7860'
582+ DC CI2'A'
583+ DC AL2(XTRNL)
584 N00025 \$TUXX T7875,2,0000,EQ,QT=(Q00173),YES=N00027
585 N00025 DC A(@TUXX)
586+ DC AL2(N00027)
587+ DC A(T7875)
588+ DC AL2(EQ)
589+ DC AL2(2)
590+ DC X'0000'
591+ ALIGN WORD
592+ DC AL2(0)
593+ DC C'AA'
594+ ALIGN WORD
595+ DC AL2(PARMARA)
596 N00026 \$GOTO TYPE=XTRNL,MAP=7860,EP=A,FT=(F00175),GTO=((7860,A))
597 N00026 DC A(@GOTO)
598+ DC A(F00175)
599+ DC CI4'7860'
600+ DC CI2'A'
601+ DC AL2(XTRNL)
602 N00027 \$GOTO TYPE=XTRNL,MAP=7811,EP=A,FT=(F00178),GTO=((7811,A))
603 N00027 DC A(@GOTO)
604+ DC A(F00178)
605+ DC CI4'7811'
606+ DC CI2'A'
607+ DC AL2(XTRNL)
608+ DC AL2(DUMMY)
609 ENTPT EQU *
610 *****
611 *****
612 ** ENTPY POINT TABLE **
613 ** **
614 ** **
615 *****
616 *****
617 ENTPT EP=B,STEP=00015
618+ DC CI2'A'
619+ DC A(N00015)
620 ENTPT EP=C,STEP=00001
621+ DC CI2'C'
622+ DC A(N00001)
623+ DC AL2(DUMMY)
624 *****
625 *****
626 ** MESSAGE TABLE **
627 ** **
628 ** **
629 *****
630 *****
631 F00100 EQU *
632 DC AL2(0001)
633 DC A(0002)
634 DC CI0002'
635 F00109 EQU *
636 DC AL2(0002)
637 DC A(0026)
638 DC CI0026'REPLACE (FCU) CAPD A-A1C2. '
639 DC A(0030)
640 DC CI0030'REPAIR OR REPLACE A-A1 BOARD. '
641 F00111 EQU *
642 DC AL2(0007)
643 DC A(0020)
644 DC CI0020'REPLACE CARD A-A1H2. '
645 DC A(0034)
646 DC CI0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
647 DC A(0034)
648 DC CI0034'REPLACE CAPD A-A1K4. (SEE NOTE 1) '
649 DC A(0002)
650 DC CI0002'
651 DC A(0044)
652 DC CI0042'NOTE 1 : AFTER THE NEW FPU IS INSTALLED, '

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
00278C 002C 653 DC A(0044)
00278E C5E7C5C3E4E3C540D 654 DC CI0044'EXECUTE MAP 7815 TO ENSURE THAT THE ACTUATOR'
00278A 0016 655 DC A(0022)
00278C C1D9D440E2D7C5C5C 656 DC CI0022'AFM SPEED IS CORRECT. '
002792 0007 657 F00130 EQU *
0027D2 0007 658 DC AL2(0007)
0027D4 001A 659 DC A(0026)
0027D6 D9C5D7D3C1C3C5404 660 DC CI0026'REPLACE (FCU) CAPD A-A1D2. '
0027F0 0014 661 DC A(0020)
0027F2 D9C5D7D3C1C3C540C 662 DC CI0020'REPLACE CARD A-A1H2. '
002806 0022 663 DC A(0034)
002808 D9C5D7D3C1C3C540C 664 DC CI0034'REPLACE CARD A-A1G2. (SEE NOTE 1) '
00282A 0002 665 DC A(0002)
00282C 4040 666 DC CI0002'
00282E 002A 667 DC A(0042)
002830 D5D6E3C540F1407A4 668 DC CI0042'NOTE 1 : AFTER THE NEW FPU IS INSTALLED, '
00283A 002C 669 DC A(0044)
00285C C5E7C5C3E4E3C540D 670 DC CI0044'EXECUTE MAP 7815 TO ENSURE THAT THE ACTUATOR'
002888 0016 671 DC A(0022)
00288A C1D9D440E2D7C5C5C 672 DC CI0022'AFM SPEED IS CORRECT. '
0028A0 0001 673 F00133 EQU *
0028A2 0002 674 DC AL2(0001)
0028A4 4040 675 DC A(0002)
0028A6 0001 676 DC CI0002'
0028A8 0014 677 F00140 EQU *
0028AA D4D6E5C540D3C5E5C 678 DC AL2(0001)
0028BE 0001 679 DC A(0020)
0028C0 0002 680 DC CI0020'MOVE LEVER TO ''OFF''.'
0028C2 4040 681 F00150 EQU *
0028C4 0004 682 DC AL2(0001)
0028C6 0022 683 DC A(0002)
0028C8 D9C5D7D3C1C3C540C 684 DC CI0002'
0028EA 002A 685 F00153 EQU *
0028EC D5D6E3C540F1407A4 686 DC AL2(0004)
002916 002C 687 DC A(0034)
002918 C5E7C5C3E4E3C540D 688 DC CI0034'REPLACE CAPD A-A1G2. (SEE NOTE 1) '
002944 0016 689 DC A(0042)
002946 C1D9D440E2D7C5C5C 690 DC CI0042'NOTE 1 : AFTER THE NEW FPU IS INSTALLED, '
00295C 0006 691 DC A(0044)
00295E 0022 692 DC CI0044'EXECUTE MAP 7815 TO ENSURE THAT THE ACTUATOR'
002960 D9C5D7D3C1C3C540C 693 DC A(0022)
002982 0014 694 DC CI0022'ARM SPEED IS CORRECT. '
002984 D9C5D7D3C1C3C540C 695 F00156 EQU *
002998 0002 696 DC AL2(0006)
00299A 4040 697 DC A(0034)
00299C 002A 698 DC CI0034'REPLACE CAPD A-A1G2. (SEE NOTE 1) '
00299E D5D6E3C540F1407A4 699 DC A(0020)
0029C8 002C 700 DC CI0020'REPLACE CARD A-A1H2. '
0029CA C5E7C5C3E4E3C540D 701 DC A(0002)
0029FE 0016 702 DC CI0002'
0029F8 C1D9D440E2D7C5C5C 703 DC A(0042)
002A0E 0006 704 DC CI0042'NOTE 1 : AFTER THE NEW FPU IS INSTALLED, '
002A10 0014 705 DC A(0044)
002A12 D9C5D7D3C1C3C540C 706 DC CI0044'EXECUTE MAP 7815 TO ENSURE THAT THE ACTUATOR'
002A26 0022 707 DC A(0022)
002A28 D9C5D7D3C1C3C540C 708 DC CI0022'AFM SPEED IS CORRECT. '
002A4C 0002 709 F00159 EQU *
002A4E 4040 710 DC AL2(0006)
002A50 D5D6E3C540F1407A4 711 DC A(0034)
002A7A 002C 712 DC CI0034'REPLACE CARD A-A1H2. '
002A7C C5E7C5C3E4E3C540D 713 DC A(0034)
002A88 0016 714 DC CI0034'REPLACE CARD A-A1J4. (SEE NOTE 1) '
002AAA C1D9D440E2D7C5C5C 715 DC A(0002)
002AC0 0006 716 DC CI0002'
002AC2 0022 717 DC A(0042)
002AC4 D9C5D7D3C1C3C540C 718 DC CI0042'NOTE 1 : AFTER THE NEW FPU IS INSTALLED, '
002AE6 0026 719 DC A(0044)
002AE8 D9C5D7D3C1C3C5404 720 DC CI0044'EXECUTE MAP 7815 TO ENSURE THAT THE ACTUATOR'
002B0F 0002 721 DC A(0022)
002B10 4040 722 DC CI0022'AFM SPEED IS CORRECT. '
002B12 002A 723 F00167 EQU *
002B14 D5D6E3C540F1407A4 724 DC AL2(0006)
002B3E 002C 725 DC A(0034)
002B40 C5E7C5C3E4E3C540D 726 DC CI0034'REPLACE CARD A-A1G2. (SEE NOTE 1) '
002B6C 0016 727 DC A(0038)
002B6E C1D9D440E2D7C5C5C 728 DC CI0038'REPLACE (FCU) CARDS A-A1C2 AND A-A1D2. '
002B84 0001 729 DC CI0002'
002B88 0002 730 DC A(0042)
002B8A 4040 731 DC A(0042)
002B8C 0001 732 DC CI0042'NOTE 1 : AFTER THE NEW FPU IS INSTALLED, '
002B8E 0002 733 DC A(0044)
002B90 4040 734 DC CI0044'EXECUTE MAP 7815 TO ENSURE THAT THE ACTUATOR'
002B94 E2C5C5D240E3C5E2E 735 DC A(0022)
002BB2 001A 736 DC CI0022'AFM SPEED IS CORRECT. '
002BB4 D5D6E640D9E4D540E 737 F00170 EQU *
002BB8 0001 738 DC AL2(0001)
002BBE 0002 739 DC A(0002)
002B88 4040 740 DC CI0002'
002B8A 0001 741 F00175 EQU *
002B8C 0002 742 DC AL2(0001)
002B8E 4040 743 DC A(0002)
002B90 0001 744 DC CI0002'
002B92 0002 745 F00178 EQU *
002B94 001E 746 DC AL2(0002)
002B96 E2C5C5D240E3C5E2E 747 DC A(0030)
002BB2 001A 748 DC CI0030'SEFG TEST PAN WITHOUT ERFOP. '
002BB4 D5D6E640D9E4D540E 749 DC A(0026)
002BDE 0000 750 DC CI0026'NOW RUN THE READ TEST MAP.'
002BDD 0000 751 HDIT 00B2
752+OPTN1 DC X'0000' PROGRAM OPTION CONTROL WORD 1
753+ ** **
754+ ** **
755+OPTN2 DC X'0000' PPOGAM OPTION CONTPOL WORD 2
756+ ** **
757+B48 EQU 16 0 8 *
758+B49 EQU 17 1 4 *
759+B50 EQU 18 2 2 * THESE BITS ARE USED WITH THE
760+B51 EQU 19 3 1 * SECOND OPTION WD AND ARE TO
761+B52 EQU 20 4 8 * BE ASSIGNED BY EACH PPOGAMPEP
762+B53 EQU 21 5 4 *
763+B54 EQU 22 6 2 *
764+B55 EQU 23 7 1 *
765+B56 EQU 24 8 8 *
766+B57 EQU 25 9 8 *
767+B58 EQU 26 10 2 *

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
00001B 768+B59 EQU 27 11 1 *
00001C 769+B60 EQU 28 12 8 *
00001D 770+B61 EQU 29 13 4 *
00001E 771+B62 EQU 30 14 2 *
00001F 772+B63 EQU 31 15 1 *
00001G 773+CH EQU 30 14 2 *
00001H 774+CMP EQU 31 15 1 *
002BD2 0000 776+OPTN3 DC X'0000'
777+* *
778+* 0 MYSTERY INTERRUPT MI 8 CS STATUS IN PROGRESS CS
779+* 1 EPPOR INTERRUPT EP 9 CS AVAILABLE CSA
780+* 2 EXPECTED INTERRUPT XI 10 CS STATUS INTERRUPT ERR CE
781+* 3 INTERRUPT RECEIVED IN 11 ISB BITS ON (1-7) ISBON
782+* 4 EXPECTED ERR/ATTENT XE 12 TEST UNIT RESULTS VOID NG
783+* 5 HARD ERROR FOUND HE 13 OIO CC EPPOR IOCC
784+* 6 WRONG INTR LEVEL SLE 14 NO INTERRUPT NOIN
785+* 7 NO INTR EXPECTED NI 15 NO INTERRUPT INCC
786+* *
787+* *
788+MI EQU 32 0 8 MYSTERY INTERRUPT HAPPENED
789+ER EQU 33 1 4 ERROR RECEIVED ON INTERRUPT
790+XI EQU 34 2 2 EXPECTED INTERRUPT CONTROL BIT
791+IN EQU 35 3 1 INTERRUPT RECEIVED CONTROL BIT
792+XE EQU 36 4 8 EXPECTED ERROR RESPONSE
793+HE EQU 37 5 4 HARD ERROR 8 RETRIES
794+SLE EQU 38 6 2 INTERRUPT ON WRONG LEVEL EPPOR
795+NI EQU 39 7 1 NO INTERRUPT EXPECTED E
796+CS EQU 40 8 8 CYCLE STATUS IN PROGRESS
797+CSA EQU 41 9 4 CYCLE STEAL AVAILABLE
798+CE EQU 42 10 2 CYCLE STEAL STATUS INTERRUPT EPPOR
799+ISBON EQU 43 11 1 ISB BITS ON (1-7)
800+NG EQU 44 12 8 TEST UNIT RESULTS NO GOOD
801+IOCC EQU 45 13 4 OIO CC EPPOR
802+NOIN EQU 46 14 2 NO INTERRUPT
803+INCC EQU 47 15 1 INTERRUPT CC ERROR
804+* *
805+* COMMON BUFFER FOR PRINTING DATA
806+* *
807+* *
808+\$TUID DC A(*-*) TEST UNIT IDENTIFICATION
809+\$TOIN DC A(*-*) I/O AND INTR CONDITION CODES
810+\$ISB DC A(*-*) R7 INTR STATUS BYTE & DEV ADRES
811+\$LSTIO DC A(*-*) ADRES OF LAST 1/0 4 BYTES
812+\$DEV1 DC A(*-*) DEVICE DEPENDENT DATA
813+\$DEV2 DC A(*-*) *
814+\$DEV3 DC A(*-*) *
815+\$DEV4 DC A(*-*) *
816+\$CTID EQU DEV1 READ ID BUFFER FOR IBIS & TERN
817+\$DCBUF EQU * DCB BUFFER FOR LAST DCB USED
818+\$DCB1 DC A(*-*) LAST DCB TABLE, CONTROL WORD
819+\$DCB2 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
820+\$DCB3 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
821+\$DCB4 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
822+\$DCB5 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
823+\$DCB6 DC A(*-*) LAST DCB TABLE, CHAIN ADRES
824+\$DCB7 DC A(*-*) LAST DCB TABLE, BYTE COUNT
825+\$DCB8 DC A(*-*) LAST DCB TABLE, BUFFER ADDRESS
826+* *
827+\$CSBUF EQU * CYCLE STEAL DATA BUFFER
828+\$CSTL1 DC A(*-*) CYCLE STEAL BUFFER, RESIDUAL ADRES
829+\$CSTL2 DC A(*-*) CYCLE STEAL WD 2, DEVICE DEPEND
830+\$CSTL3 DC A(*-*) CYCLE STEAL WD 3, DEVICE DEPEND
831+\$CSTL4 DC A(*-*) CYCLE STEAL WD 4, DEVICE DEPEND
832+\$CSTL5 DC A(*-*) CYCLE STEAL WD 5, DEVICE DEPEND
833+\$CSTL6 DC A(*-*) CYCLE STEAL WD 6, DEVICE DEPEND
834+\$CSTL7 DC A(*-*) CYCLE STEAL WD 7, DEVICE DEPEND
835+\$CSTL8 DC A(*-*) CYCLE STEAL WD 8, DEVICE DEPEND
836+* *
837+\$SUBN DC A(*-*) LAST SUBROUTINE ADDRESS USED
838+\$DATA DC 2A(*-*) OPTIONAL DATA
839+\$INTL DC X'0021' INTERRUPT LEVEL REQUESTED
840+\$TUPTN DC A(*-*) TEST UNIT RETURN ADRES TO MDI
841+\$DVID DC X'00B2' DEVICE ID
842+\$SVCAL DC A(DEVADD) ADRES OF DEVICE ADDRESS
843+\$DCAL DC A(*-*) IBIS CYLINDER ADDRESS
844+* *
845+* THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
846+* FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
847+* STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
848+* *
849+\$T3C02 MVI X'3C02', \$TUID SET UP TEST UNIT ID
850+ BXS (R7) RETURN TO MDI SUPERV
851+ COPY COMEQU
852+ *
853+ *
854+ *
855+ *
856+ *
857+ *
858+ *
859+ *
860+ *
861+ *
862+ *
863+ *
864+ *
865+ *
866+ *
867+ *
868+ *
869+ *
870+ *
871+ *
872+ *
873+ *
874+ *
875+ *
876+ *
877+ *
878+ *
879+ *
880+ *
881+ *
882+ *
883+ *
884+ *
885+ *
886+ *
887+ *
888+ *
889+ *
890+ *
891+ *
892+ *
893+ *
894+ *
895+ *
896+ *
897+ *
898+ *
899+ *
900+ *
901+ *
902+ *
903+ *
904+ *
905+ *
906+ *
907+ *
908+ *
909+ *
910+ *
911+ *
912+ *
913+ *
914+ *
915+ *
916+ *
917+ *
918+ *
919+ *
920+ *
921+ *
922+ *
923+ *
924+ *
925+ *
926+ *
927+ *
928+ *
929+ *
930+ *
931+ *
932+ *
933+ *
934+ *
935+ *
936+ *
937+ *
938+ *
939+ *
940+ *
941+ *
942+ *
943+ *
944+ *
945+ *
946+ *
947+ *
948+ *
949+ *
950+ *
951+ *
952+ *
953+ *
954+ *
955+ *
956+ *
957+ *
958+ *
959+ *
960+ *
961+ *
962+ *
963+ *
964+ *
965+ *
966+ *
967+ *
968+ *
969+ *
970+ *
971+ *
972+ *
973+ *
974+ *
975+ *
976+ *
977+ *
978+ *
979+ *
980+ *
981+ *
982+ *
983+ *
984+ *
985+ *
986+ *
987+ *
988+ *
989+ *
990+ *
991+ *
992+ *
993+ *
994+ *
995+ *
996+ *
997+ *
998+ *
999+ *
1000+ *
1001+ *
1002+ *
1003+ *

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
00001B 885 ATOH EQU 27 ASCII TO HEX SVC (STRING)
00001C 886 HTOA EQU 28 HEX TO ASCII SVC (STRING)
00001D 887 ETOA EQU 29 EBCDIC TO ASCII SVC (STRING)
00001E 888 ATOE EQU 30 ASCII TO EBCDIC SVC (STRING)
00001F 889 EADI EQU 31 FEAD DATA SETS FOR MDI/UTIL
000020 890 WRITI EQU 32 WRITE DATA SETS FOR UTIL
892 *****
893 *
894 *
895 *
896 *
897 *
898 *
899 *
900 *
901 *
902 *
903 *
904 *
905 *
906 *
907 *
908 *
909 *
910 *
911 *
912 *
913 *
914 *
915 *
916 *
917 *
918 *
919 *
920 *
921 *
922 *
923 *
924 *
925 *
926 *
927 *
928 *
929 *
930 *
931 *
932 *
933 *
934 *
935 *
936 *
937 *
938 *
939 *
940 *
941 *
942 *
943 *
944 *
945 *
946 *
947 *
948 *
949 *
950 *
951 *
952 *
953 *
954 *
955 *
956 *
957 *
958 *
959 *
960 *
961 *
962 *
963 *
964 *
965 *
966 *
967 *
968 *
969 *
970 *
971 *
972 *
973 *
974 *
975 *
976 *
977 *
978 *
979 *
980 *
981 *
982 *
983 *
984 *
985 *
986 *
987 *
988 *
989 *
990 *
991 *
992 *
993 *
994 *
995 *
996 *
997 *
998 *
999 *
1000+ *
1001+ *
1002+ *
1003+ *

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
002C1C 6F0D 2C0C 1004+T7870 MVW F7,TURTN SAVE RETURN ADDRESS
002C20 4020 2BD4 7870 MVWI X'7870',STUID SAVE TU ID FOR DISPLAY
002C26 4424 2BCE 1006+ MVA OPTN1,R4 SET UP POINTER ADRS IN R4
002C2A 6E03 3DCA 1007+ BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
002C2E 3DFE 1008+ DC A(\$EPF\$) ERROR ADPS FOR INVALID PREP
1009**
002C30 8028 19D0 3B63 MVW DEVAADD,DCB1+1 LOAD DEVICE ADDRESS IN IDCB
002C36 8028 19D0 3B5F MVW DEVAADD,DCB0+1 LOAD DEVICE ADDRESS IN IDCB
002C3C C020 0232 MVW CPUID,R0 DETERMINE CPU TYPE
002C40 F025 1013 CBI 37,F0 *
002C42 1804 1014 JNE T770 JUMP IF NOT 4955
002C44 4020 2C5A 254C MVWI X'254C',T70A+2 LOAD TIME CONSTANT FOR 2 SEC
002C4A 5003 1016 J T770B *
002C4C 4020 2C5A 0C0E MVWI X'0C0E',T70A+2 LOAD TIME CONSTANT FOR 2 SEC
002C52 4724 3DB6 MVW IOBLK,R7 SETUP IOBLK
002C56 6008 1019 SVC RESET ISSUE IO RESET
002C58 4024 0000 1020 T770A MVWI X'0000',P0 TIME OUT 2 SEC
002C5C 6002 1021 T770C SVC IDLE *
002C60 B8FE 1022 JCT T770C,R0 *
002C64 CA25 18C8 MVWZ TURESUL,R2 CLEAR RESULTS WORD
002C68 4224 18C8 MVA TURESUL,R2 ADDRESS OF RESULTS
002C6C 6E03 3CC2 1026 T70Z BAL XIOCS,R6 START CYCLE STEAL STATUS
002C70 3DFE 1027 DC A(\$EPF\$) ERROR
002C72 4CA1 1028 TBTP (R4,EP) INTERRUPT ERROR?
002C74 6A00 3DFE 1029 BON \$EPF\$ YES
002C78 8828 2BF6 3AEA 1030 MVW CSBUF+2,STATS ADDRESS OF CYCLE STEAL STATUS
002C7E 4524 3AEA 1031 MVA STATS,R5 *
002C82 4D87 1032 TBTP (R5,7) TEST FOR UNSAFE
002C84 1001 1033 JOFF T770B *
002C86 4A41 1034 TBTS (R2,1) TURN ON DATA UNSAFE
002C88 4D8F 1035 T701 TBTP (R5,15) TPST NOT READY
002C8A 1001 1036 JOFF T702 *
002C8C 4A43 1037 TBTS (R2,3) TURN ON NOT READY
002C8E 4D8E 1038 T702 TBTP (R5,11) PESET UNSAFF BITS
002C90 4D8C 1039 TBTP (R5,12) *
002C92 4D8D 1040 TBTP (R5,13) *
002C94 402F 3AEA 0000 1041 CWI 0,STATS ANY OTHER EFPF BITS ON?
002C9A 1006 1042 JE T70F NO
002C9C 4A44 1043 TBTS (R2,4) RECAL EFPF
002C9E 4A42 1044 TBTS (R2,2) INTR EFPF
002CA0 8828 2BF6 18CA 1045 MVW CSBUF+2,TURESUL+2 CS,STATS
002CA6 501F 1046 J T70F EXIT
002CA8 6E03 3B28 1047 T70E BAL SENS1,R6 GET SENSE WORD ONE
002CAC 3DFE 1048 DC A(\$EPF\$) ERROR
002CAE 4124 3B64 MVA RDATA,F1 ADDRESS OF SENSE DATA
002CB2 4901 1050 TBT (R1,1) TEST PLO OUT OF SYNC
002CB4 1001 1051 JOFF T703 *
002CB6 4A40 1052 TBTS (R2,0) SET 'PLO OUT OF SYNC'
002CB8 4909 1053 T703 TBT (P1,9) TEST NOT BEHIND HOME
002CBA 1201 1054 JON T704 *
002CBC 4A48 1055 TBTS (R2,8) SET BEHIND HOME
002CBE 4905 1056 TBT (R1,5) TEST HOME POSITION
002CC0 1201 1057 JON T705 *
002CC2 4A49 1058 TBTS (R2,9) SET ACCESS HEAD NOT HOME
002CC4 490F 1059 T705 TBT (R1,15) TEST EVEN TPACK
002CC6 1201 1060 JON T706 *
002CC8 4A4A 1061 TBTS (R2,10) SET NOT EVEN TRACK INDICATED
002CCA 490D 1062 T706 TBT (R1,13) TEST NOT SEEK 1 AND 2
002CCC 1201 1063 JON T708 *
002CCE 4A4E 1064 TBTS (R2,14) SET SEEK 1 AND 2 NOT RESET
002CD0 490A 1065 T708 TBT (P1,10) TEST ON TPACK
002CD2 1201 1066 JON T709 *
002CD4 4A4F 1067 TBTS (R2,15) SET NOT ON TRACK
002CD6 6E03 3B3C 1068 BAL SENS1,R6 GET SENSE WORD ZERO
002CDA 3DFE 1069 DC A(\$EPF\$) ERROR
002CE0 4124 3B60 1070 MVA RDATA0,F1 ADDRESS OF SENSE DATA
002CE2 4903 1071 TBT (R1,3) TEST RRCALIBRATE TPIGGEP
002CE4 1001 1072 JOFF T70A *
002CE6 4A4C 1073 TBTS (R2,12) SET 'RECALIBRATE NOT RESET'
1074 T70A TXIT *
1075+T70A B \$CONCX RETURN TO MDI CONTROLLER
1076+*****
1077 *
1078 *
1080 COPY T7823 01DEC76
1081 T7823 TUIT \$ERR\$ *****06FEB76**
1082+*****
1083**
1084** TEST UNIT
1085**
1086** (TU23-TU71) RECALIBRATE TEST #1 12/01/76
1087**
1088** PURPOSE
1089**
1090** FUNCTION: TO DETERMINE THE OPERATIONAL STATUS OF RECAL FUNCTION.
1091**
1092** . PROGRAM INITIALIZES ATTACHMENT.
1093** . RECALIBRATE
1094** . CHECK STATUS OF LINES IN ATTACHMENT AND 4962 PELATED TO THE
1095** . RECALIBRATE OPERATION.
1096**
1097** CALLING SEQUENCE
1098**
1099** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FOPMAT:
1100** . TURESUL BIT 0-----INTERRUPT ERROR
1101** . TURESUL BIT 1-----HOME POSITION NOT ON
1102** . TURESUL BIT 2-----NOT USED
1103** . TURESUL BIT 3-----SEEK CHECK (SEEK COMPLETE TIME OUT
1104**
1105** . TURESUL BIT 4-----NOT USED
1106** . TURESUL BIT 5----- NOT USED
1107** . TURESUL BIT 6-----NOT USED
1108** . TURESUL BIT 7----- NOT USED
1109**
1110** . TURESUL BIT 8-----RESEVED (ALWAYS ZEPO)
1111** . TURESUL BIT 9----- NOT USED
1112** . TURESUL BIT 10----- PLO OUT OF SYNC
1113** . TURESUL BIT 11----- BRAKE FAILURE
1114**
1115** . TURESUL BIT 12----- UNSAFF
1116** . TURESUL BIT 13----- RECALIBRATE FAILUPE
1117** . TURESUL BIT 14----- NOT READY
1118** . TURESUL BIT 15----- NOT USED

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1119**
1120** . TURESUL BITS 16-31-----CYCLE STEAL STATUS FOR FAILING OP
1121**
1122** .
1123** . EXITS NORMAL
1124** . RETURNS TO MDI SUPERVISOR WHEN DONE.
1125**
1126** . EXITS EFPF
1127** . RETURNS TO MDI SUPERVISOR.
1128** RETURN CONTROL
1129**
1130** B TURTN* RETURN TO MDI SUPERVISOR
1131**
1132+*****
1133+T7823 MVW F7,TURTN SAVE RETURN ADDRESS
1134+ MVWI X'7823',STUID SAVE TU ID FOR DISPLAY
1135+ MVA OPTN1,R4 SET UP POINTER ADRS IN R4
1136+ BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
1137+ DC A(\$EPF\$) ERROR ADPS FOR INVALID PREP
1138**
1139 MVW CPUID,R0 DETERMINE TYPE OF PROCESSOR
1140 CBI 37,F0 *
1141 JNE T23T JUMP IF NOT 4955
1142 MVWI X'254C',T23T1+2 LOAD TIME CONSTANT FOR 2 SEC
1143 J T23T2 *
1144 T23T MVWI X'0C0E',T23T1+2 (4953) LOAD TIME CONS FOR 2 SFC
1145 T23T2 MVW DEVAADD,DCB1+1 LOAD DEVICE ADDRESS IN IDCB
1146 MVA IOBLK,R7 SETUP IOBLK
1147 SVC RESUME *
1148 T23T1 MVWI X'0000',R0 ISSUE IO RESET
1149 T23T2 SVC IDLE TIMEOUT APPROX 2 SEC
1150 JCT T723,P0 *
1151 MVWZ TURESUL,R2 CLEAR RESULTS WORD
1152 MVWZ TURESUL+2,R2 CLEAR RESULTS WORD2
1153 MVA TURESUL,R2 ADDRESS OF RESULTS
1154 BAL \$RECL,R6 RECALIBRATE
1155 DC A(T23YY) ERROR
1156 TBTP (R4,EP) INTERRUPT ERROR?
1157 JOFF T710 NO
1158 TBTP (R4,CSA) TEST FOR CYCLE STEAL STATS
1159 BOFF \$EPF\$ ERROR
1160 MVW CSBUF+2,STATS ADDRESS OF CYCLE STEAL STATS
1161 MVA STATS,R5 *
1162 TBTP (R5,7) UNSAFE?
1163 JOFF T23SS NO
1164 TBTS (R2,12) SET- UNSAFE
1165 T23SS TBTP (R5,10) BRAKE FAILURE?
1166 JOFF T23TT NO
1167 TBTS (R2,11) SET- BRAKE FAILURE
1168 T23TT TBTP (R5,6) PLO OUT OF SYNC CHECK?
1169 JOFF T23UU NO
1170 TBTS (R2,10) SET- PLO OUT OF SYNC
1171 T23UU TBTP (R5,9) SEEK CHECK?
1172 JOFF T23A NO
1173 TBTS (R2,3) SET- SEEK CHECK
1174 T23A TBTP (P5,11) PESET UNSAFF BITS
1175 TBTP (P5,12) *
1176 TBTP (R5,13) *
1177 CWI 0,STATS OTHER EFPF BITS ON?
1178 BE T23U NO-EXIT
1179 T23AA TBTS (R2,13) SET RECAL FAILURE
1180 TBTS (R2,0) SET- INTERRUPT EFPF
1181 MVW CSBUF+2,TURESUL+2 CS,STATS
1182 J T23Y *
1183 T23YY CWI X'0003',R3 CHECK FOR COMMAND REJECT
1184 BNE \$EPF\$ ERROR-TU NG
1185 BAL XIOCS,R6 START CYCLE STEAL STATUS
1186 DC A(\$EPF\$) ERROR
1187 TBTP (P4,EP) INTERRUPT ERROR?
1188 BON \$EPF\$ YES
1189 TWI X'0001',CSBUF+2 NOT READY?
1190 JOFF T23AA NO-EFPF
1191 TBTS (R2,14) SET NOT READY
1192 J T23AA *
1193 T710 BAL SENS1,R6 GET SENSE WORD ONE
1194 DC A(\$EPF\$) ERROR
1195 TWI X'0001',RDATA TEST HOME POS
1196 JON T23U HOME IS ON
1197 TBTS (R2,1) SET 'HOME OFF'
1198 T23U TXIT *
1199+T23U B \$CONCX RETURN TO MDI CONTROLLER
1200+*****
1201 *
1202 COPY T7836 01DEC76
1203 T7836 TUIT 513E
1204+*****
1205+*****06FEB76**
1206**
1207** TEST UNIT
1208**
1209** (QU13) SEEK SCOPE LOOP 12/01/76
1210**
1211** PUPPOSE
1212**
1213** FUNCTION: LOOP ON SEEKS
1214**
1215** . PROGRAM INITIALIZES ATTACHMENT.
1216** . RECALIBRATE
1217** . SEEKS (FWD) 1-TRACK TO ODD TPACK
1218** . SEEKS (FWD) 1-TRACK TO EVEN TPACK
1219** . SEEKS (REV) 1-TRACK TO ODD TRACK
1220** . SEEKS (REV) 1-TRACK TO EVEN TPACK
1221** . LOOP UNTIL CE INPUTS ANSWER TO MAP QUESTION.
1222**
1223** CALLING SEQUENCE
1224**
1225** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
1226** . NO STATUS PASSED BACK TO MDI
1227**
1228** . EXITS NORMAL
1229** . MDI TERMINATES LOOP.
1230**
1231** EXITS ERROR
1232** . NONE
1233**

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1234** RETURN CONTROL
1235**
1236** B TURTN* RETURN TO MDI SUPERVISOR
1237**
1238*****
002DB6 6F0D 2C0C
002DBA 4020 2BD4 7836
002DC0 4424 2BCE
002DC4 6E03 3DCA
002DC8 2E1E
002DCA C020 0232
002DCE F025
002DD0 1804
002DD2 4020 2DE8 254C
002DD8 5003
002DDA 4020 2DE8 0C0E
002DE0 4724 3DB6
002DE4 6008
002DE6 4024 0000
002DEA 6002
002DEC B8FE
002DEE 6E03 3BF0
002DF2 2E1E
002DF4 4020 39EC 0005
002DFA 4020 39EE 0001
002E00 6E03 3BE8
002E04 2E1E
002E06 6E03 3BE8
002E0A 2E1E
002E0C 4020 39EE 0801
002E12 6E03 3BE8
002E16 2E1E
002E18 6E03 3BE8
002E1C 2E1E
002E1E 6802 3E4E
1239** RETURN CONTROL
1240**
1241** MVA OPN1,R4
1242** BAL \$CONC,R6
1243** DC A(S13E)
1244**
1245** MVB CPUID,R0
1246** CBI 37,R0
1247** JNE T30T
1248** MVWI X'254C',T36T1+2
1249** J T36T2
1250** T36T MVWI X'0C0E',T36T1+2
1251** T36T2 MVA IOBLK,R7
1252** SVC RESET
1253** T36T1 MVWI X'0000',R0
1254** T736 SVC IDLE
1255** JCT T736,R0
1256** BAL \$RECL,R6
1257** DC A(S13E)
1258** MVWI X'0005',SKDCB
1259** TS13 MVWI X'0005',SKDCB+2
1260** BAL \$SEK,R6
1261** DC A(S13E)
1262** BAL \$SEK,R6
1263** DC A(S13E)
1264** MVWI X'0801',SKDCB+2
1265** BAL \$SEK,R6
1266** DC A(S13E)
1267** BAL \$SEK,R6
1268** DC A(S13E)
1269** S13E TXIT
1270** S13E B \$CONX
1271** *****
1272**
1273**
1274**
1275** COPY T7830 01DEC76
1276** T7830 TUIT \$ERR\$
1277** *****06FEB76**
1278**
1279** TEST UNIT
1280**
1281** (TU30) SEEK TEST#2 12/01/76
1282**
1283** PURPOSE
1284**
1285** FUNCTION: TO DETERMINE THE OPERATIONAL STATUS OF RECAL FUNCTION.
1286**
1287** . PROGRAM INITIALIZES ATTACHMENT.
1288** . RECALIBRATE AND DO A ONE TRACK SEEK (FORWARD-OUT DIPECTION)
1289** . CHECK STATUS OF LINES IN ATTACHMENT AND 4962 RELATED TO THE
1290** . SEEK OPERATION.
1291**
1292** CALLING SEQUENCE
1293**
1294** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
1295** . TURESUL BIT 0----TEST ABORTED BEFORE RECAL DUE TO SEEK ERR
1296** . TURESUL BIT 1----TEST ABORTED AFTER RECAL DUE TO SEEK ERR
1297** . TURESUL BIT 2----INTERRUPT ERROR
1298** . TURESUL BIT 3----RECALIBRATE ERROR
1299**
1300** . TURESUL BIT 4----HOME NOT ON FOLLOWING LONG SEEK IN OP
1301** . TURESUL BIT 5-----NOT USED
1302** . TURESUL BIT 6-----NOT USED
1303** . TURESUL BIT 7-----BRAKE FAILURE
1304**
1305** . TURESUL BIT 8----HEAD DIDN'T LEAVE HOME FOLLOWING SEEK OUT
1306** . TURESUL BIT 9----EVEN TRACK NOT SET FOLLOWING RECAL
1307** . TURESUL BIT 10----PLO OUT OF SYNC CHECK
1308** . TURESUL BIT 11-----NOT USED
1309**
1310** . TURESUL BIT 12-----UNSAFE
1311** . TURESUL BIT 13-----NOT USED
1312** . TURESUL BIT 14----NOT READY
1313** . TURESUL BIT 15----SEEK TIMEOUT ERROR
1314**
1315** . TURESUL BIT 16-31-- CS STATUS FOR FAILING OP
1316**
1317** EXITS NORMAL
1318** . RETURNS TO MDI SUPERVISOR WHEN DONE.
1319**
1320** EXITS ERPOP
1321** . RETURNS TO MDI SUPERVISOR.
1322**
1323** RETURN CONTROL
1324**
1325** B TURTN* RETURN TO MDI SUPERVISOR
1326**
1327*****
1328** T7830 MVW R7,TUFTN SAVE RETURN ADDRESS
1329** MVWI X'7830',STUID SAVE TU ID FOR DISPLAY
1330** MVA OPN1,R4 SET UP POINTER ADRS IN R4
1331** BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
1332** DC A(\$ERR\$) ERROR ADRS FOR INVALID PREP
1333**
1334** MVB CPUID,R0 DETERMINE TYPE OF PROCESSOR
1335** CBI 37,R0
1336** JNE T30T JUMP IF NOT 4955
1337** MVWI X'254C',T30T1+2 LOAD TIME CONSTANT FOR 2 SEC
1338** J T30T2
1339** T30TC MVWI X'0C0E',T30T1+2 (4953) LOAD TIME CONS FOR 2 SEC
1340** T30T2 MVB DEVADD,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
1341** MVA IOBLK,R7 SETUP IOBLK
1342** SVC RESET ISSUE IO RESET
1343** T30T1 MVWI X'0000',R0 TIME OUT 2 SEC
1344** T730 SVC IDLE
1345** JCT T730,R0
1346** MVWZ TURESUL,R2 CLEAR RESULTS WORD
1347** MVWZ TURESUL+2,R2 CLEAR RESULTS WORD 2
1348** MVA TURESUL,R2 ADDRESS OF RESULTS

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
002E6C 4020 39EC 0005
002E72 4020 39EE 0001
002E78 6E03 3BE8
002E7C 3DFE
002E7F 6E03 2EFC
002E82 6E03 3B28
002E86 3DFE
002E88 4124 3B64
002E8C 4905
002E90 1001
002E90 4A48
002E92 402B 18C8 00FF
002E98 1001
002E9A 5016
002E9C 6E03 3BF0
002EA2 6E03 2EFC
002EA6 6E03 3B28
002EAA 3DFE
002EAC 4124 3B64
002EB0 490F
002EB2 1201
002EB4 4A49
002EB6 402B 18C8 00FF
002EBC 1001
002EBE 5007
002EC0 1203
002EC2 4A43
002EC4 4A43
002EC6 5005
002EC8 4A40
002ECA 6802 3E4E
002ECE 4A41
002ED0 50FC
002ED2 4020 39EE 092F
002ED8 6E03 3BE8
002EDC 3DFE
002EDF 6E03 2EFC
002EE2 402B 18C8 00FF
002EE8 10F0
002EEA 6E03 3B28
002EEE 3DFE
002EF0 402B 3B64 0400
002EF6 12E9
002EF8 4A44
002EFA 50E7
002EFC 4CA9
002EFE 1019
002F00 8828 2BF6 3AEA
002F06 4524 3AEA
002F0A 4D89
002F0C 1001
002F0E 4A4F
002F10 4D8F
002F12 1001
002F14 4A4E
002F16 4D87
002F18 1001
002F1A 4A4C
002F1C 4D86
002F1E 1001
002F20 4A4A
002F22 4D8B
002F24 4D8C
002F26 4D8D
002F28 402F 3AEA 0000
002F2E 6801 2ECA
002F32 5600
1349 MVWI X'0005',SKDCB SEEK
1350 MVWI X'0005',SKDCB+2 FORWARD DIRECTION ONE TRACK
1351 BAL \$SEK,R6 SEEK
1352 DC A(\$ERR\$) ERPOP
1353 BAL T300,R6 INTERRUPT ROUTINE
1354 BAL SENS1,R6 READ SENSE WORD ONE
1355 DC A(\$ERR\$) ERPOP
1356 MVA RDATA,R1 ADDRESS OF SENSE DATA
1357 TBT (R1,5) HOME POSITION OFF?
1358 JOFF T306 YES
1359 TBTS (R2,8) SET-HEAD DIDN'T LEAVE HOME AFTER SEEK
1360 TWI X'00FF',TURESUL ANY ERROR BITS ON?
1361 JOFF T30D NO
1362 J T307 ERPOP
1363 BAL \$RECL,R6 RECALIBRATE
1364 DC A(\$ERR\$) ERPOP
1365 BAL T300,R6 INTERRUPT ROUTINE
1366 BAL SENS1,R6 READ SENSE WORD 1
1367 DC A(\$ERR\$) ERPOP
1368 MVA RDATA,R1 ADDRESS OF PEAD DATA
1369 TBT (R1,15) EVEN TRACK?
1370 JON T308 YES
1371 TBTS (R2,9) SET-EVEN TRACK NOT SET AFTER RECAL
1372 TWI X'00FF',TURESUL ANY ERROF BITS ON?
1373 JOFF T30E NO
1374 J T309 ERPOP
1375 TBT (R1,5) HOME POSITION ON
1376 JON T30A YES
1377 TBTS (R2,3) SET- RECAL ERROR
1378 J T30B
1379 T307 TBTS (R2,0) TEST ABORTED BEFORE RECAL-SEEK ERPOP
1380 T30A TXIT
1381+T30A B \$CONX RETURN TO MDI CONTROLLER
1382+*****
1383*
1384 T309 TBTS (R2,1) TEST ABORTED AFTER RECAL-SEEK ERPOP
1385 J T30A
1386 T30B MVWI X'092F',SKDCB+2 SET SEEK REV-303 TRACKS
1387 BAL \$SEK,R6 SEEK
1388 DC A(\$ERR\$) ERPOP
1389 BAL T300,R6 CHECK STATS
1390 TWI X'00FF',TURESUL ANY ERROR BITS ON
1391 JOFF T30A NO-EXIT
1392 BAL SENS1,R6 READ SENSE DATA
1393 DC A(\$ERR\$) ERPOP
1394 TWI X'0400',RDATA HOME POSITION ON?
1395 JON T30A YES
1396 TBTS (R2,4) HOME NOT ON AFTER LONG SEEK
1397 J T30A
1398*
1399*
1400* INTERRUPT ROUTINE-CHECK STATS
1401 T300 TBTR (R4,CSA) CS AVAILABLE?
1402 JOFF T30C NO-RETURN
1403 MVW CSBUF+2,STATS CS ADDRESS
1404 MVA STATS,R5 *
1405 TBTR (R5,9) SEEK CHECK?
1406 JOFF T301 NO
1407 TBTS (R2,15) SET- SEEK TIME OUT ERPOP
1408 T301 TBTR (R5,15) NOT READY?
1409 JOFF T302 NO
1410 TBTS (R2,14) SET- NOT READY
1411 TBTR (R5,7) UNSAFE?
1412 JON T302 NO
1413 TBTS (R2,12) SET- UNSAFE
1414 T303 TBTR (R5,6) PLO OUT OF SYNC CHECK?
1415 JOFF T304 NO
1416 TBTS (R2,10) SET- PLO OUT OF SYNC CHECK
1417 T304 TBTR (R5,11) RESET UNSAFE BITS
1418 TBTR (R5,12) *
1419 TBTR (R5,13) *
1420 CWI 0,STATS ANY OTHER CS BITS ON?
1421 BNE T30A YES - EXIT
1422 T30C BXS RETURN TO CALLER
1423*
1424*
1425** COPY T7831 01DEC76
1426** T7831 TUIT \$ERR\$
1427** *****06FEB76**
1428**
1429** TEST UNIT
1430**
1431** (TU31) SEEK TEST#3 2/04/77
1432**
1433** PURPOSE
1434**
1435** FUNCTION: SEEK TO CE TRACK AND BACK HOME IN 1 STEP INCREMFNTS
1436**
1437** . PROGRAM INITIALIZES ATTACHMENT.
1438** . RECALIBRATE AND SEEK OUT TO TRACK 302 IN 1 STEP INCREMFNTS
1439** . SEEK BACK TO TRACK 0 IN 1 TRACK INCREMFNTS
1440** . FROM TRACK 0,DO A MINUS (REV) 1 TRACK SEEK POP BEHIND HOME CF
1441**
1442** CALLING SEQUENCE
1443**
1444** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
1445** . TURESUL BIT 0----ERPOFS DETECTED ON FORWARD SEEK
1446** . TURESUL BIT 1----ERROFS DETECTED ON BACKWARD SEEK
1447** . TURESUL BIT 2-----UNSAFE
1448** . TURESUL BIT 3----BFHIND HOME DETECTED TOO SOON
1449**
1450** . TURESUL BIT 4----BEHIND HOME NOT DETECTED
1451** . TURESUL BIT 5-----BRAKE FAILURE
1452** . TURESUL BIT 6----NOT READY CHECK
1453** . TURESUL BIT 7----INTERRUPT ERROR
1454**
1455** . TURESUL BIT 8----HOME BIT NOT AS EXPECTED
1456** . TURESUL BIT 9----ON/OFF/ON TRACK TIME OUT ERROR
1457** . TURESUL BIT 10----PLO OUT OF SYNC CHECK
1458** . TURESUL BIT 11----RECALIBRATE FAILURE
1459**
1460** . TURESUL BIT 12----SEEK FAILURE
1461** . TURESUL BIT 13----EVEN TRACK NOT AS EXPECTED
1462** . TURESUL BIT 14-----NOT USED
1463** . TURESUL BIT 15----SEEK CHECK

Table with columns: LOCTR, OBJECT TEXT, STMT SOURCE STATEMENT, COPYRIGHT IBM COPP 1976. Contains assembly code for disk status and seek test.

Table with columns: LOCTR, OBJECT TEXT, STMT SOURCE STATEMENT, COPYRIGHT IBM COPP 1976. Contains assembly code for disk status and seek test, continuing from the previous page.

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
0031B0 4029 3AAA 0001 1692 T319 AWI 1,LCT INCREMENT LOOP CTR
0031B6 402F 3AAA 012E 1693 CWI 302,LCT COUNT LESS THAN 302?
0031BC 6D01 31D8 1694 BGT T310 YES-RETURN
0031C0 6802 30D4 1695 B SKIOP+4 LOOP SEEK ROUTINE
0031C4 402B 39EE 0800 1696 T31I TWI X'0800',SKDCB+2 SEEK DIRECTION REVERSE?
0031CA 1203 1697 JON T31J YES
0031CC 4A40 1698 TBTS (R2,0) SET ERRORS DETCTED ON FORWARD SEEK
0031CE 6802 30C0 1699 B T31K EXIT
0031D2 4A41 1700 T31J TBTS (R2,1) SET ERRORS DETECTED ON REV SEEK
0031D4 6802 30C0 1701 B T31K EXIT
0031D8 6802 0000 1702 T310 B *-* RETURN TO CALLER
1703 *
1704 *
1705 *
1706 *
1707 *
1708 ***** COPY T7872 01DEC76 *****
1709 *T7872 *****
1710 * THIS TU INHIBITS INTERRUPT 12/01/76*
1711 * CALLING ROUTINE LOOPS ON T72A *****
1712 *****
1713 T7872 MVW R7 TURTN SAVE RETURN ADDRESS
1714 MVWI X'0020',IODCB PREP TO LEVEL 2 WITH THE 'I' BIT OFF
1715 MVA IOBLK,R7 *
1716 SVC PREP *
1717 J T72B SAVE RETURN ADDRESS
1718 T72A MVW R7,TURTN EXIT
1719 T72B B \$CONX *
1720 *
1721 *
1722 ***** COPY T7875 01DEC76 *****
1723 T7875 TUIT \$ERR5 *****
1724 ***** 06FEB76** *****
1725** TEST UNIT
1726**
1727** (T7875) RANDOM SEEK TEST 12/01/76
1728**
1729** PURPOSE
1730**
1731** FUNCTION: THIS TEST DETERMINES WHETHER SEEK ERRORS ARE OCCURRING
1732** .RANDOMLY ALL OVER THE DISK SURFACE OR ARE ONLY IN CEPTAIN AREAS.
1733**
1734**
1735** PROGRAM INITIALIZES ATTACHMENT.
1736** RECALIBRATE AND ISSUE SEEKS OF FWD 1,FWD 5,FWD 101,BKWD 101,
1737** BKWD 5, BKWD 1 AND BKWD 1.
1738** THE STATUS OF 'HOME POSITION' IS TESTED AFTER EACH SEEK AND
1739** EACH SEEK IS CHECKED FOR 'SEEK CHECK'.
1740** A FWD 1 SEEK AND RECAL IS THEN ISSUED AND HOME POSITION IS
1741** AGAIN TESTED TO ESTABLISH THE RECAL OPERATIONAL STATUS.
1742**
1743**
1744** CALLING SEQUENCE
1745**
1746** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
1747** TURESUL BIT 0----- SEEK FAILURE HAS OCCURRED
1748** TURESUL BIT 1----- RECALIBRATE FAILURE HAS OCCURRED
1749** TURESUL BIT 2----- A HANG-UP CONDITION HAS OCCURRED
1750** TURESUL BIT 3----- INTERRUPT
1751**
1752** TURESUL BIT 4----- RECAL
1753** TURESUL BIT 5----- SEEK
1754** TURESUL BIT 6----- NOT USED
1755** TURESUL BIT 7----- NOT USED
1756**
1757** TURESUL BIT 8----- NOT USED
1758** TURESUL BIT 9----- NOT USED
1759** TURESUL BIT 10----- PLO OUT OF SYNC
1760** TURESUL BIT 11----- BRAKE FAILURE
1761**
1762** TURESUL BIT 12----- UNSAFE
1763** TURESUL BIT 13----- NOT USED
1764** TURESUL BIT 14----- NOT READY
1765** TURESUL BIT 15----- NOT USED
1766** TURESUL BITS 16-31 CS STATS FOR FAILING OP
1767**
1768** EXITS NORMAL
1769** RETURNS TO MDI SUPERVISOR WHEN DONE.
1770**
1771** EXITS EPROR
1772** RETURNS TO MDI SUPERVISOR.
1773**
1774** RETURN CONTPOL
1775**
1776** B TUPTN* RETURN TO MDI SUPERVISOR
1777**
1778*****
1779**T7875 MVW R7,TURTN SAVE RETURN ADDRESS
1780 MVWI X'7875',STUID SAVE TU ID FOR DISPLAY
1781 MVA OPTN1,R4 SET UP POINTER ADRS IN R4
1782 BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
1783 DC A(\$ERR5) ERROR ADRS FOR INVALID PREP
1784**
1785 MVB CPJDD,R0 DETERMINE TYPE OF PROCESSOR
1786 CBI 37,P0 *
1787 JNE T752C JUMP IF NOT 4955
1788 MVWI X'254C',T75T1+2 LOAD TIME CONSTANT FOR 2 SEC
1789 J T7522
1790 T75TC MVWI X'0C0E',T75T1+2 (4953) LOAD TIME CONS FOR 2 SEC
1791 T75T2 MVWZ TURESUL,R2 CLEAR RESULTS WORD
1792 MVWZ TURESUL+2,R2 CLEAR RESULTS WORD
1793 MVWZ TURESUL,R2 ADDRESS OF RESULTS
1794 BAL \$RECL,R6 RECALIBRATE
1795 DC A(T75YY) ERROR
1796 TBTF (R4,ER)
1797 MVB DEVADD,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
1798 MVA IOBLK,R7 SETUP IOBLK
1799 SVC RESET ISSUE IO RESET
1800 T75T1 MVWI X'0000',R0 TIME OUT 2 SEC
1801 T775 *
1802 JCV T775,P0 *
1803 MVWZ TURESUL,R2 CLEAR RESULTS WORD
1804 MVWZ TURESUL+2,R2 CLEAR RESULTS WORD
1805 MVWZ TURESUL,R2 ADDRESS OF RESULTS
1806 BAL \$RECL,R6 RECALIBRATE
1807 DC A(T75YY) EPROR

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
00325A 4CA1 1808 TBTF (R4,ER)
00325C 1036 1809 JOFF T75A
00325E 4CA9 1810 TBTF (R4,CSA)
003260 6800 3DFE 1811 BOFF \$ERR5 TST FOR CYCLE STEAL STATS
003264 8828 2BF6 3AEA 1812 MVW CSBUF+2,STATS OK-NO ERROR
00326A 4524 3AEA 1813 MVA STATS,R5 ADDRESS OF CYCLE STEAL STATS
00326E 4D87 1814 TBTF (R5,7) *
003270 1001 1815 JOFF T7555 UNSAFE?
003272 4A4C 1816 TBTS (R2,12) NO
003274 4D8A 1817 T75SS TBTF (R5,10) SET- UNSAFE
003276 1001 1818 JOFF T75TT BRAKE FAILURE?
003278 4A4B 1819 TBTS (R2,11) NO
00327A 4D86 1820 T75TT TBTF (R5,6) SET- BRAKE FAILURE
00327C 1001 1821 JOFF T75UU PLO OUT OF SYNC CHECK?
00327E 4A4A 1822 TBTS (R2,10) NO
003280 4D89 1823 T75UU TBTF (R5,9) SET- PLO OUT OF SYNC
003282 121F 1824 JON T75T SEEK CHECK?
003284 4D8B 1825 TBTF (R5,11) SET- FLAGS AND EXIT
003286 4D8C 1826 TBTF (R5,12) RESET UNSAFE BITS
003288 4D8D 1827 TBTF (R5,13) *
00328A 402F 3AEA 0000 1828 CWI 0,STATS OTHER CS BITS ON?
003290 6800 32C6 1829 BE T75U YES-TU EPROR
003294 4A44 1830 T75B TBTS (R2,4) RECAL
003296 4A43 1831 TBTS (R2,3) INTERRUPT
003298 8828 2BF6 18CA 1832 MVW CSBUF+2,TURESUL+2
00329E 5013 1833 J T75U
0032A0 7B06 0003 1834 T75YY CWI X'0003',R3 CHECK FOR COMMAND REJECT
0032A4 6801 3DFE 1835 BNE \$ERR5 ERROR-TU NG
0032A8 6E03 3CC2 1836 BAL XIOCS,R6 START CYCLE STEAL STATS
0032AC 3DFE 1837 DC A(\$ERR5) ERROR
0032AE 4CA1 1838 TBTF (R4,ER) INTERRUPT ERROR?
0032B0 6A00 3DFE 1839 BON \$ERR5 YES
0032B4 402E 2BF6 0001 1840 TWI X'0001',CSBUF+2 NOT READY?
0032BA 10EC 1841 JOFF T75B NO-ERROR
0032BC 4A4F 1842 TBTS (R2,14) SET NOT READY
0032BE 6802 1843 B T75T EXIT
0032C2 4A42 1844 T75T TBTS (R2,2) SET HANG-UP
0032C4 4A40 1845 TBTS (R2,0) SET SEEK FAILURE
0032C6 6802 3E4E 1846 T75U TXIT
1847+T75U B \$CONX RETURN TO MDI CONTROLLER
1848+*****
1849 *
1850 *
1851 T75A BAL SENS1,R6 READ SENSE WORD ONE
1852 DC A(\$ERR5) ERROR
1853 TWI X'0400',RDATA HOME POSITION ON?
1854 JON T75U YES
1855 MVWI X'0005',SKDCB SEEK
1856 MVWI 305,SKDCB+2 REVERSE DIRECTION 305 TRACKS
1857 OWI X'0800',SKDCB+2 SET REVERSE DIRECTION
1858 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1859 BAL \$SEEK,R6 SEEK
1860 DC A(\$ERR5) ERROR
1861 BAL HON,R6 GO TO HOME ON ROUTINE
1862 T75K MVWI 1,SKDCB+2 SET FORWARD SEEK 1 TRACK
1863 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1864 BAL \$SEEK,R6 SEEK
1865 DC A(\$ERR5) ERROR
1866 BAL HOFF,R6 GO TO HOME OFF ROUTINE
1867 MVWI X'0805',SKDCB+2 SET FORWARD SEEK 5 TRACKS
1868 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1869 BAL \$SEEK,R6 SEEK
1870 DC A(\$ERR5) EPROR
1871 BAL HOFF,R6 GO TO HOME OFF ROUTINE
1872 MVWI 101,SKDCB+2 SET FORWARD SEEK 101 TRACKS
1873 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1874 BAL \$SEEK,R6 SEEK
1875 DC A(\$ERR5) ERROR
1876 BAL HOFF,R6 GO TO HOME OFF ROUTINE
1877 MVWI X'0865',SKDCB+2 SET REVERSE SEEK 101 TRACKS
1878 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1879 BAL \$SEEK,R6 SEEK
1880 DC A(\$ERR5) ERROR
1881 BAL HOFF,R6 GO TO HOME OFF ROUTINE
1882 MVWI X'0805',SKDCB+2 SET REVERSE SEEK 5 TRACKS
1883 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1884 BAL \$SEEK,R6 SEEK
1885 DC A(\$ERR5) ERROR
1886 BAL HOFF,R6 GO TO HOME OFF ROUTINE
1887 MVWI X'0801',SKDCB+2 SET REVERSE SEEK 1 TRACK
1888 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1889 BAL \$SEEK,R6 SEEK
1890 DC A(\$ERR5) ERROR
1891 BAL HOFF,R6 GO TO HOME OFF ROUTINE
1892 MVWI X'0801',SKDCB+2 SET REVERSE SEEK 1 TRACK
1893 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1894 BAL \$SEEK,R6 SEEK
1895 DC A(\$ERR5) EPROR
1896 BAL HON,R6 GO TO HOME ON ROUTINE
1897 MVWI X'0001',SKDCB+2 SET FORWARD SEEK 1 TRACK
1898 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
1899 BAL \$SEEK,R6 SEEK
1900 DC A(\$ERR5) ERROR
1901 BAL HOFF,R6 GO TO HOME OFF ROUTINE
1902 BAL \$RECL,R6 RECALIBRATE
1903 DC A(\$ERR5) EPROR
1904 TBTF (R4,EP)
1905 JOFF T75AA
1906 TBTF (R4,CSA) CS STATS AVAILABLE?
1907 BOFF \$ERR5 OK-NO EPROR
1908 MVW CSBUF+2,STATS ADDRESS OF CS STATS
1909 MVA STATS,R5 *
1910 TBTF (R5,7) UNSAFE?
1911 JOFF T75BB NO
1912 TBTS (R2,12) SET- UNSAFE
1913 T75BB TBTF (R5,10) BRAKE FAILURE?
1914 JOFF T75CC NO
1915 TBTS (R2,11) SET- BRAKE FAILURE
1916 T75CC TBTF (R5,6) PLO OUT OF SYNC CHECK?
1917 JOFF T75DD NO
1918 TBTS (R2,10) SET- PLO OUT OF SYNC
1919 T75DD TBTF (R5,9) SEEK CHECK?
1920 BON T75T SET- FLAGS AND EXIT
1921 TBTF (R5,11) RESET UNSAFE BITS

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
0033BA 4D8C 1922 TBTR (R5,12) *
0033BB 4D8D 1923 TBTR (R5,13) *
0033BC 4029 1924 CWI 0,STATS OTHER CS BITS ON?
0033BD 6800 3AEA 0000 1925 BE T75U YES-TU ERROR
0033BE 4A44 1926 TBTS (R2,4) RECAL
0033BF 4A43 1927 TBTS (R2,3) INTERRUPT
0033CC 8828 2BF6 18CA 1928 MVW CSBUF+2,TURESUL+2
0033CD 6802 32C6 1929 B T75U EXIT
0033CE 6E03 3B28 1930 T75AA BAL SENS1,R6 READ SENSE WORD ONE
0033CF 4A00 0400 1931 DC A(\$ERR\$) ERROR
0033D0 4A01 32C6 1932 TWI X'0400',RDATA HOME POSITION ON?
0033D1 6A00 32C6 1933 B T75U EXIT
0033D2 4A01 32C6 1934 TBTS (R2,1) SET RECAL FAILURE
0033D3 6802 3458 1935 B T75U EXIT
0033D4 4524 0000 1936 HOFF MVW R6,T75TW+2 SET UP RETURN ADDRESS
0033D5 4A43 0000 1937 T7535 TBTR (R4,IN) INIT INTERRUPT TIME OUT COUNTER
0033D6 1205 1938 TBTR (R4,IN) INTERRUPT BEEN RECEIVED?
0033D7 7DA1 0001 1939 JON T7578 YES
0033D8 18F9 1940 AWI 1,R5 INCREMENT NO INTERRUPT TIME OUT
0033D9 6802 3DFE 1941 JNZ T7535 *
0033DA 6E03 3D80 1942 B \$ERR\$ NO INTERRUPT - TU RESULTS NG
0033DB 4C0F 3DFE 1943 T7579 BAL XIOCK,R6 CHECK INTERRUPT STATS
0033DC 4029 3DFE 1944 DC A(\$ERR\$) ERROR
0033DD 101F 3DFE 1945 TBTR (R4,CSA) CS STATS AVAILABLE?
0033DE 8828 2BF6 3AEA 1946 JOFF T75AC OK-NO ERROR
0033DF 4524 3AEA 1947 MVW CSBUF+2,STATS ADDRESS OF CS STATS
0033E0 4D87 3AEA 1948 MVA STAT,R5 *
0033E1 1001 1949 TBTR (R5,7) UNSAFE?
0033E2 4A4C 1950 JOFF T75EE NO
0033E3 4D8A 1951 TBTS (R2,12) SET- UNSAFE
0033E4 1001 1952 T75EE TBTR (R5,10) BRAKE FAILURE?
0033E5 4A4E 1953 JOFF T75FF NO
0033E6 4D86 1954 TBTS (R2,11) SET- BRAKE FAILURE
0033E7 1001 1955 T75FF TBTR (R5,6) PLO OUT OF SYNC CHECK?
0033E8 4A4A 1956 JOFF T75GG NO
0033E9 4D89 1957 TBTS (R2,10) SET- PLO OUT OF SYNC
0033EA 6A00 32C2 1958 T75GG TBTR (R5,9) SEEK CHECK?
0033EB 4D89 32C2 1959 BON T75J NO
0033EC 4D8C 1960 TBTR (R5,11) SET- FLAGS AND EXIT
0033ED 4D8D 1961 TBTR (R5,12) RESET UNSAFE BITS
0033EE 4D8D 1962 TBTR (R5,13) *
0033EF 402F 3AEA 0000 1963 CWI 0,STATS OTHER CS BITS ON?
0033F0 6801 3DFE 1964 BNE \$ERR\$ YES-TU ERROR
0033F1 6802 32C6 1965 B T75U EXIT
0033F2 6E03 3B28 1966 T75AC BAL SENS1,R6 READ SENSE WORD ONE
0033F3 402F 3DFE 1967 DC A(\$ERR\$) ERROR
0033F4 402B 3B64 0400 1968 TWI X'0400',RDATA HOME POSITION ON?
0033F5 1003 3DFE 1969 JOFF T75TW EXIT
0033F6 4A40 32C6 1970 TBTS (R2,0) SET SEEK FAILURE
0033F7 6802 0000 1971 B T75U EXIT
0033F8 6802 0000 1972 * RETURN
0033F9 * 1973 *
0033FA * 1974 *
0033FB HON MVW R6,T75TV+2 SET UP RETURN ADDRESS
0033FC 4524 34CC 1975 T7534 MVWI 0,R5 INIT INTERRUPT TIME OUT COUNTER
0033FD 4CA3 0000 1976 TBTR (R4,IN) INTERRUPT BEEN RECEIVED?
0033FE 1205 1977 JON T7578 YES
0033FF 7DA1 0001 1978 AWI 1,R5 INCREMENT NO INTERRUPT TIME OUT
003400 18F9 1979 JNZ T7534 *
003401 6802 3DFE 1980 B \$ERR\$ NO INTERRUPT - TU RESULTS NG
003402 6E03 3D80 1981 T7578 BAL XIOCK,R6 CHECK INTERRUPT STATS
003403 4C0F 3DFE 1982 DC A(\$ERR\$) ERROR
003404 101F 3DFE 1983 TBTR (R4,CSA) CS STATS AVAILABLE?
003405 8828 2BF6 3AEA 1984 JOFF T75AC OK-NO ERROR
003406 4524 3AEA 1985 MVW CSBUF+2,STATS ADDRESS OF CS STATS
003407 4D87 3AEA 1986 MVA STAT,R5 *
003408 4D87 3AEA 1987 TBTR (R5,7) UNSAFE?
003409 1001 1988 JOFF T75HH NO
00340A 4A4C 1989 TBTS (R2,12) SET- UNSAFE
00340B 4D8A 1990 T75HH TBTR (R5,10) BRAKE FAILURE?
00340C 1001 1991 JOFF T75JJ NO
00340D 4A4E 1992 TBTS (R2,11) SET- BRAKE FAILURE
00340E 4D86 1993 T75JJ TBTR (R5,6) PLO OUT OF SYNC CHECK?
00340F 1001 1994 JOFF T75KK NO
003410 4A4A 1995 TBTS (R5,10) SET- PLO OUT OF SYNC
003411 4D89 1996 T75KK TBTR (R5,9) SEEK CHECK?
003412 6A00 32C2 1997 BON T75K SET- FLAGS AND EXIT
003413 4D8B 1998 TBTR (R5,11) RESET UNSAFE BITS
003414 4D8C 2000 TBTR (R5,12) *
003415 4D8D 2001 TBTR (R5,13) *
003416 402F 3AEA 0000 2002 CWI 0,STATS OTHER CS BITS ON?
003417 6800 32C6 2003 BE T75U YES-TU ERROR
003418 4A43 1904 2004 TBTS (R2,3) INTERRUPT
003419 8828 2BF6 18CA 2005 MVW CSBUF+2,TURESUL+2
00341A 6802 32C6 2006 B T75U EXIT
00341B 6E03 3B28 2007 T75AB BAL SENS1,R6 READ SENSE WORD ONE
00341C 6E03 3B28 2008 DC A(\$ERR\$) ERROR
00341D 402B 3B64 0400 2009 TWI X'0400',RDATA HOME POSITION ON?
00341E 4A40 32C6 2010 B T75U EXIT
00341F 4A40 32C6 2011 TBTS (R2,0) SET SEEK FAILURE
003420 6802 0000 2012 T75TV B KRETURN
003421 * 2013 *
003422 * 2014 *
003423 * 2015 *
003424 * 2016 *
003425 * 2017 *
003426 * 2018 *
003427 * 2019 *
003428 * 2020 *
003429 * 2021 *
003430 * 2022 *
003431 * 2023 *
003432 * 2024 *
003433 * 2025 *
003434 * 2026 *
003435 * 2027 *
003436 * 2028 *
003437 * 2029 *
003438 * 2030 *
003439 * 2031 *
003440 * 2032 *
003441 * 2033 *
003442 * 2034 *
003443 * 2035 *
003444 * 2036 *

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
2037 * TURESUL BIT 0-----NOT USED
2038 * TURESUL BIT 1-----NOT USED
2039 * TURESUL BIT 2-----NOT USED
2040 * TURESUL BIT 3-----NOT USED
2041 *
2042 * TURESUL BIT 4-----NOT USED
2043 * TURESUL BIT 5-----GUARD BAND
2044 * TURESUL BIT 6-----PLO OUT OF SYNC
2045 * TURESUL BIT 7-----VFL
2046 *
2047 * TURESUL BIT 8-----NOT USED
2048 * TURESUL BIT 9-----SELECT OUT DRIVE
2049 * TURESUL BIT 10-----SELECT IN DRIVE
2050 * TURESUL BIT 11-----+ TOO FAST
2051 *
2052 * TURESUL BIT 12-----NOT USED
2053 * TURESUL BIT 13-----LINEAR REGION
2054 * TURESUL BIT 14-----SECTOR PULSES
2055 * TURESUL BIT 15-----+IF WRITE CLOCK
2056 *
2057 * PULSING STATUS OF LINE IS IN TURESUL+2
2058 * 1 = PULSING, 0 = NOT PULSING
2059 * TURESUL+2 BIT 16-----NOT USED
2060 * TURESUL+2 BIT 17-----NOT USED
2061 * TURESUL+2 BIT 18-----NOT USED
2062 * TURESUL+2 BIT 19-----NOT USED
2063 *
2064 * TURESUL+2 BIT 20-----NOT USED
2065 * TURESUL+2 BIT 21-----GUARD BAND
2066 * TURESUL+2 BIT 22-----PLO OUT OF SYNC
2067 * TURESUL+2 BIT 23-----VFL
2068 *
2069 * TURESUL+2 BIT 24-----NOT USED
2070 * TURESUL+2 BIT 25-----SELECT OUT DRIVE
2071 * TURESUL+2 BIT 26-----SELECT IN DRIVE
2072 * TURESUL+2 BIT 27-----+ TOO FAST
2073 *
2074 * TURESUL+2 BIT 28-----NOT USED
2075 * TURESUL+2 BIT 29-----LINEAR REGION
2076 * TURESUL+2 BIT 30-----SECTOR PULSES
2077 * TURESUL+2 BIT 31-----+ IF WRITE CLOCK
2078 *
2079 *
2080 * TURESUL+4 BIT 32-----SPEED IS TOO SLOW
2081 * TURESUL+4 BIT 33-----NOT USED
2082 * TURESUL+4 BIT 34-----NOT USED
2083 * TURESUL+4 BIT 35-----NOT USED
2084 *
2085 * TURESUL+4 BIT 36-----NOT USED
2086 * TURESUL+4 BIT 37-----NOT USED
2087 * TURESUL+4 BIT 38-----SECT 6 INDEX NOT IN CORRECT SEQ
2088 * TURESUL+4 BIT 39-----NOT USED
2089 *
2090 * TURESUL+4 BIT 40-----NOT USED
2091 * TURESUL+4 BIT 41-----NOT USED
2092 * TURESUL+4 BIT 42-----NOT USED
2093 * TURESUL+4 BIT 43-----INDEX PULSE NOT PULSING
2094 *
2095 * TURESUL+4 BIT 44-----NOT USED
2096 * TURESUL+4 BIT 45-----NOT USED
2097 * TURESUL+4 BIT 46-----NOT USED
2098 * TURESUL+4 BIT 47-----SECTOR PULSE NOT PULSING
2099 *
2100 * EXITS NORMAL
2101 * RETURNS TO MDI SUPERVISOR WHEN DONE.
2102 *
2103 * EXITS ERROR
2104 * RETURNS TO MDI SUPERVISOR.
2105 *
2106 * T7876 MVW R7,TURTN SAVE RETURN ADDRESS
2107 * MVWI X'7876',STUID SAVE ID FOR DISPLAY
2108 * MVB DEVAID,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
2109 * MVE DEVAID,IORST+1 LOAD DEVICE ADDRESS IN IDCB
2110 * MVWZ TURESUL+2,R2 CLEAR RESULTS WORD
2111 * MVWZ TURESUL+2,R2 *
2112 * MVA ADDRESS OF RESULTS WORD
2113 * CBUID,R0 DETERMINE PROCESSOR TYPE
2114 * CBI 37,R0 *
2115 * JNE TT76 JUMP IF NOT 4955
2116 * MVWI X'1A00',TT76A+2 LOAD TIME CONSTANT FOR 250 MSEC (253)
2117 * MVWI X'0329',TT73A+2 LOAD TIME CONSTANT FOR 25 MSEC
2118 * TT76A TT76A
2119 * MVWI X'0480',TT76A+2 (4953) LOAD TIME CONS FOR 250 MSEC
2120 * MVWI X'0012',TT73A+2 (4953) LOAD TIME CONS FOR 25 MSEC
2121 * TT76A MVWI X'0000',R3 SETUP COUNT TO COUNT 250 MSEC
2122 * MVWI X'FFFF',R0 MASK FOR 'ANDING'
2123 * MVWI X'FFFF',SEN10 SETUP MASK OF 'S
2124 * MVWI 0,SEN11 CLEAR 'OR' LOCATION
2125 * T764 BAL SENS1,R6 READ SENSE WORD ONE
2126 * DC A(\$ERR\$) ERROR
2127 * MVW RDATA,RSAVE SAVE SENSE DATA
2128 * XW R0,RDATA 'AND' SENSE DATA
2129 * RETW RDATA,SEN10 *
2130 * OW RSAVE,SEN11 'OR' SENSE DATA
2131 * JCT T764,R3 LOOP FOR 250 MSEC
2132 * MVA SEN11,R3 ADDR OF SENSE WORD ZERO (ORED)
2133 * TBTR (R3,1) TEST 'PLO OUT OF SYNC'
2134 * JOFF T766 JUMP IF LINE IS DOWN
2135 * TBTR (R3,17)
2136 * JON T7605 JUMP IF LINE IS UP
2137 * TBTS (R2,22) SET 'PLO OUT OF SYNC' PULSING
2138 * J T766
2139 * T7605 TBTS (R2,6) SET INDICATION THAT 'LINE IS UP'
2140 * T766 TBT (R3,14) TEST 'GUARD BAND'
2141 * JOFF T769
2142 * TBT (R3,30)
2143 * JON T767 JUMP IF LINE IS PULSING
2144 * TBTS (R2,21) SET 'GUARD BAND' PULSING
2145 * J T769
2146 * T767 TBTS (R2,5) SET INDICATION THAT 'LINE IS UP'
2147 * T769 TBT (R3,4) TEST 'LINEAR REGION'
2148 * JOFF T765
2149 * TBT (R3,20)
2150 * JON T760A JUMP IF LINE IS PULSING

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
003570 4A5D 2151 TBT (R2,29) SET 'LINEAR REGION' PULSING
003572 5001 J T76B (R2,13) SET INDICATION THAT 'LINE IS UP'
003574 4A4D 2153 T760A TBT (R2,13) PRE-SET INDEX PULSE NOT PULSING
003576 4A6B 2154 T76B TBT (R2,43) TEST 'INDEX PULSE'

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
003688 4124 3B64 2265 MVA RDATA,R1 ADDRESS OF SENSE DATA
00368C 5801 JCT T732,R0 DECREMENT COUNT ****
00368E 500E J T732 ERROR - TIME EXPIRED
003690 4907 2268 TT736 TBT (R1,7) TEST INDEX
003692 12F7 2269 JON T734Z LOOP IF INDEX IS UP
003694 6E03 3E28 2270 T734 BAL SENS1,R6 READ SENSE WORD ONE
003698 3DFE DC A(\$ERR\$)
00369A 4124 3B64 2272 MVA RDATA,R1 ADDRESS OF SENSE DATA
00369E 7801 FFFF 2273 AWI X'FFFF',F0 DECREMENT COUNT -1
0036A2 1004 2274 JZ T732 ERROR - TIME EXPIRED
0036A4 4907 2275 TBT (R1,7) TEST INDEX
0036A6 10F6 2276 JOFF T734 LOOP IF INDEX IS DOWN
0036A8 6802 3E4E 2277 B \$CONX SPEED IS OK -EXIT
0036AC 4A60 2278 TBT (R2,32) SET SPEED TOO SLOW
0036AE 6802 3E4E 2279 B \$CONX EXIT
2280 *
2281 *
2282 SEN11 DC A(*-*)
2283 SEN10 DC A(*-*)
2284 BSAVE DC A(*-*)
2285 CTR59 DC A(*-*)
2286 *
2288 COPY T7833 01DEC76
2289 T7833 TUIT S31E
2290 *****06FEB76**
2291+
2292+ TEST UNIT
2293+
2294+ (QU31) SEEK LOOP TEST 12/01/76
2295+
2296+ PURPOSE
2297+
2298+ FUNCTION: LOOP ON RECAL AND SEEK TO TRACK 1.
2299+
2300+ . PROGRAM INITIALIZES ATTACHMENT.
2301+ . RECALIBRATE AND DO A ONE TRACK SEEK (FORWARD-OUT DIRECTION)
2302+ . LOOP UNTIL CE INPUTS ANSWER TO MAP QUESTION.
2303+
2304+ CALLING SEQUENCE
2305+
2306+ PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2307+ . NO STATUS PASSED BACK TO MDI
2308+
2309+ EXITS NORMAL
2310+ . MDI TERMINATES LOOP.
2311+
2312+ EXITS ERROR
2313+ . NONE
2314+
2315+ RETURN CONTROL
2316+
2317+ B TURTN* RETURN TO MDI SUPERVISOR
2318+
2319+*****
2320+T7833 MVW R7,TURTN SAVE RETURN ADDRESS
2321+ MVWI X'7833',STUID SAVE TU ID FOR DISPLAY
2322+ MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2323+ BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2324+ DC A(S31E) ERROR ADPS FOR INVALID PREP
2325+*
2326 MVB CPUID,R0 DETERMINE TYPE OF PROCESSOR
2327 CBI 37,R0 *
2328 JBE T33T JUMP IF NOT 4955
2329 MVWI X'254C',T33T1+2 LOAD TIME CONSTANT FOR 2 SEC
2330 J T33T2
2331 T33T MVWI X'0C0E',T33T1+2 (4953) LOAD TIME CONS FOR 2 SEC
2332 T33T2 MVA IOBLK,R7 SETUP IO BLOCK
2333 SVC RESET ISSUE IO RESET
2334 T33T1 MVWI X'0000',R0 TIME OUT 2 SEC
2335 T733 SVC IDLE *
2336 JCT T733,R0 *
2337 TS31 BAL \$RECL,R6 RECALIBRATE
2338 DC A(S31E) ERROR-EXIT
2339 MVWI X'0005',SKDCB SEEK
2340 MVWI 1,SKDCB+2 FORWARD DIRECTION ONE TRACK
2341 BAL \$SECK,R6 SEEK
2342 DC A(S31E) ERROR-EXIT
2343 S31E TXIT EXIT
2344+S31E B RETURN TO MDI CONTROLLER
2345+*****
2346 *
2347 *
2348 *
2349 *
2350 T7832 TUIT \$ERR\$ 01DEC76
2351+*****06FEB76**
2352+
2353+ TEST UNIT
2354+
2355+ (TU32) SEEK TEST#4
2356+
2357+ PURPOSE
2358+
2359+ FUNCTION: TEST 'SEEK ACCESS COUNT' LINES (BITS 1-8) AND VERIFY
2360+ . THAT HEAD CROSSES THE CORREST NUMBER OF TRACKS TO PERFORM
2361+ . THE SEEK SUCCESSFULLY.
2362+
2363+ . PROGRAM INITIALIZES ATTACHMENT.
2364+ . RECALIBRATE
2365+ . TEST 'SEEK ACCESS COUNT BIT 1' LINE
2366+ . DO A 2-TRACK SEEK (FWD)
2367+ . DO A 2-TRACK SEEK (REV)
2368+ . VERIFY THAT HEAD RETURNED TO TRACK 0
2369+
2370+ . TEST 'SEEK ACCESS COUNT BIT 2' LINE
2371+ . DO A 4-TRACK SEEK (FWD)
2372+ . DO A 4-TRACK SEEK (REV)
2373+ . VERIFY THAT HEAD RETURNED TO TRACK 0
2374+
2375+ . TEST 'SEEK ACCESS COUNT BIT 3' LINE
2376+ . "
2377+ . "
2378+ . "
2379+ . TEST 'SEEK ACCESS COUNT BIT 8' LINE
2380+ . DO A 256-TRACK SEEK (FWD)

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

```

2381+* . DO A 256-TRACK SEEK (REV)
2382+* . VERIFY THAT HEAD RETURNED TO TRACK 0
2383+* .
2384+* .
2385+* .
2386+* . CALLING SEQUENCE
2387+* . PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2388+* . TURESUL BIT 0----ERRORS DETECTED ON FORWARD SEEK
2389+* . TURESUL BIT 1----ERRORS DETECTED ON BACKWARD SEEK
2390+* . TURESUL BIT 2----ERRORS DETECTED ON HOME TEST
2391+* . TURESUL BIT 3----BEHIND HOME DETECTED TOO SOON
2392+* .
2393+* . TURESUL BIT 4----BEHIND HOME NOT DETECTED ON 1-TRACK REV SK
2394+* . TURESUL BIT 5----INCORRECT TRACK CROSSING COUNT
2395+* . TURESUL BIT 6----TRACK CROSSING COUNT HIGH
2396+* . TURESUL BIT 7----INTERRUPT ERROR
2397+* .
2398+* . TURESUL BIT 8----HOME BIT NOT AS EXPECTED
2399+* . TURESUL BIT 9----TIME OUT ERROR - OFF TRACK TOO LONG
2400+* . TURESUL BIT 10----PLO OUT OF SYNC CHECK
2401+* . TURESUL BIT 11----- BRAKE FAILURE
2402+* .
2403+* . TURESUL BIT 12----FILE UNSAFE
2404+* . TURESUL BIT 13----EVEN TRACK NOT AS EXPECTED
2405+* . TURESUL BIT 14----NOT READY
2406+* . TURESUL BIT 15----SEEK CHECK
2407+* .
2408+* . TURESUL BIT 16----RECALIBRATE FAILURE
2409+* . TURESUL BIT 17----SEEK FAILURE
2410+* . TURESUL BITS 18-31-NOT USED
2411+* .
2412+* . TURESUL BITS 32-47--CS STATS FOR FAILING OP
2413+* .
2414+* . EXITS NORMAL
2415+* . RETURNS TO MDI SUPERVISOR WHEN DONE.
2416+* .
2417+* . EXITS ERROR
2418+* . RETURNS TO MDI SUPERVISOR.
2419+* .
2420+* . RETURN CONTROL
2421+* .
2422+* . B TURTN* RETURN TO MDI SUPERVISOR
2423+* .
2424+* .*****
2425+* T7832 MVW R7,TURTN SAVE RETURN ADDRESS
2426+* MVWI X'7832',STUID SAVE TU ID FOR DISPLAY
2427+* MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2428+* BAL $CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2429+* DC A($ERR$) ERROR ADRS FOR INVALID PREP
2430+* .
2431+* . MVB DEVADD,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
2432+* CBIT,R0 DETERMINE PROCESSOR TYPE
2433+* JNE TT32 *
2434+* MVWI X'0200',TT32A+2 JUMP IF NOT 4955
2435+* MVWI X'0270',TT32B+2 LOAD TIME CONSTANT FOR 16-20 MSEC
2436+* MVWI X'254C',T32TC+2 LOAD TIME CONSTANT FOR 8-10 MSEC (9.7)
2437+* J T321 *
2438+* CBI 35,R0 *
2439+* TT32 * JUMP IF NOT 4953
2440+* JNE TT32C *
2441+* MVWI X'0110',TT32A+2 LOAD TIME CONS FOR 16-20 MSEC
2442+* MVWI X'00F8',T32B+2 LOAD TIME CONS FOR 9 MSEC
2443+* MVWI X'0C08',T32TC+2 LOAD TIME CONSTANT FOR 2 SEC
2444+* J T321 *
2445+* TT32C MVWI X'0110',TT32A+2 LOAD TIME CONS FOR 16-20 MSEC
2446+* MVWI X'00F8',T32B+2 LOAD TIME CONS FOR 9 MSEC
2447+* MVWI X'0C08',T32TC+2 LOAD TIME CONSTANT FOR 2 SEC
2448+* MVWI X'0080',T32JB+2 *
2449+* TT321 MVA IOBLK,R7 SETUP IOBLK
2450+* SVC RESET ISSUE IO RESET
2451+* T32TC MVWI X'0000',R0 TIME OUT 2 SEC
2452+* T732Q SVC *
2453+* JCT T732Q,R0 *
2454+* TBTR (R4,B63) PSETP HOME SUBROUTINE BIT
2455+* MVWZ TURESUL,R2 CLEAR RESULTS WORD
2456+* MVWZ TURESUL+2,R2 CLEAR RESULTS WORD 2
2457+* MVWZ TURESUL+4,R2 CLEAR RESULTS WORD 3
2458+* MVA TURESUL,R2 ADDRESS OF RESULTS
2459+* BAL $RECL,R6 RECALIBRATE
2460+* DC A(T32Y) ERROR
2461+* TBTR (R4,ER) INTERRUPT ERROR?
2462+* JOFF T322 NO
2463+* TBTR (R4,CSA) TST FOR CYCLE STEAL STATS
2464+* BOFF $ERR$ ERROR
2465+* MVW CSBUF+2,STATS ADDRESS OF CYCLE STEAL STATS
2466+* MVA STAT5,R5 *
2467+* JOFF T32RR NO
2468+* TBTR (R2,15) SET-SEEK CHECK
2469+* TBTR (R5,7) UNSAFE?
2470+* T32RR JOFF T32SS NO
2471+* TBTS (R2,12) SET-UNSAFE
2472+* TBTR (R5,10) BRAKE FAILURE?
2473+* T32SS JOFF T32TT NO
2474+* TBTS (R2,11) SET- BRAKE FAILURE
2475+* T32TT TBTR (R5,6) PLO OUT OF SYNC CHECK?
2476+* JOFF T32UU NO
2477+* TBTR (R2,10) SET- PLO OUT OF SYNC
2478+* T32UU TBTR (R5,11) RESET UNSAFE BITS
2479+* TBTR (R5,12) *
2480+* TBTR (R5,13) *
2481+* CBI 0,STAT5 OTHER CS BITS ON?
2482+* BE T32X NO-EXIT
2483+* TBTS (R2,16) SET RECAL FAILURE
2484+* TBTR (R2,7) INTERRUPT ERROR
2485+* MVW CSBUF+2,TURESUL+4 SET CS STATS
2486+* B EXIT
2487+* T32Y CBI X'0003',R3 CHECK FOR COMMAND REJECT
2488+* BNE $ERR$ ERROR-TU NG
2489+* BAL X'0008',R6 START CYCLE STEAL STATS
2490+* DC A($ERR$) ERROR
2491+* TBTR (R4,ER) INTERRUPT ERROR?
2492+* BON $ERR$ YES
2493+* TWI X'0001',CSBUF+2 NOT READY?

```

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

```

00370E 6F0D 2C0C
003712 4020 2BD4 7832
003718 4424 2BCA
00371C 6E03 3DCA
003720 3DFE
003722 8028 19D0 3B63
003728 C020 0232
00372C F025
00372E 180A
003730 4020 3882 0200
003736 4020 38D6 0270
00373C 4020 377C 254C
003742 5018
003744 F023
003746 180A
003748 4020 3882 0110
00374E 4020 38D6 00F6
003754 4020 377C 0C0E
00375A 500C
00375C 4020 3882 0110
003762 4020 38D6 00F8
003768 4020 377C 0C0E
00376E 4020 3850 0080
003774 4724 3DB6
003778 6008
00377A 4024 0000
00377E 6002
003780 B8FE
003782 4C9F
003784 CA25 18C8
003788 CA25 18CA
00378C CA25 18CC
003790 4224 18C8
003794 6E03 3BFO
003798 3784
00379A 4CA1
00379C 1035
00379E 4CA9
0037A0 6800
0037A4 8828 3AE6 3AEA
0037A8 4224 3AEA
0037B0 1001
0037B2 4A4F
0037B4 4DB7
0037B6 1001
0037B8 4A4C
0037BA 4DBA
0037BC 1001
0037BE 4A4B
0037C0 4D86
0037C2 1001
0037C4 4A4A
0037C6 4DBB
0037C8 4DBD
0037CA 4DBD
0037CC 402F 3AEA 0000
0037D2 6800 385E
0037D6 4A47
0037D8 4A47
0037DA 8828 2BF6 18CC
0037DE 6802 385E
0037E0 7B06 0003
0037E4 6801 3DFE
0037E8 6801 3CC2
0037F0 3DFE
0037F2 4CA1
0037F4 6A00 3DFE
0037F8 402B 2BF6 0001

```

Table with columns: LOCTR, OBJECT TEXT, STMT, SOURCE STATEMENT, COPYRIGHT IBM CORP 1976. Contains assembly code for disk status and seek test.

Table with columns: LOCTR, OBJECT TEXT, STMT, SOURCE STATEMENT, COPYRIGHT IBM CORP 1976. Contains assembly code for disk status and seek test, continuing from page 12.

LOCTR OBJECT TEXT STMT SOURCE STATEMENT
003AC6 0000 2838 T86GG DC X'0000'
003AC8 0000 2839 T41D DC X'0000'
003ACA 0000 2840 T41LP DC X'0000'
003ACC 0000 2841 WRLCT DC X'0000'
003ACE 0000 2842 CYLOC DC X'0000'
003AD0 0000 2843 PASS1 DC A(*-*)
003AD2 0000 2844 HEAD0 DC A(*-*)
003AD4 0000 2845 HEAD1 DC A(*-*)
003AD6 0000 2846 GDSE0 DC A(*-*)
003AD8 0000 2847 GDSE1 DC A(*-*)
003ADA 0000 2848 ERO0 DC A(*-*)
003ADC 0000 2849 ERO1 DC A(*-*)
003AE0 0000 2850 HD0SV DC A(*-*)
003AE2 0000 2851 HD1SV DC A(*-*)
003AE4 0000 2852 EROSV DC A(*-*)
003AE6 0000 2853 ER1SV DC A(*-*)
003AE8 0000 2854 PATR DC A(*-*)
003AEA 0000 2855 CECYL DC A(*-*)
2856 STATS DC A(*-*)
2857 *
2859 COPY T78DPCIO 01DEC76
2860 ** (T78DPCIO)
2861 *
2862 * EXECUTE DPC INPUT/OUTPUT COMMANDS 2/07/77
2863 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
2864 *
2865 * 1 BAL CEOP1,R6 CE DIAGNOSTIC OP1(TURN ON DIAG MODE)
2866 *
2867 * 2 BAL CEOP2,R6 WRITE DIAG CLOCK STEP DATA
2868 *
2869 * 3 BAL SENS0,R6 CE READ SENSE WORD ZERO
2870 *
2871 * 4 BAL SENS1,R6 CE READ SENSE WORD ONE
2872 *
2873 * 5 BAL WRAP,R6 READ DIAGNOSTIC WPAP
2874 *
2875 * BXS (R6,2) RETURN
2876 *
2877 *****
2878 *
2879 * CE DIAGNOSTIC OP2 DATA WORD (CLOCK STEP)
2880 *
2881 * BIT 00 - SET READY
2882 * BIT 01 - RESET READY
2883 * BIT 02 - SET WRITE CLOCK
2884 * BIT 03 - SET READ CLOCK
2885 * BIT 04 - INDEX PULSE
2886 * BIT 05 - SECTOR PULSE
2887 * BIT 06 - STANDARD READ DATA
2888 * BIT 07 - SPEED PULSE
2889 * BIT 08 - BEHIND HOME
2890 * BIT 09 - SET SEEK COMPLETE
2891 * BIT 10 - RESET SEEK COMPLETE
2892 * BIT 11 - PLO OUT OF SYNC
2893 * BIT 12 - RST RD/WRT CLOCK
2894 * BIT 13 -
2895 * BIT 14 -
2896 * BIT 15 - RESET DIAGNOSTIC MODE
2897 *
2898 * *****
2899 *
2900 *
2901 WRAP MVW R6,LSTIO SAVE ADDRESS OF LAST IO
2902 MVB DEVADD,IDCBRAP+1 LOAD DEVICE ADDRESS IN IDCB
2903 IO IDCBEA2 READ SENSE WORD 1
2904 BNCC 7,CCERR CHECK COND CODE
2905 BXS (R6,2) RETURN TO CALLER
2906 *
2907 CEOP1 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
2908 MVB DEVADD,IDCBCE1+1 LOAD DEVICE ADDRESS IN IDCB
2909 IO IDCCE1 SET DIAGNOSTIC MODE
2910 BNCC 7,CCERR CHECK COND CODE
2911 BXS (R6,2) RETURN TO CALLER
2912 *
2913 CEOP2 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
2914 MVB DEVADD,IDCBCE2+1 LOAD DEVICE ADDRESS IN IDCB
2915 IO IDCCE2 WRITE DIAG CLOCK STPP
2916 BNCC 7,CCERR CHECK COND CODE
2917 BXS (R6,2) RETURN TO CALLER
2918 *
2919 *
2920 SENS1 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
2921 MVB DEVADD,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
2922 IO IDCBE1 READ SENSE WORD 2
2923 BNCC 7,CCERR CHECK COND CODE
2924 BXS (R6,2) RETURN TO CALLER
2925 *
2926 SENS0 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
2927 MVB DEVADD,IDCB0+1 LOAD DEVICE ADDRESS IN IDCB
2928 IO IDCBE0 READ SENSE WORD 1
2929 BNCC 7,CCERR CHECK COND CODE
2930 BXS (R6,2) RETURN TO CALLER
2931 *
2932 CCERR DC X'706E' COPY STATUS ANY LEVEL INTO P3
2933 SRL 3,P3 POSITION CC CODE TO BITS 13-15
2934 MVB R3,SI0IN * PUT IN LOG AREA
2935 B (P6)* RETURN TO USER
2936 *
2937 IORST DC X'6F05' RESET IO
2938 IDCBO DC X'2205' SENSE WORD ZERO
2939 RDATA0 DC A(*-*) DATA WORD
2940 IDCBI DC X'2105' SENSE WORD ONE
2941 RDATA DC A(*-*)
2942 IDCBE1 DC X'4005' CE DIAG OP1
2943 CEDAT DC A(*-*) SENSE DATA
2944 IDCBE2 DC X'4105' CE DIAG OP2
2945 CEDAT2 DC A(*-*) SENSE DATA
2946 IDCBRAP DC X'2F05' READ DIAG WFAP
2947 RAPDAT DC A(*-*) SENSE DATA
2948 CPUID EQU X'0232' CPU ID
2949 *
2951 COPY T78IO 01DEC76
2952 ** (T78IO)
2953 ***** 12/01/76*****

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
2954 *
2955 * SUBROUTINE
2956 *
2957 * PURPOSE
2958 *
2959 * COMPARE READ SECTOR ID DATA TO WRITE SECTOR ID DATA
2960 * NORMAL AND TEST DATA.
2961 *
2962 * CALLING SEQUENCE
2963 *
2964 * BAL CMPRW,R6 (NORMAL)
2965 * BAL CMPRT,R6 (TEST)
2966 *
2967 * RETURN
2968 *
2969 * BXS (P6,2) - NORMAL
2970 *
2971 *
2972 *****
2973 *
2974 CMPRT MVWI 5,R7 BYTE COUNT
2975 MVA SCTR+1,R3 ADDR OF RD SECT ID DATA (TEST)
2976 MVA WRSID,R5 ADDR OF WR SECT ID DATA (TEST)
2977 J TT4Y
2978 CMPRW MVWI 5,R7 COMPARE BYTE COUNT
2979 MVA SCTR+1,R3 ADDR OF RD SEC ID DATA
2980 MVA WRSID,R5 ADDR OF WR SEC ID DATA
2981 TT4Y CFNEN (R3),(R5) COMPARE ID DATA
2982 BE (R6,2) BCH IF WRITE ID DATA OK
2983 B (P6)* COMPARE ERROR
2984 *
2985 *****
2986 *
2987 * SUBROUTINE
2988 *
2989 * PURPOSE
2990 * CONVERT LOGICAL SECTOR NUMBER TO A PHYSICAL SECTOR MINUS
2991 * ONE.
2992 * SETUP LOGICAL SECTOR # IN LOCATION 'LGSEC'
2993 * PHYSICAL SECTOR # WILL BE LOADED IN LOCATION 'PHYS'
2994 *
2995 * LOGICAL SECTOR# TO PHYSICAL SECTOR# CONVERSION
2996 * LOGICAL- X 00, 1E, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,
2997 * PHYSICAL X 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,
2998 *
2999 * LOGICAL- 07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,
3000 * PHYSICAL 0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 1A, 1B,
3001 *
3002 * LOGICAL- 0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 14, 32,
3003 * PHYSICAL 1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
3004 *
3005 * LOGICAL- 15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,
3006 * PHYSICAL 2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,
3007 *
3008 * LOGICAL- 1C, 3A, 1D, 3B, X
3009 * PHYSICAL 38, 39, 3A, 3B, X
3010 *
3011 *
3012 * CALLING SEQUENCE
3013 *
3014 * BAL CONV, R6
3015 *
3016 * RETURN
3017 *
3018 * B (TT304+2)
3019 *
3020 *****
3021 *
3022 CONV MVW P6,TT304+2 SETUP RETURN ADDR
3023 CB ZERO,LGSEC+1 CK FOR LOG # ZERO
3024 JE TT303 BCH IF LOG # IS ZERO
3025 CB LGSEC+1,CB29 COMP LOG TO 29
3026 JGE RPT1 BCH IF LGSEC EQ OR LESS THAN CB29
3027 MVWI 2,R0 SETUP MULTIPLIER
3028 MB LGSEC+1,R0 LOG SECTOR # TIMES 2
3029 SWI 60,R0 LOG SEC TIMES 2 MINUS 60
3030 MVB P0,PHYS+1 PHYSICAL SECTOR NUMBER
3031 J TT304 RETURN TO CALLER
3032 TT303 MVB FIVE9,PHYS+1 PHYSICAL SECTOR # 59
3033 J TT304 RETURN TO CALLER
3034 RTT01 MVWI 2,R0 LOAD MULTIPLIER
3035 MB LGSEC+1,R0 LOG SECTOR # TIMES 2
3036 SWI 1,R0 SUBTRACT ONE
3037 MVB R0,PHYS+1 LOAD PHYSICAL SECTOR #
3038 TT304 B *-4 RETURN TO CALLER
3039 *
3040 *****
3041 *
3042 * SUBROUTINE
3043 *
3044 * PURPOSE
3045 *
3046 * LOAD WRITE SECTOR ID DATA BUFFER FROM PD SEC ID BUFFER
3047 *
3048 * CALLING SEQUENCE
3049 *
3050 * BAL LWSID,P6
3051 *
3052 * RETURN
3053 *
3054 * BXS (P6)
3055 *
3056 *****
3057 *
3058 *
3059 LWSID MVWI 5,R7 BYTE COUNT
3060 MVA SCTR+1,R3 ADDR OF RD SECT ID DATA BUFFER
3061 MVA WRSID,R5 ADDR OF WR SECT ID DATA BUFFER
3062 MWFN (R3),(R5) MOV DATA FROM PD TO WR BUFFER
3063 BXS (P6) RETURN TO CALLER
3064 *
3065 *
3066 *
3067 * EXECUTE INPUT & OUTPUT COMMANDS
3068 * TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
3069 * EACH OF THESE ENTRIES SET P7 WITH THE ADPS OF ITS PARAMETER
3070 * LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
3071 * SUPVR CALL.
3072 *
3073 * THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
3074 *
3075 * 1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
3076 * 2. ERROR INTERRUPTS RECEIVED FROM SUPVR
3077 *
3078 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
3079 *
3080 * 1 BAL \$FKEW,R6 READ SECTOR ID SKEWED
3081 *
3082 * 2 BAL \$WKST,P6 WRITE SECTOR ID SKEWED (TEST)
3083 *
3084 * 3 BAL \$FWST,P6 READ SECTOR ID SKEWED (TEST)
3085 *
3086 * 4 BAL \$RIDS,P6 READ SECTOR ID (TEST)
3087 *
3088 * 5 BAL \$WKEW,R6 WRITE SECTOR ID SKEWED
3089 *
3090 * 6 BAL \$WSEC,P6 WRITE SECTOR ID
3091 *
3092 * 7 BAL \$WSTS,R6 WRITE SECTOR ID (TEST)
3093 *
3094 * 8 BAL \$DIAG,P6 DIAGNOSTIC
3095 *
3096 * 9 BAL \$XIOCS,P6 CYCLE STEAL STATUS
3097 *
3098 * 10 BAL \$SEEK,P6 SEEK
3099 *
3100 * 11 BAL \$PECL,R6 RECALIBRATE
3101 *
3102 * 12 BAL \$RDID,R6 READ SECTOR ID
3103 *
3104 * 13 BAL \$RD,P6 READ
3105 *
3106 * 14 BAL \$RDVY,R6 READ VERIFY
3107 *
3108 * 15 BAL \$WRT,P6 WRITE
3109 *
3110 *
3111 \$SEEK MVA SKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3112 J XIO
3113 *
3114 \$RECL MVA CIDCB,IODCB SET UP BLOCK FOR SVC CALL
3115 J XIO
3116 *
3117 \$RDID MVA RSDCB,IODCB SET UP BLOCK FOR SVC CALL
3118 MVEI X'FF',R3 SET BUFFER TO F'S
3119 MVA SCTID,R5 SETUP READ SECTOR ID BUFFER ADPS
3120 MVWI 6,R7 SETUP BUFFER LENGTH
3121 FFN R3,(R5) INIT READ SECTOR ID BUFFER
3122 MVA SCTID,RSDCB+14 DATA ADDR
3123 J XIO
3124 *
3125 \$RD MVEI X'FF',R3 SETRD BUFFER TO ALL F'S
3126 MVW RDDCB+14,R5 SET UP READ BUFFER ADPS
3127 MVWI X'0100',R7 SET UP BUFFER LENGTH
3128 FFN R3,(R5) CLEAR READ BUFFER
3129 \$RD\$ MVA RDDCB,IODCB SET UP BLOCK FOR SVC CALL
3130 J XIO
3131 *
3132 \$RDVY MVA VFDCE,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3133 J XIO
3134 *
3135 \$WPT MVA WFDCE,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3136 J XIO
3137 *
3138 \$RKEW MVA RKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3139 MVEI X'FF',R3 SET BUFFER TO F'S
3140 MVA SCTID,R5 SETUP READ SECTOR ID BUFFER ADPS
3141 MVWI 6,R7 SETUP BUFFER LENGTH
3142 FFN R3,(R5) INIT READ SECTOR ID BUFFER
3143 MVA SCTID,RKDCB+14 DATA ADDR
3144 J XIO
3145 *
3146 \$WKST MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3147 MVA WSIDT,WKDCB+14 DATA ADDR
3148 J XIO
3149 *
3150 \$RWST MVA RKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3151 MVA SCTST,RKDCB+14 DATA ADDR
3152 J XIO
3153 *
3154 \$RIDS MVA RSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3155 MVEI X'FF',R3 SET BUFFER TO F'S
3156 MVA SCTST,R5 SETUP READ SECTOR ID BUFFER ADPS
3157 MVWI 6,R7 SETUP BUFFER LENGTH
3158 FFN R3,(R5) INIT READ SECTOR ID BUFFER
3159 MVA SCTST,RSDCB+14 DATA ADDR
3160 J XIO
3161 *
3162 \$WKEW MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3163 MVA WRSID,WKDCB+14 DATA ADDR
3164 J XIO
3165 *
3166 \$WSEC MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3167 MVA WRSID,WSDCB+14 DATA ADDR
3168 J XIO
3169 \$WSTS MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3170 MVA WSIDT,WSDCB+14 DATA ADDR
3171 J XIO
3172 *
3173 \$DIAG MVA DGDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3174 J XIO
3175 *
3176 *****29JUL76**
3177 *
3178 * SUB-ROUTINE
3179 *
3180 * EXECUTE INPUT AND OUTPUT COMMANDS
3181 *
3182 * PURPOSE

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
3183** TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
3184** THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
3185**
3186**
3187** 1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
3188** THE I/O COMMAND.
3189** 2. SAVES THE DCE BLOCK USED UNLESS IT IS A START CYCLE STATUS
3190** ISSUED BY THIS SUBROUTINE.
3191** 3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
3192** START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
3193** 4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
3194** SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
3195** MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
3196** 5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
3197** EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC START'.
3198** 6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
3199** STARTS TO DETERMINE A LOST INTERRUPT.
3200** 7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF IT
3201** WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
3202** 8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
3203** 9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
3204** 10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
3205** 11. CHECK TO SEE IF THE EXERCISES IS TO BE TERMINATED.
3206** 12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
3207** ISSUED BY THIS SUBROUTINE.
3208** 13. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
3209** CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
3210** COUNT IT AND SET UP THE PROPER MESSAGE TO BE PRINTED.
3211**
3212** CALLING SEQUENCE
3213**
3214** THIS ROUTINE HAS THE FOLLOWING ENTRIES:
3215**
3216** --> BAL XIO OR XEQ ANY CYCLE STEAL COMMAND, MOD=0
3217** --> BAL XIO1 MOD PAFM PRELOADED IN 'IOMOD'
3218** --> BAL XIOCS,R6 OR XEQ START CYCLE STEAL STATUS, MOD=F
3219** --> BAL XIOCS-4,R6 AUTO STATUS (FOLLOWING OTHER XIO
3220** AND DOES NOT POST INTERRUPT STATUS)
3221**
3222** RETURN CONTROL
3223**
3224** BXS (R6,2) RETURN TO USER NO ERROR
3225** OR B (R6)* RETURN AND RETRY ON ERROR
3226** *****
3227** XIO MVWZ IOMOD,R3 SET MOF OF 0 FOR CYCLE STEAL OP
3228** J XIO1 CS I/O'S ARE NOT RETRIED
3229**
3230**
3231** TBTR (R4,CE) RESET CS STATUS INTER ERROR INDICAT.
3232** TBTS (R4,CS) SET 'CYCLE STEAL STATUS' IN PROGRESS
3233** XIOCS MVA CSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
3234** MVWI X'000F',IOMOD SET CYCLE STEAL MODIFIER
3235** TBTR (R4,CS) IS CS IN PROGRESS, ERROR CONDITION
3236** JON XIO2 * YES, BYPASS SAVING I/O ADPS
3237** XIO1 MVW R6,LSTIO SAVE IAP FOR RETRY IF REQUESTED
3238** MVA DCBUF,R3 SET UP TO ADRS TO MOVE DCB TABLE
3239** MVW IODCB,R5 * AND THE FROM ADRS, ALONG WITH
3240** MVBI 16,R7 * THE NUMBER OF MOVES
3241** MVFN (R5),(R3) MOVE 1 STATUS WORD AND ADJUST
3242** MVBI 255,R3 CLEAR CYCLE STATUS BUFFER
3243** MVA CSEBF,R5 * TO ALL ONES *
3244** MVBI 16,R7 *
3245** FFN R3,(R5) *
3246** MVWI X'0708',SIOIN OVERLAY OLD CONDITION CODES
3247** MVWZ \$ISB,R3 ZERO OUT OLD ISB VALUE
3248**
3249** TBTR (R4,ER) RESET ANY ERROR BEFORE I/O COMMAND
3250** XIO2 TBTR (R4,IN) CLEAR INTERRUPT RECEIVED CNTRL BIT
3251** MVA IOBLK,R7 SET UP CONTROL BLOCK FOR SUPVR
3252** TBTR (R4,\$LE) RESET LEVEL ERROR INDICATOR
3253** TBTS (R4,XI) SET EXPECTED INTR CONTROL BIT
3254** SVC START CALL SUPVR FOR I/O COMMAND
3255**
3256** TBTR (R4,NI) IS AN INTR EXPECTED
3257** BN (R6,2) * NO, RETURN TO USER
3258**
3259** THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
3260**
3261** MVBI X'00',R5 SET UP WORK REG FOR 'LOST INTR'
3262** XIO8 TBTR (R4,IN) HAS INTERRUPT BEEN RECEIVED
3263** JON XIOCK * YES, CHECK IF ALL WAS SATISFACTORY
3264** SVC IDLE ALLOW ANOTHER PROGRAM A CHANCE TO RUN
3265** SUPVR WILL RETURN HERE
3266** ANI 1,R5 ADVANCE TIME OUT COUNT
3267** JNZ XIO8 BCH IF TIME OUT NOT REACHED
3268** TBTS (R4,ER) SET ON ERROR CONTROL BIT
3269** B (R6)* ERR 'NO INTERRUPT'
3270** *****03FEB76**
3271**
3272**
3273** SUBROUTINE
3274**
3275** I/O EXECUTE ERROR HANDLING ROUTINE
3276**
3277** PURPOSE
3278**
3279** THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
3280** PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
3281** SUPERVISOR AND IT WAS NOT ACCEPTED.
3282**
3283** CALLING SEQUENCE
3284**
3285** SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
3286**
3287** RETURN CONTROL
3288**
3289** B (R6)* RETURN TO USERS ERROR HANDLER
3290** *****
3291**
3292**
3293** CC 0= DEVICE NOT ATTACHED
3294** FOR 1= DEVICE BUSY
3295** I/O 2= DEVICE BUSY AFTER RESET
3296** 3= COMMAND REJECT
3297** 4= INTERVENTION REQUIRED
3298** 5= INTERFACE DATA CHECK

LOCTP OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
3299** 6= CONTROLLER BUSY
3300** 7= I/O COMMAND EXPECTED
003D1E 706E
003D20 336A
003D22 C328 2BD6
003D26 68D2 0000
3301**
3302+XIOER DC X'706E' COPY STATUS ANY LEVEL INTO P3
3303+ SRL 13,R3 POSITION CC CODE TO BITS 13-15
3304+ MVB P3,\$IOIN * PUT IN LOG OUT AREA
3305+ B (R6)* RETURN TO USER ERROR HANDLER
3307+*****14APP76**
3308**
3309** SUB-ROUTINE
3310**
3311** ERROR INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
3312**
3313** PURPOSE
3314**
3315** THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR
3316** OR THE INTERRUPTING CONDITION CODE DOES NOT AGPPE WITH THE
3317** EXPECTED CODE.
3318**
3319** CALLING SEQUENCE
3320**
3321** SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT
3322**
3323** RETURN CONTROL
3324**
3325** SVC EXIT RETURN TO USER VIA SUPVR
3326**
3327+*****14APP76**
3328** CC 0= CONTROLLER END ISB 0= ADD STATUS
3329** FOR 1= PROGRAM CONTROL INTERRUPT BITS 1= COMD REJECT
3330** INTR 2= EXCEPTION INTERRUPT FOP 2= INCOF LENGTH
3331** 3= DEVICE END INTERRUPT INTR 3= DCB SPEC CK
3332** 4= ATTENTION INTERRUPT 4= STG DATA CK
3333** 5= ATTENTION / PROGRAM CNTL INTP 5= INV STG ADPS
3334** 6= ATTENTION / EXCEPTION INTR 6= PPOFCT CK
3335** 7= ATTENTION / DEVICE END INTP 7= I-FACE DATA
3336**
3337**
3338+INTER DC X'706E' COPY STATUS ANY LEVEL INTO P3
3339+ SRL 13,P3 POSITION INDICATORS IN R3
3340+ MVA OPTN1,R4 SET UP BASE ADPS
3341+ TBT (R4,CS) IS CS IN PROGRESS
3342+ JOFF INTES * NO
3343+ TBT (R4,CE) TURN ON CYCLE STEAL INTR ERROR
3344+ MVA P7,\$STL8 SAVE CS EPR ISB VALUE, BITS 0-7
3345+ MVB R3,CSTL8+1 * AND THE COND CODE
3346+ J INTR1
3347+INTES TBT (R4,XE) TEST EXPECTED ATEN / ERROR IND
3348+ JOFF INTET BCH IF NOT EXPECTED
3349+ CBI 4,R3 IS THIS AN 'ATTENTION' INTR
3350+ JE INTR1 * YES, BCH TO END INTR SEQUENCE
3351+INTET TBT (R4,ER) SET ERROR ON I/O COMMAND CNL BIT
3352+ J INTF1
3353+ THE ERROR INTERRUPT USES THE SAME
3354+ ENDING SEQUENCE AS THE NORMAL INTR
3355+*****14APP76**
3356**
3357** SOUBROUTINE
3358**
3359** OKAY INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
3360**
3361** PURPOSE
3362** TO CHECK THE INTERRUPT AND CONTINUE THE TEST
3363**
3364** CALLING SEQUENCE
3365**
3366** SUPERVISOR WILL ENTER HERE IF INTR CC IS AS REQUESTED
3367** THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE
3368** AFTER THE SPECIAL PART HAS BEEN COMPLETED AND THE
3369** COMMON SECTION IS HANDLED HERE.
3370**
3371** RETURN CONTROL
3372**
3373** SVC EXIT RETURN TO USER VIA SUPVR
3374**
3375**
3376**
3377+*****14APP76**
3378+INTOK DC X'706E' COPY STATUS ANY LEVEL INTO R3
3379+ SRL 13,R3 POSITION INDICATORS IN P3
3380+ MVA OPTN1,R4 SET UP BASE ADPS
3381+INTP1 TBT (R4,IN) SET INTERRUPT RECEIVED
3382+ TBT (R4,CS) IS 'CS IN PROGRESS' ON
3383+ JON INTR2 * YES, BCH AROUND UPDATE
3384+ MVB P3,\$IOIN+1 SAVE INTERRUPTING CC CODE
3385+ MVA P7,\$ISB SAVE INTR STATUS AND DEV ADPS
3386+INTR2 EQU *
3387+ CACL R5 CURRENT LEVEL COPIED BY DCP
3388+ SLL 4,R5 POSITION INTR LEVEL AND PUT
3389+ ABI 1,P5 * IN 'I' BIT
3390+ CW \$INTL,R5 IS THIS THE CORRECT INTR LEVEL
3391+ JE INTR3 * YES, GO EXIT THIS LEVEL
3392+ TBT (R4,\$LE) SET INTR LEVEL ERROR CONTROL BIT
3393+ TBT (R4,ER) SET ERROR ON I/O COMMAND CNL BIT
3394+INTR3 TBT (R4,XI) WAS INTERRUPT EXPECTED
3395+ JON INTR4 * YES, EXIT OFF THIS INTR LEVEL
3396+ TBT (R4,MI) * NO, SET MYSTERY INTR CONTROL BIT
3397+ CBI 4,R3 ATTENTION INTERRUPT?
3398+ JE INTR4 YES
3399+ TBT (R4,NG) ERROR, UNEXPECTED INTERRUPT
3400+INTR4 SVC EXIT EXIT THIS LEVEL VIA SUPVR TO PGM
3401+*****03FEB76**
3402**
3403** THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
3404** HAS BEEN SERVICED. THE EXERCISE FINDS AN INTERRUPT HAS BEEN
3405** RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
3406**
3407**
3408**
3409+XIOCK TBT (R4,XE) WAS AN ERROR EXPECTED
3410+ BN (R6,2) * YES, EXIT THIS ROUTINE
3411+ TBT (R4,CS) WAS AUTO CS IN PROGRESS
3412+ JOFF XIOCV * NO, CONTINUE CHECKING
3413+ TBT (R4,CE) IS CS IN AN ERR CONDITION
3414+ JOFF XIOCO * NO, BCH
3415+ B (R6)* CS ERROR

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
3416+XIOCO TBT (R4,CSA) TURN ON CS STATS AVAIL FLAG
3417+ BXS (R6,2) GO TO USER
3418+XIOCV TBT (R4,ER) WAS ERROR INTR CONTROL BIT ON
3419+ JOFF XIOCX * NO, EXIT THIS ROUTINE
3420**
3421+ MVB \$IOIN+1,R5 GET LAST INTR CC CODE
3422+ CBI 2,R5 IS THIS CC=2
3423+ BNE (R6)* * NO, BCH TO ERROR HANDLER
3424+XIOCO MVB (R5,R5) GET LAST ISB DATA BYTE AND IF CS
3425+ BN XIOCS-4 * AVAILABLE, GO AND GET IT
3426+ B (F6)* ERROR
3427+XIOCX MVA OPTN3,R3 CLEAR OUT OPTION 3 CNL BITS
3428+ BXS (R6,2) RETURN TO USER VIA PEG 6
3429**
3430** I/O PARAMETER LIST
3431**
3432+IOBLK DC A (DEVADD) ADRS OF DEVICE ADRS
3433+ DC A (XIOER) ERROR ROUTINE ADRS
3434+IODCB DC A (*-*) DCB ADRS OF LEVEL & INTR
3435+IOMOD DC A (*-*) MODIFIER
3436+ DC A (*-*) ADRS OF LAST SVC CALL
3437+IORSF DC A (*-*) SECOND WORD OF LAST IDCB
3438**
3439** INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
3440**
3441+INTBL DC A (DEVADD) ADRS OF DEVICE ADRS
3442+ DC A (INTOK) INTERRUPT OK RETURN ADPS
3443+ DC A (INTR) INTERRUPT ERROR ADRS
3444+INTCC DC X'0003' INTERRUPT CODE EXPECTED
3445+*****11MAY76**
3446** SUBROUTINE
3447**
3448** CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE
3449**
3450** PURPOSE
3451** TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
3452** PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
3453** TO INTERRUPT.
3454** CALLING SEQUENCE
3455** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
3456**
3457** --> BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BLK
3458** --> BAL \$CONP,R6 PREPARE DEVICE ONLY, ALREADY CONNECT
3459**
3460** RETURN CONTROL
3461**
3462** OR B (R6,2) RETURN TO USER VIA REG 6 IF OKAY
3463** IF THE DEVICE COULD NOT BE CONNECTED
3464**
3465**
3466**
3467**
3468**
3469**
3470+*****14APP76**
3471+\$CONC MVB 6,R7 NUMBER OF BYTE TO CLEAR
3472+ MVB 0,R3 * AND THE DATA TO USE
3473+ MVA OPTN1,R5 * ALONG WITH THE ADRS TO USE
3474+ PFM R3,R5
3475+ MVA OPTN3,R3 CLEAR OLD CONTROLS FOR NEW ROUTINE
3476+ MVA INTBL,R7 SET P7 TO CONTROL BLOCK AND
3477+ SVC CIBC * CONNECT IT TO THIS DEVICE
3478+ BN (R6)* ERROR RETURN TO USER
3479**
3480+\$CONP MVA \$INTL,IODCB PUT IN LEVEL & INTR PARAMETER
3481+ MVA IOBLK,P7 SET P7 TO CONTROL BLOCK TO PREPARE
3482+ MVA X'0708',\$IOIN INITIALIZE CONDITION CODE STORAGE
3483+ MVA \$ISB,R3 * AND CLEAR OLD ISB VALUE
3484+ MVA R6,LSTIO SET UP ADDRESS THAT STARTED LAST I/O
3485+ SVC PEP * AND CALL ON SUPVR
3486+ BXS (R6,2) RETURN TO USER
3487+*****06APP76**
3488** SUBROUTINE
3489**
3490** DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS
3491**
3492** PURPOSE
3493** DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
3494** SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
3495** BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
3496**
3497** CALLING SEQUENCE
3498** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
3499**
3500** --> B \$ERR\$ SET 'NG' BIT AND CONVERT DATA TO LOG
3501** --> B \$CONX RETURN TO MDI SUPERVISOR TO TEST STS
3502**
3503** RETURN CONTROL
3504**
3505** OR B TURTN* RETURN TO MDI
3506** IF THE DEVICE COULD NOT BE CONNECTED
3507**
3508**
3509**
3510**
3511**
3512+*****03FEB76**
3513+\$ERR\$ MVA X'8000',TUSTATUS SET ON 'NO GOOD' STATUS BIT
3514+ MVA HEBLK,R7 GET ADRS OF CONTROL BLOCK
3515+ SVC HTOE CONVERT HEX TO EBC VIS DCP
3516+\$PRNT MVB 3,R5 SET UP BUFFER STORAGE
3517+ MVA TOWCRK,R3
3518+ MVA R3,BUPPT
3519+ MVA LINE1,R1
3520+ MVB 4,R7
3521+ MVB 8,R6
3522+MVBUF MVA (R3),(R1)
3523+ MVB 4,R7
3524+ MVB X'40',R2
3525+ MVB R2,(R1)+
3526+ JCT MVBUF,R6
3527+ MVB 8,R6
3528+ AWI 44,R1
3529+ JCT MVBUF,R5
3530+ MVA PIDMSG10,PID+2
3531+ MVA FAKETU,@DCADD1

LOC TR	OBJECT TEXT	STMT SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
003E3A	4020 19BA 3F62	3532+ MVA DC2PT,@DCADD2	
003E40	402C 19C4 0080	3533+ OWI BIT0080,SUPSTAT	
003E46	4324 2BD4	3534+ MVA \$TUID,R3	SET UP BUFFER STORAGE
003E4A	6F13 18BA	3535+ BAL TUMSGWTR*,R7	GO TO MESSAGE WRITER
003E4E		3536+*	
003E4E	C720 19D0	3537+\$CONX EQU *	
003E52	6013	3538+ MVB DEVADD,R7	GET DEVICE ADDRESS FROM MDI
003E54	6812 2C0C	3539+ SVC RIBC	RELEASE INTERRUPT CONTROL BLOCK
		3540+ B TURTN*	RETURN TO MDI SUPERVISOR
		3541+*	
003E58	0007	3542+BEGIN DC A(0007)	NUMBER OF LINES TO PRINT
003E5A	0008	3543+ DC A(0008)	LINE LENGTH = 8 CHAR
003E5C	5C5C40C1C2D6D9E3	3544+ DC C'** ABORT'	
003E64	0028	3545+ DC A(0040)	LINE LENGTH = 40 CHAR
003E66	E3E4C9C440C9D6C9D	3546+ DC C'TUID IOIN ISB INST	DEV1 DEV2 DEV3 DEV4 '
003E6E	0028	3547+ DC A(0040)	LINE LENGTH = 40 CHAR
003E90	40404040404040404	3548+LINE1 DC C'	
003E98	0028	3549+ DC A(0040)	LINE LENGTH = 40 CHAR
003E9A	C3D5E3D340C4C3C2F	3550+ DC C'CNTRL DCB2 DCB3 DCB4	DCB5 CHAD BYCT ADRS '
003E9E	0028	3551+ DC A(0040)	LINE LENGTH = 40 CHAR
003EE4	40404040404040404	3552+LINE2 DC C'	
003F0C	0028	3553+ DC A(0040)	LINE LENGTH = 40 CHAR
003F0E	D9E2C9C440C3E260F	3554+ DC C'RSID CS-2 CS-3 CS-4	CS-5 CS-6 CS-7 CS-8 '
003F36	0028	3555+ DC A(0040)	LINE LENGTH = 40 CHAR
003F38	40404040404040404	3556+LINE3 DC C'	
		3557+*	
003F60	0000	3558+BUFPT DC A(*-*)	
003F62	3E58	3559+DC2PT DC A(BEGIN)	
003F64	0101	3560+FIXTU DC X'0101'	
003F66	0101	3561+FAKETU DC X'0101'	
00F10		3562+PIDMSG10 EQU X'F10'	
000080		3563+BIT0080 EQU X'0080'	
		3564+*	
		3565+*	DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC
		3566+*	
003F68	0030	3567+HEBLK DC A(48)	NUMBER OF BYTES TO CONVERT
003F6A	2BD4	3568+ DC A(\$TUID)	FROM ADRS
003F6C	181A	3569+ DC A(TUWORK)	AND THE TO ADRS
000000		3570 END	

DECLARED	NAME	ATTRIBUTES AND REFERENCES	CROSS-REFERENCE LISTING	COPYRIGHT IBM CORP 1976
0	.R0.	ABSOLUTE. HEX VALUE(00000000)	1012 1013 1020 1022 1139 1140 1148 1150 1245	
			1246 1253 1255 1334 1335 1343 1345 1485 1486	
			1496 1501 1504 1509 1594 1595 1617 1623 1625	
			1831 1781 1786 1809 1822 2113 2114 2122 2128	
			2262 2266 2273 2326 2327 2334 2336 2428	
			2439 2451 2453 2515 2516 2517 2518 2520 2537	
			2543 2570 2574 2580 2581 2583 2600 2601 2602	
			3027 3028 3029 3030 3034 3035 3036 3037	
0	.R1.	ABSOLUTE. HEX VALUE(00000001)	1049 1050 1053 1056 1059 1062 1065 1070 1071	
			1356 1357 1368 1369 1375 1620 1621 1628 1629	
			1635 1636 1680 1683 1686 2219 2220 2222 2227	
			2228 2232 2233 2238 2239 2241 2246 2259	
			2260 2265 2268 2272 2275 2540 2541 2553 2554	
			2566 2568 2572 2590 2591 2596 2597 2610 2611	
			3519 3522 3525 3526	
0	.R2.	ABSOLUTE. HEX VALUE(00000002)	1023 1024 1025 1030 1037 1043 1044 1052 1055	
			1058 1061 1064 1067 1073 1151 1152 1153 1164	
			1167 1170 1173 1179 1180 1191 1197 1347	
			1348 1359 1371 1377 1379 1384 1396 1407 1410	
			1413 1416 1502 1503 1504 1515 1518 1521 1524	
			1530 1531 1542 1560 1576 1579 1582 1585 1588	
			1600 1604 1605 1632 1642 1652 1655 1658 1661	
			1664 1671 1676 1688 1698 1700 1791 1792 1793	
			1803 1804 1805 1816 1819 1822 1830 1831 1842	
			1844 1845 1912 1915 1918 1926 1927 1934 1959	
			1954 1957 1970 1973 1976 1986 2004 2011 2109	
			2110 2111 2112 2137 2139 2144 2146 2151 2163	
			2154 2159 2164 2166 2171 2173 2178 2180 2191	
			2193 2198 2200 2205 2207 2210 2212 2214 2252	
			2278 2455 2456 2457 2458 2469 2472 2475 2478	
			2484 2485 2496 2502 2508 2513 2544 2549 2556	
			2585 2587 2593 2599 2604 2613 2620 2623 2626	
			2629 2632 2638 2639 3524 3525	
0	.R3.	ABSOLUTE. HEX VALUE(00000003)	1183 1534 1834 2121 2131 2132 2133 2135 2140	
			2142 2147 2149 2155 2157 2160 2162 2167 2169	
			2174 2176 2488 2565 2576 2582 2583 2602 2933	
			2934 2975 2979 2981 3060 3062 3118 3121 3125	
			3128 3135 3142 3158 3248 3249 3241 3247 3248	
			3245 3247 3303 3304 3339 3345 3349 3384	
			3397 3427 3472 3474 3475 3483 3517 3518 3522	
			3534	
0	.R4.	ABSOLUTE. HEX VALUE(00000004)	1006 1028 1135 1156 1158 1187 1241 1330 1401	
			1480 1507 1509 1538 1551 1562 1566 1570 1612	
			1638 1646 1672 1781 1796 1808 1810 1838 1858	
			1863 1868 1873 1878 1883 1888 1893 1898 1904	
			1906 1938 1945 1977 1984 2322 2427 2454 2461	
			2463 2492 2530 2533 2545 2562 2578 2605 2614	
			2642 3231 3232 3235 3243 3250 3252 3253 3256	
			3262 3268 3274 3280 3343 3344 3351 3380 3383	
			3382 3392 3393 3394 3396 3399 3409 3411 3413	
			3416 3418	
0	.R5.	ABSOLUTE. HEX VALUE(00000005)	1031 1032 1035 1038 1039 1040 1161 1162 1165	
			1168 1171 1174 1175 1176 1404 1405 1408 1411	
			1414 1417 1418 1419 1512 1513 1516 1519 1522	
			1525 1526 1527 1561 1564 1573 1574 1577 1580	
			1583 1586 1589 1590 1591 1615 1649 1650 1653	
			1656 1659 1662 1665 1666 1667 1813 1814 1817	
			1820 1823 1825 1826 1827 1909 1910 1913 1916	
			1919 1921 1922 1923 1937 1940 1948 1949 1952	
			1955 1958 1960 1963 1962 1976 1977 1987 1988	
			1991 1994 1997 1999 2000 2001 2466 2467 2470	
			2473 2476 2479 2480 2481 2536 2547 2617 2618	
			2621 2624 2627 2630 2633 2634 2635 2976 2980	
			2981 3061 3062 3119 3121 3126 3128 3140 3142	
			3156 3158 3239 3241 3243 3245 3261 3266 3388	
			3389 3390 3421 3422 3424 3473 3474 3516 3529	
0	.R6.	ABSOLUTE. HEX VALUE(00000006)	1007 1026 1047 1068 1136 1154 1185 1193 1242	
			1256 1260 1262 1265 1267 1331 1351 1353 1354	
			1363 1365 1366 1387 1389 1392 1422 1481 1505	
			1536 1547 1550 1552 1555 1568 1596 1611 1613	
			1618 1626 1633 1644 1678 1782 1794 1806 1836	
			1851 1859 1861 1864 1866 1869 1871 1874 1876	
			1879 1881 1884 1886 1889 1891 1894 1896 1899	
			1901 1902 1930 1936 1943 1966 1975 1982 2007	
			2125 2217 2225 2230 2236 2244 2257 2263 2270	
			2323 2337 2341 2428 2459 2490 2499 2505 2510	
			2529 2534 2538 2551 2561 2563 2588 2594 2608	
			2901 2905 2907 2911 2913 2917 2920 2924 2926	
			2930 2935 2982 2983 3022 3063 3237 3257 3269	
			3305 3410 3415 3417 3423 3426 3428 3478 3484	
			3486 3521 3526 3527	
0	.R7.	ABSOLUTE. HEX VALUE(00000007)	850 1004 1018 1133 1146 1239 1251 1328 1341	
			1478 1497 1713 1715 1718 1779 1798 2105 2320	
			2332 2425 2449 2974 2978 3059 3120 3127 3141	
			3157 3240 3244 3251 3344 3385 3471 3476 3481	
			3514 3520 3523 3535 3538	
3471	\$CONC	ADDRESS. HEX LOCATION(00003DCA) IN CSECT(I7810) LENGTH(2)	1007 1136 1242 1331 1481 1782 2323 2428	
3537	\$CONX	ADDRESS. HEX LOCATION(00003E4E) IN CSECT(I7810) LENGTH(1)	1075 1199 1270 1381 1602 1719 1847 2213 2253	
3513	\$SERP\$	ADDRESS. HEX LOCATION(00003DPE) IN CSECT(I7810) LENGTH(6)	2277 2279 2344 2523	
			1008 1027 1029 1042 1065 1137 1159 1188 1186	
			1188 1194 1332 1352 1355 1364 1367 1388 1393	
			1482 1510 1535 1537 1539 1553 1556 1569 1597	
			1614 1619 1627 1634 1645 1679 1783 1811 1835	
			1837 1839 1852 1860 1865 1870 1875 1880 1885	
			1890 1895 1900 1903 1907 1931 1942 1944 1964	
			1967 1981 1983 2008 2126 2218 2226 2231 2234	
			2237 2245 2258 2264 2271 2429 2464 2489 2491	
			2493 2535 2539 2552 2564 2577 2589 2595 2609	
839	\$INTL	ADDRESS. HEX LOCATION(00002COA) IN CSECT(I7810) LENGTH(2)	3390 3480	

CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

DECLARED	NAME	ATTRIBUTES AND REFERENCES
809	\$IOIN	ADDRESS. HEX LOCATION(00002BD6) IN CSECT(I7810) LENGTH(2) 2934 3246 3304 3384 3421 3482
810	\$ISB	ADDRESS. HEX LOCATION(00002ED8) IN CSECT(I7810) LENGTH(2) 3247 3385 3424 3483
794	\$LE	ABSOLUTE. HEX VALUE(00000026) 3252 3392
3114	\$RECL	ADDRESS. HEX LOCATION(00003BF0) IN CSECT(I7810) LENGTH(6) 1154 1256 1363 1505 1794 1806 1902 2337 2459
3111	\$SEEK	ADDRESS. HEX LOCATION(00003BE8) IN CSECT(I7810) LENGTH(6) 1260 1262 1265 1267 1351 1387 1552 1613 1859 1864 1866 1874 1879 1884 1889 1894 1899 2341 2534 2863
808	\$TUID	ADDRESS. HEX LOCATION(00002BD4) IN CSECT(I7810) LENGTH(2) 849 1005 1134 1240 1329 1479 1780 2106 2321 2426 3534 3568
105	@DCADD1	ADDRESS. HEX LOCATION(000019B8) IN CSECT(I7810) LENGTH(1) 3531
106	@DCADD2	ADDRESS. HEX LOCATION(000019BA) IN CSECT(I7810) LENGTH(1) 3532
42	@FIXT	ABSOLUTE. HEX VALUE(00000101) 447 450 498 510 543 546 549 576
44	@GOTO	ABSOLUTE. HEX VALUE(00000200) 43 501 537 579 603
41	@QUES	ABSOLUTE. HEX VALUE(00000100) 507
47	@QUXX	ABSOLUTE. HEX VALUE(00000400) 438 489
48	@TUXX	ABSOLUTE. HEX VALUE(00000500) 408 420 453 465 477 513 525 552 564 585
3542	BEGIN	ADDRESS. HEX LOCATION(00003E58) IN CSECT(I7810) LENGTH(2) 3559
3563	BIT0080	ABSOLUTE. HEX VALUE(00000080) 3533
3558	BUFP	ADDRESS. HEX LOCATION(00003F60) IN CSECT(I7810) LENGTH(2) 3518
772	B63	ABSOLUTE. HEX VALUE(0000001F) 2454 2530 2642
2802	CB29	ADDRESS. HEX LOCATION(00003A7E) IN CSECT(I7810) LENGTH(2) 3025
2932	CCERR	ADDRESS. HEX LOCATION(00003B50) IN CSECT(I7810) LENGTH(2) 2904 2910 2916 2923 2929
798	CE	ABSOLUTE. HEX VALUE(0000002A) 3231 3343 3413
878	CICB	ABSOLUTE. HEX VALUE(00000014) 3477
2671	CLDCB	ADDRESS. HEX LOCATION(000039AC) IN CSECT(I7810) LENGTH(2) 3114
2948	CPUID	ABSOLUTE. HEX VALUE(00000232) 1012 1139 1245 1334 1485 1785 2113 2326 2432
796	CS	ABSOLUTE. HEX VALUE(00000028) 3232 3235 3341 3382 3411
797	CSA	ABSOLUTE. HEX VALUE(00000029) 1158 1401 1509 1570 1646 1810 1906 1945 1984 2463 2614 3416
827	CSBUF	ADDRESS. HEX LOCATION(00002BF4) IN CSECT(I7810) LENGTH(1) 1030 1045 1160 1181 1189 1403 1511 1532 1540 1572 1606 1648 1812 1832 1840 1908 1928 1947 1986 2005 2465 2486 2494 2616 2640 2728 3243
2721	CSDCB	ADDRESS. HEX LOCATION(000039FC) IN CSECT(I7810) LENGTH(2) 3233
835	CSTI8	ADDRESS. HEX LOCATION(00002C02) IN CSECT(I7810) LENGTH(2) 3344 3345
2285	CTR59	ADDRESS. HEX LOCATION(000036B8) IN CSECT(I7810) LENGTH(2) 2224 2235 2243 2250
817	DCBUF	ADDRESS. HEX LOCATION(00002BE4) IN CSECT(I7810) LENGTH(1) 3238
3559	DC2PT	ADDRESS. HEX LOCATION(00003F62) IN CSECT(I7810) LENGTH(2) 3532
108	DEVADD	ADDRESS. HEX LOCATION(000019D0) IN CSECT(I7810) LENGTH(1) 842 1010 1011 1145 1340 1484 1797 2107 2108 2431 2902 2908 2914 2921 2927 3432 3441 3538
812	DEV1	ADDRESS. HEX LOCATION(00002BDC) IN CSECT(I7810) LENGTH(2) 816 3473
2659	DGDCB	ADDRESS. HEX LOCATION(0000399C) IN CSECT(I7810) LENGTH(2) 3173
70	DUMMY	ABSOLUTE. HEX VALUE(00000000) 399 441 492 608 623
609	ENTPT	ADDRESS. HEX LOCATION(000026AE) IN CSECT(I7810) LENGTH(1) 201
50	EQ	ABSOLUTE. HEX VALUE(00000000) 456 555 588
789	ER	ABSOLUTE. HEX VALUE(00000021) 1028 1156 1187 1507 1538 1796 1808 1838 1904 2461 2492 3249 3268 3351 3393 3418
864	EXIT	ABSOLUTE. HEX VALUE(00000006) 3400
3561	FAKETU	ADDRESS. HEX LOCATION(00003F66) IN CSECT(I7810) LENGTH(2) 3531
2803	FIVE9	ADDRESS. HEX LOCATION(00003A80) IN CSECT(I7810) LENGTH(2) 3032
631	F00100	ADDRESS. HEX LOCATION(000026B8) IN CSECT(I7810) LENGTH(1) 433
635	F00109	ADDRESS. HEX LOCATION(000026BE) IN CSECT(I7810) LENGTH(1) 448
641	F00111	ADDRESS. HEX LOCATION(000026FC) IN CSECT(I7810) LENGTH(1) 451
657	F00130	ADDRESS. HEX LOCATION(000027D2) IN CSECT(I7810) LENGTH(1) 499
673	F00133	ADDRESS. HEX LOCATION(000028A0) IN CSECT(I7810) LENGTH(1) 502
677	F00140	ADDRESS. HEX LOCATION(000028A6) IN CSECT(I7810) LENGTH(1) 511
681	F00150	ADDRESS. HEX LOCATION(000028BE) IN CSECT(I7810) LENGTH(1) 538
685	F00153	ADDRESS. HEX LOCATION(000028C4) IN CSECT(I7810) LENGTH(1) 544
695	F00156	ADDRESS. HEX LOCATION(0000295C) IN CSECT(I7810) LENGTH(1) 547
709	F00159	ADDRESS. HEX LOCATION(00002A0E) IN CSECT(I7810) LENGTH(1) 550

CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

DECLARED	NAME	ATTRIBUTES AND REFERENCES
723	F00167	ADDRESS. HEX LOCATION(00002AC0) IN CSECT(I7810) LENGTH(1) 577
737	F00170	ADDRESS. HEX LOCATION(00002B84) IN CSECT(I7810) LENGTH(1) 580
741	F00175	ADDRESS. HEX LOCATION(00002B8A) IN CSECT(I7810) LENGTH(1) 598
745	F00178	ADDRESS. HEX LOCATION(00002B90) IN CSECT(I7810) LENGTH(1) 604
3567	HEBLK	ADDRESS. HEX LOCATION(00003F68) IN CSECT(I7810) LENGTH(2) 3514
1936	HOFF	ADDRESS. HEX LOCATION(000033EC) IN CSECT(I7810) LENGTH(4) 1866 1871 1876 1881 1886 1891 1901
2529	HOMTS	ADDRESS. HEX LOCATION(00003862) IN CSECT(I7810) LENGTH(4) 2510
1975	HON	ADDRESS. HEX LOCATION(0000345A) IN CSECT(I7810) LENGTH(4) 1861 1896
884	HTOE	ABSOLUTE. HEX VALUE(0000001A) 3515
2942	IDCBCE1	ADDRESS. HEX LOCATION(00003B66) IN CSECT(I7810) LENGTH(2) 2908 2909
2944	IDCBCE2	ADDRESS. HEX LOCATION(00003B6A) IN CSECT(I7810) LENGTH(2) 2944 2915
2946	IDCBRAP	ADDRESS. HEX LOCATION(00003B6E) IN CSECT(I7810) LENGTH(2) 2902 2903
2938	IDCB0	ADDRESS. HEX LOCATION(00003B5E) IN CSECT(I7810) LENGTH(2) 1011 2927 2928
2940	IDCB1	ADDRESS. HEX LOCATION(00003B62) IN CSECT(I7810) LENGTH(2) 1010 1145 1340 1484 1797 2107 2431 2567 2571 2921 2922
860	IDLE	ABSOLUTE. HEX VALUE(00000002) 1021 1149 1254 1344 1500 1801 2335 2452 3264
791	IN	ABSOLUTE. HEX VALUE(00000023) 1562 1638 1672 1938 1977 2545 2578 2605 3250 3262 3381
3441	INTBL	ADDRESS. HEX LOCATION(00003DC2) IN CSECT(I7810) LENGTH(2) 3476
3338	INTEP	ADDRESS. HEX LOCATION(00003D2A) IN CSECT(I7810) LENGTH(2) 3443
3347	INTES	ADDRESS. HEX LOCATION(00003D42) IN CSECT(I7810) LENGTH(2) 3342
3351	INTET	ADDRESS. HEX LOCATION(00003D4A) IN CSECT(I7810) LENGTH(2) 3348
3378	INTOK	ADDRESS. HEX LOCATION(00003D4E) IN CSECT(I7810) LENGTH(2) 3442
3400	INTRX	ADDRESS. HEX LOCATION(00003D7E) IN CSECT(I7810) LENGTH(2) 3395 3398
3381	INTR1	ADDRESS. HEX LOCATION(00003D56) IN CSECT(I7810) LENGTH(2) 3346 3350 3352
3385	INTR2	ADDRESS. HEX LOCATION(00003D64) IN CSECT(I7810) LENGTH(1) 3383
3394	INTR3	ADDRESS. HEX LOCATION(00003D72) IN CSECT(I7810) LENGTH(2) 3391
3432	IOBLK	ADDRESS. HEX LOCATION(00003DB6) IN CSECT(I7810) LENGTH(2) 1018 1146 1251 1341 1497 1715 1798 2332 2449 3251 3481
3434	IODCB	ADDRESS. HEX LOCATION(00003DBA) IN CSECT(I7810) LENGTH(2) 1714 311 314 317 3120 3132 3435 3138 3146 3150 3154 3162 3166 3169 3173 3233 3239 3480
3435	IOMOD	ADDRESS. HEX LOCATION(00003DBC) IN CSECT(I7810) LENGTH(2) 3228 3234
2937	IORST	ADDRESS. HEX LOCATION(00003B5C) IN CSECT(I7810) LENGTH(2) 2108
40	I7810	CSECT. STAPT(00002500) LENGTH(6766) ESDID(0) 40
2824	LCT	ADDRESS. HEX LOCATION(00003AAA) IN CSECT(I7810) LENGTH(2) 1546 1548 1681 1692 1693
2800	LGSEC	ADDRESS. HEX LOCATION(00003A7A) IN CSECT(I7810) LENGTH(2) 3023 3025 3028 3035
3548	LINE1	ADDRESS. HEX LOCATION(00003E90) IN CSECT(I7810) LENGTH(40) 3519
811	LSTIO	ADDRESS. HEX LOCATION(00002BDA) IN CSECT(I7810) LENGTH(2) 2901 2907 2913 2920 2926 3237 3484
788	MT	ABSOLUTE. HEX VALUE(00000020) 3396
3522	MVBUF	ADDRESS. HEX LOCATION(00003E1C) IN CSECT(I7810) LENGTH(2) 3526 3529
62	MX	ABSOLUTE. HEX VALUE(00000204) 423
800	NG	ABSOLUTE. HEX VALUE(0000002C) 3399
795	NI	ABSOLUTE. HEX VALUE(00000027) 1511 1612 1858 1863 1868 1873 1878 1883 1888 1893 1898 2533 2562 3256
2561	NTRKS	ADDRESS. HEX LOCATION(000038BA) IN CSECT(I7810) LENGTH(4) 2499 2505
408	N00001	ADDRESS. HEX LOCATION(00002570) IN CSECT(I7810) LENGTH(2) 318 622
420	N00002	ADDRESS. HEX LOCATION(00002582) IN CSECT(I7810) LENGTH(2) 321
432	N00003	ADDRESS. HEX LOCATION(00002594) IN CSECT(I7810) LENGTH(2) 324
438	N00004	ADDRESS. HEX LOCATION(000025A0) IN CSECT(I7810) LENGTH(2) 327 321
447	N00005	ADDRESS. HEX LOCATION(000025AE) IN CSECT(I7810) LENGTH(2) 330
450	N00006	ADDRESS. HEX LOCATION(000025B2) IN CSECT(I7810) LENGTH(2) 333 439
453	N00007	ADDRESS. HEX LOCATION(000025B6) IN CSECT(I7810) LENGTH(2) 336 409
465	N00008	ADDRESS. HEX LOCATION(000025C8) IN CSECT(I7810) LENGTH(2) 339
477	N00009	ADDRESS. HEX LOCATION(000025DA) IN CSECT(I7810) LENGTH(2) 342
489	N00010	ADDRESS. HEX LOCATION(000025EC) IN CSECT(I7810) LENGTH(2) 345
498	N00011	ADDRESS. HEX LOCATION(000025FA) IN CSECT(I7810) LENGTH(2) 348
501	N00012	ADDRESS. HEX LOCATION(000025FE) IN CSECT(I7810) LENGTH(2) 351 490
507	N00013	ADDRESS. HEX LOCATION(0000260A) IN CSECT(I7810) LENGTH(2) 354 478

DECLARED	NAME	ATTRIBUTES AND REFERENCES
510	N00014	ADDRESS. HEX LOCATION(0000260E) IN CSECT(I7810) LENGTH(2)
513	N00015	ADDRESS. HEX LOCATION(00002612) IN CSECT(I7810) LENGTH(2)
525	N00016	ADDRESS. HEX LOCATION(00002624) IN CSECT(I7810) LENGTH(2)
537	N00017	ADDRESS. HEX LOCATION(00002636) IN CSECT(I7810) LENGTH(2)
543	N00018	ADDRESS. HEX LOCATION(00002642) IN CSECT(I7810) LENGTH(2)
546	N00019	ADDRESS. HEX LOCATION(00002646) IN CSECT(I7810) LENGTH(2)
549	N00020	ADDRESS. HEX LOCATION(0000264A) IN CSECT(I7810) LENGTH(2)
552	N00021	ADDRESS. HEX LOCATION(0000264E) IN CSECT(I7810) LENGTH(2)
564	N00022	ADDRESS. HEX LOCATION(00002660) IN CSECT(I7810) LENGTH(2)
576	N00023	ADDRESS. HEX LOCATION(00002672) IN CSECT(I7810) LENGTH(2)
579	N00024	ADDRESS. HEX LOCATION(00002676) IN CSECT(I7810) LENGTH(2)
585	N00025	ADDRESS. HEX LOCATION(00002682) IN CSECT(I7810) LENGTH(2)
597	N00026	ADDRESS. HEX LOCATION(00002694) IN CSECT(I7810) LENGTH(2)
603	N00027	ADDRESS. HEX LOCATION(000026A0) IN CSECT(I7810) LENGTH(2)
61	OF	ABSOLUTE. HEX VALUE(00000202)
60	ON	ABSOLUTE. HEX VALUE(00000200)
753	OPTN1	ADDRESS. HEX LOCATION(00002BCE) IN CSECT(I7810) LENGTH(2)
776	OPTN3	ADDRESS. HEX LOCATION(00002BD2) IN CSECT(I7810) LENGTH(2)
104	PARMARA	ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7810) LENGTH(1)
2801	PHYSC	ADDRESS. HEX LOCATION(00003A7C) IN CSECT(I7810) LENGTH(2)
72	PID	ADDRESS. HEX LOCATION(00001800) IN CSECT(I7810) LENGTH(1)
3562	PIDMSG10	ABSOLUTE. HEX VALUE(0000F1F0)
870	PREP	ABSOLUTE. HEX VALUE(0000000C)
2941	RDATA	ADDRESS. HEX LOCATION(00003B64) IN CSECT(I7810) LENGTH(2)
2939	RDATA0	ADDRESS. HEX LOCATION(00003B60) IN CSECT(I7810) LENGTH(2)
2754	RDCB	ADDRESS. HEX LOCATION(00003A2C) IN CSECT(I7810) LENGTH(2)
866	RESET	ABSOLUTE. HEX VALUE(00000008)
877	RTCB	ABSOLUTE. HEX VALUE(00000013)
2776	RKDCB	ADDRESS. HEX LOCATION(00003A4C) IN CSECT(I7810) LENGTH(2)
2284	RSAVE	ADDRESS. HEX LOCATION(000036B6) IN CSECT(I7810) LENGTH(2)
2686	RSDCB	ADDRESS. HEX LOCATION(000039CC) IN CSECT(I7810) LENGTH(2)
3034	RTT01	ADDRESS. HEX LOCATION(00003BC4) IN CSECT(I7810) LENGTH(4)
816	SCTID	ADDRESS. HEX LOCATION(00002BDC) IN CSECT(I7810) LENGTH(2)
2811	SCTST	ADDRESS. HEX LOCATION(00003A90) IN CSECT(I7810) LENGTH(2)
2926	SENS0	ADDRESS. HEX LOCATION(00003B3C) IN CSECT(I7810) LENGTH(4)
2920	SENS1	ADDRESS. HEX LOCATION(00003B28) IN CSECT(I7810) LENGTH(4)
2283	SEN10	ADDRESS. HEX LOCATION(000036B4) IN CSECT(I7810) LENGTH(2)
2282	SEN11	ADDRESS. HEX LOCATION(000036B2) IN CSECT(I7810) LENGTH(2)
2710	SKDCB	ADDRESS. HEX LOCATION(000039EC) IN CSECT(I7810) LENGTH(2)
1611	SKLOP	ADDRESS. HEX LOCATION(000030D0) IN CSECT(I7810) LENGTH(4)
868	START	ABSOLUTE. HEX VALUE(0000000A)
2856	STATS	ADDRESS. HEX LOCATION(00003AEA) IN CSECT(I7810) LENGTH(2)
107	SUPSTAT	ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7810) LENGTH(1)
2823	SVSEK	ADDRESS. HEX LOCATION(00003AA8) IN CSECT(I7810) LENGTH(2)
1270	S13E	ADDRESS. HEX LOCATION(00002E1E) IN CSECT(I7810) LENGTH(4)
2344	S31E	ADDRESS. HEX LOCATION(0000370A) IN CSECT(I7810) LENGTH(4)
2788	TIMEOUT	ADDRESS. HEX LOCATION(00003A60) IN CSECT(I7810) LENGTH(2)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
2789	TONE	ADDRESS. HEX LOCATION(00003A64) IN CSECT(I7810) LENGTH(2)
1497	TTT31	ADDRESS. HEX LOCATION(00002F88) IN CSECT(I7810) LENGTH(4)
3032	TT303	ADDRESS. HEX LOCATION(00003BBC) IN CSECT(I7810) LENGTH(6)
3038	TT304	ADDRESS. HEX LOCATION(00003BD4) IN CSECT(I7810) LENGTH(4)
1493	TT31	ADDRESS. HEX LOCATION(00002F70) IN CSECT(I7810) LENGTH(6)
2439	TT32	ADDRESS. HEX LOCATION(00003744) IN CSECT(I7810) LENGTH(2)
2537	TT32A	ADDRESS. HEX LOCATION(00003880) IN CSECT(I7810) LENGTH(4)
2570	TT32B	ADDRESS. HEX LOCATION(000038D4) IN CSECT(I7810) LENGTH(4)
2445	TT32C	ADDRESS. HEX LOCATION(0000375C) IN CSECT(I7810) LENGTH(6)
2484	TT32U	ADDRESS. HEX LOCATION(000037D6) IN CSECT(I7810) LENGTH(2)
2449	TT321	ADDRESS. HEX LOCATION(00003774) IN CSECT(I7810) LENGTH(4)
2981	TT4Y	ADDRESS. HEX LOCATION(00003B8C) IN CSECT(I7810) LENGTH(2)
1017	TT70	ADDRESS. HEX LOCATION(00002C4C) IN CSECT(I7810) LENGTH(6)
1020	TT70A	ADDRESS. HEX LOCATION(00002C58) IN CSECT(I7810) LENGTH(4)
1018	TT70B	ADDRESS. HEX LOCATION(00002C52) IN CSECT(I7810) LENGTH(4)
1021	TT70C	ADDRESS. HEX LOCATION(00002C5C) IN CSECT(I7810) LENGTH(2)
2262	TT73A	ADDRESS. HEX LOCATION(0000367E) IN CSECT(I7810) LENGTH(4)
2268	TT736	ADDRESS. HEX LOCATION(00003690) IN CSECT(I7810) LENGTH(2)
2119	TT76	ADDRESS. HEX LOCATION(0000350A) IN CSECT(I7810) LENGTH(6)
2121	TT76A	ADDRESS. HEX LOCATION(00003516) IN CSECT(I7810) LENGTH(4)
103	TUINPT	ADDRESS. HEX LOCATION(00001948) IN CSECT(I7810) LENGTH(1)
95	TUMSGWTR	ADDRESS. HEX LOCATION(000018BA) IN CSECT(I7810) LENGTH(1)
101	TURESUL	ADDRESS. HEX LOCATION(000018C8) IN CSECT(I7810) LENGTH(1)
840	TURTN	ADDRESS. HEX LOCATION(00002C0C) IN CSECT(I7810) LENGTH(2)
77	TUSTATUS	ADDRESS. HEX LOCATION(00001818) IN CSECT(I7810) LENGTH(1)
78	TUWORK	ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7810) LENGTH(1)
1174	T23A	ADDRESS. HEX LOCATION(00002D66) IN CSECT(I7810) LENGTH(2)
1179	T23AA	ADDRESS. HEX LOCATION(00002D76) IN CSECT(I7810) LENGTH(2)
1165	T23SS	ADDRESS. HEX LOCATION(00002D54) IN CSECT(I7810) LENGTH(2)
1144	T23T	ADDRESS. HEX LOCATION(00002D0E) IN CSECT(I7810) LENGTH(2)
1168	T23TT	ADDRESS. HEX LOCATION(00002D5A) IN CSECT(I7810) LENGTH(2)
1148	T23T1	ADDRESS. HEX LOCATION(00002D20) IN CSECT(I7810) LENGTH(4)
1145	T23T2	ADDRESS. HEX LOCATION(00002D14) IN CSECT(I7810) LENGTH(6)
1199	T23U	ADDRESS. HEX LOCATION(00002DB2) IN CSECT(I7810) LENGTH(4)
1171	T23UU	ADDRESS. HEX LOCATION(00002D60) IN CSECT(I7810) LENGTH(2)
1183	T23YY	ADDRESS. HEX LOCATION(00002D82) IN CSECT(I7810) LENGTH(4)
849	T3C02	ADDRESS. HEX LOCATION(00002C14) IN CSECT(I7810) LENGTH(6)
1381	T30A	ADDRESS. HEX LOCATION(00002ECA) IN CSECT(I7810) LENGTH(4)
1386	T30B	ADDRESS. HEX LOCATION(00002ED2) IN CSECT(I7810) LENGTH(6)
1422	T30C	ADDRESS. HEX LOCATION(00002F32) IN CSECT(I7810) LENGTH(2)
1363	T30D	ADDRESS. HEX LOCATION(00002E9C) IN CSECT(I7810) LENGTH(4)
1375	T30E	ADDRESS. HEX LOCATION(00002EC0) IN CSECT(I7810) LENGTH(2)
1339	T30TC	ADDRESS. HEX LOCATION(00002E46) IN CSECT(I7810) LENGTH(6)
1343	T30T1	ADDRESS. HEX LOCATION(00002E58) IN CSECT(I7810) LENGTH(4)
1340	T30T2	ADDRESS. HEX LOCATION(00002E4C) IN CSECT(I7810) LENGTH(6)
1401	T300	ADDRESS. HEX LOCATION(00002EFC) IN CSECT(I7810) LENGTH(2)
1408	T301	ADDRESS. HEX LOCATION(00002F10) IN CSECT(I7810) LENGTH(2)
1411	T302	ADDRESS. HEX LOCATION(00002F16) IN CSECT(I7810) LENGTH(2)
1414	T303	ADDRESS. HEX LOCATION(00002F1C) IN CSECT(I7810) LENGTH(2)
1417	T304	ADDRESS. HEX LOCATION(00002F22) IN CSECT(I7810) LENGTH(2)
1360	T306	ADDRESS. HEX LOCATION(00002E92) IN CSECT(I7810) LENGTH(6)
1379	T307	ADDRESS. HEX LOCATION(00002EC8) IN CSECT(I7810) LENGTH(2)
1372	T308	ADDRESS. HEX LOCATION(00002EB6) IN CSECT(I7810) LENGTH(6)

CROSS-REFERENCE LISTING

COPYRIGHT IBM CORP 1976

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1384	T309	1370 ADDRESS. HEX LOCATION(00002ECE) IN CSECT(I7810) LENGTH(2)
1678	T31A	1374 ADDRESS. HEX LOCATION(00003188) IN CSECT(I7810) LENGTH(4)
1580	T31AA	1647 1670 ADDRESS. HEX LOCATION(0000308A) IN CSECT(I7810) LENGTH(2)
1583	T31BB	1578 ADDRESS. HEX LOCATION(00003090) IN CSECT(I7810) LENGTH(2)
1586	T31CC	1581 ADDRESS. HEX LOCATION(00003096) IN CSECT(I7810) LENGTH(2)
1589	T31DD	1584 ADDRESS. HEX LOCATION(0000309C) IN CSECT(I7810) LENGTH(2)
1653	T31EE	1587 ADDRESS. HEX LOCATION(0000314A) IN CSECT(I7810) LENGTH(2)
1688	T31F	1651 ADDRESS. HEX LOCATION(000031A4) IN CSECT(I7810) LENGTH(2)
1656	T31FF	1684 ADDRESS. HEX LOCATION(00003150) IN CSECT(I7810) LENGTH(2)
1689	T31G	1654 ADDRESS. HEX LOCATION(000031A6) IN CSECT(I7810) LENGTH(6)
1659	T31GG	1685 1687 ADDRESS. HEX LOCATION(00003156) IN CSECT(I7810) LENGTH(2)
1686	T31H	1657 ADDRESS. HEX LOCATION(000031A0) IN CSECT(I7810) LENGTH(2)
1662	T31HH	1682 ADDRESS. HEX LOCATION(0000315C) IN CSECT(I7810) LENGTH(2)
1696	T31I	1660 ADDRESS. HEX LOCATION(000031C4) IN CSECT(I7810) LENGTH(6)
1700	T31J	1691 ADDRESS. HEX LOCATION(000031D2) IN CSECT(I7810) LENGTH(2)
1665	T31JJ	1697 ADDRESS. HEX LOCATION(00003162) IN CSECT(I7810) LENGTH(2)
1602	T31K	1663 ADDRESS. HEX LOCATION(000030C0) IN CSECT(I7810) LENGTH(4)
1604	T31KK	1529 1533 1567 1599 1607 1643 1677 1699 1701 ADDRESS. HEX LOCATION(000030C4) IN CSECT(I7810) LENGTH(2)
1534	T31L	1593 1669 ADDRESS. HEX LOCATION(00002FF2) IN CSECT(I7810) LENGTH(4)
1562	T31M	1506 ADDRESS. HEX LOCATION(0000305A) IN CSECT(I7810) LENGTH(2)
1555	T31Q	1558 1565 ADDRESS. HEX LOCATION(00003044) IN CSECT(I7810) LENGTH(4)
1577	T31R	1559 ADDRESS. HEX LOCATION(00003084) IN CSECT(I7810) LENGTH(2)
1516	T31RR	1575 ADDRESS. HEX LOCATION(00002FC2) IN CSECT(I7810) LENGTH(2)
1617	T31S	1514 ADDRESS. HEX LOCATION(000030E6) IN CSECT(I7810) LENGTH(4)
1519	T31SS	1488 1493 ADDRESS. HEX LOCATION(00002FC8) IN CSECT(I7810) LENGTH(2)
1499	T31T	1517 ADDRESS. HEX LOCATION(00002F8E) IN CSECT(I7810) LENGTH(4)
1522	T31TT	1491 1496 ADDRESS. HEX LOCATION(00002FCE) IN CSECT(I7810) LENGTH(2)
1525	T31UU	1520 ADDRESS. HEX LOCATION(00002FD4) IN CSECT(I7810) LENGTH(2)
1568	T31W	1523 ADDRESS. HEX LOCATION(0000306A) IN CSECT(I7810) LENGTH(4)
1594	T31X	1563 ADDRESS. HEX LOCATION(000030AA) IN CSECT(I7810) LENGTH(4)
1530	T31XX	1571 ADDRESS. HEX LOCATION(00002FE4) IN CSECT(I7810) LENGTH(2)
1554	T31Y	1541 1543 ADDRESS. HEX LOCATION(00003040) IN CSECT(I7810) LENGTH(4)
1544	T31Z	1489 1494 ADDRESS. HEX LOCATION(00003012) IN CSECT(I7810) LENGTH(6)
1702	T310	1508 ADDRESS. HEX LOCATION(000031D8) IN CSECT(I7810) LENGTH(4)
1625	T311	1611 1694 ADDRESS. HEX LOCATION(000030FC) IN CSECT(I7810) LENGTH(4)
1632	T312	1490 1495 1622 ADDRESS. HEX LOCATION(00003110) IN CSECT(I7810) LENGTH(2)
1672	T313	1624 ADDRESS. HEX LOCATION(00003176) IN CSECT(I7810) LENGTH(2)
1626	T314	1630 1675 ADDRESS. HEX LOCATION(00003100) IN CSECT(I7810) LENGTH(4)
1633	T315	1631 ADDRESS. HEX LOCATION(00003112) IN CSECT(I7810) LENGTH(4)
1671	T316	1641 ADDRESS. HEX LOCATION(00003174) IN CSECT(I7810) LENGTH(2)
1644	T317	1637 ADDRESS. HEX LOCATION(00003130) IN CSECT(I7810) LENGTH(4)
1618	T318	1639 1673 ADDRESS. HEX LOCATION(000030EA) IN CSECT(I7810) LENGTH(4)
1692	T319	1623 ADDRESS. HEX LOCATION(000031B0) IN CSECT(I7810) LENGTH(6)
2605	T32A	1690 ADDRESS. HEX LOCATION(00003930) IN CSECT(I7810) LENGTH(2)
2645	T32C	2603 2607 ADDRESS. HEX LOCATION(00003998) IN CSECT(I7810) LENGTH(4)
2608	T32E	2529 2561 2643 ADDRESS. HEX LOCATION(00003936) IN CSECT(I7810) LENGTH(4)
2499	T32F	2606 ADDRESS. HEX LOCATION(0000380E) IN CSECT(I7810) LENGTH(4)
2504	T32G	2521 ADDRESS. HEX LOCATION(0000381E) IN CSECT(I7810) LENGTH(6)
2510	T32H	2501 ADDRESS. HEX LOCATION(00003834) IN CSECT(I7810) LENGTH(4)
2515	T32I	2507 ADDRESS. HEX LOCATION(00003844) IN CSECT(I7810) LENGTH(4)
2518	T32JB	2512 ADDRESS. HEX LOCATION(0000384E) IN CSECT(I7810) LENGTH(4)
2538	T32K	2448 ADDRESS. HEX LOCATION(00003884) IN CSECT(I7810) LENGTH(4)
2624	T32P	2543 ADDRESS. HEX LOCATION(00003960) IN CSECT(I7810) LENGTH(2)
2627	T32R	2622 ADDRESS. HEX LOCATION(00003966) IN CSECT(I7810) LENGTH(2)
2470	T32FR	2625 ADDRESS. HEX LOCATION(000037B4) IN CSECT(I7810) LENGTH(2)
		2468

CROSS-REFERENCE LISTING

COPYRIGHT IBM CORP 1976

DECLARED	NAME	ATTRIBUTES AND REFERENCES
2630	T32S	ADDRESS. HEX LOCATION(0000396C) IN CSECT(I7810) LENGTH(2)
2473	T32SS	2628 ADDRESS. HEX LOCATION(000037BA) IN CSECT(I7810) LENGTH(2)
2451	T32TC	2471 ADDRESS. HEX LOCATION(0000377A) IN CSECT(I7810) LENGTH(4)
2476	T32TT	2437 2443 2447 ADDRESS. HEX LOCATION(000037C0) IN CSECT(I7810) LENGTH(2)
2479	T32UU	2474 ADDRESS. HEX LOCATION(000037C6) IN CSECT(I7810) LENGTH(2)
2545	T32W	2477 ADDRESS. HEX LOCATION(00003896) IN CSECT(I7810) LENGTH(2)
2523	T32X	2542 2548 ADDRESS. HEX LOCATION(0000385E) IN CSECT(I7810) LENGTH(4)
2551	T32XX	2483 2487 2503 2509 2514 2519 2550 2641 ADDRESS. HEX LOCATION(000038A4) IN CSECT(I7810) LENGTH(4)
2642	T32Y	2546 ADDRESS. HEX LOCATION(0000398E) IN CSECT(I7810) LENGTH(2)
2488	T32YY	2615 2637 ADDRESS. HEX LOCATION(000037E4) IN CSECT(I7810) LENGTH(4)
2498	T32Z	2460 ADDRESS. HEX LOCATION(00003808) IN CSECT(I7810) LENGTH(6)
2633	T32ZZ	2462 ADDRESS. HEX LOCATION(00003972) IN CSECT(I7810) LENGTH(2)
2621	T321	2631 ADDRESS. HEX LOCATION(0000395A) IN CSECT(I7810) LENGTH(2)
2587	T322	2619 ADDRESS. HEX LOCATION(00003900) IN CSECT(I7810) LENGTH(2)
2578	T323	2575 ADDRESS. HEX LOCATION(000038EA) IN CSECT(I7810) LENGTH(2)
2571	T324	2569 ADDRESS. HEX LOCATION(000038D8) IN CSECT(I7810) LENGTH(4)
2600	T325	2574 ADDRESS. HEX LOCATION(00003922) IN CSECT(I7810) LENGTH(4)
2576	T326	2598 ADDRESS. HEX LOCATION(000038E4) IN CSECT(I7810) LENGTH(2)
2594	T327	2573 ADDRESS. HEX LOCATION(00003912) IN CSECT(I7810) LENGTH(4)
2567	T328	2586 2592 ADDRESS. HEX LOCATION(000038CC) IN CSECT(I7810) LENGTH(4)
2614	T329	2576 2579 ADDRESS. HEX LOCATION(00003946) IN CSECT(I7810) LENGTH(2)
2331	T33T	2555 2557 2584 2612 ADDRESS. HEX LOCATION(000036DE) IN CSECT(I7810) LENGTH(6)
2334	T33T1	2328 ADDRESS. HEX LOCATION(000036EA) IN CSECT(I7810) LENGTH(4)
2332	T33T2	2329 2331 ADDRESS. HEX LOCATION(000036E4) IN CSECT(I7810) LENGTH(4)
1250	T36T	2330 ADDRESS. HEX LOCATION(00002DDA) IN CSECT(I7810) LENGTH(6)
1253	T36T1	1247 ADDRESS. HEX LOCATION(00002DE6) IN CSECT(I7810) LENGTH(4)
1251	T36T2	1248 1250 ADDRESS. HEX LOCATION(00002DE0) IN CSECT(I7810) LENGTH(4)
1075	T70A	1249 ADDRESS. HEX LOCATION(00002CE6) IN CSECT(I7810) LENGTH(4)
1047	T70B	1046 1072 ADDRESS. HEX LOCATION(00002CA8) IN CSECT(I7810) LENGTH(4)
1035	T701	1042 ADDRESS. HEX LOCATION(00002C88) IN CSECT(I7810) LENGTH(2)
1038	T702	1033 ADDRESS. HEX LOCATION(00002C8E) IN CSECT(I7810) LENGTH(2)
1053	T703	1036 ADDRESS. HEX LOCATION(00002CB8) IN CSECT(I7810) LENGTH(2)
1056	T704	1051 ADDRESS. HEX LOCATION(00002CBE) IN CSECT(I7810) LENGTH(2)
1059	T705	1054 ADDRESS. HEX LOCATION(00002CC4) IN CSECT(I7810) LENGTH(2)
1062	T706	1057 ADDRESS. HEX LOCATION(00002CCA) IN CSECT(I7810) LENGTH(2)
1065	T708	1060 ADDRESS. HEX LOCATION(00002CD0) IN CSECT(I7810) LENGTH(2)
1068	T709	1063 ADDRESS. HEX LOCATION(00002CD6) IN CSECT(I7810) LENGTH(4)
1193	T710	1066 ADDRESS. HEX LOCATION(00002DA2) IN CSECT(I7810) LENGTH(4)
1719	T72B	1157 ADDRESS. HEX LOCATION(000031F2) IN CSECT(I7810) LENGTH(4)
1149	T723	1717 ADDRESS. HEX LOCATION(00002D24) IN CSECT(I7810) LENGTH(2)
1344	T730	1150 ADDRESS. HEX LOCATION(00002E5C) IN CSECT(I7810) LENGTH(2)
1500	T731	1345 ADDRESS. HEX LOCATION(00002F92) IN CSECT(I7810) LENGTH(2)
2257	T731Z	1501 ADDRESS. HEX LOCATION(00003670) IN CSECT(I7810) LENGTH(4)
2278	T732	2251 2261 ADDRESS. HEX LOCATION(000036AC) IN CSECT(I7810) LENGTH(2)
2452	T732Q	2267 2274 ADDRESS. HEX LOCATION(0000377E) IN CSECT(I7810) LENGTH(2)
2335	T733	2453 ADDRESS. HEX LOCATION(000036EE) IN CSECT(I7810) LENGTH(2)
2263	T733Z	2336 ADDRESS. HEX LOCATION(00003682) IN CSECT(I7810) LENGTH(4)
2270	T734	2269 ADDRESS. HEX LOCATION(00003694) IN CSECT(I7810) LENGTH(4)
1254	T736	2276 ADDRESS. HEX LOCATION(00002DEA) IN CSECT(I7810) LENGTH(2)
1851	T75A	1255 ADDRESS. HEX LOCATION(000032CA) IN CSECT(I7810) LENGTH(4)
1930	T75AA	1809 ADDRESS. HEX LOCATION(000033D6) IN CSECT(I7810) LENGTH(4)
2007	T75AB	1905 ADDRESS. HEX LOCATION(000034B8) IN CSECT(I7810) LENGTH(4)
1966	T75AC	1985 ADDRESS. HEX LOCATION(00003442) IN CSECT(I7810) LENGTH(4)
1830	T75B	1946 ADDRESS. HEX LOCATION(00003294) IN CSECT(I7810) LENGTH(2)
1913	T75BB	1841 1843 ADDRESS. HEX LOCATION(000033A6) IN CSECT(I7810) LENGTH(2)
1916	T75CC	1911 ADDRESS. HEX LOCATION(000033AC) IN CSECT(I7810) LENGTH(2)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1919	T75DD	1914 ADDRESS. HEX LOCATION(000033B2) IN CSECT(I7810) LENGTH(2)
1952	T75EE	1917 ADDRESS. HEX LOCATION(0000341C) IN CSECT(I7810) LENGTH(2)
1955	T75FF	1950 ADDRESS. HEX LOCATION(00003422) IN CSECT(I7810) LENGTH(2)
1958	T75GG	1953 ADDRESS. HEX LOCATION(00003428) IN CSECT(I7810) LENGTH(2)
1991	T75HH	1956 ADDRESS. HEX LOCATION(0000348A) IN CSECT(I7810) LENGTH(2)
1994	T75JJ	1989 ADDRESS. HEX LOCATION(00003490) IN CSECT(I7810) LENGTH(2)
1862	T75K	1992 ADDRESS. HEX LOCATION(000032F6) IN CSECT(I7810) LENGTH(6)
1997	T75KK	1854 ADDRESS. HEX LOCATION(00003496) IN CSECT(I7810) LENGTH(2)
1817	T75SS	1995 ADDRESS. HEX LOCATION(00003274) IN CSECT(I7810) LENGTH(2)
1844	T75T	1815 ADDRESS. HEX LOCATION(000032C2) IN CSECT(I7810) LENGTH(2)
1790	T75TC	1824 1920 1959 1998 ADDRESS. HEX LOCATION(0000321A) IN CSECT(I7810) LENGTH(6)
1820	T75TT	1787 ADDRESS. HEX LOCATION(0000327A) IN CSECT(I7810) LENGTH(2)
2012	T75TV	1818 ADDRESS. HEX LOCATION(000034CA) IN CSECT(I7810) LENGTH(4)
1972	T75TW	1975 ADDRESS. HEX LOCATION(00003456) IN CSECT(I7810) LENGTH(4)
1800	T75T1	1936 1969 ADDRESS. HEX LOCATION(00003240) IN CSECT(I7810) LENGTH(4)
1791	T75T2	1788 1790 ADDRESS. HEX LOCATION(00003220) IN CSECT(I7810) LENGTH(4)
1847	T75U	1789 ADDRESS. HEX LOCATION(000032C6) IN CSECT(I7810) LENGTH(4)
1823	T75UU	1829 1833 1925 1929 1933 1935 1965 1971 2003 ADDRESS. HEX LOCATION(00003280) IN CSECT(I7810) LENGTH(2)
1834	T75YY	2006 2010 ADDRESS. HEX LOCATION(000032A0) IN CSECT(I7810) LENGTH(4)
1976	T7534	1821 ADDRESS. HEX LOCATION(000032A0) IN CSECT(I7810) LENGTH(4)
1937	T7535	1795 1807 ADDRESS. HEX LOCATION(0000345E) IN CSECT(I7810) LENGTH(4)
1982	T7578	1980 ADDRESS. HEX LOCATION(000033F0) IN CSECT(I7810) LENGTH(4)
1943	T7579	1941 ADDRESS. HEX LOCATION(00003470) IN CSECT(I7810) LENGTH(4)
2154	T76B	1978 ADDRESS. HEX LOCATION(00003402) IN CSECT(I7810) LENGTH(4)
2160	T76C	1939 ADDRESS. HEX LOCATION(00003576) IN CSECT(I7810) LENGTH(2)
2167	T76E	2148 2152 ADDRESS. HEX LOCATION(00003582) IN CSECT(I7810) LENGTH(2)
2174	T76G	2156 2158 ADDRESS. HEX LOCATION(00003590) IN CSECT(I7810) LENGTH(2)
2187	T76I	2161 2165 ADDRESS. HEX LOCATION(0000359E) IN CSECT(I7810) LENGTH(2)
2214	T76J	2168 2172 ADDRESS. HEX LOCATION(000035AC) IN CSECT(I7810) LENGTH(6)
2213	T76JJ	2175 2179 ADDRESS. HEX LOCATION(000035F8) IN CSECT(I7810) LENGTH(2)
2207	T76K	2211 ADDRESS. HEX LOCATION(000035F4) IN CSECT(I7810) LENGTH(4)
2201	T76M	2216 ADDRESS. HEX LOCATION(000035EC) IN CSECT(I7810) LENGTH(2)
2193	T76O	2202 ADDRESS. HEX LOCATION(000035D8) IN CSECT(I7810) LENGTH(6)
2153	T76OA	2197 2199 ADDRESS. HEX LOCATION(000035C0) IN CSECT(I7810) LENGTH(2)
2166	T76OD	2188 ADDRESS. HEX LOCATION(00003574) IN CSECT(I7810) LENGTH(2)
2173	T76OF	2150 ADDRESS. HEX LOCATION(0000358E) IN CSECT(I7810) LENGTH(2)
2180	T76OH	2163 ADDRESS. HEX LOCATION(0000359C) IN CSECT(I7810) LENGTH(2)
2217	T76OK	2170 ADDRESS. HEX LOCATION(000035AA) IN CSECT(I7810) LENGTH(2)
2225	T76OL	2177 ADDRESS. HEX LOCATION(000035FE) IN CSECT(I7810) LENGTH(4)
2244	T76OM	2215 2221 ADDRESS. HEX LOCATION(00003616) IN CSECT(I7810) LENGTH(4)
2250	T76OP	2229 ADDRESS. HEX LOCATION(00003652) IN CSECT(I7810) LENGTH(4)
2252	T76OQ	2248 ADDRESS. HEX LOCATION(00003662) IN CSECT(I7810) LENGTH(6)
2236	T76OS	2242 ADDRESS. HEX LOCATION(0000366A) IN CSECT(I7810) LENGTH(2)
2235	T76OSS	2223 ADDRESS. HEX LOCATION(0000363A) IN CSECT(I7810) LENGTH(4)
2139	T76O5	2240 ADDRESS. HEX LOCATION(00003634) IN CSECT(I7810) LENGTH(6)
2194	T761	2249 ADDRESS. HEX LOCATION(00003558) IN CSECT(I7810) LENGTH(2)
2200	T762	2136 ADDRESS. HEX LOCATION(000035C2) IN CSECT(I7810) LENGTH(6)
2210	T763	2190 2192 ADDRESS. HEX LOCATION(000035D6) IN CSECT(I7810) LENGTH(2)
2125	T764	2195 ADDRESS. HEX LOCATION(000035EE) IN CSECT(I7810) LENGTH(2)
2140	T766	2204 2206 ADDRESS. HEX LOCATION(0000352A) IN CSECT(I7810) LENGTH(4)
2146	T767	2131 ADDRESS. HEX LOCATION(0000355A) IN CSECT(I7810) LENGTH(2)
2147	T769	2134 2138 ADDRESS. HEX LOCATION(00003566) IN CSECT(I7810) LENGTH(2)
1801	T775	2143 ADDRESS. HEX LOCATION(00003568) IN CSECT(I7810) LENGTH(2)
1328	T7830	2141 2145 ADDRESS. HEX LOCATION(00003244) IN CSECT(I7810) LENGTH(2)
1478	T7831	1802 ADDRESS. HEX LOCATION(00002E22) IN CSECT(I7810) LENGTH(4)
		410 ADDRESS. HEX LOCATION(00002F34) IN CSECT(I7810) LENGTH(4)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
2425	T7832	455 ADDRESS. HEX LOCATION(0000370E) IN CSECT(I7810) LENGTH(4)
2320	T7833	554 ADDRESS. HEX LOCATION(000036BA) IN CSECT(I7810) LENGTH(4)
1239	T7836	440 ADDRESS. HEX LOCATION(00002DB6) IN CSECT(I7810) LENGTH(4)
1779	T7875	491 ADDRESS. HEX LOCATION(000031F6) IN CSECT(I7810) LENGTH(4)
2743	VRDCB	587 ADDRESS. HEX LOCATION(00003A1C) IN CSECT(I7810) LENGTH(2)
2765	WKDCB	3132 ADDRESS. HEX LOCATION(00003A3C) IN CSECT(I7810) LENGTH(2)
2732	WRDCB	3146 3147 3162 3163 ADDRESS. HEX LOCATION(00003A0C) IN CSECT(I7810) LENGTH(2)
2804	WRSID	3135 ADDRESS. HEX LOCATION(00003A82) IN CSECT(I7810) LENGTH(2)
2676	WSDCB	2683 2772 2980 3061 3163 3167 ADDRESS. HEX LOCATION(000039BC) IN CSECT(I7810) LENGTH(2)
2808	WSIDT	3166 3167 3169 3170 ADDRESS. HEX LOCATION(00003A8A) IN CSECT(I7810) LENGTH(2)
792	XE	2976 3147 3170 ABSOLUTE. HEX VALUE(00000024)
790	XI	3347 3409 ABSOLUTE. HEX VALUE(00000022)
3228	XIO	3253 3394 ADDRESS. HEX LOCATION(00003CB8) IN CSECT(I7810) LENGTH(4)
3409	XIOCK	3112 3115 3123 3130 3133 3136 3144 3148 3152 ADDRESS. HEX LOCATION(00003D80) IN CSECT(I7810) LENGTH(2)
3416	XIOCO	1568 1644 1943 1982 3263 ADDRESS. HEX LOCATION(00003D92) IN CSECT(I7810) LENGTH(2)
3233	XIOCS	3414 ADDRESS. HEX LOCATION(00003CC2) IN CSECT(I7810) LENGTH(6)
3418	XIOCV	1026 1185 1536 1836 2490 3425 ADDRESS. HEX LOCATION(00003D96) IN CSECT(I7810) LENGTH(2)
3427	XIOCX	3412 ADDRESS. HEX LOCATION(00003DB0) IN CSECT(I7810) LENGTH(4)
3302	XIOER	3419 ADDRESS. HEX LOCATION(00003D1E) IN CSECT(I7810) LENGTH(2)
3237	XIO1	3433 ADDRESS. HEX LOCATION(00003CD2) IN CSECT(I7810) LENGTH(4)
3250	XIO2	3229 ADDRESS. HEX LOCATION(00003CF8) IN CSECT(I7810) LENGTH(2)
3262	XIO8	3236 ADDRESS. HEX LOCATION(00003D0C) IN CSECT(I7810) LENGTH(2)
65	XTRNL	3267 ABSOLUTE. HEX VALUE(00000001)
2786	ZER00	436 505 541 583 601 607 ADDRESS. HEX LOCATION(00003A5C) IN CSECT(I7810) LENGTH(2)
		3023

***** LAST PAGE *****